

Patient Skin Antisepsis Evidence Table
Recommendation I

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Atkinson Smith Mary, Dahlen Nancy R. Clinical Practice Guideline Surgical Site Infection Prevention. Orthop Nurs. 2013;32(5): 242-248. doi:10.1097/NOR.0b013e3182a39c6b.	Support the nursing practice of providing the patient with instructions for preoperative bathing protocols and advise providing written instructions.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
Bonneville N, Geiss L, Cavalie L, Ibnoukhatib A, Verdeil X, Bonneville P. Skin preparation before hip replacement in emergency setting versus elective scheduled arthroplasty: bacteriological comparative analysis.. Orthopaedics & traumatology, surgery &	Skin flora in emergency hip procedures was more abundant and different, with more pathogenic non-saprotrophic bacteria. Scrubbing with 4% povidone-iodine in inguinal area was insufficient in the emergency group.	IIA	Quasi-experimental	Orthopedic surgery, Hip	Scheduled hip procedures, Preop protocols for two 4% PI whole body showers	Emergency hip procedures, no prewash	62	Bacterial load on skin
Chlebicki MP, Safdar N, O'Horo JC, Maki DG. Preoperative chlorhexidine shower or bath for prevention of surgical site infection: a meta-analysis. Am J Infect Control. 2013;41(2): 167-173.	Analysis doesn't support routine preoperative whole body bathing with CHG to prevent SSI, although low risk and low cost may be worth marginal benefits, more research is needed.	IIA	Systematic Review with meta-analysis	n/a	n/a	n/a	17,932	n/a
Cruse PJ. A five-year prospective study of 23,649 surgical wounds.. Archives of surgery (Chicago.1960). 1973;107(2): 206-10.	Hexachlorophene seemed effective for bathing. SSI rates: no bathing 2.3%, soap 2.1%, antiseptic 1.3%.	IIIA	Non-experimental	Surgical wounds, Canada	n/a	n/a	23,649	SSI
Edmiston CE Jr, Okoli O, Graham MB, Sinski S, Seabrook GR. Evidence for using chlorhexidine gluconate preoperative cleansing to reduce the risk of surgical site infection.. AORN J. 2010;92(5): 509-518.	Evidence has shown that 2% CHG cloths and 4% CHG wash, using a standardized timed process before admission, is effective for reducing SSI.	VB	Literature Review	Adult	n/a	n/a	n/a	n/a
Edmiston CE Jr, Seabrook GR, Johnson CP, Paulson DS, Beausoleil CM. Comparative of a new and innovative 2% chlorhexidine gluconate-impregnated cloth with 4% chlorhexidine gluconate as topical antiseptic for preparation of the skin prior to surgery.. Am J	CHG cloths significantly reduced microbial counts, including abdominal prepped sites, and exceeded FDA testing requirement simulation. 4% CHG failed in inguinal site at 10min, 2% cloths reduced microbial counts better than 4% in inguinal site.	IB	RCT	Healthy volunteers	2% CHG Cloth	4% CHG preparation	30	FDA criteria for preoperative topical skin preparation (Bacterial load on skin)

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Edmiston Jr CE, Krepel CJ, Seabrook GR, Lewis BD, Brown KR, Towne JB. Preoperative Shower Revisited: Can High Topical Antiseptic Levels Be Achieved on the Skin Surface Before Surgical Admission?. J Am Coll Surg. 2008;207(2): 233-239. http://www.scopus.com	2% CHG cloths met effective CHG levels and the cloths had better coverage; 4% CHG soap met effective CHG levels but left gaps in antiseptic coverage.	IB	RCT	Healthy volunteers	2% CHG cloths at morning, evening, and both	4% CHG soap at morning, evening, and both	60	CHG levels on skin
Eiselt D. Presurgical skin preparation with a novel 2% chlorhexidine gluconate cloth reduces rates of surgical site infection in orthopaedic surgical patients.. Orthopaedic Nursing. 2009;28(3): 141-145.	Two washes with 2% CHG cloths, the night and morning before, cut SSI in half for total joint procedures. Need RCT.	VA	Organizational Experience (Quality)	Orthopedic surgery, Total Joint	2% CHG cloth , night before and morning of surgery	Povidone iodine scrub, night before and morning of surgery	727	SSI
Farber NJ, Chen AF, Bartsch SM, Feigel JL, Klatt BA. No infection reduction using chlorhexidine wipes in total joint arthroplasty.. Clinical Orthopaedics & Related Research. 2013;471(10): 3120-3125.	2% CHG wipes in presurgical setting were not associated with reduced SSI. Wipes for total joint arthroplasty are unnecessary.	IIA	Quasi-experimental	Orthopedic surgery, Total Joint	2% CHG wipes, 1 hour before surgery	No bathing protocol	3715	SSI
Graling PR, Vasaly FW. Effectiveness of 2% CHG cloth bathing for reducing surgical site infections.. AORN J. 2013;97(5): 547-551.	Preoperative bathing with 2% CHG for general and vascular surgery patients, statistically significant reduction in overall infection in cloth group.	IIB	Quasi-experimental	General, Vascular, Ortho	2% CHG Cloth baths, >2mo	No bathing protocol	335	SSI
Hedderwick SA, McNeil SA, Lyons MJ, Kauffman CA. Pathogenic organisms associated with artificial fingernails worn by healthcare workers. Infect Control Hosp Epidemiol. 2000;21(8): 505-509. doi:CHE7153 [pii].	The variety and amount of potentially pathogenic bacteria cultured from the fingertips of health care personnel wearing artificial nails was greater than for those with natural nails, both before and after hand washing.	IIB	Quasi-experimental	Healthcare Workers	Artificial Nails	Natural Nails	60	Frequency of isolation, Quantity of organisms
Jakobsson J, Perlkvist A, Wann-Hansson C. Searching for evidence regarding using preoperative disinfection showers to prevent surgical site infections: a systematic review. Worldviews on Evidence-Based Nursing. 2011;8(3): 143-152.	Missing evidence on number of showers that are best to prevent SSI. Wise to follow previous recommendation of 3-5 showers in meantime.	IIA	Systematic Review	n/a	n/a	n/a	n/a	n/a
Johnson AJ, Daley JA, Zywiell MG, Delanois RE, Mont MA. Preoperative chlorhexidine preparation and the incidence of surgical site infections after hip arthroplasty. J Arthroplasty. 2010;25(6 Suppl): 98-102.	Home washing with CHG cloths appeared to be simple and cost effective method to reduce hip SSI rates.	IIB	Quasi-experimental	Orthopedic surgery, Total Hip	2% CHG wipes, night before and morning of surgery	No bathing protocol	1134	SSI, Compliance with Bathing
Johnson AJ, Kapadia BH, Daley JA, Molina CB, Mont MA. Chlorhexidine reduces infections in knee arthroplasty.. The Journal of Knee Surgery. 2013;26(3): 213-218.	Less SSI in the group using CHG cloths. Preadmission CHG protocol seems to be effective to prevent SSI in total knee procedures.	IIB	Quasi-experimental	Orthopedic surgery, Total Knee	2% CHG wipes, night before and morning of surgery	No bathing protocol	2213	SSI, Compliance with Bathing

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Kamel C, McGahan L, Polisen J, Mierzwinski-Urban M, Embil JM. Preoperative skin antiseptic preparations for preventing surgical site infections: a systematic review. Infection Control & Hospital Epidemiology. 2012;33(6): 608-617.	Antiseptic showers reduce colonization and may prevent SSI, but data is inconclusive on effectiveness and which antiseptic is best	IIA	Systematic Review	n/a	n/a	n/a	n/a	n/a
Kapadia BH, Johnson AJ, Daley JA, Issa K, Mont MA. Pre-admission cutaneous chlorhexidine preparation reduces surgical site infections in total hip arthroplasty. J Arthroplasty. 2013;28(3): 490-493.	Less SSI in the group using CHG cloths. Preadmission CHG protocol seems to be effective to prevent SSI in total hip procedures.	IIB	Quasi-experimental	Othopedic surgery, Total Hip	2% CHG cloths, night before and morning of surgery	No bathing protocol	2545	SSI
Kapadia BH, Issa K, McElroy MJ, Pivec R, Daley JA, Mont MA. Advance pre-operative chlorhexidine preparation reduces periprosthetic infections following total joint arthroplasty. Semin Arthroplasty. 2013;24(2): 83-86.	Cloths may be more effective than other methods to lower SSI in lower total joint procedures, cloths in advance (SSI 0.5%, 0.6%) vs no bathing protocol in advance (SSI 1.7%, 2.2%)	IIA	Quasi-experimental	Orthopedic surgery, Total Joint	2% CHG cloths, night before and morning of surgery	No bathing protocol	4671	SSI
Kapadia BH, Johnson AJ, Issa K, Mont MA. Economic evaluation of chlorhexidine cloths on healthcare costs due to surgical site infections following total knee arthroplasty. J Arthroplasty. 2013;28(7): 1061-1065.	Chlorhexidine cloths before total knee procedure, and possibly other procedures, has potential to reduce cost of healthcare by reducing incidence of SSI.	VA	Organizational Experience (Cost)	Orthopedic surgery, Total Knee	n/a	n/a	n/a	n/a
Karki S, Cheng AC. Impact of non-rinse skin cleansing with chlorhexidine gluconate on prevention of healthcare-associated infections and colonization with multi-resistant organisms: a systematic review. J Hosp Infect. 2012;82(2): 71-84. doi:10.1016/j.jhin.2012.07.005 [doi].	Non-rinse CHG application significantly reduces the risk of CLABSI, SSI and colonization with VRE or MRSA, but not infection. Recommended additional studies to confirm their findings because of the observational nature of the studies and variations in the quality of data collection and analysis.	IIIA	Systematic Review with meta-analysis	n/a	n/a	n/a	not reported	n/a
Leclair JM, Winston KR, Sullivan BF, O'Connell JM, Harrington SM, Goldmann DA. Effect of preoperative shampoos on resident scalp flora. Today's OR Nurse. 1988;10(3): 15-21.	Preoperative shampoos suppressed resident flora on scalp, CHG may be better than iodophors because of residual effect.	IB	RCT	Neurosurgery, >1mo	1. Shampoo CHG, prep CHG; 2. No shampoo, prep CHG;	3. Shampoo PI, prep PI; 4. No shampoo, prep PI	151	Scalp cultures, wound cultures, SSI
McNeil SA, Foster CL, Hedderwick SA, Kauffman CA. Effect of hand cleansing with antimicrobial soap or alcohol-based gel on microbial colonization of artificial fingernails worn by health care workers. Clin Infect Dis. 2001;32(3): 367-372.	Significantly more HCWs with artificial nails than controls had pathogens remaining after hand cleansing with soap or gel.	IIA	Quasi-experimental	Healthcare Workers	Artificial Nails	Natural Nails	41	Hand and Nail cultures

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Murray MR, Saltzman MD, Gryzlo SM, Terry MA, Woodward CC, Nuber GW. Efficacy of preoperative home use of 2% chlorhexidine gluconate cloth before shoulder surgery. <i>Journal of Shoulder & Elbow Surgery</i> . 2011;20(6):928-933.	Cloths may be useful adjunct to reduce bacterial contamination of skin.	IA	RCT	Orthopedic surgery, Shoulder	2% CHG cloths, night before after shower	Soap and water	100	Bacterial load on skin
Ng AB, Adeyemo FO, Samarji R. Preoperative footbaths reduce bacterial colonization of the foot.. <i>Foot & Ankle International</i> . 2009;30(9): 860-864.	CHG foot bath and prep before foot ankle surgery should be done	IB	RCT	Orthopedic surgery, Foot	CHG footbath 20min before surgery	Placebo	44	cultures
NICE. Surgical site infection. Accessed on 12/9/2013.	Shower or bath with soap the day of or before, antiseptic use inconclusive.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
Rotter ML, Larsen SO, Cooke EM, et al. A comparison of the effects of preoperative whole-body bathing with detergent alone and with detergent containing chlorhexidine gluconate on the frequency of wound infections after clean surgery. <i>The European Working</i>	Preoperative bathing had no effect on SSI.	IA	RCT	Adults, Clean Surgery	2 baths, whole body CHG	2 baths, whole body placebo	2813	SSI
Society for Healthcare Epidemiology of America. STRATEGIES TO PREVENT SURGICAL SITE INFECTIONS IN ACUTE CARE HOSPITALS -- 2013 update. .	CHG for preoperative bathing is unresolved, reduces skin contamination but not shown to reduce SSI.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
Tanner Judith, Gould Dinah, Jenkins Philip, Hilliam Rachel, Mistry Neetesh, Walsh Susannah. A fresh look at preoperative body washing. <i>J INFECT PREV</i> . 2012;13(1): 11-15. doi:10.1177/1757177411428095.	CHG preop body wash more effective than soap in reducing CFU immediately and at 6hrs, CHG > Octenisan in groin	IB	RCT	Healthy volunteers	1. 4% CHG 2. Octenisan	3. Plain soap	60	Skin Culture
Veiga DF, Damasceno CA, Veiga Filho J, et al. Influence of povidone-iodine preoperative showers on skin colonization in elective plastic surgery procedures.. <i>Plastic & Reconstructive Surgery</i> . 2008;121(1): 115-118.	Single PI showers (2hrs before surgery) are effective in reducing staph colonization for clean plastic procedures on thorax and abdomen.	IA	RCT	Clean plastic procedures	10% PI shower 2 hours before surgery	No instruction	114	Skin Culture
Veiga DF, Damasceno CA, Veiga-Filho J, et al. Randomized controlled trial of the effectiveness of chlorhexidine showers before elective plastic surgical procedures.. <i>Infection Control & Hospital Epidemiology</i> . 2009;30(1): 77-79.	CHG showers effective in reducing skin contamination with CNS, but no difference in postop infections.	IB	RCT	Clean plastic procedures	1. 4% CHG shower 2 hrs before surgery	2. Placebo 3. No instruction	150	Skin Culture SSI
Webster J, Osborne S. Preoperative bathing or showering with skin antiseptics to prevent surgical site infection. <i>Cochrane Database Syst Rev</i> . 2012;(9).	No clear best wash product to use to reduce SSI.	IA	Systematic Review with meta-analysis	n/a	n/a	n/a	10157	n/a

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Zywiell MG, Daley JA, Delanois RE, Naziri Q, Johnson AJ, Mont MA. Advance pre-operative chlorhexidine reduces the incidence of surgical site infections in knee arthroplasty.. Int Orthop. 2011;35(7): 1001-1006.	Using CHG cloths the night before and morning of elective knee arthroplasty appeared to reduce SSI when compared to in-hospital skin prep only.	IIB	Quasi-experimental	Orthopedic surgery, Knee	2% CHG cloths, 2 baths night before and morning of surgery	No bathing protocol	912	SSI

Recommendation II

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Atkinson Smith Mary, Dahlen Nancy R. Clinical Practice Guideline Surgical Site Infection Prevention. Orthop Nurs. 2013;32(5): 242-248. doi:10.1097/NOR.0b013e3182a39c6b.	If removed, hair should be clipped just before incision.	IVB	Guideline	Orthopedic surgery	n/a	n/a	n/a	n/a
Broekman ML, van Beijnum J, Peul WC, Regli L. Neurosurgery and shaving: what's the evidence?. J Neurosurg. 2011;115(4): 670-678.	There is no evidence to suggest that hair should be removed routinely in neurosurgery. Shaving may increase infection, more is research needed.	IIIA	Systematic Review	Neurosurgery	n/a	n/a	n/a	n/a
Celik SE, Kara A. Does shaving the incision site increase the infection rate after spinal surgery?.. Spine. 2007;32(15): 1575-1577.	Shaving with a razor immediately before skin preparation increases SSI in spine procedures.	IA	RCT	Spine	Razor	No Hair Removal	789	Infection
Cruse PJ. A five-year prospective study of 23,649 surgical wounds.. Archives of surgery (Chicago.1960). 1973;107(2): 206-10.	Shaving should be kept to a minimum. Infection rates results: shave 2.3%, clip 1.7%, no removal 0.9%.	IIIA	Non-experimental	Adult	n/a	n/a	23,649	Infection
Grober ED, Domes T, Fanipour M, Copp JE. Preoperative hair removal on the male genitalia: clippers vs. razors.. Journal of Sexual Medicine. 2013;10(2): 589-594.	Hair removal with razor on scrotum caused less skin trauma and better quality hair removal than clippers, with no apparent increase in SSI.	IB	RCT	GU	Clipping	Shaving with Razor	217	Quality of hair removal; Skin trauma
Jose B, Dignon A. Is there a relationship between preoperative shaving (hair removal) and surgical site infection?. Journal of Perioperative Practice. 2013;23(1-2): 22-25.	Clipping and depilatory products cause less wound infections. Guidelines and patient needs should take priority over ritualistic hair removal procedures.	VB	Literature Review	Adult	n/a	n/a	n/a	n/a
Ng W, Alexander D, Kerr B, Ho MF, Amato M, Katz K. A hairy tale: successful patient education strategies to reduce prehospital hair removal by patients undergoing elective caesarean section.. J Hosp Infect. 2013;83(1): 64-67.	The rate of patient's self hair removal improved from 41% (2008) to 27% (2011) by educational campaign of posters and prenatal education. All prenatal patients were instructed not to shave after 36weeks gestation. The researchers showed a decrease in SSI using this education as part of a multimodal approach of EBP implementation.	IIIB	Non-experimental	Adult, Cesarean Section	Educational campaign	n/a	n/a	Compliance
NICE. Surgical site infection. Accessed on 12/9/2013.	Do not remove hair routinely to reduce SSI. Do not use razors. If hair must be removed, use single use clippers.	IVA	Guideline	Adult	n/a	n/a	n/a	n/a
Sebastian S. Does preoperative scalp shaving result in fewer postoperative wound infections when compared with no scalp shaving? A systematic review. Journal of Neuroscience Nursing. 2012;44(3): 149-156.	Cranial surgeries should be performed without shaving.	IIIA	Systematic Review	Adult, Neurosurgery	n/a	n/a	n/a	n/a
Deverick JAnderson MD MPH, Keith SKaye MD, David Classen MD MS, et al. Strategies to Prevent Surgical Site Infections in Acute Care Hospitals. Infect Control Hosp Epidemiol. 2008;2(9 Suppl 1): 51-61. doi:10.1086/591060; 10.1086/591060.	Do not remove hair unless it interferes with the procedure. Do not use razor to remove hair. If hair must be removed, then use clipping or depilatory methods.	IVA	Guideline	Adult	n/a	n/a	n/a	n/a

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Tanner J, Norrie P, Melen K. Preoperative hair removal to reduce surgical site infection. Cochrane Database of Systematic Reviews. 2011;(11): 004122.	No trials for clip v depilatory, depilatory at different time points, or removal in different settings. No statistical difference in SSI rates, and insufficient sample available. Evidence suggests clippers may be associated with less SSI than razors.	IA	Systematic Review with meta-analysis	Adult	n/a	n/a	972: Hair Removal methods 1343: shaving vs clipping 1213: shaving vs depilatory	n/a

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Abdullah Al Maqbali M. Preoperative antiseptic skin preparations and reducing SSI.. British Journal of Nursing. 2013;22(21): 1227-1233.	Chlorhexidine with alcohol may be most effective for reducing SSI.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a
Adachi A, Fukunaga A, Hayashi K, Kunisada M, Horikawa T. Anaphylaxis to polyvinylpyrrolidone after vaginal application of povidone-iodine. Contact Dermatitis. 2003;48(3): 133-136. doi:050 [pii]. [The AORN	A woman with repeated urticaria on the scalp developed sensitization to PVP and experienced anaphylaxis after vaginal application of povidone-	VA	Case Report	n/a	n/a	n/a	1	n/a
Afsar FS. Skin care for preterm and term neonates. Clinical & Experimental Dermatology. 2009;34(8): 855-858.	Immature neonatal epidermis and drug metabolism predispose neonates to skin injury and percutaneous toxicity.	VA	Literature Review	Neonates	n/a	n/a	n/a	n/a
Amer-Alshiek J, Alshiek T, Almog B, et al. Can we reduce the surgical site infection rate in cesarean sections using a chlorhexidine-based antiseptic protocol?.. Journal of Maternal-Fetal & Neonatal Medicine. 2013;26(17): 1749-	Antisepsis for cesarean sections with CHG-alcohol had significantly less SSI than povidone-iodine scrub with PI-alcohol paint.	IIIB	Non-experimental	Adults, Cesarean Section	CHG 2% and Alcohol 70%	PI 10% Scrub and PI 10% in 65% alcohol	326	SSI
American Academy of Allergy Asthma and Immunology. AAAAI Position Statement: The Risk of Severe Allergic Reactions from the Use of Potassium Iodide for Radiation Emergencies. Accessed on November 8.	Contact dermatitis caused by topically applied iodine-containing antibacterials does not indicate an allergy to iodine. Anaphylaxis to these preparations is exceedingly	IVB	Position Statement	n/a	n/a	n/a	n/a	n/a
American College of Obstetricians and Gynecologists Women's Health Care Physicians, Committee on Gynecologic Practice. Committee Opinion No. 571: Solutions for surgical preparation of the	Committee recommends off-label use of 4% CHG with low alcohol content (eg, 4%) as a safe and effective alternative for vaginal preparation when	IVB	Position Statement	Adults, Gynecological	n/a	n/a	n/a	n/a
Amstey MS, Jones AP. Preparation of the vagina for surgery. A comparison of povidone-iodine and saline solution. JAMA. 1981;245(8): 839-841.	Sterile saline for vaginal antisepsis was as effective as povidone-iodine.	IIIB	Non-experimental	Adults, Gynecological	PI 10%	Saline	33	Culture

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AORN. Recommended practices for product selection in perioperative practice settings. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN; 2013: 197-204. [Original document cites 2006 RP.]	Guidance for product selection.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
Asghania M, Mirblouk F, Shakiba M, Faraji R. Preoperative vaginal preparation with povidone-iodine on post-caesarean infectious morbidity.. Journal of Obstetrics & Gynaecology. 2011;31(5): 400-403.	Vaginal prep with PI on cesarean section may decrease the risk of endometritis.	IIA	Quasi-experimental	Adults, Cesarean Section	Vaginal antiseptis for 30s using PI 10%	No vaginal antiseptis	568	Febrile morbidity, endometritis, wound infection
Atkinson Smith Mary, Dahlen Nancy R. Clinical Practice Guideline Surgical Site Infection Prevention. Orthop Nurs. 2013;32(5): 242-248. doi:10.1097/NOR.0b013e3182a39c6b.	Recommend using povidone-iodine, iodine-based alcohol, or CHG for preoperative skin antiseptis.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
Baillif S, Roure-Sobas C, Le-Duff F, Kodjikian L. Aqueous humor contamination during phacoemulsification in a university teaching hospital.. Journal Francais d Ophthalmologie. 2012;35(3): 153-156.	Careful antiseptis can lower anterior chamber contamination.	IIIB	Non-experimental	Eye	Antiseptis with 5% PI & Sterile Tech	n/a	113	Anterior chamber cultures; Endophthamitis
Becerro de Bengoa Vallejo R, Losa Iglesias ME, Alou Cervera L, Sevillano Fernandez D, Prieto Prieto J. Preoperative skin and nail preparation of the foot: comparison of the efficacy of 4 different methods in reducing	Nails on the foot had some contamination with all preparation techniques, although the comination of alcohol and povidone-iodine had the best	IB	RCT	Orthopedic surgery, Foot/Ankle	4 methods: (1) 5min scrub 7.5% PI, paint 10% PI; (2) same as #1, with 3min	(3) 5min scrub 4% CHG. paint with 70% alcohol; (4) immersion in	28	Bacterial load
Below H, Behrens-Baumann W, Bernhardt C, Volzke H, Kramer A, Rudolph P. Systemic iodine absorption after preoperative antiseptis using povidone-iodine in cataract surgery-- an open controlled study..	Presurgical conjunctival antiseptis can be achieved with 1.25%PVP-I. Periorbital antiseptis with iodine cannot be recommended until data on thyroid metabolism is	IIIB	Quasi-experimental	Eye	5 methods variations of PVP-I dilutions in the conjunctiva and periorbital area	n/a	163	Urine iodine excretion
Berry AR, Watt B, Goldacre MJ, Thomson JW, McNair TJ. A comparison of the use of povidone-iodine and chlorhexidine in the prophylaxis of postoperative wound infection. J Hosp Infect. 1982;3(1): 55-63.	No one gold standard for preoperative skin antiseptis.	IB	RCT	Adults, Clean Surgery	10 % Povidone-iodine in alcohol	0-5% CHG in alcohol	866	Cultures, SSI

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Bibbo C, Patel DV, Gehrman RM, Lin SS. Chlorhexidine provides superior skin decontamination in foot and ankle surgery: a prospective randomized study. Clin Orthop Relat Res. 2005;438: 204-208.	CHG scrub and alcohol paint provided better bacterial reduction than povidone iodine.	IB	RCT	Orthopedic surgery, Foot/Ankle	7.5% PI scrub, 10% PI paint	4% CHG scrub, 70% alcohol paint	121	Bacterial load
Bryant WP, Zimmerman D. Iodine-induced hyperthyroidism in a newborn. Pediatrics. 1995;95(3): 434-436.	22-day old infant with iodine induced hyperthyroidism following mediastinal lavage with povidone-iodine.	VB	Case Report	Neonates	n/a	n/a	n/a	n/a
Centers for Medicare & Medicaid Services. State Operations Manual Appendix A—Survey Protocol, Regulations and Interpretive Guidelines for Hospitals. Rev. 89. 2013.	Alcohol-based skin preparations are considered the most effective and rapid-acting skin antiseptic, but they are also flammable and contribute to the risk of fire.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Centers for Medicare & Medicaid Services. State Operations Manual Appendix L - Guidance for Surveyors: Ambulatory Surgical Centers. Rev. 89. 2013.	Alcohol-based skin preparations are considered the most effective and rapid-acting skin antiseptic, but they are also flammable and contribute to the risk of fire.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Chou SF, Lin CH, Chang SW. Povidone-iodine application induces corneal cell death through fixation.. Br J Ophthalmol. 2011;95(2): 277-283.	Prolonged contact of povidone-iodine in the eye should be avoided.	IIIB	Non-experimental	Eye Laboratory	0.1-5% povidone iodine applied to cultured corneal cells.	n/a	n/a	Cellular changes
Darouiche RO, Wall MJ Jr, Itani KM, et al. Chlorhexidine-Alcohol versus Povidone-Iodine for Surgical-Site Antisepsis.. N Engl J Med. 2010;362(1): 18-26.	Antisepsis with CHG-alcohol was superior to aqueous 10% PI for reduction of SSI after clean-contaminated surgery.	IA	RCT	Adults, Clean-Contaminated	2% CHG with 70% alcohol	Aqueous 10% PI	849	SSI, Types of SSI
Digison MB. A review of anti-septic agents for pre-operative skin preparation. Plastic Surgical Nursing. 2007;27(4): 185-189.	Perioperative RNs should be informed of antiseptic product characteristics and select products based on efficacy and safety.	VB	Literature Review	n/a	n/a	n/a	n/a	n/a

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Dumville JC, McFarlane E, Edwards P, Lipp A, Holmes A. Preoperative skin antiseptics for preventing surgical wound infections after clean surgery. Cochrane Database of Systematic Reviews. 2013;3: 003949.	No clear best product for preoperative skin antiseptics. Quality issues with existing studies. Further research is needed.	IA	Systematic Review with Meta-analysis	Adults, Clean Surgery	n/a	n/a	2623	n/a
Eason E, Wells G, Garber G, et al. Antisepsis for abdominal hysterectomy: a randomised controlled trial of povidone-iodine gel. BJOG. 2004;111(7): 695-699. doi:10.1111/j.1471-0528.2004.00170.x.	Povidone-iodine gel for vaginal antisepsis in abdominal hysterectomy decreased the risk of abscess, but did not show a statistically significant reduction in	IA	RCT	Adults, Gynecological	PI Gel	No	1570	SSI
Edmiston CE Jr, Bruden B, Rucinski MC, Henen C, Graham MB, Lewis BL. Reducing the risk of surgical site infections: does chlorhexidine gluconate provide a risk reduction benefit?. Am J Infect Control. 2013;41(5 Suppl): S49-55.	CHG is effective as an antiseptic, although further studies are needed to assess safety in young infants less than 2 months of age.	VB	Literature Review	n/a	n/a	n/a	n/a	n/a
Garvey LH, Roed-Petersen J, Husum B. Anaphylactic reactions in anaesthetised patients - four cases of chlorhexidine allergy. Acta Anaesthesiol Scand. 2001;45(10): 1290-1294.	4 patients presented with serious allergic reactions to CHG in operative procedures. Allergy to CHG may have been overlooked due to nature of reaction and lack	VA	Case Report	n/a	n/a	n/a	n/a	n/a
Guzman Melissa A, Prien Samuel D, Blann David W. Post-cesarean related infection and vaginal preparation with povidone-iodine revisited. Prim Care Update Ob Gyns. 2002;9(6): 206-209.	Vaginal preparation with povidone iodine before cesarean section significantly reduced postoperative endometritis.	IB	RCT	Adults, Cesarean Section	Povidone-iodine	Saline	160	SSI (endometritis), Cellulitis
Haas DM, Morgan S, Contreras K. Vaginal preparation with antiseptic solution before cesarean section for preventing postoperative infections. Cochrane Database of Systematic Reviews. 2013;1: 007892.	Vaginal antisepsis with povidone-iodine immediately before cesarean section reduces the risk of postoperative endometritis.	IB	Systematic Review with Meta-analysis	Adults, Cesarean Section	n/a	n/a	1946	n/a
Haas DM, Pazouki F, Smith RR, et al. Vaginal cleansing before cesarean delivery to reduce postoperative infectious morbidity: a randomized, controlled trial.. American Journal of Obstetrics & Gynecology.	Although not statistically significant, vaginal cleansing with povidone-iodine before cesarean section may reduce postoperative morbidity.	IB	RCT	Adults, Cesarean Section	1% povidone iodine, 3 soaked sponge sticks	No vaginal antisepsis	300	Postoperative fever, endometritis, sepsis, readmission,

Recommendation III

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Hadiati DR, Hakimi M, Nurdiati DS. Skin preparation for preventing infection following caesarean section. <i>Cochrane Database of Systematic Reviews</i> . 2012;9: 007462.	More research needed to determine the ideal skin preparation techniques to reduce SSI after cesarean section.	IA	Systematic Review with Meta-analysis	Adults, Cesarean Section	n/a	n/a	1462	n/a
Harpin V, Rutter N. Percutaneous alcohol absorption and skin necrosis in a preterm infant. <i>Arch Dis Child</i> . 1982;57(6): 477-479. [The AORN Library does not have access to this issue of this journal.]	27 week infant developed severe skin necrosis and lethal systemic absorption of alcohol after skin antisepsis with methylated alcohol.	VA	Case Report	Neonates	n/a	n/a	1	n/a
Hemani ML, Lepor H. Skin preparation for the prevention of surgical site infection: which agent is best?.. <i>Reviews in Urology</i> . 2009;11(4): 190-195.	Aqueous povidone iodine is preferred for preoperative antisepsis on mucous membranes, and alcohol based antiseptics are ideal for longer procedures with	VB	Literature Review	n/a	n/a	n/a	n/a	n/a
Hort KR, DeOrio JK. Residual bacterial contamination after surgical preparation of the foot or ankle with or without alcohol. <i>Foot Ankle Int</i> . 2002;23(10): 946-948.	The inclusion of alcohol with povidone-iodine added no benefit.	IB	RCT	Orthopedic surgery, Foot/Ankle	Povidone-iodine	Povidone-iodine and 70% alcohol	49	Bacterial load
Huang SW. Seafood and iodine: An analysis of a medical myth. <i>Allergy Asthma Proc</i> . 2005;26(6):468-469.	Seafood allergy is not related to iodine allergy.	IIIC	Non-experimental	n/a	n/a	n/a	n/a	n/a
Khan RA, Kazi T, O'Donohoe B. Near fatal intra-operative anaphylaxis to chlorhexidine--is it time to change practice?.. <i>BMJ Case Reports</i> . 2011;2011.	49 year old man experienced anaphylactic reaction to CHG applied to urethra.	VA	Case Report	n/a	n/a	n/a	1	n/a
Lashkari HP, Chow P, Godambe S. Aqueous 2% chlorhexidine-induced chemical burns in an extremely premature infant.. <i>Archives of Disease in Childhood Fetal & Neonatal Edition</i> . 2012;97(1): F64.	Neonate experienced chemical burns after skin antisepsis with 2% CHG.	VB	Case Report	Neonates	n/a	n/a	1	n/a

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Lavelle KJ, Doedens DJ, Kleit SA, Forney AB. Iodine absorption in burn patients treated topically with povidone-iodine. Clin Pharmacol Ther. 1975;17(3):355-362.	Burn patients with repeated exposure with povidone-iodine systemically absorb iodine.	VB	Case Report	Burn Patients	n/a	n/a	n/a	n/a
Lee I, Agarwal RK, Lee BY, Fishman NO, Umscheid CA. Systematic review and cost analysis comparing use of chlorhexidine with use of iodine for preoperative skin antisepsis to prevent surgical site infection. Infection	Preoperative antisepsis with CHG is more effective than povidone-iodine for reducing SSI and resulted in cost savings.	IA	Systematic Review with Meta-analysis	n/a	n/a	n/a	3614	n/a
Lewis LA, Lathi RB, Crochet P, Nezhad C. Preoperative vaginal preparation with baby shampoo compared with povidone-iodine before gynecologic procedures.. Journal of Minimally Invasive Gynecology. 2007;14(6):	Baby shapoo is as effective as povidone-iodine for antisepsis before gynecological procedures for preventing postoperative infections.	IIA	Quasi-experimental	Adults, Gynecological	Shampoo 1:10	PI 7.5%	249	SSI
Li B, Nentwich MM, Hoffmann LE, et al. Comparison of the efficacy of povidone-iodine 1.0%, 5.0%, and 10.0% irrigation combined with topical levofloxacin 0.3% as preoperative prophylaxis in cataract surgery.. Journal of	10% povidone-iodine was more effective than 1% and 5% PI for reducing conjunctival bacterial load before surgery.	IA	RCT	Eye	PI- 1%, 5%, 10%	n/a	271	Bacterial load
Lim K-S, Kam PCA. Chlorhexidine - Pharmacology and clinical applications. Anaesth Intensive Care. 2008;36(4): 502-512. http://www.scopus.com/inward/record.url?eid=2-s2.0-	CHG is an effective antiseptic.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a
Linder N, Davidovitch N, Reichman B, et al. Topical iodine-containing antiseptics and subclinical hypothyroidism in preterm infants. J Pediatr. 1997;131(3): 434-439. doi:S0022347697003764 [pii].	Iodine absorption from topical iodine-containing antiseptics may cause disturbances in thyroid function test results in premature infants.	IIIA	Non-experimental	Neonates	Iodine antiseptics	CHG antiseptics	128	Throxine and thyrotropin levels
Maiwald M, Chan ES-Y. The Forgotten Role of Alcohol: A Systematic Review and Meta-Analysis of the Clinical Efficacy and Perceived Role of Chlorhexidine in Skin Antisepsis. PLoS ONE. 2012;7(9).	Role of alcohol in antiseptics has been overlooked. Perceived efficacy of CHG may be the efficacy of CHG-alcohol combinations.	IIA	Systematic Review with Meta-analysis	n/a	n/a	n/a	2586	n/a

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Menderes G, Athar Ali N, Aagaard K, Sangi-Haghpeykar H. Chlorhexidine-alcohol compared with povidone-iodine for surgical-site antiseptics in cesarean deliveries.. <i>Obstetrics & Gynecology</i> . 2012;120(5): 1037-	Skin antiseptics with PI was equally efficacious to CHG-alcohol antiseptics.	IIA	Quasi-experimental	Adults, Cesarean Section	Povidone-iodine	CHG-alcohol	1,000	SSI within 30 days
Murkin CE. Pre-operative antiseptic skin preparation.. <i>British Journal of Nursing</i> . 2009;18(11): 665-669.	Perioperative RNs should emphasize the importance of skin preparation and the correct application techniques.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a
NICE. Surgical site infection. Accessed on 12/9/2013.	The most effective antiseptic for skin preparation before surgical incision remains uncertain, povidone-iodine or chlorhexidine are most suitable.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
Nishihara Y, Kajiura T, Yokota K, Kobayashi H, Okubo T. Evaluation with a focus on both the antimicrobial efficacy and cumulative skin irritation potential of chlorhexidine gluconate alcohol-containing preoperative skin	CHG-alcohol demonstrated persistent effect. 1% CHG-alcohol also has low skin irritation potential.	IB	RCT	Healthy volunteer	1% and 2% CHG and alcohol	PI 10%	55	Cultures: Log reduction and persistence
Noorani A, Rabey N, Walsh SR, Davies RJ. Systematic review and meta-analysis of preoperative antiseptics with chlorhexidine versus povidone-iodine in clean-contaminated surgery. <i>Br J Surg</i> . 2010;97(11): 1614-1620.	CHG is preferred for antiseptics before clean-contaminated procedures.	IIB	Systematic Review with Meta-analysis	Adults, Clean-Contaminated	n/a	n/a	5031	n/a
Ostrander RV, Botte MJ, Brage ME. Efficacy of surgical preparation solutions in foot and ankle surgery. <i>J Bone Joint Surg Am</i> . 2005;87(5): 980-985. doi:10.2106/JBJS.D.01977.	CHG-alcohol was the most effective for reducing bacterial load on the foot.	IA	RCT	Orthopedic surgery, Foot/Ankle	PI-alcohol (Duraprep), CHG-alcohol (Chloraprep), and PCMX	n/a	125	Bacterial load
Ou JI, Ta CN. Endophthalmitis prophylaxis. <i>Ophthalmol Clin North Am</i> . 2006;19(4): 449-456.	5% povidone-iodine for conjunctival irrigation reduces conjunctival bacterial flora and endophthalmitis.	VA	Literature Review	Eye	n/a	n/a	n/a	n/a

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CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Paocharoen V, Mingmalairak C, Apisarnthanarak A. Comparison of surgical wound infection after preoperative skin preparation with 4% chlorhexidine [correction of chlohexidine] and povidone iodine: a	CHG-alcohol significantly reduced bacterial colonization and wound infections.	IB	RCT	n/a	PI scrub and paint	CHG 4% in 70% alc	500	Culture, SSI
Pietsch, J, Meakins, JL. Complications of povidone-iodine absorption in topically treated burn patients. Lancet. 1976;1(7954):280-2.	2 burn patients developed metabolic acidosis after topical treatment with povidone iodine.	VA	Case Report	n/a	n/a	n/a	n/a	n/a
Pyati SP, Ramamurthy RS, Krauss MT, Pildes RS. Absorption of iodine in the neonate following topical use of povidone iodine. J Pediatr. 1977;91(5): 825-828.	Topical application of povidone-iodine in neonates resulted in high iodine plasma levels, although no significant alteration in thyroid function was seen.	IIB	Quasi-experimental	Neonates	4 groups of varying iodine exposure, including a control group.	n/a	40	Plasma iodine, Thyroid function labs
Quatresooz P, Xhaufaire-Uhoda E, Pierard-Franchimont C, Pierard GE. Regional variability in stratum corneum reactivity to antiseptic formulations.. Contact Derm. 2007;56(5): 271-273.	Skin does not react in an identical way to the action of chemicals over all anatomic sites, and irritancy varies.	IIIB	Non-experimental	Healthy volunteer	PVP 70mg/ml, 100mg/ml, and CHG 50mg/ml	n/a	30	Stratum corneum reactivity
Quiroga LP, Lansingh V, Laspina F, et al. A prospective study demonstrating the effect of 5% povidone-iodine application for anterior segment intraocular surgery in Paraguay.. Arq Bras Oftalmol. 2010;73(2): 125-128.	Conjunctival irrigation with a 5% povidone-iodine solution effectively reduces conjunctival flora.	IIA	Quasi-experimental	Eye	5% PI irrigation, cultures taken at 3 time points	n/a	224	Bacterial load
Rath, Th, G Meissl, and M WeisseL. Induction of hyperthyroidism in burn patients treated topically with povidone iodine. Burns. 14.4 (1988): 320-322.	2 burn patients presented with hyperthermia after application of povidone iodine.	VA	Case Report	Burn Patients	n/a	n/a	2	n/a
Razavi B, Zollinger R, Kramer A, et al. Systemic iodine absorption associated with the use of preoperative ophthalmic antiseptics containing iodine.. Cutaneous & Ocular Toxicology. 2013;32(4): 279-282.	Conjunctival and perioperbital application of 1.25% povidone-iodine resulted in no significant ioduria, although 10% PI did show significant ioduria. Iodism from	IIB	Quasi-experimental	Eye	1.25% PI, 10% PI	Iodine-free antiseptic	241	Ioduria

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Roberts A Wilcox K Devineni R Osevala M. Skin preparation in CABG surgery: A randomized control trial. Comp Surg. 1995;14(6): 724, 741-44, 747.	Infection rates were not significantly different, but the iodophor-alcohol group showed a trend toward reduced infection than the povidone-iodine group.	IB	RCT	Adults, Cardiac	1-step iodophor-alcohol, water insoluble product	PI Scrub and Paint	200	SSI
Safety Alerts for Human Medical Products > Over-the-Counter Topical Antiseptic Products: Drug Safety Communication - FDA Requests Label Changes and Single-Use Packaging to Decrease Risk of Infection. Accessed on	Antiseptics should be packed in single use packaging, to be used one time for one patient. Antiseptics should not be diluted.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Saltzman MD, Nuber GW, Gryzlo SM, Marecek GS, Koh JL. Efficacy of surgical preparation solutions in shoulder surgery.. Journal of Bone & Joint Surgery - American Volume. 2009;91(8): 1949-1953.	Chloraprep was more effective than Duraprep and PI for eliminating bacteria (CNS) on the shoulder, and PI was least effective against CNS.	IA	RCT	Orthopedic surgery, Shoulder	3 preps	Chloraprep v duraprep v PI	150	Cultures
Sanders TH, Hawken SM. Chlorhexidine burns after shoulder arthroscopy. American Journal of Orthopedics (Chatham, Nj). 2012;41(4): 172-174.	Increased potential for skin irritation (chemical burns in 3 patients) to CHG from traction of procedure and swelling in shoulder.	VB	Case Report	Orthopedic surgery, Shoulder	n/a	n/a	3	n/a
Savage JW, Weatherford BM, Sugrue PA, et al. Efficacy of surgical preparation solutions in lumbar spine surgery.. Journal of Bone & Joint Surgery - American Volume. 2012;94(6): 490-494.	Chloraprep and Duraprep were equivalent for removing bacterial pathogens in the lumbar spine.	IA	RCT	Orthopedic surgery, Lumbar Spine	Chloraprep	Duraprep	100	Cultures
Schabelman E, Witting M. The relationship of radiocontrast, iodine, and seafood allergies: A medical myth exposed. J Emerg Med. 2010;39(5):701-707.	Allergies to shellfish are not related to iodine allergy.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a
Schick JB, Milstein JM. Burn hazard of isopropyl alcohol in the neonate. Pediatrics. 1981;68(4): 587-588.	2 neonates experienced chemical burns after exposure to alcohol.	VB	Case Report	Neonates	n/a	n/a	2	n/a

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CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Segal CG, Anderson JJ. Preoperative skin preparation of cardiac patients. AORN J. 2002;76(5): 821-828.	The incidence of infection was lower in the two groups of patients who were prepped with insoluble iodine, indicating that the	IA	RCT	Adults, Cardiac	4 groups: (1) PI paint, (2) PI scrub and paint, (3) 1-step iodophor-alcohol,	(4) 1-step iodophor-alcohol with iodine impregnated	209	SSI
Sistla SC, Prabhu G, Sistla S, Sadasivan J. Minimizing wound contamination in a 'clean' surgery: comparison of chlorhexidine-ethanol and povidone-iodine.. Chemotherapy. 2010;56(4): 261-267.	The antibacterial efficacy of CHG-alcohol and povidone-iodine is comparable in open hernia repair.	IA	RCT	Adults, Clean Surgery	PI	CHG-alcohol	556	Culture
Sivathasan N, Goodfellow PB. Skin cleansers: the risks of chlorhexidine.. J Clin Pharmacol. 2011;51(5): 785-786.	74 year old man experienced an anaphylaxis after application of CHG.	VA	Case Report	n/a	n/a	n/a	n/a	n/a
Smerdely P, Lim A, Boyages SC, et al. Topical iodine-containing antiseptics and neonatal hypothyroidism in very-low-birthweight infants. Lancet. 1989;2(8664): 661-664.	Routine use of iodine in very low birth weight infants should be avoided because of demonstrated disturbances in thyroid function.	IIIB	Non-experimental	Neonates	Iodine-exposed infants	Infants not exposed to iodine	83	Urine iodine excretion, thyrotropin and thyroxine levels
Sullivan PJ, Healy CE, Hirpara KM, Hussey AJ, Potter SM, Kelly JL. An assessment of skin preparation in upper limb surgery.. Journal of Hand Surgery: European Volume. 2008;33(4): 513-514.	Clear antiseptic had more missed spots and more missed areas in finger areas than iodine-based antiseptic.	IIB	Quasi-experimental	Orthopedic surgery, Arm	Clear antiseptic	Iodine-based antiseptic	32	Area of skin missed
Swenson BR, Hedrick TL, Metzger R, Bonatti H, Pruett TL, Sawyer RG. Effects of preoperative skin preparation on postoperative wound infection rates: a prospective study of 3 skin preparation	Iodophor-based compounds may be superior to chlorhexidine for this purpose in general surgery patients.	IIB	Quasi-experimental	General Surgery	3 groups: (1) PI scrub, alcohol paint, PI paint	(2) Chloraprep, (3) Duraprep	3,209	SSI
Tomoda C, Kitano H, Uruno T, et al. Transcutaneous iodine absorption in adult patients with thyroid cancer disinfected with povidone-iodine at operation. Thyroid. 2005;15(6):600-603.	Cutaneously absorbed iodine could potentially interfere with iodine therapy or cause thyroid dysfunction in susceptible patients.	IB	RCT	Adults, Thyroid Cancer	CHG	PI	68	Ioduria

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Toomey M. Preoperative chlorhexidine anaphylaxis in a patient scheduled for coronary artery bypass graft: A case report. AANA J. 2013;81(3): 209-214. http://www.scopus.com/inward/record.url?ei	65 year old patient experienced anaphylaxis after exposure to CHG.	VA	Case Report	Adults, Cardiac	n/a	n/a	1	n/a
Trinavarat A, Atchaneeyasakul LO, Nopmaneejumruslers C, Inson K. Reduction of endophthalmitis rate after cataract surgery with preoperative 5% povidone-iodine.. Dermatology. 2006;212(Suppl 1): 35-40.	5% PI contributed an additional effect to the reduction of endophthalmitis. This measure was rather safe as prophylaxis against endophthalmitis in	IB	RCT	Eye	5% PI	No PI	4,592	Endophthalmitis
Tschudin-Sutter S, Frei R, Egli-Gany D, et al. No risk of surgical site infections from residual bacteria after disinfection with povidone-iodine-alcohol in 1014 cases: A prospective observational study. Ann Surg. 2012;255(3):	PVP-iodine-alcohol is effective for preparation of surgical site.	IIIA	Non-experimental	n/a	PVP-alcohol	n/a	1014 cultures from 1005 patient	SSI, Cultures
US National Library of Medicine. DailyMed. http://dailymed.nlm.nih.gov/ . Accessed February 13, 2014.	Database of product labels and package inserts, includes antiseptic products.	n/a	n/a	n/a	n/a	n/a	n/a	n/a
US Food and Drug Administration. Tentative Final Monograph for Healthcare Antiseptic Drug Products proposed rule. Federal Register. 1994;59(116): 31402-31452. http://www.access.gpo.gov/nara/cfr/waisidx_	FDA approves antiseptics per specific criteria in the TFM.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Vorherr, H, UF Vorherr, P Mehta, JA Ulrich, and RH Messer. Vaginal absorption of povidone-iodine. Jama : the Journal of the American Medical Association. 244.23 (1980): 2628-9	Advised against treating vaginitis with repeated applications of povidone-iodine in pregnant women because of the risk of developing iodine-induced goiter	IIIC	Non-experimental	Adults, Gynecological	2 minute vaginal antiseptics with PI	n/a	12	Iodine absorption and thyroid function
Vujevich J, Zirwas M. Delayed hypersensitivity to isopropyl alcohol.. Contact Derm. 2007;56(5): 287.	36 year old female presented with delayed topical hypersensitivity to isopropyl alcohol, possibly affected by alteration in skin integrity from blood draw.	VC	Case Report	n/a	n/a	n/a	1	n/a

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CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Weber SM, Hargunani CA, Wax MK. DuraPrep and the risk of fire during tracheostomy.. Head Neck. 2006;28(7): 649-652.	Advise not to use Duraprep in hirsuite patient.	VA	Case Report	n/a	n/a	n/a	1	n/a
Wu PC, Li M, Chang SJ, et al. Risk of endophthalmitis after cataract surgery using different protocols for povidone- iodine preoperative disinfection.. Journal of Ocular Pharmacology & Therapeutics. 2006;22(1): 54-	Preoperative skin disinfection with 10% PI and conjunctival disinfection with 5% PI significantly reduced the relative risk of postoperative	IIA	Quasi-experimental	Eye	Antisepsis with PI 5% and 10%	n/a	132	Endophthalmitis
Yamine K, Harvey A. Efficacy of preparation solutions and cleansing techniques on contamination of the skin in foot and ankle surgery: A systematic review and meta-analysis. Bone & Joint Journal. 2013;95(4):	PI-alcohol was more effective than CHG-alcohol in reducing flora; Many studies showed difficulty eliminating bacteria on the foot, especially the forefoot areas.	IB	Systematic Review with Meta-analysis	Orthopedic surgery, Foot/Ankle	n/a	n/a	560 participants, 716 feet	n/a
Yoshida K, Sakurai Y, Kawahara S, et al. Anaphylaxis to polyvinylpyrrolidone in povidone-iodine for impetigo contagiosum in a boy with atopc dermatitis.. International Archives of Allergy & Immunology.	9 year old boy experience anaphylaxis twice after PVP-I , which was possibly due to broken skin.	VB	Case Report	Pediatric	n/a	n/a	1	n/a
Zamora JL. Chemical and microbiologic characteristics and toxicity of povidone-iodine solutions. Am J Surg. 1986;151(3): 400-406.	Review of chemical and antiseptic properties of povidone-iodine, and to use caution in patients susceptible to iodism.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a

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CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
AORN Guidance statement: Safe patient handling and movement in the perioperative setting. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN; 2013: 553-571.	Guidance for safe patient handling in the perioperative setting.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
AORN. Recommended practices for a safe environment of care. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN; 2013: 217-242.	Guidance for a safe environment of care.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
AORN. Recommended practices for hand hygiene in the perioperative setting. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN; 2013: 63-74.	Guidance for hand hygiene in the perioperative setting.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
AORN. Recommended practices for sterile technique. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN; 2013: 91-120.	Guidance for sterile technique.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
Apfelbaum JL, Caplan RA, Barker SJ, et al. Practice advisory for the prevention and management of operating room fires: an updated report by the American Society of Anesthesiologists Task Force on Operating	Flammable prep antiseptics must dry completely.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
Arrowsmith VA, Maunder JA, Sargent RJ, Taylor R. Removal of nail polish and finger rings to prevent surgical infection. Cochrane Database of Systematic Reviews. 2007;1. [Original reference list gives 2006 date.]	There are no outcome studies for SSI related to healthcare workers wearing of nail polish and finger rings. There is insufficient evidence to determine if nail polish affects the number of bacteria on	IA	Systematic Review	Healthcare Workers	n/a	n/a	n/a	n/a
Atkinson Smith Mary, Dahlen Nancy R. Clinical Practice Guideline Surgical Site Infection Prevention. Orthop Nurs. 2013;32(5): 242-248. doi:10.1097/NOR.0b013e3182a39c6b.	Surgical site should be prepped by painting PI, iodophor-alcohol, or CHG solution.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a

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CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Bonneville N, Geiss L, Cavalie L, Ibnoukhatib A, Verdeil X, Bonneville P. Skin preparation before hip replacement in emergency setting versus elective scheduled arthroplasty: bacteriological comparative analysis..	Skin flora in emergency hip procedures was more abundant and different, with more pathogenic non-saprotrophic bacteria. Scrubbing of 4% betadine in inguinal area was insufficient in the	IIA	Quasi-experimental	Hip	scheduled hip, preop protocols 2-4% PI whole body showers	emergency hip, no prewash	62	Cultures
Borrego L. Acute skin lesions after surgical procedures: a clinical approach.. Actas Dermo-Sifiliogr. 2013;104(9): 776-781.	Special care must therefore be taken during the use of antiseptics and, in particular, they should be allowed to dry.	VA	Expert Opinion	n/a	n/a	n/a	n/a	n/a
Brooks RA, Hollinghurst D, Ribbans WJ, Severn M. Bacterial recolonization during foot surgery: a prospective randomized study of toe preparation techniques. Foot Ankle Int. 2001;22(4): 347-350.	Additional scrubbing of toe clefts resulted in a significant reduction in bacterial recolonization of foot- 7.7% v 20.8%.	IB	RCT	Orthopedic: Foot (Toe)	Standard with placement between toes	Additional toe scrub with gauze	50	Cultures
Centers for Medicare & Medicaid Services. State Operations Manual Appendix A—Survey Protocol, Regulations and Interpretive Guidelines for Hospitals. Rev. 89. 2013.	Alcohol-based skin preparations are considered the most effective and rapid-acting skin antiseptic, but they are also flammable and contribute to the risk of fire.	Reg		n/a	n/a	n/a	n/a	n/a
Centers for Medicare & Medicaid Services. State Operations Manual Appendix L - Guidance for Surveyors: Ambulatory Surgical Centers. Rev. 89. 2013.	Alcohol-based skin preparations are considered the most effective and rapid-acting skin antiseptic, but they are also flammable and contribute to the risk of fire.	Reg		n/a	n/a	n/a	n/a	n/a
Cheng K, Robertson H, St Mart JP, Leanord A, McLeod I. Quantitative analysis of bacteria in forefoot surgery: a comparison of skin preparation techniques.. Foot & Ankle International. 2009;30(10): 992-997.	No additional benefit to scrubbing foot before paint.	IB	RCT	Orthopedic: Foot/Ankle	PI-alcohol (paint on one foot, paint + 3min scrub on other foot)	CHG-alcohol (paint on one foot, paint + 3min scrub on other foot)	50	Cultures
Chepla KJ, Gosain AK. Interstitial pneumonitis after betadine aspiration.. J Craniofac Surg. 2012;23(6): 1787-1789.	Patient developed interstitial pneumonitis from betadine aspiration, advise against irrigation of the mouth with antiseptic even when throat pack in place.	VA	Case Report	n/a	n/a	n/a	1	n/a

Recommendation IV

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Chiang YC, Lin TS, Yeh MC. Povidone-iodine-related burn under the tourniquet of a child--a case report and literature review. <i>Journal of Plastic, Reconstructive & Aesthetic Surgery: JPRAS</i> . 2011;64(3): 412-415.	2 year old patient experience chemical burns from iodine on tourniquet. Special attention should be paid to preventing tourniquet contacting iodine solution, especially in pediatric patients.	VA	Case Report	n/a	n/a	n/a	1	n/a
Chou J, Choudhary A, Dhillon RS. Comparing sterile bag rubbing and paint on technique in skin preparation of the hands.. <i>ANZ J Surg</i> . 2011;81(9): 629-632.	Painting with PI in a sterile bag was quicker (28s v 86s) had and equal effectiveness to a sponge paint method.	IIC	Quasi-experimental	Orthopedic: Hand	Sponge stick paint	Sterile bag paint	10	Time, Cultures
Cronen G, Ringus V, Sigle G, Ryu J. Sterility of surgical site marking. <i>J Bone Joint Surg Am</i> . 2005;87(10): 2193-2195. doi:87/10/2193 [pii]; 10.2106/JBJS.E.00293 [doi].	Preoperative marking of surgical sites did not affect the sterility of the surgical field, a finding that provides support for the safety of surgical site marking.	IIB	Quasi-experimental	Healthy Volunteers	Site Mark	No Site Mark	20	Cultures
Demir E, O'Dey DM, Pallua N. Accidental burns during surgery.. <i>Journal of Burn Care & Research</i> . 2006;27(6): 895-900.	Antiseptics should be dry before the patient is draped, and the solution should not drip or pool. The surgical team should pay more attention to the probability of burns during surgery.	IIIB	Non-experimental	Patients with burn injury	n/a	n/a	19	Burn Injury
ECRI. Fighting airway fires. <i>Healthcare Risk Control</i> . 2010;4 (Surgery and Anesthesia): 1-11. [IVC]	Preventative measures should be taken to prevent antiseptics from fueling a fire.	IVC	Position Statement	n/a	n/a	n/a	n/a	n/a
ECRI. New clinical guide to surgical fire prevention. Patients can catch fire--here's how to keep them safer. <i>Health Devices</i> . 2009;38(10): 314-332. [VA]	Preventative measures should be taken to prevent antiseptics from fueling a fire.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a
Ellenhorn JD, Smith DD, Schwarz RE, et al. Paint-only is equivalent to scrub-and-paint in preoperative preparation of abdominal surgery sites. <i>J Am Coll Surg</i> . 2005;201(5): 737-741. doi:10.1016/j.jamcollsurg.2005.05.023.	Preoperative preparation of the abdomen with a scrub with PI followed by a paint with aqueous PI can be abandoned in favor of a paint with aqueous PI alone.	IC	RCT	General surgery	Paint only	Scrub and Paint	234	Wound Infection

Recommendation IV

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Gilliam DL, Nelson CL. Comparison of a one-step iodophor skin preparation versus traditional preparation in total joint surgery. Clin Orthop Relat Res. 1990;(250)(250): 258-260.	One-step application of iodophor-alcohol was sufficient to reduce bacterial counts at the surgical site as compared to scrub and paint with aqueous PI.	IB	RCT	Ortho: total joint	Paint only	Scrub and Paint	60	Bacterial counts
Health Care Facilities Code Handbook. 9th ed. Quincy, MA: National Fire Protection Association; 2012.[IVB]	Preventative measures should be taken to prevent antiseptics from fueling a fire.	IVB	Consensus Document	n/a	n/a	n/a	n/a	n/a
Hodgkinson DJ, Irons GB, Williams TJ. Chemical burns and skin preparation solutions. Surg Gynecol Obstet. 1978;147(4): 534-536.	Patients experienced chemical burn injury to the skin from antiseptics, and preventative measures should be taken.	IIIB	Non-experimental	Patients with burn injury	n/a	n/a	25	Skin Burn
Incoll IW, Saravanja D, Thorvaldson KT, Small T. Comparison of the effectiveness of painting onto the hand and immersing the hand in a bag, in pre-operative skin preparation of the hand.. Journal of Hand Surgery: European	Painting PI with a nonsterile bag was more effective than painting with a sponge for removing microorganisms.	IIB	Quasi-experimental	Ortho: Hand	Paint with unsterile bag	Paint with sponge	50	Cultures
Lowe DO, Knowles SR, Weber EA, Railton CJ, Shear NH. Povidone-iodine-induced burn: case report and review of the literature. Pharmacotherapy. 2006;26(11): 1641-1645. doi:10.1592/phco.26.11.1641 [doi]. [The	38 year old woman experienced chemical burn injury from povidone-iodine, and preventative measures should be taken.	VA	Case Report	n/a	n/a	n/a	1	n/a
Mears SC, Dinah AF, Knight TA, Frassica FJ, Belkoff SM. Visibility of surgical site marking after preoperative skin preparation.. Eplasty [Electronic Resource]. 2008;8: e35.	Antisepsis with chloraprep erased more marks than duraprep.	IIB	Quasi-experimental	Laboratory	Chloraprep	Duraprep	5	Erasure of site marking
Murkin CE. Pre-operative antiseptic skin preparation.. British Journal of Nursing. 2009;18(11): 665-669.	Perioperative RNs should emphasize the importance of skin preparation and the correct application techniques.	VA	Literature Review	n/a	n/a	n/a	n/a	n/a

Recommendation IV

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Murthy MB, Krishnamurthy B. Severe irritant contact dermatitis induced by povidone iodine solution.. Indian Journal of Pharmacology. 2009;41(4): 199-200.	28 year old woman experienced chemical burns to the skin after application of povidone iodine.	VB	Case Report	n/a	n/a	n/a	1	n/a
Naderi N, Maw K, Thomas M, Boyce DE, Shokrollahi K. A quick and effective method of limb preparation with health, safety and efficiency benefits.. Ann R Coll Surg Engl. 2012;94(2): 83-86.	Painting PI with a sterile bag took less time (24s v 85s) than painting with a sponge and was effective as evident by no growth on culture. Using a bag was more efficient and reduced handling hazards.	IIB	Quasi-experimental	Orthopedic: Hand/Foot	Paint PI with a sterile bag	Paint with sponge	40	Time, Culture
NFPA 101: Life Safety Code. Quincy, MA: National Fire Protection Association; 2012. [IVB]	Flammable prep antiseptics must dry completely.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
Palmanovich E, Brin YS, Laver L, Nyska M, Kish B. Third-degree chemical burns from chlorhexidine local antiseptics.. Israel Medical Association Journal: Imaj. 2013;15(6): 323-324.	55 year old woman experienced chemical burns after antiseptics with CHG.	VA	Case Report	n/a	n/a	n/a	1	n/a
Pearce BA, Miller LH, Martin MA, Roush DL. Efficacy of clean v sterile surgical prep kits. AORN J. 1997;66(3): 464-470.	There was no difference in the residual microbial skin flora in the patients prepped with clean or sterile skin prep kits.	IB	RCT	n/a	Sterile prep kits	Clean prep kits	60	Cultures
Recommended practices for surgical attire. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN, Inc; 2014:49-60. [IVB]	Guidance for surgical attire.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
Recommended practices for transfer of patient care information. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN, Inc; 2014:501-506. [IVB]	Guidance for perioperative documentation.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a

Recommendation IV

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Rees A, Sherrod Q, Young L. Chemical burn from povidone-iodine: case and review.. Journal of Drugs in Dermatology: JDD. 2011;10(4): 414-417.	8 year old male experienced chemical burns after antiseptics with PI. Preventative measures, including preventing dripping and pooling, should be taken.	VB	Case Report	n/a	n/a	n/a	1	n/a
Rinder CS. Fire safety in the operating room. Curr Opin Anaesthesiol. 2008;21(6): 790-795. doi:10.1097/ACO.0b013e328318693a; 10.1097/ACO.0b013e328318693a. [VC]	Preventative measures should be taken to prevent antiseptics from fueling a fire.	VC	Literature Review	n/a	n/a	n/a	n/a	n/a
Rooney J, Khoo OKS, Higgs AR, Small TJ, Bell S. Surgical site marking does not affect sterility. ANZ J Surg. 2008;78(8): 688-689. http://www.scopus.com/inward/record.url?eid=2-s2.0-	Surgical site marking carried out with a non-sterile surgical marking pen did not contaminate the surgical site.	IIB	Quasi-experimental	Healthy Volunteers	Site Mark	No Site Mark	20	Cultures
Standards of perioperative nursing. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN, Inc; 2014:3-18. [IVB]	Standards for perioperative nursing practice.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
Stinner DJ, Krueger CA, Masini BD, Wenke JC. Time-dependent effect of chlorhexidine surgical prep.. J Hosp Infect. 2011;79(4): 313-316.	Recommend using 4% chlorhexidine for surgical site preparation and allowing a minimum of 2 min of contact time prior to making the skin incision.	IIIB	Non-experimental	Laboratory	4%, 2%, and 0.4% CHG	n/a	n/a	Bacterial load
Sullivan PJ, Healy CE, Hirpara KM, Hussey AJ, Potter SM, Kelly JL. An assessment of skin preparation in upper limb surgery.. Journal of Hand Surgery: European Volume. 2008;33(4): 513-514.	Clear antiseptic had more missed spots and more missed areas in finger areas than iodine-based antiseptic.	IIB	Quasi-experimental	Orthopedic surgery, Arm	Clear antiseptic	Iodine-based antiseptic	32	Area of skin missed
Thakkar SC, Mears SC. Visibility of surgical site marking: a prospective randomized trial of two skin preparation solutions.. Journal of Bone & Joint Surgery - American Volume. 2012;94(2): 97-102.	CHG-based solution erased marker more than iodine-based solution.	IB	RCT	Orthopedic surgery, hip	Chloraprep	Duraprep	19	Erasure of site marking

Recommendation IV

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Trick WE, Vernon MO, Hayes RA, et al. Impact of ring wearing on hand contamination and comparison of hand hygiene agents in a hospital. Clin Infect Dis. 2003;36(11): 1383-1390.	Wearing rings may increase hand contamination of healthcare workers, but alcohol based hand rubs resulted in less frequent hand contamination.	IIA	Quasi-experimental	Healthcare Workers	3 groups: (1) alcohol based hand rub, (2) soap and water,	(3) hand wipe	282: hand contamination 564:	Cultures
Vagholkar Ketan, Julka Karan. Preoperative Skin Preparation: Which Is The Best Method?. INTERNET J SURG. 2012;28(4): 1-1. doi:10.5580/2c6b.	Painting with PI alone can be used for preoperative antiseptis.	IA	RCT	Clean Surgery	3 groups: (1) PI 3min scrub, PI paint, (2) PI 5min scrub, PI paint,	(3) PI paint only	150	Infection
Weed S, Bastek JA, Sammel MD, Beshara M, Hoffman S, Srinivas SK. Comparing postcesarean infectious complication rates using two different skin preparations.. Obstetrics & Gynecology. 2011;117(5): 1123-	Scrub and paint of PI decreased postoperative cesarean section complications as compared to PI paint alone.	IIA	Quasi-experimental	Cesarean Section	Scrub and paint PI	Paint only	2143	Infection
Wilson J, Tate D. Can pre-operative skin marking transfer methicillin-resistant Staphylococcus aureus between patients? A laboratory experiment. J Bone Joint Surg Br. 2006;88(4): 541-542. doi:88-B/4/541 [pii];	Alcohol based markers didn't transmit MRSA, but water based markers did.	IIIA	Non-experimental	Laboratory	Culturing various markers at different time points	n/a	n/a	Cultures
Yammine K, Harvey A. Efficacy of preparation solutions and cleansing techniques on contamination of the skin in foot and ankle surgery: A systematic review and meta-analysis. Bone & Joint Journal. 2013;95(4): 498-	PI-alcohol was more effective than CHG-alcohol in reducing flora; Many studies showed difficulty eliminating bacteria on the foot, especially the forefoot areas. Although some studies did not clearly	IB	Systematic Review with Meta-analysis	Orthopedic surgery, Foot/Ankle	n/a	n/a	560 participants, 716 feet	n/a

Recommendation V

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Anderson RL, Vess RW, Panlilio AL, Favero MS. Prolonged survival of Pseudomonas cepacia in commercially manufactured povidone-iodine. Appl Environ Microbiol. 1990;56(11): 3598-3600.	Case of P. cepacia surviving in PI for 68 weeks after manufacturing was plausible, found P. cepacia in this lab study to survive up to 29 weeks.	IIIB	Non-experimental	Laboratory	Pseudomonas in PI	none	n/a	Cultures
AORN. Recommended practices for a safe environment of care. In: Perioperative Standards and Recommended Practices. Denver, CO: AORN; 2013: 217-242.	Guidance for a safe environment of care.	IVA	Guideline	n/a	n/a	n/a	n/a	n/a
Berkelman RL, Lewin S, Allen JR, et al. Pseudobacteremia attributed to contamination of povidone-iodine with Pseudomonas cepacia. Ann Intern Med. 1981;95(1): 32-36.	P. cepacia found in blood cultures of 52 patients in four hospitals in NY over a 7 month period. Significant correlations found in the epidemiological study were that patients with positive cultures were more likely to have had PI left on skin before venipuncture and have PI left on the top of the blood culture bottles. Most likely that the P. cepacia tolerated the levels of free iodine, although more research needed.	IIIB	Non-experimental	Laboratory	n/a	n/a	n/a	Cultures
Centers for Medicare & Medicaid Services. State Operations Manual Appendix A—Survey Protocol, Regulations and Interpretive Guidelines for Hospitals. Rev. 89. 2013.	Alcohol-based skin preparations are considered the most effective and rapid-acting skin antiseptic, but they are also flammable and contribute to the risk of fire.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Centers for Medicare & Medicaid Services. State Operations Manual Appendix L - Guidance for Surveyors: Ambulatory Surgical Centers. Rev. 89. 2013.	Alcohol-based skin preparations are considered the most effective and rapid-acting skin antiseptic, but they are also flammable and contribute to the risk of fire.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Craven DE, Moody B, Connolly MG, Kollisch NR, Stottmeier KD, McCabe WR. Pseudobacteremia caused by povidone-iodine solution contaminated with Pseudomonas cepacia. N Engl J Med. 1981;305(11): 621-623.	P. cepacia found in 35 blood cultures at Boston City Hospital. The strain was no more resistant to PI than strains not exposed and the PI solution was the same strength as the control solution. Need for standards of sterility in manufacturing antiseptics.	IIIA	Non-experimental	Laboratory	n/a	n/a	n/a	Cultures

Recommendation V

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Gottardi W. The influence of the chemical behaviour of iodine on the germicidal action of disinfectant solutions containing iodine. <i>J Hosp Infect.</i> 1985;6 Suppl A: 1-11.	Scientific paper on the properties of iodine. Heating iodine alters the chemical structure.	VA	Expert Opinion	n/a	n/a	n/a	n/a	n/a
Hazard Communication: Toxic and Hazardous Substances, 29 CFR §1910.1200 (2012). http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099 . Accessed February 4, 2014.	OSHA regulations must be followed when handling antiseptic chemicals.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
Health Care Facilities Code Handbook. 9th ed. Quincy, MA: National Fire Protection Association; 2012.[IVB]	Preventative measures should be taken to prevent antiseptics from fueling a fire.	IVB	Consensus Document	n/a	n/a	n/a	n/a	n/a
NFPA 101: Life Safety Code. Quincy, MA: National Fire Protection Association; 2012. [IVB]	Preventative measures should be taken to prevent antiseptics from fueling a fire.	IVB	Guideline	n/a	n/a	n/a	n/a	n/a
O'Rourke E, Runyan D, O'Leary J, Stern J. Contaminated iodophor in the operating room. <i>Am J Infect Control.</i> 2003;31(4): 255-256. doi:S0196655302482132 [pii].	Agrobacterium radiobacter found in 4 surgical specimens. One <i>Pseudomonas stutzeri</i> and one <i>Chryseobacterium indologenes</i> . Aerobic gram-negative rods, uncommon isolates. Iodophor used to scrub skin poured from gallon jugs and may have sat for days. The containers grew <i>S aureus</i> when cultured. Not intrinsic contamination, rather prolonged use and jugs causing contamination of PI. Recommend single use containers.	VA	Case Report	n/a	n/a	n/a	n/a	n/a
Panlilio AL, Beck-Sague CM, Siegel JD, et al. Infections and pseudoinfections due to povidone-iodine solution contaminated with <i>Pseudomonas cepacia</i> . <i>Clin Infect Dis.</i> 1992;14(5): 1078-1083.	<i>P. cepacia</i> infection and bacteremia found in 6 patients at a Texas pediatric facility. One lot of PI in peritoneal dialysis fluid was intrinsically contaminated.	IIIA	Non-experimental	n/a	n/a	n/a	6	Cultures
Parrott PL, Terry PM, Whitworth EN, et al. <i>Pseudomonas aeruginosa</i> peritonitis associated with contaminated poloxamer-iodine solution. <i>Lancet.</i> 1982;320(8300): 683-685.	<i>P. aeruginosa</i> infection in 5 chronic peritoneal dialysis patients. Same strain found in unopened poloxamer-iodine solution.	VA	Case Report	n/a	n/a	n/a	5	n/a

Recommendation V

CITATION	CONCLUSION(S)	CONSENSUS SCORE	EVIDENCE TYPE	POPULATION	INTERVENTIONS	COMPARISON	SAMPLE SIZE	OUTCOME MEASURE
Safety Alerts for Human Medical Products > Over-the-Counter Topical Antiseptic Products: Drug Safety Communication - FDA Requests Label Changes and Single-Use Packaging to Decrease Risk of Infection. Accessed on 12/9/2013.	Antiseptics should be packed in single use packaging, to be used one time for one patient. Antiseptics should not be diluted.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a
USEnvironmental Protection Agency. RCRA Online. Updated on October 12, 2012. Accessed on December 12.	EPA regulations must be followed when discarding antiseptic chemicals.	Reg	Regulatory	n/a	n/a	n/a	n/a	n/a