



**TITLE:** Chlorhexidine Impregnated Wipes for Pre-Operative Skin Preparation: Clinical Evidence and Guidelines

**DATE:** 13 December 2012

## RESEARCH QUESTIONS

1. What is the clinical evidence regarding the use of chlorhexidine impregnated, non-rinse wipes for skin preparation in pre-surgical patients?
2. What are the evidence-based guidelines regarding the use of chlorhexidine impregnated, non-rinse wipes for skin preparation in pre-surgical patients?

## KEY MESSAGE

One systematic review, one randomized controlled trial, and five non-randomized studies were identified regarding the use of chlorhexidine impregnated wipes for skin preparation in pre-surgical patients. No evidence-based guidelines on this subject were identified.

## METHODS

A limited literature search was conducted on key resources including PubMed, CINAHL, The Cochrane Library (2012, Issue 11 of 12), ECRI (Health Devices Gold), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between December 1, 2007 and November 28, 2012. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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## RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One systematic review, one randomized controlled trial, and five non-randomized studies regarding the use of chlorhexidine impregnated, non-rinse wipes for skin preparation in pre-surgical patients were identified in the literature search. No health technology assessments or guidelines were identified. Additional references of potential interest are provided in the appendix.

## OVERALL SUMMARY OF FINDINGS

The systematic review<sup>1</sup> assessed five studies that focused on the incidence of surgical site infections following use of washcloths impregnated with chlorhexidine gluconate. The abstract did not specify how the cloths were used, the timing of their use, or the comparators, but stated that the risk of surgical site infection was significantly reduced.

The randomized controlled trial<sup>2</sup> compared patients using chlorhexidine cloths at home prior to shoulder surgery, with patients showering with soap and water at home prior to the surgery. The patients using the chlorhexidine cloths had a statistically significant lower positive culture rate prior to surgery.

Four of the non-randomized studies<sup>3,5,6,7</sup> evaluated patient use of chlorhexidine cloths the evening before and the morning of surgery, compared with patients using in-hospital protocol. The surgeries included knee arthroplasty,<sup>3,5</sup> hip arthroplasty,<sup>6</sup> and orthopedic surgery.<sup>7</sup> All four studies stated that the use of the chlorhexidine cloths resulted in statistically lower rates of surgical site infections, but they did not state if the results were statistically significant. A fifth non-randomized study<sup>4</sup> evaluated patients undergoing hip arthroplasty, who used chlorhexidine cloths pre-admission, but did not specify the timing of cloth use. Compared with patients who underwent in-hospital perioperative skin preparation, the patients using pre-admission cloths had a statistically significant lower incidence of infections.

Overall, the included studies indicated that pre-hospital use of chlorhexidine impregnated cloths resulted in statistically lower incidence of surgical site infections compared with in-hospital perioperative skin preparation. No evidence-based guidelines on this subject were identified.

## REFERENCES SUMMARIZED

### Health Technology Assessments

No literature identified.

### Systematic Reviews and Meta-analyses

1. 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 Oct;82(2):71-84.  
[PubMed: PM22889522](#)

### Randomized Controlled Trials

2. 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. *J Shoulder Elbow Surg.* 2011 Sep;20(6):928-33.  
[PubMed: PM21612945](#)

### Non-Randomized Studies

3. Johnson AJ, Kapadia BH, Daley JA, Molina CB, Mont MA. Chlorhexidine reduces infections in knee arthroplasty. *J Knee Surg.* 2012 Nov 12. Epub ahead of print.
4. 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.* 2012 Oct 29. Epub ahead of print.  
[PubMed: PM23114192](#)
5. Zywił 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 Jul;35(7):1001-6. Available from:  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3167398>  
[PubMed: PM20563806](#)
6. Johnson AJ, Daley JA, Zywił MG, Delanois RE, Mont MA. Preoperative chlorhexidine preparation and the incidence of surgical site infections after hip arthroplasty. *J Arthroplasty.* 2010 Sep;25(6 Suppl):98-102.  
[PubMed: PM20570089](#)
7. Eiselt D. Presurgical skin preparation with a novel 2% chlorhexidine gluconate cloth reduces rates of surgical site infection in orthopaedic surgical patients. *Orthop Nurs.* 2009 May-Jun;28(3):141-5.  
[PubMed: PM19494763](#)

**Guidelines and Recommendations**

No literature identified.

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**APPENDIX – FURTHER INFORMATION:**

**Systematic Reviews and Meta-Analyses (chlorhexidine wipes not specified in abstract)**

8. Noorani A, Rabey N, Walsh SR, Davies RJ. Systematic review and meta-analysis of preoperative antisepsis with chlorhexidine versus povidone-iodine in clean-contaminated surgery. *Br J Surg*. 2010 Nov;97(11):1614-20.  
[PubMed: PM20878942](#)

**Non-Randomized Studies (multidisciplinary approach)**

9. Riley MM, Suda D, Tabsh K, Flood A, Pegues DA. Reduction of surgical site infections in low transverse cesarean section at a university hospital. *Am J Infect Control*. 2012 Nov;40(9):820-5.  
[PubMed: PM22418608](#)
10. Rauk PN. Educational intervention, revised instrument sterilization methods, and comprehensive preoperative skin preparation protocol reduce cesarean section surgical site infections. *Am J Infect Control*. 2010 May;38(4):319-23.  
[PubMed: PM20171756](#)

**Review Articles**

11. Adamina M, Gie O, Demartines N, Ris F. Contemporary perioperative care strategies. *Br J Surg*. 2013 Jan;100(1):38-54.  
[PubMed: PM23165446](#)
12. Department of Health (UK). Sage 2% chlorhexidine gluconate cloth [Internet]. Runcom, UK: DH; 2012 Jun. [cited 2012 Dec 11]. (HCAI Technology Innovation Programme Showcase Hospitals report; no. 9). Available from:  
<http://www.dh.gov.uk/health/files/2012/06/Sage-2-percent-Chlorhexidine-Gluconate-Cloth.pdf>
13. Scowcroft T. A critical review of the literature regarding the use of povidone iodine and chlorhexidine gluconate for preoperative surgical skin preparation. *J Perioper Pract*. 2012 Mar;22(3):95-9.  
[PubMed: PM22493876](#)
14. 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 Nov;92(5):509-18.  
[PubMed: PM21040815](#)

**Additional References**

15. U.S. Food and Drug Administration. Drug safety labeling changes: 2% chlorhexidine gluconate (CHG) cloth [Internet]. Silver Spring (MD): FDA; 2012 May. [cited 2012 Dec 11]. Available from: <http://www.fda.gov/Safety/MedWatch/SafetyInformation/Safety-RelatedDrugLabelingChanges/ucm307387.htm>

16. Orthopedics today [Internet]. Thorofare (NJ): Healio.com; c2012. Press release, Chlorhexidine cloths may reduce cutaneous bacteria better than preoperative soap wash; 2011 Feb 24 [cited 2012 Dec 11]. Available from:  
<http://www.healio.com/orthopedics/infection/news/online/%7B9fe7d742-3d88-4d1c-a559-339a3c326f61%7D/chlorhexidine-cloths-may-reduce-cutaneous-bacteria-better-than-preoperative-soap-wash>
17. Roesler R. Evidence-base for using chlorhexidine wipes. AORN J. 2009 Jun;89(6):1057.