ChloraPrep®. Establishing a new standard for skin antisepsis.

ChloraPrep®

Patient Preoperative Skin Preparation

2% chlorhexidine gluconate (CHG) & 70% isopropyl alcohol (IPA)

CareFusion

"[T]he weight of evidence suggests that chlorhexidine-alcohol should replace povidone-iodine as the standard for preoperative surgical scrubs."[1]

Richard Wenzel, MD

Healthcare-acquired infections are extremely costly for patients and facilities.

Preventable HAIs are a major focus for the U.S. Centers for Medicare & Medicaid Services (CMS)

CMS FY09

CMS stopped reimbursing for treatment of select hospital-acquired conditions (HACs) not present on admission[2]

FY12

Mandatory Reporting

U.S. Department of Health & Human Services expected to add HAIs for public reporting, placing 2% of CMS payments at risk[2]

FY13

Performance Measurements

HAI-related value-based programs performance benchmarks implemented, placing an additional 1% of all CMS payments at risk[2]

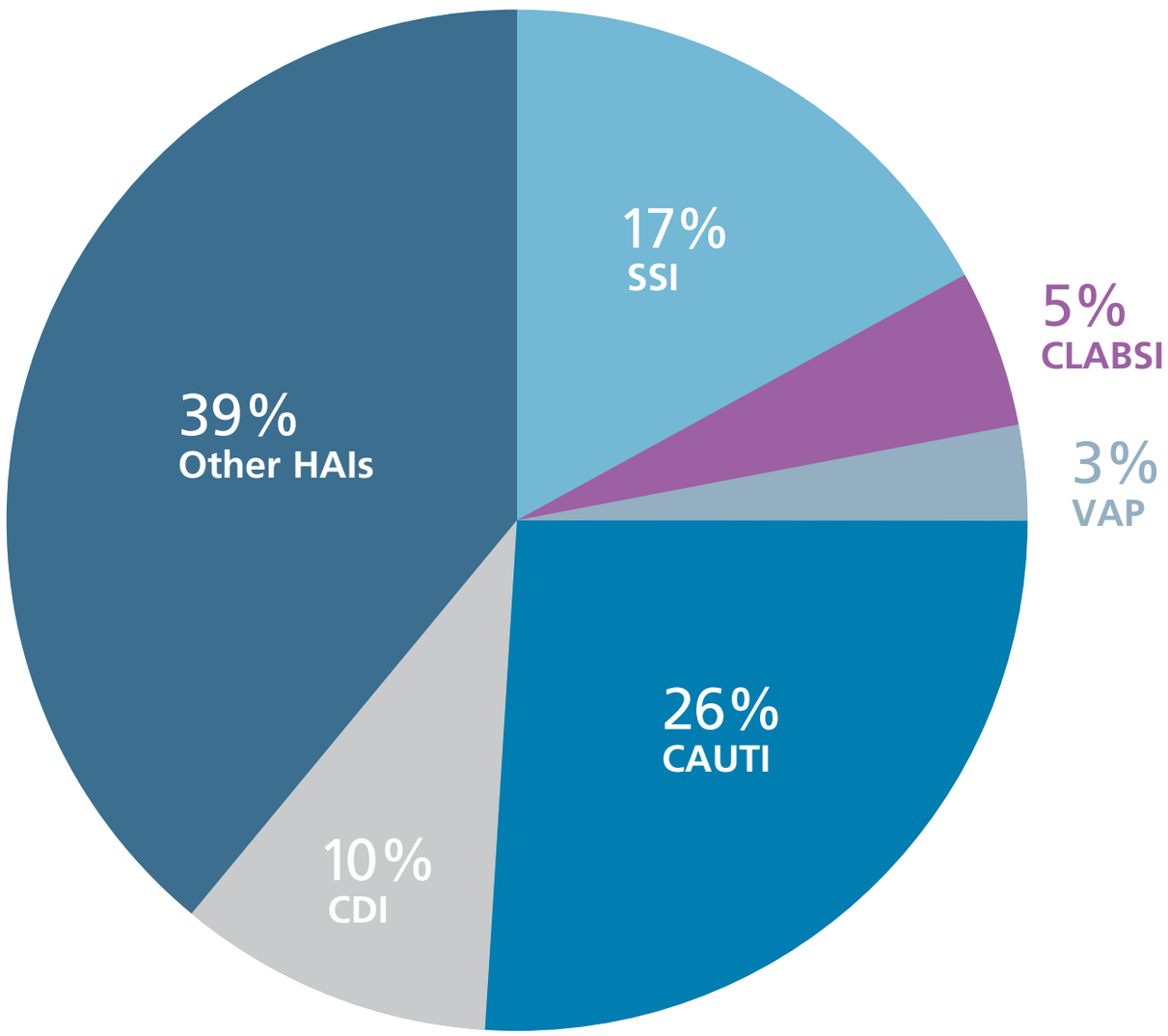
FY15

Reimbursement Risk

HAC quality measures implemented for selected HAIs, placing an additional 1% of all CMS payments at risk[2]

Healthcare-acquired infections are extremely costly for patients and facilities.

Incidence and cost of HAIs[3]

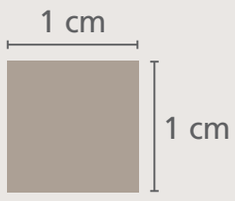


Average attributable per patient cost with HAI

- **Surgical site infection**
  $20,265
- **Central line associated bloodstream infection**
  $16,155
- **Ventilator-associated pneumonia**
  $21,163
- **Catheter associated urinary tract infection**
  $791
- ***Clostridium difficile*-associated disease**
  $6,886

Skin is the source.

Eighty percent of skin flora resides in the first five layers of the stratum corneum.[4] When the skin is incised during a surgical procedure, the exposed tissues are at risk for contamination.[5] In fact, bacteria on patients' skin are the leading cause of infections related to surgery.[6]



On a single square centimeter of skin, there can be as many as 10 million aerobic bacteria.[7]

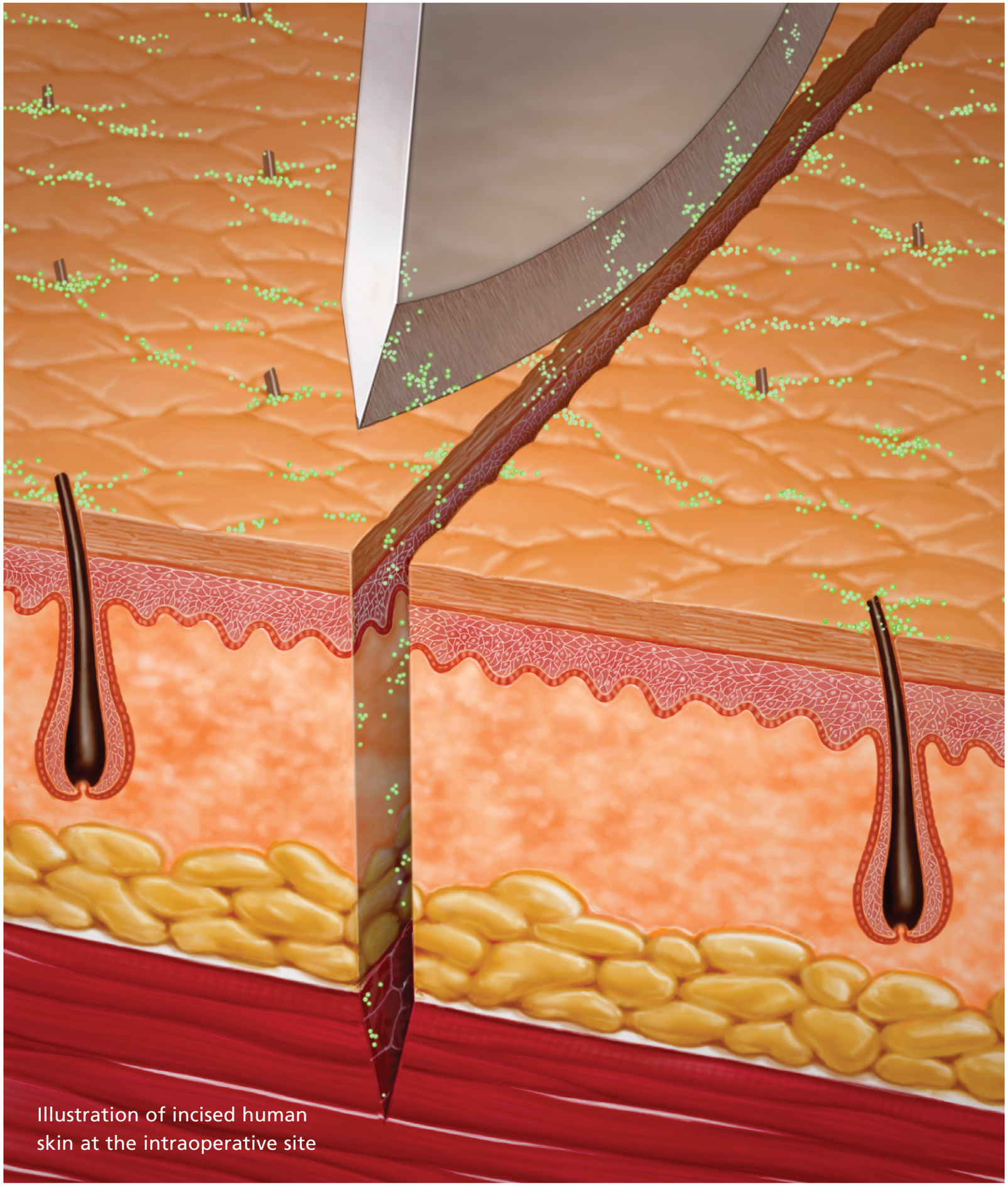


Illustration of incised human skin at the intraoperative site

"ChloraPrep is more effective than DuraPrep and povidone-iodine (PVP-I) at eliminating overall bacteria from the shoulder region."

Saltzman MD, Nuber GW, Gryzlo SM, Marecek GS, Koh JL. Efficacy of surgical preparation solutions in shoulder surgery. *J Bone Joint Surg Am.* 2009;91(8):1949-1953.

Saltzman MD, Nuber GW, Gryzlo SM, Marecek GS, Koh JL.
Efficacy of surgical preparation solutions in shoulder surgery.
J Bone Joint Surg Am. 2009;91(8):1949-1953.

Design

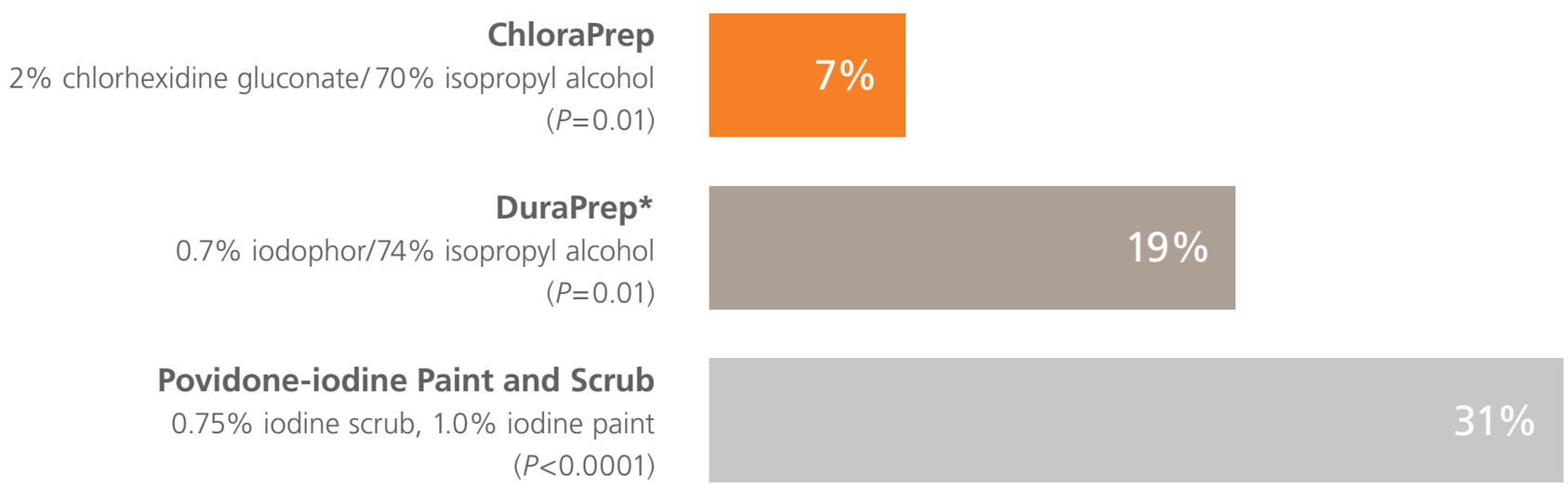
A prospective, randomized study of 150 consecutive shoulder surgery patients examined the native bacteria present around the shoulder and compared the efficacy of three surgical skin prep products.

Methods

Aerobic and anaerobic cultures were taken prior to skin prep for the first 20 patients to identify native bacteria present on the skin; these 20 plus an additional 130 patients were cultured post skin prep for bacterial presence.

Results

Patients prepped with ChloraPrep® skin antiseptic had a significantly lower positive culture rate versus the comparators.



*Iodine Povacrylex (0.7% available Iodine) and IPA, 74% w/w.
DURAPREP is a trademark of 3M.

"[T]he combination of chlorhexidine and alcohol (ChloraPrep) was the most effective solution for eliminating potential wound contaminants from the forefoot prior to surgery."

Ostrander RV, Botte MJ, Brage ME. Efficacy of surgical preparation solutions in foot and ankle surgery. *J Bone Joint Surg Am.* 2005;87(5):980-985.

Ostrander RV, Botte MJ, Brage ME.
Efficacy of surgical preparation solutions in foot and ankle surgery.
J Bone Joint Surg Am. 2005;87(5):980-985.

Design

A prospective, randomized study of 125 consecutive patients undergoing surgery of the foot and ankle compared three skin prep solutions.

Methods

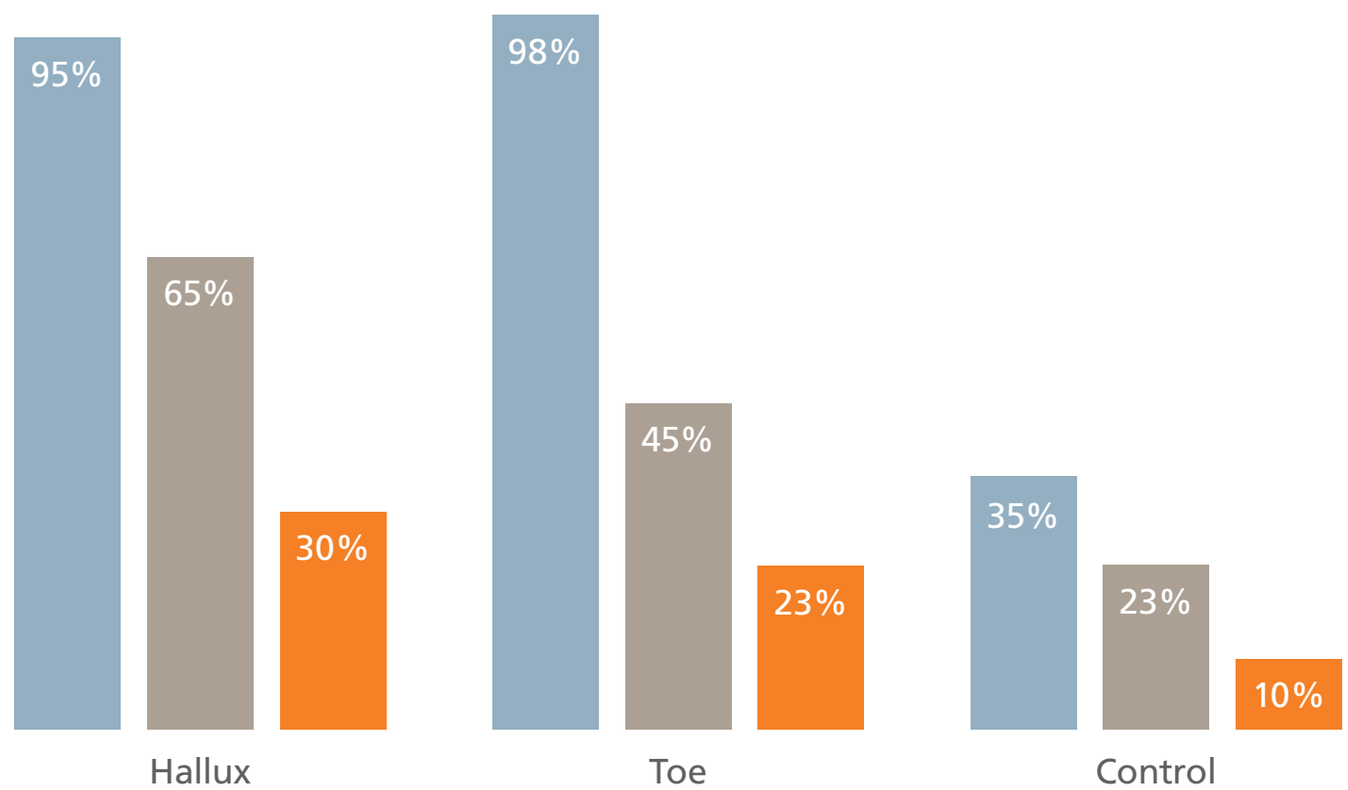
Samples from three areas of the foot were cultured for bacteria after cleansing with one of the three preoperative skin preparations.

Results

Patients prepped with ChloraPrep® skin antiseptic had a significantly lower number of bacteria on the foot and ankle prior to surgery versus the comparators.

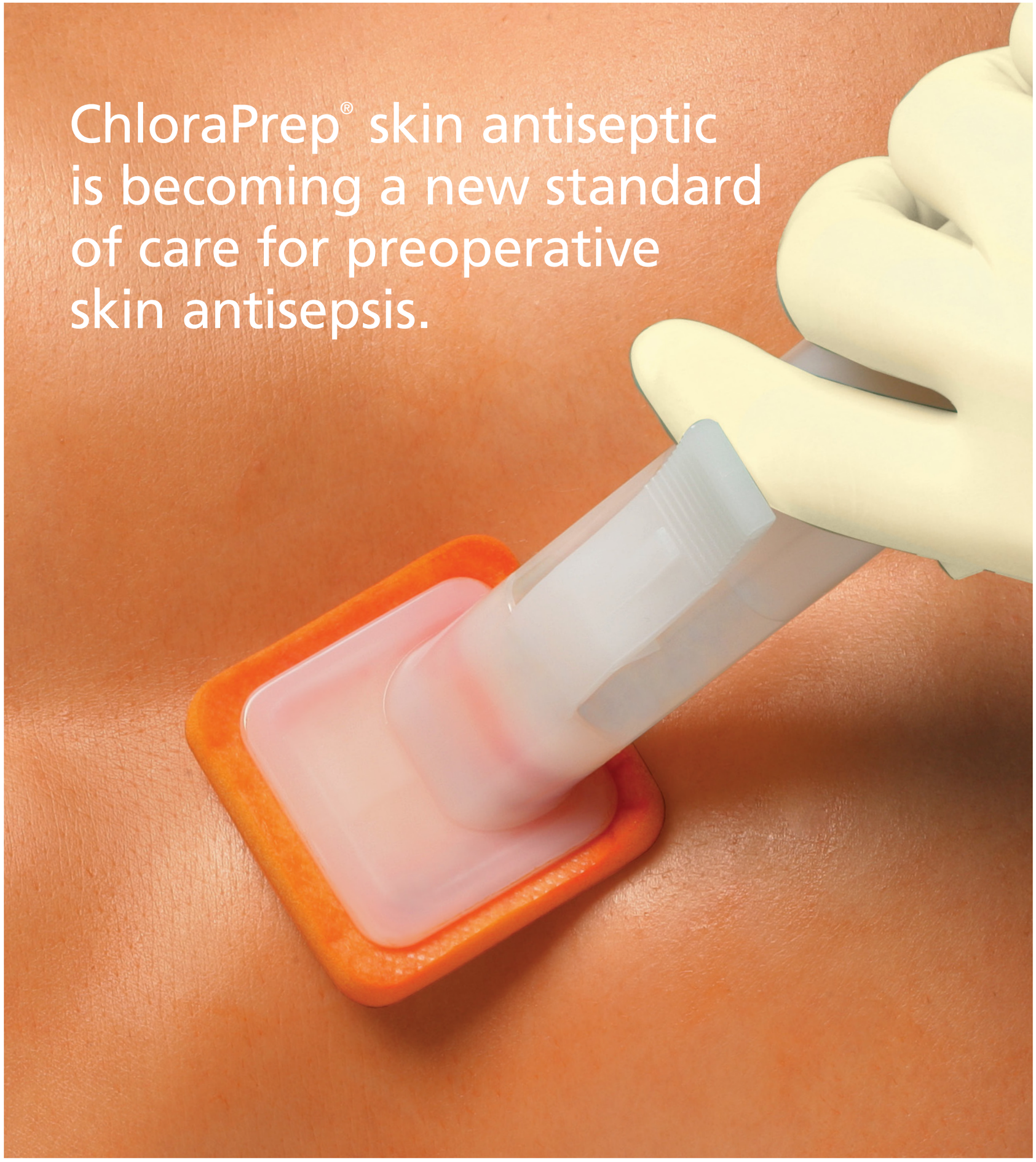
- **Techni-Care**
  3.0% chloroxylenol
- **DuraPrep***
  0.7% iodophor / 74% isopropyl alcohol
- **ChloraPrep**
  2% chlorhexidine gluconate / 70% isopropyl alcohol

ChloraPrep vs DuraPrep; Hallux ($P<0.01$)
ChloraPrep vs DuraPrep; Toe ($P<0.05$)
ChloraPrep vs Techni-Care; Control ($P<0.01$)



*Iodine Povacrylex (0.7% available Iodine) and IPA, 74% w/w.

ChloraPrep® skin antiseptic is becoming a new standard of care for preoperative skin antisepsis.



Fast-acting

ChloraPrep® demonstrates better immediate antimicrobial activity than povidone-iodine alone[8]

Persistent

ChloraPrep demonstrates persistent antimicrobial activity for at least 48 hours[6]

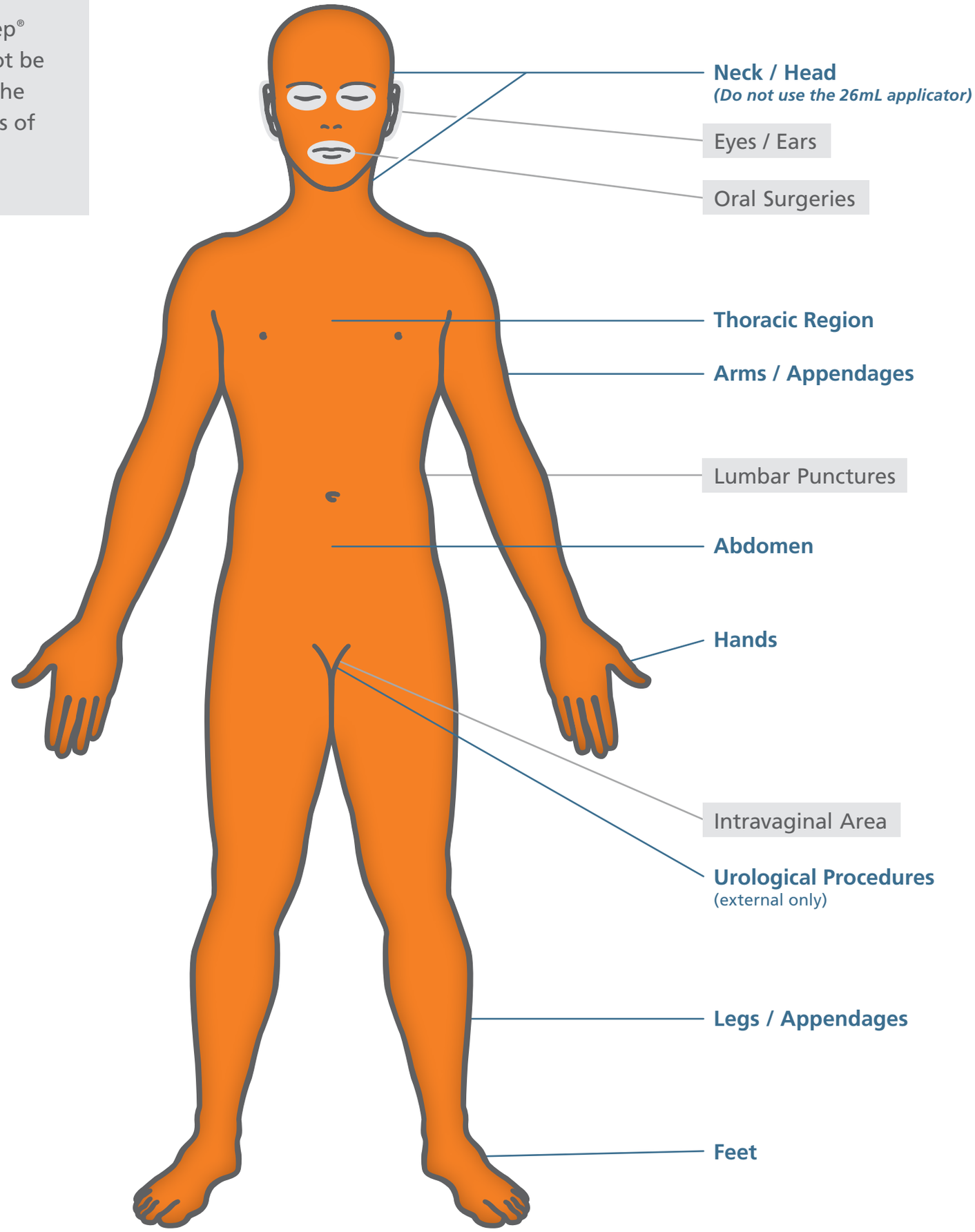
Powerful

Chlorhexidine gluconate maintains its effectiveness in the presence of blood, unlike iodine-based products[9]

ChloraPrep is a one-step, broad-spectrum antiseptic that reduces microorganisms on skin that can cause infection.

Where to use and not use ChloraPrep® skin antiseptic.

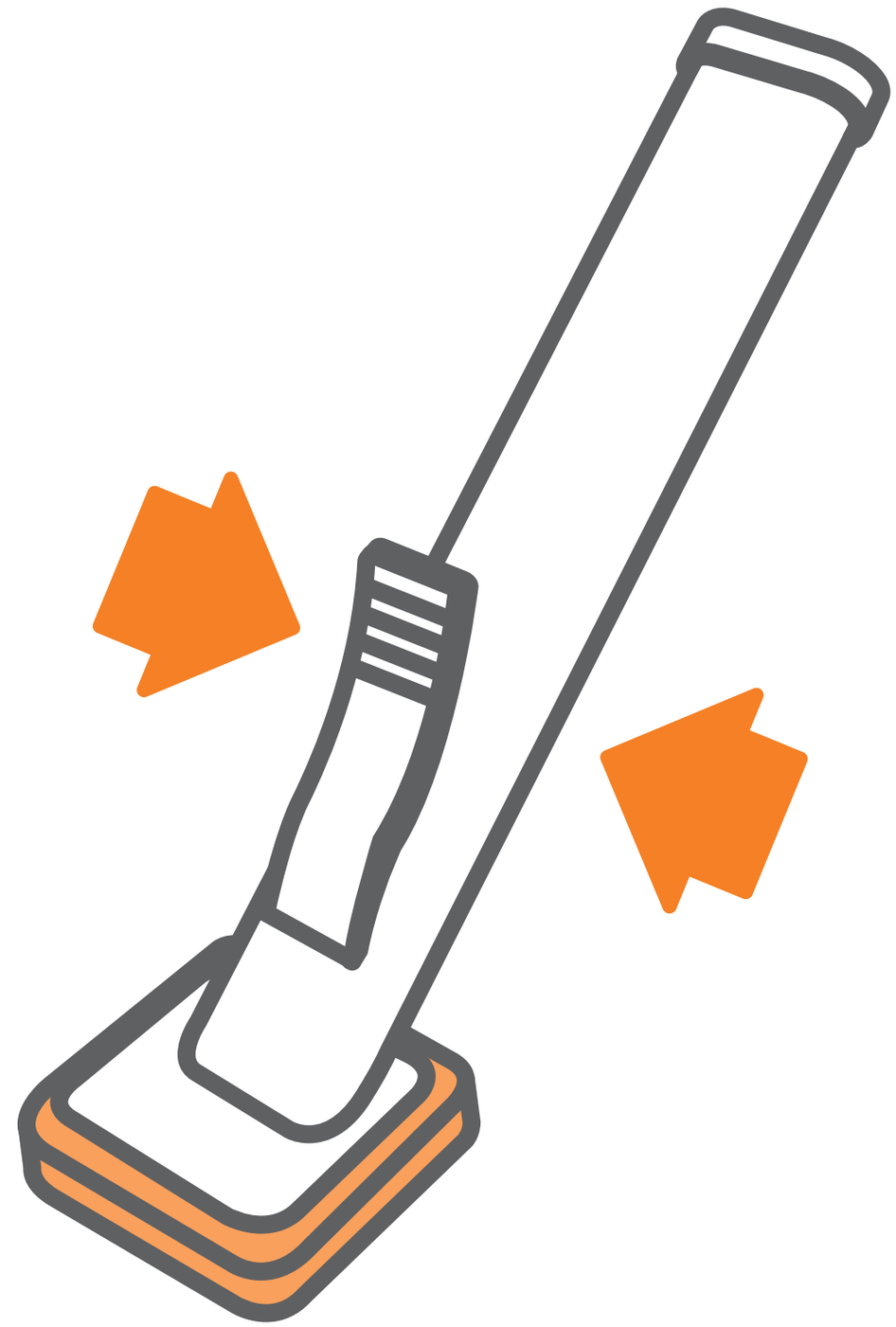
ChloraPrep® should not be used on the gray areas of the body



Standardize your prep with the ChloraPrep® one-step applicator.

1. Pinch

Pinch the lever once to activate applicator and release antiseptic.



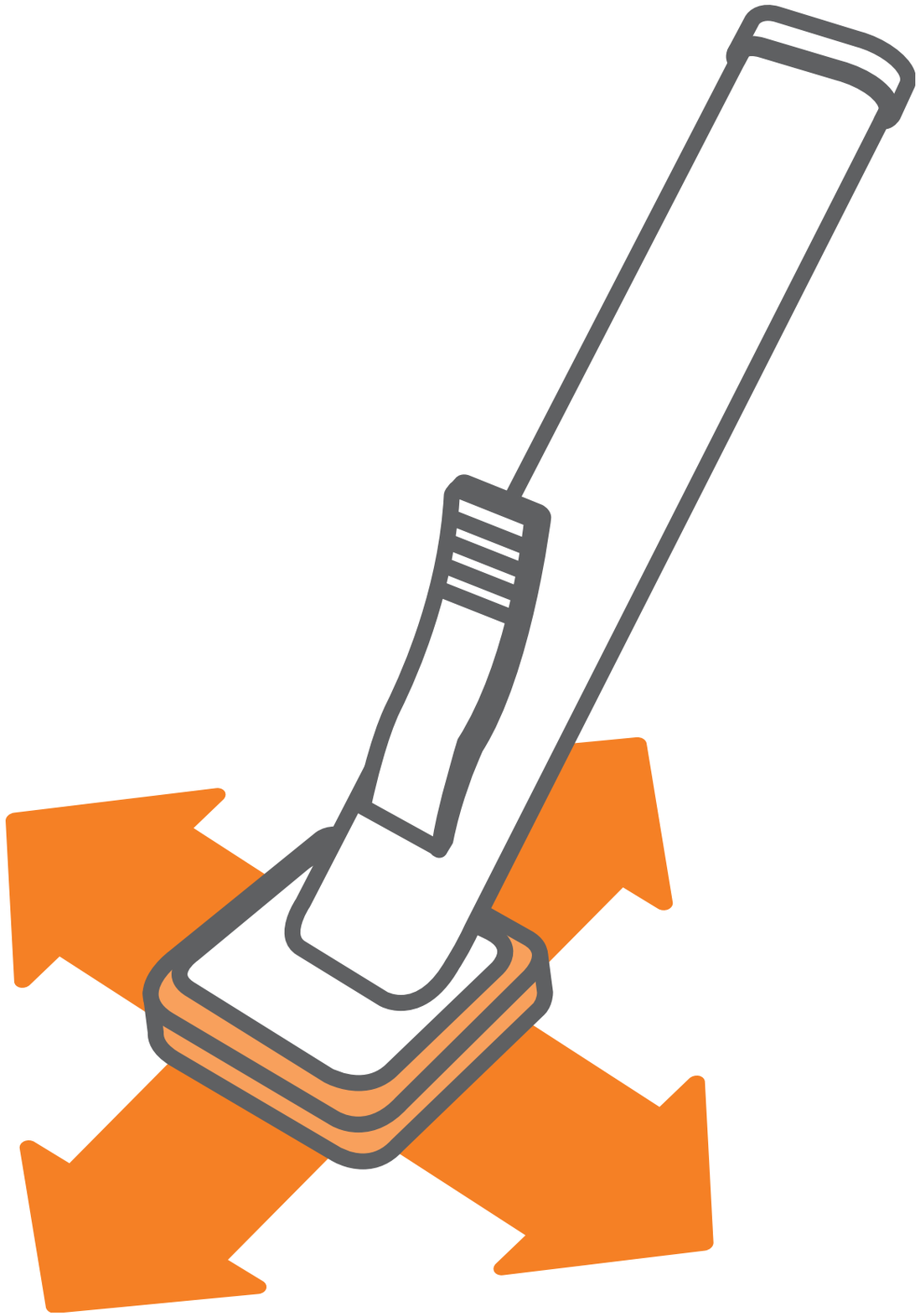
Standardize your prep with the ChloraPrep® one-step applicator.

2. Apply

After solution partially loads, gently press the applicator against treatment area to evenly distribute solution throughout sponge. Apply using back-and-forth strokes progressing from the incision site to the periphery of the surgical area. Completely wet the treatment area with antiseptic.

Dry sites (e.g., abdomen, arm): Use repeated back-and-forth strokes for 30 seconds.

Moist sites (e.g., inguinal fold, axilla): Use repeated back-and-forth strokes for 2 minutes.



Standardize your prep with the ChloraPrep® one-step applicator.

3. Dry

Allow area to dry completely for 3 minutes for dry and moist sites. Hairy areas may take up to 1 hour to dry. Do not blot or wipe solution away. Solution must be dry for proper drape/dressing adhesion.

Trust the performance of ChloraPrep® skin antiseptic.

- ChloraPrep® has a well-documented history in clinical practice.
- The 2% CHG/70% IPA formulation has been studied in more than 20 peer-reviewed publications.
- ChloraPrep products have been shown to outperform iodine-based products.[10,11]
- 100% of *U.S. News & World Report*'s Honor Roll of Best Hospitals (2010–2011)* use ChloraPrep.

*As of July 2011.

"Chlorhexidine gluconate is superior to povidone-iodine for preoperative antisepsis for the patient and surgeon." [12]

Fletcher, et al.,
Journal of Bone and Joint Surgery
2007

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5. Mangram AJ, Horan TC, Pearson ML, et al. Guideline for prevention of surgical site infection. Hospital Infection Control Practices Advisory Committee. *Infect Control Hosp Epidemiol.* 1999;20(4):250–278.
6. Hibbard JS. Analyses comparing the antimicrobial activity and safety of current antiseptic agents: a review. *J Infus Nurs.* 2005;28(3):194–207.
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11. Ostrander RV, Botte MJ, Brage ME. Efficacy of surgical preparation solutions in foot and ankle surgery. *J Bone Joint Surg Am.* 2005;87(5):980–985.
12. Fletcher N, Sofianos DM, Berkes MB, Obremskey WT. Prevention of perioperative infection. *J Bone Joint Surg Am.* 2007;89(7):1605–1618.

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