

Best Practices in Blood Culture Collection

SKIN ANTISEPSIS

Most blood cultures are drawn by venipuncture. A number of disinfectants have been used clinically during past the 50 years, including rubbing alcohol (70% isopropyl), tincture of iodine, povidone-iodine (PI), iodophors, chlorine peroxide and chlorhexidine gluconate (CHG).¹⁻³

- Tincture of iodine, chloride peroxide and chlorhexidine gluconate are superior to PI preparation
- Tincture of iodine and chlorhexidine gluconate are probably equivalent.

CHG has been proven to provide better skin antiseptis than other antiseptic agents such as PI solutions. It is approved for use in pediatric patients two months of age and older. For patients who are younger than two months of age, use of 70% isopropyl alcohol (IPA) is an acceptable alternative for skin disinfection.⁴

A recent study reported that CHG is widely used as topical antiseptic that is recommended by the Centers for Disease Control (CDC) and Prevention for Blood Culture contamination in adults and children. Because of limited safety data, CHG is not recommended for use in children <2 months of age. CHG is, however, frequently used in Neonatal Intensive Care Units across the United States.⁵ Existing evidence does not demonstrate systemic toxicity of CHG, but concerns remain, especially regarding its use in preterm infants. CHG has been used in large, well-designed clinical trials on tens of thousands of neonates without reported serious adverse events.⁶

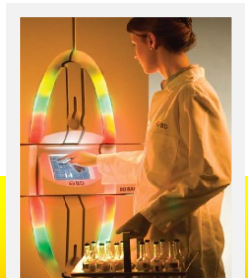
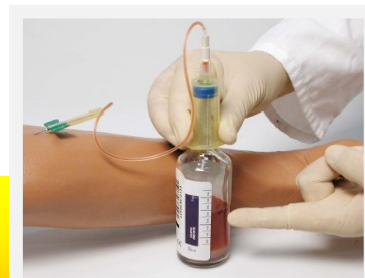
SKIN ANTISEPSIS

A study comparing an alcohol solution of 0.5% CHG versus PI for skin antiseptics prior to blood culture demonstrated reduced contamination rates with CHG.⁷ Besides that, a recent report assessed contamination rates when skin was prepared with iodine tincture versus a commercial product containing 2% CHG and 70% IPA³; in this study, there was no significant difference in the contamination rates associated with the two preparation methods. Thus, the available data suggest that iodine tincture and chlorhexidine products are likely to be equivalent and that both may reduce contamination rates to a greater degree than products containing PI preparations.

Furthermore, chlorhexidine preparations have the advantage of being both colourless and less irritating to skin, so that their use allows one to abandon the additional step necessary with iodine preparations of removing the iodophor using a final alcohol scrub after the venipuncture is completed.⁸

The combination of fast-acting and long-lasting antimicrobial activity is the key to an effective skin antiseptic. IPA alone provides a 99.99% reduction in bacteria, but it does not provide long-lasting microbial kill. CHG maintains antimicrobial activity, for at least 48 hours⁹ compared to two hours for free iodine.¹⁰

In summary, skin antiseptic contains the combination of CHG & IPA is more effective and significantly reduces the blood culture contamination rate as compared to PI.



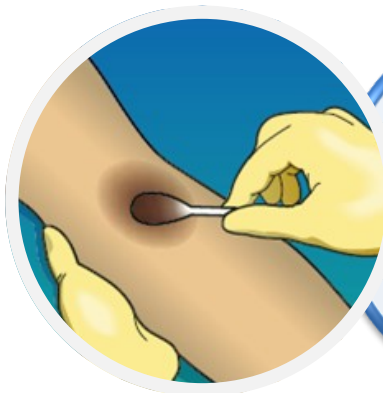
Stop Sepsis - Start with Best Practices in Blood Culturing.

The venipuncture site may be disinfected with:



Cleanse the venipuncture site in circular motion with 70% IPA

Allow the site to air dry



Cleanse the site again in circular motion with 2% CHG

Allow to dry for at least 30s for maximum antiseptic effect

NOTE:

- ★ CHG is recommended for infants ≥ 2 months & patients with iodine sensitivity.
- ★ If the vein must be touched again to draw blood, the site should be cleansed again.

References:

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