

Skin Antisepsis: Care of cannula

Discussion of Evidence

Skin cleansing and antisepsis of the insertion site is considered one of the most important measures for preventing infections associated with vascular access devices (Evidence-Based Practice in Infection Control (EPIC), 2001a, 2001b; LeBlanc & Cobbett, 2000; Pearson, 1996a, 1996b). Skin must be **clean**; that is, free of soil, dust, and organic material prior to applying the antiseptic (CDC, 2002; Health Canada, 2003). Organisms responsible for catheter-related infections originate mainly from the client's own skin flora (Crow, 1996; Jackson, 2001; RCN, 2003) or from the hands of the health care professional inserting or handling the device (Hadaway, 2003b; Jackson, 2001). These organisms can be introduced along with the catheter or can gain access while the catheter is in place. Catheter movement in or out of the insertion site (known as "pistoning") can also allow for skin organisms to migrate into the tract and potentially cause infections (Hadaway, 2003b).

Catheter Material (composition)

Nurses must be knowledgeable about the type of device (central or peripheral) in order to make appropriate care decisions around the skin antiseptic to be used during catheter care. Nurses will disinfect **clean** skin with an appropriate antiseptic before catheter insertion and with each dressing change. The antiseptic solution must be compatible with the catheter material (Hadaway, 2003a). Acetone products should be avoided as they may cause irritation and affect the integrity of the catheter (O'Grady, et al., 2002;

Pearson, 1996a, 1996b) and alcohol-based solutions are not recommended for certain devices. Therefore, the nurse must be aware of the health setting's procedures around specific devices in order to protect the client from harm.

Antiseptic Solution

Studies have shown that 2% chlorhexidine gluconate solution significantly lowers catheter-related bloodstream infection rates when compared with 10% povidone-iodine and 70% isopropyl alcohol (LeBlanc & Cobbett, 2000; Maki, Ringer & Alvarado, 1991; Mimosz, et al., 1996; Rosenthal, 2003; Zitella, 2004). Chlorhexidine gluconate offers a broad spectrum of antimicrobial activity and long-term microbacteriocidal action after application (Hadaway, 2003a). Antiseptics should remain on the insertion site and be allowed to air dry before catheter insertion and/or dressing change. *Table 1* describes the required drying time needed for particular solutions in order to prevent skin breakdown as a result of chemical reaction between the solution and the dressing.

Drying Times

Client tolerance and preference may influence the use of antiseptic solutions. Where alternative antiseptic solutions are not indicated in a procedure, the nurse should consult the appropriate health care practitioner to determine the best solution for the client.

Antseptic Cleaning Solutions	Drying Time
Chlorhexidine gluconate 2% with Alcohol	30 seconds – 1 minute
Chlorhexidine gluconate without Alcohol	2 minutes
Povidine-Iodine	2 minutes
Isopropyl Alcohol 70%	Kills bacteria only when applied Dries quickly No lasting Bacterocidal effect Excessively dry skin

Ref: [Link to Canadian Nurses : Care of Vascular Access Guidelines](#)