complications associated with heparin (Arnts, Heijnen, Wilbers, et al, 2011).

- No significant statistical difference was found between HS and NS flushes for maintaining catheter patency in children (Hanrahan, Kleiber, and Berends, 2000; Hanrahan, Kleiber, and Fagan, 1994; Heilskov, Kleiber, Johnson, et al, 1998; Kotter, 1996; Mok, Kwong, and Chan, 2007; Schultz, Drew, and Hewitt, 2002).

- Increased incidence of pain or erythema was associated with HS flushing of infusion devices (Hanrahan, Kleiber, and Fagan, 1994; McMullen, Fioravanti, Pollack, et al, 1993; Nelson and Graves, 1998; Robertson, 1994).

- Increased patency or longer dwell times were found with HS solutions versus NS in 24-gauge catheters (Beecroft, Bossert, Chung, et al, 1997; Danek and Noris, 1992; Gyr, Burroughs, Smith, et al, 1995; Hanrahan, Kleiber, and Berends, 2000; Mudge, Forcier, and Slattery, 1998; Tripathi, Kaushik, and Singh, 2008).

- Younger children and preterm neonates with lower gestational ages were associated with shorter patency of IV catheters (McMullen, Fioravanti, Pollack, et al, 1993; Paisley, Stamper, Brown, et al, 1997; Robertson, 1994; Tripathi, Kaushik, and Singh, 2008).

- Infusion devices flushed with NS lasted longer than those flushed with HS (Goldberg, Sankaran, Givelichian, et al, 1999; Le Duc, 1997; Nelson and Graves, 1998).

- When measured and reported, the length of time between flushing peripheral devices affected the dwell time (Crews, Gnann, Rice, et al, 1997; Gyr, Burroughs, Smith, et al, 1995).

- Preterm neonates are at higher risk for development of clotting problems as a result of heparin; none of the studies cited anticoagulation-associated complications with HS (Klenner, Fusch, Rakow, et al, 2003).

- 0.9% sodium chloride injection is safe for maintaining patency of