INTRODUCTION

During the last few decades, the development of new techniques and devices to provide effective intravascular access has been a revolutionary step in the care of sick children. Although the rapid evolution of intravascular access technology has been extremely beneficial in a number of therapeutic areas, concern still exists about potential complications of intravascular catheter placement particularly infection. ***(Estrada, 2002)***

The most common life-threatening complication of vascular access is bloodstream infection caused by colonization of the implanted intravascular device or contamination of the catheter hub or infusate administered through the device. ***(Safdar et al. 2005)***

A survey aimed at evaluating the prevalence of nosocomial infection in pediatric intensive care units (ICUs) was conducted in 31 hospitals in the United States and Canada. The study sample included 512 patients with a median age of 2.2 years. The prevalence of infection in this sample was 12%. Blood stream infections (BSIs) were the most frequent and accounted for 41.3% of all nosocomial infections. The most common cause of these infections was coagulase-negative *Staphylococcus* (46.9%), followed by *Enterococcus* species (21.9%) and *Candida* species (9.4%). ***(Estrada, 2002)***

Catheter-related bloodstream infections (CRBSI) are considered "silent" medical errors since they may be caused without operator

knowledge during placement, site care, or line manipulation. Since there is a time delay before the infection presents, the “cause” and “effect” are often not correlated. Nosocomial bloodstream infections contribute to hospital associated morbidity, mortality, and economic burden. ***(Slonim et al., 2001)***

Biofilm-associated bacteria show an innate resistance to antibiotics, disinfectants, and clearance by host defenses. These properties likely contribute to the persistence and resistance to treatment of staphylococcal biofilm infections. ***(Jeremy et al., 2004)***

Several factors have been described in the adult population as playing a role in the occurrence of nosocomial CRBSI. These factors include prolonged catheterization, poor aseptic insertion technique, emergent catheter placement, size of catheter, number of lumens, type of catheter material, location of catheter and frequency of catheter manipulations (catheter factors) ***(Raad . and Darouiche 1996)***

Other factors include presence of an infusion therapy team, use of sterile barrier precautions, type of insertion site dressing, and frequency of system entry (hospital factors). Patient-related factors have also been identified, which include age, granulocytopenia, immune suppression and severity of underlying disease. ***(Singh-Naz et al. 1996)***

However, no assessment of the risk of CRBSI related to the use of various intravascular technologies has been reported at the present time in the pediatric population. ***(Odetola et al. 2003)***