INTRODUCTION

Late-onset neonatal sepsis (LONS)—invasive infection occurring in neonates older than 3 days—occurs in approximately 10% of all neonates and in > 25% of very low birth weight infants (VLBW) (<1500 g) who are hospitalized in neonatal intensive care units (NICUs) **(*Rubin et al, 2002*).**

Patients in the NICU have both intrinsic and extrinsic risk factors for infection. Patients in the NICU have **intrinsic risk factors** for infection due to immunological "deficiencies" or inadequate development of the mechanical barriers such as the skin and gastrointestinal tract mucosa. All aspects of immune function are impaired in NICU infants, including the phagocytic, humoral, and reticuloendothelial systems. Bacterial colonizers in the normal host are potentially invasive in the neonate. Like other intensive care unit (ICU) populations, NICU patients have **extrinsic risk factors** for infection such as prolonged hospitalization, invasive procedures, instrumentation, and antibiotic-induced overgrowth of resistant flora. Compared with healthy full-term infants, patients in the NICU develop **abnormal flora**, which is generally acquired in the NICU from patient-to-patient transmission via hand carriage of healthcare workers. This flora is frequently multidrug-resistant as it has developed under the selective pressure of antibiotics and can cause invasive disease **(*Saiman, 2002*)**.

Nosocomial infections can be defined as those occurring within 48 hours of hospital admission, 3 days of discharge or 30 days of an operation. They affect 1 in 10 patients admitted to hospital (***Inweregbu, 2005***).

Nosocomial bloodstream infections (BSIs) are associated with significant mortality and morbidity (***Goldmann et al., 1983***). These nosocomial BSIs have also been reported to increase length of stay and hospital charges (***Sohn et al., 2001***). By one estimate, nosocomial BSIs

increased stay period length by an average of 14 days and total hospital charges by $25,090 (***Gray et al., 1995***). Reduction of these nosocomial BSIs has the potential to reduce mortality, morbidity, and hospital treatment costs associated with treating VLBW infants. (***Payne et al., 2004***).

Infection control is a discipline that applies epidemiologic and scientific principles and statistical analysis to the prevention or reduction in rates of nosocomial infections. Effective infection control programs have been proven to reduce the rates of nosocomial infections and to be cost-effective (***Haley et al., 1985***). One study had showed that effective infection control programs which included surveillance, control activities, and appropriate personnel and leadership decreased the frequency of endemic nosocomial infections by 30% to 50% (***Haley et al., 1985***).