Introduction

Recommendations for Prevention and Control of Infections in NICU Patients: CLABSI

AT A GLANCE

Read the introduction to the Prevention and Control of Infections in NICU Patients: CLABSI guideline.

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Overview

Central line-associated bloodstream infection (CLABSI) cause significant patient harm across patient populations, especially NICU patients. In this vulnerable population, CLABSIs increase adverse neurodevelopmental outcomes, adjusted hospital costs, lengths of stay and mortality.[34], [61], [62] Factors that increase the risk for CLABSI include intrinsic factors, such as immunologic immaturity and poor skin integrity, and extrinsic factors, such as frequent and prolonged catheter use and frequent catheter manipulation associated with the need for medication and total parenteral nutrition.

A robust body of evidence supports effective strategies to prevent CLABSIs in adults, and to a large extent, older children. Data in NICU patients are more limited. Efforts to develop evidence-based recommendations for CLABSI-prevention in NICUs are complicated by the heterogeneity in settings and the populations they serve. The risks for infection as well as the feasibility of specific infection prevention strategies differ for a 500-gram infant born at 24 weeks gestation and a term infant who needs surgery to correct a congenital malformation. Clinical decisions that have the potential to increase or decrease the risk for CLABSI (e.g., the choice of central line type or insertion site, the timing of catheter removal or replacement) are primarily determined by considerations other than infection prevention, alone. Factors such as gestational and chronologic age, skin maturity, and the presence of co-morbidities will affect decisions regarding central line use, and these decisions are made on a patient-by-patient basis, weighing relative risks and benefits for each individual. At the unit level, factors such as patient acuity, patient mix, central venous catheter utilization, and length of stay, impact CLABSI rates and may shape prevention efforts. The needs and resources of Level II NICU in a community hospital may be different than Level IV NICU that serves as a regional referral center for infants with the most complex problems.

Nevertheless, single centers and multi-center collaboratives have demonstrated that reductions in CLABSI are possible with implementation of bundled interventions focused on central line insertion and maintenance.[50], [63] The components of these bundles vary, raising questions about which interventions are essential to prevention efforts.

This Guideline was developed to provide targeted, evidence-based recommendations for the prevention of CLABSI in NICU patients. When considering how and when to implement these recommendations, healthcare facilities should consider the characteristics of the population they serve, individual patient needs, and baseline CLABSI rates. Healthcare facilities should use their own data to determine when to add interventions and where to target prevention efforts when infections are occurring. As a part of a comprehensive infection prevention and control strategy, healthcare providers can employ a quality improvement framework to maximize efficiency in reducing infections in their facility. Tools such as CDC's Targeted Assessment for Prevention (TAP) Strategy Toolkit enable hospitals to target locations within facilities, assess gaps, and implement interventions to prevent CLABSI.[64] For important topics where evidence was insufficient to formulate evidence-based recommendations, companion guidance is available to inform the delivery of healthcare in NICUs [link to SHEA Companion Document]. Additionally, guidance is available elsewhere regarding the management of CLABSIs in healthcare settings.[2]

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