

## ANTISEPSIS IN THE NEWBORN CARE CENTRE

*This Local Operating Procedure is developed to guide safe clinical practice in Newborn Care Centre (NCC) at The Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this Local Operating Procedure.*

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### INTRODUCTION

It is necessary to identify effective and safe topical antiseptics to reduce nosocomial sepsis in infants. Neonates, particularly preterm and extremely low birth weight infants, in intensive care units are susceptible to sepsis. Central Line Associated Blood Stream Infections (CLABSI) are among the most common nosocomial infections noted in the nursery.

#### 1. AIM

- To provide safe and effective topical antiseptic preparations in neonates to reduce nosocomial sepsis

#### NOTE:

This policy covers antiseptic preparations prior to any non-surgical invasive intervention. Antiseptic preparations for invasive surgical procedures in the Newborn Care Centre or Operating Theatres are beyond the scope of this guideline.

#### 2. PATIENT

- Newborns

#### 3. STAFF

- Medical and nursing staff

#### 4. EQUIPMENT

- N/A

#### 5. CLINICAL PRACTICE

- Skin preparation for all procedures (includes intravenous cannulation, arterial lines, peripherally inserted central catheters, blood culture collections, lumbar puncture, suprapubic taps, urinary catheter insertion, intercostal catheters, umbilical lines etc.):
  - Chlorhexidine 0.5% solution for all infants
- For line connections (e.g. cleaning hubs or bungs prior to connecting fluids but not skin preparation):
  - Antiseptic Wipes containing 2% Chlorhexidine gluconate with 70% isopropyl alcohol

#### 6. DOCUMENTATION

- N/A

#### 7. EDUCATIONAL NOTES

- Chlorhexidine (CHG) has a broad spectrum bactericidal activity and effective against some viruses and fungi. It is also effective against resistant organisms, including methicillin-resistant *S. aureus*, vancomycin-resistant enterococci, and various *Streptococcus* and *Pseudomonas* species.<sup>1</sup> The major advantage of chlorhexidine is a persistent antimicrobial effect that lasts as long as 6 hours after application.<sup>2</sup>

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- Three small RCTs have assessed short-term efficacy of skin antiseptics prior to peripheral cannulation or venepuncture. Comparing preantiseptic and postantiseptic skin swabs before peripheral venous cannulation, Lilley et al. presented preliminary data showing significantly better bacterial clearance with 0.5% CHG compared with 0.05% CHG aqueous solution (92 vs. 38%,  $P=0.002$ ).<sup>3</sup> Nuntnarumit and Sangsuksawang compared the efficacy of 1% CHG aqueous vs. 10% povidone-iodine prior to peripheral blood sampling, and reported fewer contaminated blood cultures with the 1% CHG (0 vs. 2.9%,  $P=0.026$ ).<sup>4</sup> Bredemeyer et al, in a small double-blinded RCT, tested the efficacy and safety of 0.015% versus 0.5% aqueous chlorhexidine solution in reducing infection rates in preterm neonates born before 29 weeks.<sup>5</sup> There were no differences between groups for late onset sepsis (26% vs 29%,  $p = 0.61$ ) or median skin integrity scores at 24 hours ( $p = 0.96$ ). Secondary outcomes showed no difference except for mortality; more deaths occurred in the 0.5% arm (6% vs 19%,  $p = 0.021$ ). There were no deaths due to late onset sepsis in the 0.015% arm and three in the 0.5% solution suggesting an association of 0.5% solution with higher mortality.
- While higher strength chlorhexidine may be efficacious safety is a concern. Chapman et al, in their review of the published data on the safety of chlorhexidine in neonates reported skin toxicity and systemic absorption in studies using 0.25% chlorhexidine or more.<sup>6,7</sup> Bredemeyer's RCT suggested no benefit of 0.5% chlorhexidine in comparison to 0.015%, but noticed a higher mortality in 0.5% arm.<sup>5</sup>

### 8. RELATED POLICIES/PROCEDURES/CLINICAL PRACTICE LOP

- Blood Cultures – Blood Culture Collecting Technique
- Intravenous Cannula – Insertion of Intravenous Cannula in neonate
- PICC Line – Insertion of percutaneous intravenous central catheter

### 9. RISK RATING

- Medium

### 10. NATIONAL STANDARD

- Standard 3 Preventing and Controlling Healthcare-Associated Infections
- Standard 5 Comprehensive Care

### 11. ABBREVIATIONS AND DEFINITIONS OF TERMS

NCC	Newborn Care Centre	RCT	Randomised Controlled Trial
CLABSI	Central Line Associated Blood Stream Infection	PICC	Peripherally Inserted Central Catheter
CHG	Chlorhexidine Gluconate		

### 12. REFERENCES

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#### 13. AUTHOR

Primary	16/8/2016	S Bolisetty (lead clinician)
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#### REVISION & APPROVAL HISTORY

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