Table S1: Neonatal Operative Skin Preparation Solution Evidence Summary with Level of Evidence (2011 Oxford Level of Evidence)

Study	Type of Study	Population	Intervention	Outcomes	Key findings	Level of Evidence/Quality
Kieran et al. Arch Dis Child Fetal Neonatal Ed 2018	RCT (2 center) Ireland	NICU infants (n-304) <31 weeks having CVCs inserted	Skin disinfection with either 2% CHG w 70% isopropyl alcohol vs 10% poviodine iodine	CLABSI Skin reactions Thyroid dysfunction	No difference in CLABSI (# or rate per 1000 catheter days). Skin reaction rates <1%, and not different between groups More infants in PI group req'd thyroxine	LOE 2 Quality Moderate (underpowered)
Sinha et al. Cochrane Library, 2015	Cochrane Review 12 studies: 7 hospital, 5 community based	Term, Late preterm/ Hospitals Term, Late preterm/Community care	Chlorhexidine vs dry cord care or total body cleansing vs usual care (0.25%-4% CHG)	Neonatal mortality Omphalitis occurrence	Hospitals: skin or cord cleaning=no difference in mortality, reduced omphalitis Community care: CHG cord cleansing vs no care may reduce omphalitis, no effect on mortality	LOE 1 Quality Variable (low, moderate, high)
Abdeyazdan et al. Educ Health Promot 2014	Single blinded clinical trial with "within subjects" design	NICU infants >28 weeks and 1000g (n=98).	Half of body (random determination) disinfected with 10% poviodine/iodine, other half with 2% CHG	Differences in skin culture rates before, immediately after, 2h later	Significant difference in skin culture positivity Immediately following skin decontamination (3.1% vs 17.3%: favoring povidine/iodine)	LOE 2 Quality Moderate
Linder et al. Acta Paediatr (2004)	Retrospective Comparative cohort study (Israel)	Single institution NICU Skin disinfection study	1992-93-10% poviodine-iodine 1996-96-0.5% CHG/70% isopropanol	Positive blood cultures and sepsis symptoms ("true infection") and "contamination"	CHG group lower GA and BW No difference in rates of "true infection" or "contamination"	LOE 3 Qulality Moderate
Chapman et al. J Perinatol (2012)	Review article (summarizing 11 cohort studies)	>1200 NICU infants <32 weeks GA	Variety of CHG (0.5-4%, some with alcohol) exposures. Indications: whole body bathing, cord care, PICC placement, "invasive procedures" (not surgery)	Skin changes (contact dermatitis, severe skin irritation). Detectable levels of CHG in blood	Of papers reporting adverse outcome, these included contact dermatitis, severe skin irritation (n=23). Of 3 studies reporting detection of CHG (total 58 pts, 22 had detectable levels of CHG)	Review (not included but identified for citation searching)
Garland et al. Pediatr Infect Dis J (1995)	Non-randomized, multicenter, sequential comparative cohort study (US)	254 NICU term infants (GA 35.7 w)	PIV catheter site cleansing with either 10% poviodine iodine or 0.5% CHG/70% isopropyl alcohol	Catheter colonization; and Catheter-related bacteremia (+ blood culture and catheter colonization with same org)	Catheter colonization rate lower in CHG patients (4.7 vs 9.3%). In poviodine/iodine site cleanses, rate is correlated with duration of IV access. No difference in rates of catheter related bacteremia	LOE 3 Quality Moderate
Darmstadt et al. Pediatr Infect Dis 2007	RCT, single center (India)	344 NICU patients >1000g	Randomized to placebo or 0.44% CHG body wipe	Skin cultures taken at various time points after wipe Skin related adverse effects	Skin culture positive rates 35-55% lower in CHG group. No difference in skin condition between groups	LOE 2 Quality Moderate
Nuntnarumit, et al. Inf Contr Hosp Epidiol 2013	RCT single center (Thailand)	212 late preterm infants >1500 g	Randomized to 1%CHG vs10% Poviodine Iodine After skin allowed to dry, prep wiped off with normal saline	Blood culture positive rates Skin related adverse effects	No positive cultures in CHG group. 2.9% positive cultures in PI group. No skin erythema, burn or contact dermatitis or evidence of systemic effect?	LOE 2 Quality Moderate

CLABSI =Central Line Associated Blood Stream Infection; RCT=Randomized Controlled Trial; GA= Gestational Age ; BW= Birth Weight; CHG=Chlorhexidine Gluconate; NICU=Neonatal Intensive Care Unit