

Supplemental Digital Content 2. Characteristics of included studies

Author Year	Study design Setting	Population	Intervention	Control	Results
Mullany et al 2006	Community cluster RCT in southern Nepal 2 by 3 factorial design	413 clusters 14887 newborns	4% CHX Soap and water	Dry cord care	<p>Mortality</p> <ul style="list-style-type: none"> • 24% lower in the CHX group compared to dry care: RR 0.76, 95% CI 0.55 -1.04 • If within 24 hrs reduction was 34%: RR 0.66, 95% CI 0.46-0.95 • Soap and water did not reduce mortality <p>Neonatal sepsis and omphalitis CHX associated with reductions in:</p> <ul style="list-style-type: none"> • Redness extending to base of umbilicus: RR 0.68, 95%CI 0.58-0.80 • Pus and moderate or severe redness or severe redness alone: RR 0.46, 95% CI 0.36-0.59 • Severe redness and pus: RR 0.25, 95%CI 0.12-0.53 • Initiation within 24hrs: RR 0.13, 95%CI 0.07-0.31 <p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> • Overall mean (sd) =4.6 ± 2, median 4.33 (interquartile range 3.29-5.13) • 4% CHX, mean (sd): 5.32 ± 2.4 • Soap mean (sd): 4.25 ± 1.6 • Dry mean (sd): 4.24 ± 1.6 • 65%of the 1229 infants whose separation time >7days were in CHX group: RR 3.64, 95%CI 3.09-4.28 • In the non CHX group 3% decrease in infection for each

additional day of cord separation: RR 0.97, 95%CI 0.92-1.03

Arifeen et al 2012	Community cluster RCT rural Bangladesh	133 clusters 29760 newborns	4% CHX Single cleansing Multiple cleansing	Dry cord care	Mortality Single cleansing with 4% CHX <ul style="list-style-type: none">• 20% lower risk compared to dry care: RR 0.80, 95%CI 0.65 – 0.98 Multiple cleansing (no significant reduction) <ul style="list-style-type: none">• 6% lower risk compared to dry care: RR 0.94, 95%CI 0.78 – 1.14 Neonatal sepsis and omphalitis Redness extending to skin <ul style="list-style-type: none">• Single 4% CHX: RR 0.93, 95%CI 0.61 – 1.43• multiple 4% CHX: RR 0.78, 95%CI 0.50 – 1.22 Pus and moderate redness or severe redness alone <ul style="list-style-type: none">• single: RR 0.90, 95%CI 0.55– 1.46• multiple: RR 0.55, 95%CI 0.31 – 0.95 severe redness and pus <ul style="list-style-type: none">• single: RR 0.77, 95%CI 0.40 – 1.48• multiple: RR 0.35, 95%CI 0.15 – 0.81
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					Umbilical cord separation times UCST (days)
					<ul style="list-style-type: none"> • Not reported
Soofi et al 2012	Community cluster RCT 2 by 2 factorial design in rural Pakistan	187 clusters 9741 newborns	4% CHX+HW CHX only HW only	Dry cord care	<p>Mortality</p> <ul style="list-style-type: none"> • CHX + HW: RR 0.64, 95%CI 0.39 – 1.06 • HW only: RR 1.23, 95%CI 0.82 – 1.83 • CHX only: RR 0.74, 95%CI 0.50 – 1.08 <p>Neonatal sepsis and omphalitis (any of the indicators of omphalitis)</p> <ul style="list-style-type: none"> • CHX + HW: RR 0.53, 95% CI 0.32 – 0.88 • HW only: RR 0.67, 95% CI 0.48 – 0.93 • CHX only: RR 0.44, 95%CI 0.29 – 0.67 <p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> • CHX + HW mean (sd): 6.2 ± 1.3 • HW only mean (sd): 5.9 ± 1.5 • CHX only mean (sd): 6.0 ± 1.6 • Control mean (sd): 6.0 ± 1.6
Pezzati et al 2003	Prospective RCT Hospital in Italy	244 preterm newborn babies	4% CHX solution	Salicylic sugar powder	<p>Mortality</p> <ul style="list-style-type: none"> • No cases mortality was reported <p>Neonatal sepsis and omphalitis</p> <ul style="list-style-type: none"> • 1 sepsis case in each arm <p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> • Not reported
Ahmadpo ur-Kacho	RCT Teaching hospital	373 enrolled, 312 completed the	Breast milk 96% ethyl	Dry cord care	<ul style="list-style-type: none"> • No cases mortality was reported • No cases of sepsis or Omphalitis

et al 2006	in Iran	study	alcohol Silver sulfadiazine		<p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> Breast milk mean (sd): 5.16 ± 1.79 96% Alcohol mean (sd): 6.41 ± 1.95 Silver sulphadiazene mean (sd): 10.45 ± 3.62 Control (sd): 6.58 ± 2.16
Hsu et al 2010	RCT In Taiwan	150 neonates consecutive births in a hospital	95% alcohol (n=75) Triple dye applied immediately after birth before randomization	Natural air drying (n=75)	<ul style="list-style-type: none"> No omphalitis or infection reported (definition used for omphalitis not provided) <p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> Alcohol mean (sd): 10.6 ± 2.5 Control mean (sd): 11.7 ± 3.4
Sulimanet al 2010	Prospective RCT USA	90 Healthy full- term newborns Follow up till cord separation	Triple dye plus alcohol (51.1%) (TD + A)	Triple dye alone (48.9%) (TD)	<ul style="list-style-type: none"> No significant signs of infection were reported <p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> Triple dye + Alcohol mean = 16.6 (range 9-43) Triple dye mean = 15.6 (range 8-28)
Erenel et al 2009	RCT Post partum clinic of a university clinic in Turkey	150 newborns	Olive oil (n=75)	Air drying (n=75)	<ul style="list-style-type: none"> No omphalitis was reported <p>Umbilical cord separation times UCST (days)</p> <ul style="list-style-type: none"> Olive oil mean (sd)= 9.1±3.1(range 3-18) Control mean (sd) = 9.8±2.5 (range 3-18) At 10 days 71.6% in olive group and 56% in the control had separated

*The Cochrane review of 2004 Zupan et al also did not report any mortality in any of the reviewed 21 studies; *RR= risk ratio; CHX = Chlorhexidine solution; HW = hand washing; sd = standard deviation; TD = Triple dye; A = Alcohol