Appendix 3: Characteristics of Included Studies (Systematic Review)

Author	Year	Title	Study design	Country	Urban/Rural	Study population	Population characteristics	Method of participant selection	Sample size	Study duration	Type of facility
Korbkitjaroen et al	2011	Effectiveness of comprehensive implementation of individualized bundling infection control measures for prevention of health care-associated infections in general medical wards	Cluster RCT	Thailand	Urban	Adult patients in general medical wards	Newly hospitalized patients in such general medical wards staying longer than 48 hours during the study period	Patients in the participating wards	4 control wards and 4 intervention wards There were 954 patients (9,650 hospitalization-days) in the intervention wards and 920 patients (9,777 hospitalization-days) in the control wards	4 months	Tertiary - hospital
Chen et al	2015	Integrated measures for prevention of invasive Candida infections in preterm infants in a Chinese neonatal intensive care unit	Retrospective cohort with control group	China	Urban	Neonates (pre-term)	Preterm infants with gestational age (GA) <33 weeks and at least 7 days old admitted between 2010 and 2013	Patients admitted during certain times	261 pre-term infants	48 months	Tertiary - hospital
Raza and Avan	2013	Disposable clean delivery kits and prevention of neonatal tetanus in the presence of skilled birth attendants	Matched case-control	Pakistan	Urban	Neonates	Cases: infants who had been diagnosed with neonatal tetanus (NNT) Controls: infants who survived the neonatal period and whose mothers had no history of tetanus immunization.	Hospital records	140 cases and 280 controls	25 months	Tertiary - hospital

Author	Year	Intervention	Description of the overall intervention	WASH only/Combined	WASH intervention description	Length of the intervention	Length of post-intervention follow up	Definition of HCAI used
Korbkitjaroen et al	2011	Individualised Bundled infection control practices - including hand hygiene and sterilization	Each patient in the intervention ward was visited by the infection control team once a day until he or she left the hospital. The infection control team identified risk factors for developing HAI in each patient, coordinated with the local health care team to eliminate or minimize such risk factors, and encouraged responsible personnel to comply with the appropriate infection control measures for each patient	Combined	Hand hygiene and sterilization of skin and equipment	4 months	0 months	CDC National Healthcare Safety Network's surveillance definition of HAI
Chen et al	2015	Hand hygiene education	The control group (CG) only had routine measures for prevention of nosocomial infections, including disinfection and sterilization, isolation of patients, control of risk factors, and education and training of medical staff. In the fluconazole group (FG), in addition to routine preventive measures, all eligible infants received fluconazole. The integrated measures group (IMG) had routine preventive measures and fluconazole prophylaxis, and also the management and supervision of hand hygiene was emphasized (posters), training lectures, observations.	Combined	Hand hygiene - education, management and supervision of hand hygiene (IMG group)	12 months	N/R	N/R
Raza and Avan	2013	Provision of disposable clean care delivery kits	Provision of clean delivery kits which include: soap, plastic sheet, clean string for tying the umbilical cord, clean razor blade, gauze/spirit for clean cord care	Combined	Clean delivery kits included soap	25 months	N/A	NNT was diagnosed if the following signs and symptoms occurred in sequence: history of normal suck and cry for the first two days of life; history of onset of illness between 3 and 28 days of age; history of inability to suck; stiffness and/or convulsions.

Author	Year	Primary outcome	Secondary outcomes	Additional outcomes	Laboratory-based measurement	Effect estimate	Process and implementation factors	Intervention uptake	Cost of intervention
Korbkitjaroen et al	2011	Overall HCAI CAUTI VAP CABSI	Mortality due to HCAI Length of stay in hospital	N/R	N/R	The overall prevalence of HCAI was significantly lower in the intervention wards compared with the control wards (5.6%, or 5.5 episodes/1,000 hospitalization-days vs 9.2%, or 8.7 episodes/1,000 hospitalization-days)(P = 0 .003). The rates of VAP and CAUTI were also significantly lower in the patients in the intervention wards. VAP intervention (6.5 episodes per 1000 respirator days) vs VAP control (16.3 episodes per 1000 respirator days) P = 0.009 CAUTI intervention (2.9 episodes per 1000 catheter days) CAUTI (7.3 episodes per 1000 catheter days) P= 0.013 The rate of CABSI did not differ significantly between the 2 groups CABSI intervention (2.9 episodes per 1000 catheter days) CAUTI (3.9 episodes per 1000 catheter days) P= 0.84 Mortality due to HCAI intervention (15%) Control (37%) P= 0.07 Length of stay intervention (42.15 days) control (45.49 days) P=0.52	N/R	N/R	N/R
Chen et al	2015	Invasive Candida infections (ICIs)	Mortality of patients with ICI	N/R	Blood, urine, or cerebrospinal fluid culture	The incidence of ICI differed significantly among the study groups: 23.3% (21/94) in the CG, 18.2% (18/99) in the FG, and only 2.9% (2/68) in the IMG (P ¼.003). ICI was significantly less frequent in the IMG compared with the CG (P <.001) and FG (P 0.003); however, there was no significant difference between the CG and the FG (P = 0.50). Overall mortality in the infants with ICI was 7.3% (3/41), including 9.5% (2/21) in the CG, 5.6% (1/18) in the FG, and 0 in the IMG.	N/R	N/R	N/R
Raza and Avan	2013	Neonatal tetanus (NNT)	N/R	N/R	N/R	After adjustment for socioeconomic factors, clean delivery care kits were independently associated with NNT (adjusted matched odds ratio [mOR] 2.0; 95% confidence interval [CI], 1.3–3.1). The association with clean delivery care kits remained significant when additionally adjusted for skilled birth attendants (mOR 2.0; 95% CI, 1.0–3.9; P=0.05).	N/R	N/R	N/R