

S3 Table. Preliminary list of predictor variables compiled through literature review (N=144). Displays decision to include (N=77) or exclude (N=67) from the common data element set, and reason for exclusion where applicable.

Variable	Step 1	Step 2	Reason for Exclusion	Tier
Patient Characteristics				
Age	Included			1
Gender	Included			1
Time since last hospitalization	Included			2
Duration of illness/sign/symptom	Excluded		Low perceived predictive value	
Referral (urgent)	Included			2
Distance from hospital	Discussion	Excluded	Low perceived predictive value	
Immunizations up to date	Discussion	Included		3
History of no cry at birth	Excluded		Low perceived predictive value	
History of feeding problem since birth	Included			2
Pregnancy/Birth Details				
Born at home	Discussion	Excluded	Captured in "Facility of Birth" variable	
Facility of birth (reported)	Discussion	Included		2*
Attendant at birth (reported)	Included			2*
Delivered by a skilled attendant	Discussion	Excluded	Low perceived predictive value	
Duration of labour	Excluded		Low perceived predictive value	
Duration of rupture of membrane	Excluded		Low perceived predictive value	
Premature rupture of membranes	Excluded		Low perceived predictive value	
Ballard score	Excluded		Measurement reliability	
Number of postnatal care visits (reported)	Included			2*
Sociodemographic Information				

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Mother alive	Included			2
Maternal age (years)	Included			2
Maternal education	Included			2
Maternal fever	Excluded		Low perceived predictive value	
Maternal persistent cough	Excluded		Low perceived predictive value	
Maternal HIV	Included			1
Child HIV status	Included			1
Exclusive breastfeeding	Included			2
Number of children in family	Excluded		Low perceived predictive value	
Siblings death	Excluded		Low perceived predictive value	
Bed-net use	Discussion	Included		2*
Consider malaria risk	Excluded		Measurement reliability	
Boil all drinking water	Discussion	Included		3*
Water source for drinking (reported)	Discussion	Included		3*
Latrine available (reported)	Discussion	Included		3*
Anthropometric Data				
Weight	Included			1
Length	Included			1
MUAC	Included			1
Vitals				
Temperature	Included			1
HR	Included			1
RR	Included			1
SpO2	Included			1
SBP (raw)	Discussion	Excluded	Low perceived predictive value	
DBP (raw)	Discussion	Excluded	Low perceived predictive value	

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Clinical Signs/Symptoms				
Respiratory				
Apnea (reported)	Excluded		Low perceived predictive value	
Apnea (observed)	Excluded		Low perceived predictive value	
Difficulty Breathing (reported)	Included			1
Difficulty breathing (observed)	Included			1
Fast breathing (reported)	Excluded		Measurement reliability	
Fast breathing (observed)	Excluded		Measurement reliability	
Runny nose (reported)	Included			3*
Respiratory effort (observed)	Excluded		Measurement reliability	
Obstructed breathing (observed)	Included			2
Central cyanosis (observed)	Included			2
Chest in-drawing (observed)	Included			2
Nasal flaring (observed)	Included			2
Grunting (observed)	Included			2
Head bobbing/nodding (observed)	Included			2
Crepitations (observed)	Included			2
Stridor (observed)	Included			2
Wheezing (observed)	Included			2
Cough (reported)	Excluded		Low perceived predictive value	
Circulation/Perfusion				
Capillary Refill Time	Excluded		Measurement reliability	
Prolonged capillary refill	Included			1
Skin cold (cool peripheries)	Included			2
Weak and fast pulse	Included			2
Pallor - palmar, oral, conjunctival	Included			2

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Mother feels baby is cold	Included			3
Dehydration				
WHO dehydration scale	Excluded		Measurement reliability	
Pinching of the skin of abdomen/hand (skin turgor)	Included			2
Sunken eyes	Included			2
Depressed fontanelle	Included			2
No tears when crying	Included			2
Reduced urine production	Excluded		Low perceived predictive value	
Thirst	Discussion	Excluded	Measurement reliability	
Dry oral mucosa	Included			2
Neurological				
Irritability (restlessness) (reported)	Excluded		Measurement reliability	
Consolability (reported)	Excluded		Measurement reliability	
Change in level of activity (reported)	Excluded		Measurement reliability	
Change in crying (reported)	Excluded		Measurement reliability	
Quality of crying (reported)	Excluded		Measurement reliability	
Sleepiness/drowsiness/unconscious (reported)	Excluded		Measurement reliability	
Ease of awakening (reported)	Excluded		Measurement reliability	
Convulsions (reported)	Included			2
Convulsions (observed)	Included			2
Limbs became limp (reported)	Excluded		Low perceived predictive value	
Neck pain/stiffness (reported)	Included			2
Stiff neck (observed)	Included			2
Stiff limbs (observed)	Included			2
Hypotonia (observed)	Included			2
Not able to drink or feed anything (reported)	Included			2

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Not feeding well (observed)	Excluded		Low perceived predictive value	
Not suckling/breastfeeding (reported)	Included			2
Quality of suck (reported)	Excluded		Measurement reliability	
Prostration (reported)	Excluded		Measurement reliability	
Spontaneous movements/to stimulus (observed)	Excluded		Measurement reliability	
Bulging fontanelles (observed)	Included			2
Mobility (observed)	Excluded		Measurement reliability	
Focal neurology acute (observed)	Excluded		Measurement reliability	
Confusion (observed)	Excluded		Measurement reliability	
Lethargy (AVPU) (observed)	Included			1
Blantyre Coma Scale <5 (observed)	Excluded		Measurement reliability	
Infection				
Fever	Discussion	Excluded	Measurement reliability	
Suspected measles	Excluded		Measurement reliability	
History of measles	Excluded		Measurement reliability	
Ear pain	Discussion	Excluded	Low perceived predictive value	
Ear discharge (ex. pus)	Discussion	Excluded	Low perceived predictive value	
Tender swelling behind the ear	Discussion	Excluded	Low perceived predictive value	
Otitis media	Excluded		Low perceived predictive value	
Purulent drainage eyes	Excluded		Low perceived predictive value	
Conjunctivitis	Excluded		Low perceived predictive value	
Rash	Included			2
Skin pustules	Discussion	Excluded	Low perceived predictive value	
Hardening of skin	Excluded		Low perceived predictive value	
Jaundice	Discussion	Included		1
Umbilicus - red	Included			2

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Umbilicus - draining (pus)	Included			2
Look for ulcers or white patches in the mouth (oral thrush)	Included			2
Risus sardonicus	Excluded		Low perceived predictive value	
Tetanic spasms, spasticity	Excluded		Low perceived predictive value	
Signs of local bacterial infections	Excluded		Measurement reliability	
GI/GU				
Diarrhea (reported)	Included			1
Blood in stool (dysentery) (reported)	Included			2
Vomiting (reported)	Included			1
Abdominal pain (reported)	Included			2
Abdominal distension (observed)	Included			3*
Foul-smelling urine (reported)	Excluded		Low perceived predictive value	
Malnutrition				
Too small	Excluded		Measurement reliability	
Swelling of both feet (peripheral edema)	Included			2*
Visible severe wasting (marasmus)	Included			3*
Trauma/Surgical				
Malformation	Excluded		Measurement reliability	
Trauma (or other surgical condition)	Included			2
Eye injury	Discussion	Excluded	Captured in "Trauma" variable	
Fracture	Discussion	Excluded	Captured in "Trauma" variable	
Dislocation	Discussion	Excluded	Captured in "Trauma" variable	
Hemorrhage	Discussion	Excluded	Captured in "Trauma" variable	
Severe Pain	Discussion	Included		3*
Burns	Included			2

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Poisoning	Included			2
Other				
History of diabetes	Excluded		Low perceived predictive value	
Sleep quality	Excluded		Measurement reliability	
Smiling (older than 6 weeks)	Discussion	Excluded	Measurement reliability	
Parental concern	Discussion	Excluded	Measurement reliability	
Laboratory Testing				
Hemoglobin (g/dL)	Included			2
Malaria blood smear	Included			1
Blood sugar measurement	Included			2

*Consensus for tiering achieved post-discussion (Step 5).