Variable	Standardized Prompt	Response Values		
Patient Informa	ition	I		
Age	Enter age at admission in months.	Integer (months)		
Sex	Enter biological sex.	Female / Male		
Length of Illness	Ask: How many days has the child been sick in this illness?	Integer (days)		
Urgent referral	Ask: Was the child referred to this hospital from another health facility in the last 24 hours?	No / Yes		
Previous admissions	Ask: Has the child been admitted to a hospital or health center in the last 6 months?	No / Yes		
Number of previous admissions	Ask: How many times was the child admitted to the hospital or health centre in the last 6 months?	Number		
Time since last hospitalization	Ask: How long ago was the child last admitted to a hospital or health center?	< 7 days / 7-14 days /14-30 days / 1 month / 2 months / 3 months / 4 months / 5 months / 6 months		
Vital Signs				
Oxygen saturation	Measure peripheral oxygen saturation using the mobile pulse oximeter (See SOP).	Continuous (%)		
Heart Rate	Record the patient's heart rate from previous pulse oximetry measurement (See SOP).	Continuous (bpm)		
Respiratory Rate	Measure respiratory rate using the app provided (See SOP).	Continuous (breaths per minute)		
Temperature	Measure and record axillary temperature (See SOP).	Continuous (degrees Celsius)		
Anthropometric Measurements				
Weight	Measure and record the child's weight. (See SOP)	Continuous (kg)		
Height	Measure and record the child's height. Measure length instead if younger than 2 years old (See SOP).	Continuous (cm)		
Middle upper arm circumference	Measure and record the child's mid-upper arm circumference (See SOP).	Continuous (mm)		
Clinical Signs and Symptoms				
Respiratory				
Difficulty breathing	Is the child having difficulty breathing compared to a well child?	No / Yes		
Stridor	Does the child have stridor? (High pitched sound from upper airway during inspiration)	No / Yes		
Indrawing	Does the child have chest indrawing on inspiration? ("Drawing in" of lower chest during inspiration)	No / Yes		

Supplementary Table S2: Candidate predictor variables, definitions, and response values (N=63).

(Widening of nostrils during inspiration) Grunting Does the child have a grunt on expiration? (Short noise at each expiration) No / Yes Tracheal tug Does the child have a tracheal tug on inspiration? (Downward movement of trachea during inspiration) No / Yes Accessory Does the child have a tracheal during inspiration) No / Yes Miscle use neck, chest, abdominal, or upper back muscles) No / Yes Wheezing Does the child have a wheeze during expiration when listening with a stethoscope? (High pitched sound in chest during expiration) No / Yes Cough Record if you have observed coughing from the child. No / Yes Central Are the child's lips or tongue a blue or dark blue color? No / Yes Supplemental Is the child receiving supplemental oxygen? No / Yes Cagillary refill Apply pressure to a thumb or finger for 3 seconds to blanch it. Does it take more than 3 seconds to return to original pink color after you let go? (See SOP) No / Yes Cool Are the child's radial pulse feel weak or absent? No / Yes Pallor Is the child pale at their palms, oral mucosa, or conjunctiva pulse No / Yes Skin pinch Pinch the child's skin in the lower arm until it is tented, then release it. Does it take longer than 2					
Grunting Does the child have a grunt on expiration? (Short noise at each expiration) No / Yes Tracheal tug Does the child have a tracheal tug on inspiration? (Downward movement of trachea during inspiration) No / Yes Accessory Does the child have a tracheal tug on inspiration) No / Yes Mexicle use neck, chest, abdominal, or upper back muscles) No / Yes Wheezing Does the child have a wheeze during expiration when listening with a stethoscope? (High pitched sound in chest during expiration) No / Yes Cough Record if you have observed coughing from the child. No / Yes Capilary refill Are the child's lips or tongue a blue or dark blue color? No / Yes Supplemental Is the child receiving supplemental oxygen? No / Yes Capillary refill Is the child's hands cold? No / Yes peripheries Does the child's hands cold? No / Yes Weak or absent radial pulse feel weak or absent? No / Yes Pallor Is the child pale at their palms, oral mucosa, or conjunctiva compared to their caretaker? No / Yes Stin pinch Pinch the child's skin in the lower arm until it is tented, then release it. Does it take longer than 2 seconds to return to baseline? No / Yes Stin pinch Pinch the child's sappear to	Flaring		No / Yes		
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diarrhea.DysenteryAsk: Has the child had blood in their stools?No / Yes	Diarrhoea		No / Yes		
	Chronic diarrhea	Ask: Did the child have diarrhea for more than two weeks?	No / Yes		
Neurologic	Dysentery	Ask: Has the child had blood in their stools?	No / Yes		

AVPU	Assess and select consciousness level using the AVPU scale (See SOP).	Alert / Responds to voice / Responds to pain / Unresponsive
Convulsions (reported, history of)	Ask: Has the child had convulsions before? (See SOP).	No / Yes
Convulsions (actively, now)	Was the child actively convulsing during this assessment?	No / Yes
Irritable	Has the child been crying uncontrollably throughout the interview, even before you approached them?	No / Yes
Inability to drink or breastfeed	Ask: Has the child been too sleepy or tired to breastfeed, drink, or eat for more than 6 hours?	No / Yes
	Malnutrition	
Oedema	Does the child have pitting oedema on their feet, knees, or face?	No / Yes
Severe wasting	Does the child seem wasted?	No / Yes
	Infection	
History of fever	Ask: Does the child have a history of fever?	No / Yes
Rash	Does the child have a rash?	No / Yes
Infective lesion	Does the child have an infective lesion on the skin, eye or ear?	No / Yes
	Trauma	
Major trauma	Has the child suffered trauma needing a designated trauma team or urgent surgery? OR Does he/she have a penetrating injury, pelvic or long bone fracture, or head or neck injury?	No / Yes
Burns	Has the child suffered a burn resulting in skin breakdown?	No / Yes
Poisoning	Has the child ingested a chemical or drug not intended for ingestion by the child?	No / Yes
Severe pain	Does the child seem to be in severe pain?	No / Yes
	Other	
Parent concern	Ask: Do you think that this child may need admission because he is sicker than he has been in the past?	No / Yes
	phic Information	
Child HIV status	Record HIV status if records available. Otherwise ask: Has your child tested positive for HIV?	No / Yes
Maternal HIV status	Record HIV status if records available. Otherwise ask: Has the child's mother tested positive for HIV?	No / Yes
Primary caregiver	Ask: Who is the primary caregiver of the child?	Mother / Father / Grandparent / Other relative / Non-relative / Daycare

Ask: Is the child's mother still alive?	No / Yes			
Ask: What is the highest level of school reached by the	No school / Primary /			
child's mother? Read out options.	Secondary / Post-			
	secondary / Don't know			
Ask: How old is the child's mother?	Integer (years)			
Ask: Do you always boil water before the child drinks it?	No / Yes			
Ask: Where does the child get most of his/her drinking	Bottled / Tap / Borehole			
water from? Read out options.	/ Protected spring /			
	Open source / Slow			
	running water / Fast			
	running water / Don't			
	know			
Laboratory Testing				
Enter HIV test result.	Negative / Positive /			
	Not done			
Enter Malaria test result.	Negative / Positive /			
	Not done			
	Ask: What is the highest level of school reached by the child's mother? Read out options. Ask: How old is the child's mother? Ask: Do you always boil water before the child drinks it? Ask: Where does the child get most of his/her drinking water from? Read out options. ing Enter HIV test result.			