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Table 2: Proposed indicators, outcomes, data collection processes and tools for Aim 4

Indicator or Outcome	Data collection process(es)	Data collection tool(s)	Domain assessed	When assessed?
Neonatal resuscitation capacity				
% of HCPs attending births who have been trained in basic neonatal resuscitation within the past 3 months (# NR trained SBAs/# total SBAs)	mHBS	Quality Improvement Monitoring Checklist	NR-trained HCP capacity (overall and per facility)	<ul style="list-style-type: none"> • Baseline • Mid-intervention • 3 Months post-intervention
% of HCPs who obtain 80% or higher score on MCQ (# HCPs score at least 15 of 18/total # HCPs who take the MCQ)	mHBS	Knowledge Check (HBB 2.0)	Knowledge regarding NR	<ul style="list-style-type: none"> • Pre-initial HBB course • Post-initial HBB course • Intervention period • 3 months post-intervention
% of HCPs who pass (14/14) BMV skill check (# HCPs pass BMV skills check/total # HCPs assessed with BMV skill check)	mHBS	BMV skill check (HBB 2.0)	PPV skills	
% of HCPs who pass (9/12) OSCE A (# HCPs pass OSCE A/total # HCPs assessed with OSCE A)	mHBS	OSCE A (HBB 2.0)	Competency to perform initial steps of resuscitation	
% of HCPs who pass (17/23) OSCE B (# HCPs pass OSCE B/total # HCPs assessed with OSCE B)	mHBS	OSCE B (HBB 2.0)	Competency to perform prolonged resuscitation	
% of health facilities fully equipped to provide immediate care at birth (we will ascertain if sufficient number of good quality, functional equipment such as dry cloths and gloves are available as compared to the facility’s annual delivery volume and number of areas where babies are delivered)	mHBS Delivery logs and/or MOH	<ul style="list-style-type: none"> • HBB Survey of Neonatal Equipment and Infrastructure in Health Facilities (equipment) • QI monitoring checklist • Reported number of annual deliveries 	Equipment capacity	<ul style="list-style-type: none"> • Baseline • Mid-intervention • 3 Months post-intervention
% of health facilities fully equipped to provide PPV (we will ascertain if sufficient number of good quality, functional resuscitators, masks (2 sizes), and suction devices are available according to the facility’s delivery volume x an estimated rate of 10% of births being asphyxiated babies)	mHBS	<ul style="list-style-type: none"> • HBB Survey of Neonatal Equipment and Infrastructure in Health Facilities (equipment) • QI monitoring checklist 	Equipment capacity	<ul style="list-style-type: none"> • Baseline • Mid-intervention • 3 months post-intervention

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Table 2: Proposed indicators, outcomes, data collection processes and tools for Aim 4 (continued)

Indicator or Outcome	Data collection process(es)	Data collection tool(s)	Domain assessed	When assessed?
% deliveries attended by HBB or NR-trained HCP (# observed deliveries with NR/HBB trained HCP/total # observed deliveries)	mHBS	<ul style="list-style-type: none"> Delivery Observation Checklist 		<ul style="list-style-type: none"> Baseline Throughout intervention period 3 months post-intervention
% of areas where babies delivered with dedicated spaces for neonatal resuscitation (# of wards/delivery areas with dedicated NR space/total # wards/delivery areas)	mHBS	<ul style="list-style-type: none"> HBB Survey of Neonatal Equipment and Infrastructure in Health Facilities (equipment) 	Clinical care capacity for neonatal resuscitation	<ul style="list-style-type: none"> Baseline Throughout intervention period 3 months post-intervention
% of health facilities with dedicated areas for low-dose, high-frequency practice (e.g., HBB corners) (# of HBB corners/total # wards/delivery areas)		<ul style="list-style-type: none"> QI monitoring checklist 	LDHF practice capacity for neonatal resuscitation	
Immediate care at birth				
% of babies dried thoroughly at birth <ul style="list-style-type: none"> # of babies dried thoroughly with first cloth/total # births observed; # of babies first wet cloth discarded/total # births observed; # babies wrapped in 2nd dry cloth/total # births observed 	mHBS	Delivery Observation Checklist	Immediate care at birth	<ul style="list-style-type: none"> Baseline Throughout intervention period 3 months post-intervention
% of babies breathing/crying after drying thoroughly (# babies breathing/crying after dry thoroughly/total # observed deliveries)				
% of babies not breathing, not breathing well, or not crying after drying thoroughly (# babies not breathing/crying after dry thoroughly/total # observed deliveries)				

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Indicator or Outcome	Data collection process(es)	Data collection tool(s)	Domain assessed	When assessed?
<i>Routine care</i>				
% of babies delivered to the mother’s chest or abdomen (# babies delivered to mother’s abdomen or chest/total # observed deliveries)	mHBS	Delivery Observation Checklist	Routine care at birth	<ul style="list-style-type: none"> • Baseline • Throughout intervention period • 3 months post-intervention
% of babies who have delayed cord clamping/cutting for 1-3 minutes (# babies with delayed cord clamping/total # observed deliveries)				
% of babies for which appropriate cord cutting practices are observed <ul style="list-style-type: none"> • Observations regarding supplies and equipment used to clamp, tie, or cut the cord—are they disinfected? • # HCPs who change gloves and/or wash hands prior to cutting the cord/total # observed deliveries 				
% of babies placed skin-to-skin with the mother after cord cut (# babies placed skin-to-skin with the mother immediately after birth/total # deliveries observed)				
% of HCPs who encourage timely initiation of breastfeeding (# time HCPs encourage or counsel the mother on timely initiation of breastfeeding/total # deliveries observed)	mHBS	Delivery Observation Checklist	Routine care at birth	<ul style="list-style-type: none"> • Baseline • Throughout intervention period • 3 months post-intervention
<i>Neonatal resuscitation</i>				
% of non-breathing/crying babies receive appropriate stimulation (# babies not breathing after initial drying who receive stimulation/total # babies not breathing after initial drying in observed deliveries)			Initial NR steps	

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<p>% of non-breathing/crying babies receive clearing of the airway (# babies not breathing after initial drying who receive clearing of the airway/total # babies not breathing after initial drying in observed deliveries)</p>	<p>mHBS</p>	<p>Delivery Observation Checklist</p>	<p>Initial NR steps</p>	<ul style="list-style-type: none"> • Baseline • Throughout intervention period • 3 months post-intervention
<p>% non-breathing/crying babies receive PPV (# babies not breathing after initial drying who receive PPV/total # babies not breathing after initial drying in observed deliveries)</p>			<p>PPV</p>	
<p>% of non-breathing/crying babies who receive PPV within 60 seconds (The Golden Minute) after birth (# babies who receive PPV within 60 seconds /total # babies who receive PPV in observed deliveries)</p>			<p>PPV</p>	
<p>% of non-breathing/crying babies who receive PPV for which chest rise is observed (# babies who receive PPV with observed chest rise /total # babies who receive PPV in observed deliveries)</p>			<p>PPV</p>	
<p>% of non-breathing/crying babies who receive PPV at the correct rate (# of babies who receive PPV at rate of 30-50 BPM/total # of babies who receive PPV in observed deliveries)</p>			<p>PPV</p>	
<p>% of babies who require prolonged ventilation (# of babies who require > 1 minute of PPV/total number of babies who receive PPV in observed deliveries)</p>			<p>Prolonged NR</p>	
<p>% of babies for whom efforts are made to improve ventilation (# of babies receiving PPV for whom any MRSOPA activities observed/total # of babies receiving PPV in observed deliveries)</p>			<p>Prolonged NR</p>	
<p>% of babies who received PPV alive at 4 hours after delivery (# liveborn babies (no FSB or MSB) who received PPV alive at 4 hours post-delivery/total # babies who received PPV)</p>			<p>Disposition of babies who required PPV</p>	

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% of babies who received PPV referred or transferred to advanced care at 4 hours after delivery (# liveborn babies (no FSB or MSB) who received PPV referred or transferred for care at 4 hours post-delivery/total # babies who received PPV)				
% of babies who received PPV deceased at 4 hours after delivery (# liveborn babies (no FSB or MSB) who received PPV dead at 4 hours post-delivery/total # babies who received PPV)				
% of PPV events debriefed (# of resuscitation debriefings/total number of PPV events)	mHBS	Resuscitation debriefing form	Self-reflective learning	
<i>eHBB and educational video interventions</i>				
% of HCPs who own a smart phone or tablet device (# of smart phone or tablet device owners/total # participating HCPs)		Demographic form		
Usability assessment		UTAUT survey		
Total number of times eHBB accessed during project period (overall; average per HCP)	eHBB			<ul style="list-style-type: none"> • Throughout intervention period
Average number of eHBB VR scenarios completed during each log-in	eHBB			
Average score for each eHBB VR scenario	eHBB			
Number of times VR scenario not completed	eHBB			
Total number of times educational video regarding PPV viewed during project period				
Performance indicators during VR scenarios % of HCPs that appropriately dry thoroughly % of HCPs that appropriately position head and clear airway % of HCPs that call for help % of HCPs that appropriately initiate PPV % of HCPs that improve ventilation with no chest rise % of HCPs that appropriately perform delayed cord	eHBB		<ul style="list-style-type: none"> • Routine care at birth • Competency to perform initial steps of resuscitation 	

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clamping % of HCPs that appropriately position skin-to-skin			<ul style="list-style-type: none"> Competency to perform prolonged resuscitation 	
% of HCPs that report technical difficulty with eHBB				
% of HCPs that report technical difficulty with video				