

Supplementary Materials:

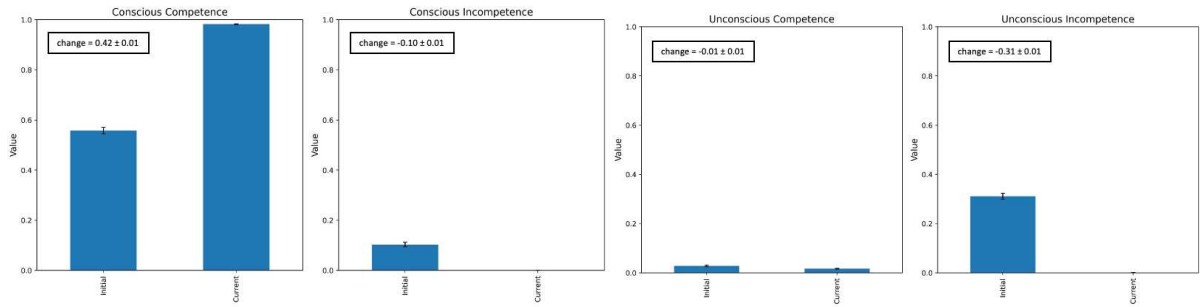


Figure A. aESNC Efficacy by metacognition.

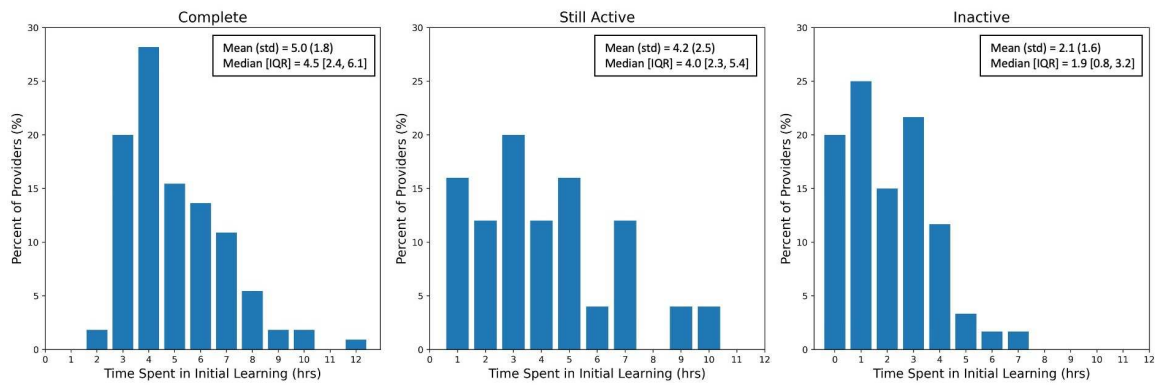


Figure B1-3. Time Spent by initial learning completion status

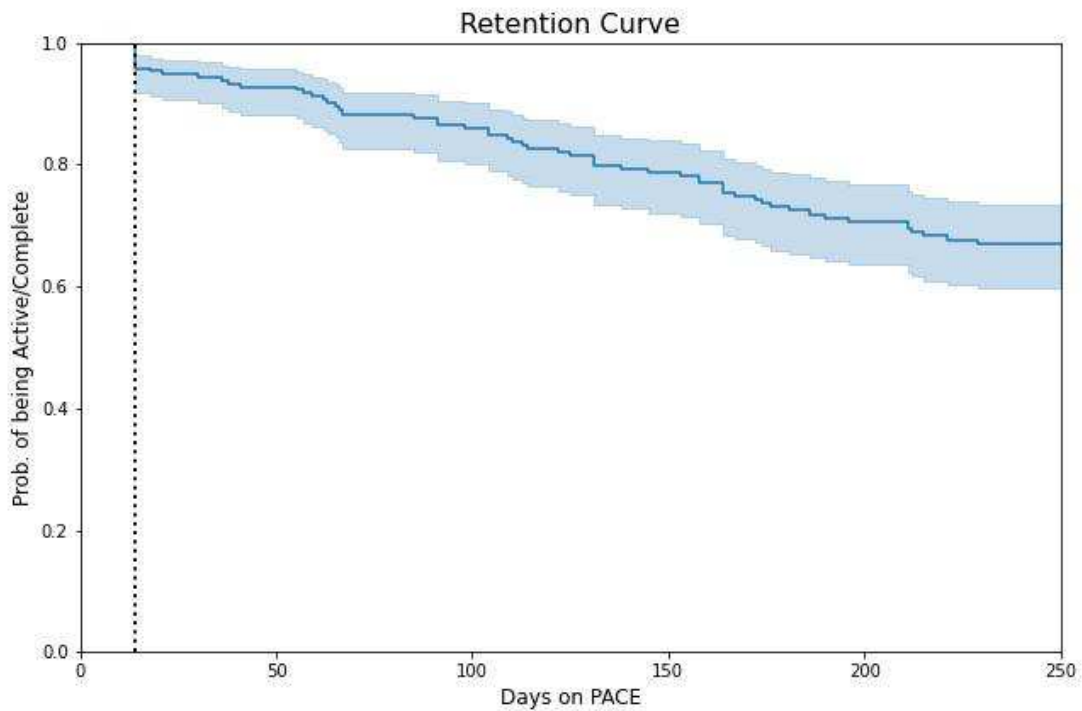


Figure B4. Retention curve of active providers/providers who completed initial learning

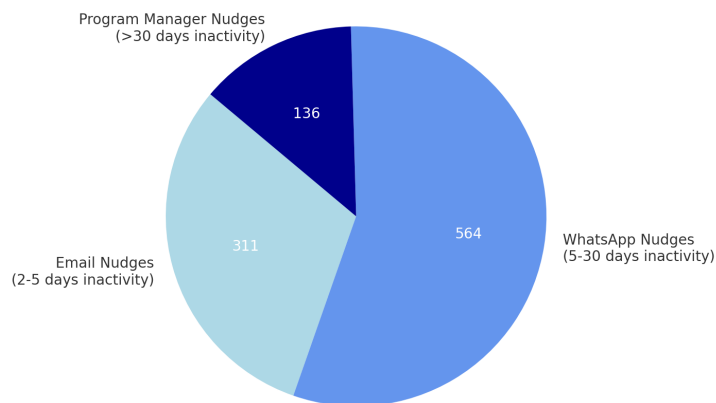
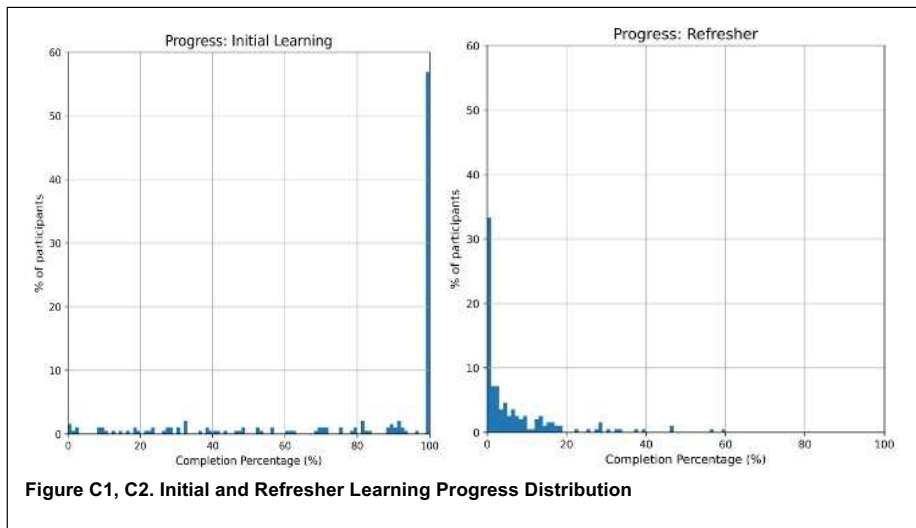


Figure D1: Nudge types based on days of inactivity

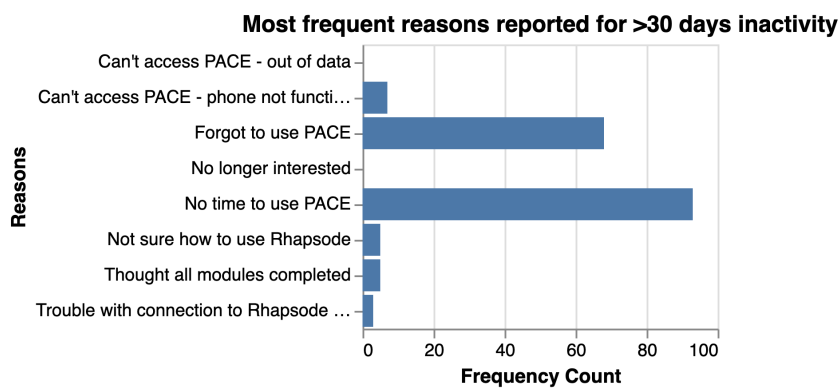


Figure D2: Reasons for > 30days inactivity

aESNC Modules and Learning Objectives:

Essential Newborn Care: 1st Hour of Life

Overview of Essential Newborn Care in the First 24 Hours

- Recognize the steps that have been proven to be efficient in helping newborns breathe

APGAR Score

- Recall when the APGAR score should be assessed after birth

- List the five components of the APGAR score

- List the components of routine care for a crying newborn

- List the recommendations for keeping the newborn warm immediately after birth

- Recognize when you should initiate breastfeeding after delivery

- Identify breathing and temperature check recommendations within the first hour after birth

Cutting the Cord

- Compare the timing for cutting the cord for newborns who receive routine care with those requiring ventilation

- Order the steps for cutting the cord

Care of the Newborn Within the First Hour After Birth

- Recognize the recommendations for skin-to-skin contact within the first hour after birth

Breastfeeding

- Recall how soon breastfeeding should be initiated after birth

- List the signs of readiness to breastfeed in a newborn

Essential Newborn Care: Preparing For Delivery

Chain of Infection

- Rank the steps of the chain of infection

- List infection prevention strategies

Hand Washing

- Identify some of the hand hygiene recommendations

- Recall best practices in hand hygiene

Processing of Equipment

- Identify the buckets in the three-bucket method of decontamination

- Categorize medical equipment based on the disinfection method

- Order the steps of the seven-bucket method for decontamination

- Recognize duration of use of drugs and medical equipment

Preparation for Birth

- List key considerations for preparation for birth

Establishing Hygiene

- Identify the components of the aseptic technique

- List the three surfaces included in the three cleans of strict aseptic technique

- List best practices to prepare an area for delivery

- List components of a complete sterile delivery set

- List components of a newborn resuscitation set

Risk Factors During Labour and Delivery for Select Newborn Problems

- Identify the most common risk factors for preterm/small newborns

- Identify the most common risk factors for intrapartum hypoxia

- Identify the most common risk factors for hypoglycemia

Essential Newborn Care: Resuscitation

Steps of Resuscitation

Recognize the recommendation for a newborn who is not crying after birth

Order the four key steps of newborn resuscitation

Identify best practices to keep a newborn warm during resuscitation

Identify how to position the head to check the airway

Removing Secretions during Resuscitation

Recognize when it is recommended to remove secretions from the airway

Recognize how secretions are removed during newborn resuscitation

Identify the risks associated with poor suctioning during resuscitation

Newborn Stimulation

Identify how should you stimulate newborns

Recognize what should you do if stimulation alone is unsuccessful

Performing Ventilation of the Newborn

Rank the main steps of newborn ventilation

Identify the correct placement of a breathing mask during neonatal resuscitation

Recognize how should you hold and seal the mask

Recall the recommended ventilation rate

Recall the heart rate threshold for progressing to advanced life support if ventilation after stimulation is unsuccessful

Advanced Life Support for the Newborn

Recognize the minimum requirements to perform advanced life support

Recognize what to do if the heart rate is slow (< 60 beats /minute) and the baby does not breathe spontaneously after 20 minutes of effective ventilation based on availability of intensive care services

Recognize what to do if the newborn has no heart rate and no breathing after giving effective ventilation for 10 minutes

After Successful Resuscitation

List recommendations for care of the newborn after successful resuscitation

List some of the care recommendations for newborns delivered outside the health facility

Sick Newborn Care: Birth Asphyxia + Pain

Birth Asphyxia

Define birth asphyxia

List some of the clinical features of birth asphyxia

List the investigations for birth asphyxia

Recognize the goal of management of birth asphyxia

List key elements of managing newborns with birth asphyxia

Recognize the feeding and fluids management strategies for mild HIE

Recognize the feeding and fluids management strategies for moderate and severe HIE

Recognize what to do if the newborn with HIE urinates less than 6 times daily or produces no urine

Pain in Newborns

Pain Assessment

List behavioral cues and physiological measures to assess pain in newborns

List some of the newborn facial expressions of pain

Pain Management

List some of the psychological and physical pain management strategies in newborns

List the pharmacological management strategies for pain in newborns

Recognize the dose of drugs for treatment in pain in newborns

Sick Newborn Care: Convulsions + Meningitis

Convulsions

Recognize the clinical features of convulsions in newborns

List some risk factors for convulsions in newborns

Identify the investigations for convulsions in newborns

Identify the interventions for convulsions

Identify the first-, second-, and third-line pharmacological treatments of convulsions in newborns

Recognize why diazepam shouldn't be used for convulsing newborns

Identify the loading dose and maintenance strategy for the use of phenobarbitone in convulsing newborns

Recognize what should be monitored when using phenytoin

Recognize what should be monitored when using midazolam

Identify management strategies for breathing difficulties in a convulsing newborn

Recognize the pharmacological treatment when seizures occur while the newborn is on phenobarbitone maintenance therapy

Recognize when to stop treatment for convulsions in newborns

Neonatal Meningitis

Compare clinical presentation of neonatal sepsis, meningitis and pneumonia

List neurological signs of meningitis

Recognize the most immediate management strategy for neonatal meningitis

Recognize how to confirm the diagnosis of meningitis

Identify management strategies if the newborn's meningitis does not improve after 48 hours of treatment with antibiotics

Sick Newborn Care: Glucose + Electrolytes

Glucose control

Hypoglycaemia

Hypoglycaemia in Newborns

Recognize some of the hypoglycaemia risk factors

List the clinical features of neonatal hypoglycaemia

List the investigations for persistent hypoglycaemia in newborns

Hypoglycaemia Management

Recognize the management of newborns with symptomatic hypoglycaemia

Recognize the management of newborns with asymptomatic hypoglycaemia

Recognize how to manage hypoglycaemia in newborns with feeding intolerance or when breastmilk is not available

Recognize how to transition from IV to enteral feeding in hypoglycaemic newborns

Hyperglycaemia

Definition and Risk Factors

Define hyperglycaemia

List some of the risk factors for hyperglycaemia in newborns

Recognize the management of hyperglycaemia in newborns

Electrolyte Imbalance

Identify which electrolyte imbalance can cause arrhythmia

Identify which electrolyte imbalances can cause altered mental status, irritability

Identify which electrolyte imbalances can cause tremors or seizures

Match correct treatments with electrolyte imbalance

Sick Newborn Care: Hemorrhage + Jaundice

Haemorrhage

Hemorrhage in Newborns

- List the causes and risk factors for haemorrhage in newborns
- List the clinical features of haemorrhage in newborns
- List the investigations for haemorrhage in newborns
- Recognize the management strategies for haemorrhage in newborns

Neonatal Jaundice

- Categorize the features of physiologic and pathologic jaundice
- Match the grades of the Kramer's Rule with the affected anatomical regions
- Categorize the neurologic signs based on the phases of hyperbilirubinaemia in term infants
- Recall the presentation of signs of BIND in preterm infants
- List the investigations for neonatal hyperbilirubinaemia
- List additional investigations for neonatal hyperbilirubinaemia
- List the technical considerations for phototherapy for the treatment of neonatal hyperbilirubinaemia
- Recall the recommended distance between the phototherapy lamp and the newborn
- Recall the recommended frequency of temperature monitoring in newborns receiving phototherapy
- List complications of phototherapy
- Recognize the considerations of the use of parenteral antibiotics in neonates with hyperbilirubinaemia

Introduction to Care of the Sick Newborn

Immediate Assessment and Management

Triaging the Sick Newborns

- List the 3 triage categories for sick newborns

Severe Respiratory Distress

- List clinical features of severe respiratory distress
- Recognize the immediate management of newborns with severe respiratory distress

Shock

- List key steps in the immediate management of shock in newborns
- Recognize the volume and infusion time of normal saline and Ringer's lactate infusion for treatment of shock in newborns

Active Convulsions

- Recognize the immediate management of active convulsions in newborns

Further Assessment and Management

- Recognize the main components of non-emergency care for sick newborns
- List sources of patient history for a sick newborn
- Recognize best practices for a physical exam of a stable sick newborn
- Recognize what to do if newborn care unit is not available

Oxygen Therapy

- Recognize when oxygen saturation should be checked
- Recall the normal oxygen saturation range for term newborns
- Recognize the indications for oxygen therapy in newborns
- Recognize the recommendations for oxygen therapy in newborns
- List parameters to document when providing oxygen therapy to newborns

Sick Newborn Care: Pneumonia, Sepsis, + Shock

Neonatal Pneumonia

- List risk factors for neonatal pneumonia

- List the clinical signs of neonatal pneumonia

- List the investigations for neonatal pneumonia

- List the overarching management strategies for neonatal pneumonia

- Recognize antibiotic recommendations when treating pneumonia in newborns

Neonatal Sepsis

- Recall the 2 other conditions that are difficult to differentiate when diagnosing neonatal sepsis

- Differentiate between early- and late-onset neonatal sepsis

- List risk factors for neonatal sepsis

- List clinical criteria used for a presumptive diagnosis of neonatal sepsis

- List the investigations for neonatal sepsis

- List the overarching management strategies for neonatal sepsis

- Recognize the recommendations for antibiotic therapy for neonatal sepsis

Shock

- List the clinical features of shock in newborns

- List the investigations for shock in newborns

- List the interventions for shock

- Recognize the treatment of shock in newborns if bleeding is the likely cause

- Recognize the treatment of shock in newborns if bleeding is NOT likely the cause