REPUBLIC OF KENYA

MINISTRY OF HEALTH

NEWBORN MENTORSHIP

"Access to Quality Newborn Care Everywhere"

MENTOR'S MANUAL

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FOREWORD

Kenya has made significant progress in reducing under-five and infant mortality over the past decade; however, neonatal mortality remains disproportionately high, with the Kenya Demographic and Health Survey (2022) reporting 21 deaths per 1,000 live births—almost double the Sustainable Development Goal (SDG) target of 12 by 2030. While survival rates for infants and children under five have improved, newborn survival continues to lag behind, highlighting the urgent need for a balanced, integrated approach to both newborn and child health.

To build on this progress and address persistent gaps, the Ministry of Health has developed the Newborn Mentorship Package—a practical, structured, and scalable framework that strengthens the capacity of frontline health workers to manage neonatal conditions. This package is designed to reinforce clinical competencies, promote adherence to national guidelines, and embed a culture of quality improvement at facility and county levels.

The mentorship package addresses common newborn emergencies such as prematurity, sepsis, and birth asphyxia. Through simulation-based learning, bedside coaching, supportive supervision, and the use of real-time tools and data, this package aims to equip providers with the skills and confidence to save lives across the entire under-five continuum of care.

The Ministry of Health is mandated to provide policy and strategic leadership for service delivery and capacity building of health providers, while county governments are responsible for ensuring the quality and reach of those services. As counties continue to invest in systems to deliver different levels of care, mentorship offers a critical pathway to sustain quality service delivery by building and retaining clinical skills where they are most needed.

We call upon all stakeholders—national and county governments, and development partners to prioritize and support the implementation of this mentorship package. Together, we can foster a resilient health workforce that delivers high-quality of care for every newborn, everywhere in Kenya.

Dr. Patrick Amoth, EBS
Director General for Health
Ministry of Health.

ACKNOWLEDGEMENTS

The Ministry of Health, under the leadership of the Director General for Health, Dr. Patrick Amoth; the Head of the Directorate of Family Health, Dr. Issak Bashir; the Head of the Division of Reproductive, Maternal, Newborn, Child and Adolescent Health, Dr. Edward Serem; and the Head of the Newborn and Child Health Section, Dr. Julliet Omwoha, acknowledges the contributions of numerous individuals, institutions, and stakeholders in the preparation and finalization of the Newborn Mentorship Package.

This package would not have been possible without the invaluable support, dedication, and commitment of key partners and non-governmental organizations working to improve newborn and child health in Kenya.

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We also acknowledge the healthcare professionals, mentors, and field workers who continually inspire this work through their tireless service to communities around the world. Their experiences and feedback have grounded this package in the realities of care and the hope for change.

To the Clinton Health Access Initiative, Nest 360, Jacaranda Health, Save the Children, and Lwala Community who supported this mentorship package development in ways big and small—thank you. This package is a reflection of your dedication to ensuring that every newborn and child has the chance to survive and thrive.

Dr. Issak M. Bashir.
Head Directorate of Family Health
Ministry of Health.

ABBREVIATIONS

ABC	Airway Breathing and Circulation
AKI	Acute Kidney Injury
ANC	Antenatal Care
AOP	Apnoea Of Prematurity
AP	Anteroposterior
APGAR	Appearance, Pulse Rate, Grimace, Activity, Respiration
ARVs	Antiretrovirals
BVM	Bag, Valve, Mask
BWT	Birthweight
CHX	Chlorhexidine
CLABSI	Central Line Associated Bloodstream Infection
CPAP	Continuous Positive Airway Pressure
CPR	Cardiopulmonary Resuscitation
CRT	Capillary Refill Time
CRP	C-Reactive Protein
CVC	Central Venous Catheter
FHG	Full Hemogram
FiO2	Fraction of Inspired Oxygen
GAPPD	Global Action Plan for Prevention and Control of Pneumonia and Diarrhoea
HAIs	Hospital Acquired Infections
HR	Heart Rate
IFCDC	Infant and Family Centred Developmental Care
iKMC	Immediate Kangaroo Mother Care
IMNCI	Integrated Management of Childhood Illness
IPC	Infection Prevention and Control
IUGR	Intrauterine Growth Restriction
IV	Intravenous
IVF	Intravenous Fluids
IVH	Intraventricular Hemorrhage
KHIS	Kenya Health Information System
KMC	Kangaroo Mother Care
LP	Lumbar Puncture
NAR	Newborn Admission Record
NBU	Newborn Unit
NGT	Nasogastric Tube
OGT	Orogastric Tube
OSCE	Objective Structured Clinical Examination
PCT	Procalcitonin
PEEP	Positive End Expiratory Pressure
PMTCT	Prevention of Mother To Child Transmission
PPV	Positive Pressure Ventilation
PPT	Powerpoint
PR	Pulse Rate
RBS	Random Blood Sugar

ROP	Retinopathy Of Prematurity
RR	Respiratory Rate
SBAR	Situation Background Assessment Recommendation
SPO2	Peripheral Oxygen Saturation
SVD	Spontaneous Vaginal Delivery
TEO	Tetracycline Eye Ointment
UECs	Urea, Creatinine and Electrolytes

INTRODUCTION TO NEWBORN MENTORSHIP: FRAMEWORK

i. Goal

To strengthen the knowledge, skills, and competencies of healthcare providers in delivering high-quality, evidence-based newborn and child health services through structured, supportive, and data-informed mentorship, to reduce under-five morbidity and mortality

ii. Objectives

1. Build skills and competency in identifying, classifying, and managing common newborn and child illnesses
2. Integrate Quality Improvement (QI) into routine newborn and child health service delivery.
3. To improve linkages, coordination, and feedback between supervision, clinical mentoring systems and monitoring and evaluation (M&E).

iv. Mentorship Definition & Rationale

Mentorship is defined as a sustained, collaborative, and competency-driven relationship in which skilled healthcare providers support the professional development, skills enhancement, and clinical decision-making capacity of other providers within the health system.

It is a hands-on, based approach to capacity-building that focuses on improving the quality of care by reinforcing clinical competencies and promoting reflective learning in real-time clinical settings. Mentorship goes beyond conventional training by creating a supportive environment that fosters confidence, accountability, and continuous quality improvement.

- **Mentor:** A qualified and experienced healthcare provider—such as a neonatologist, paediatrician, medical officers, nurses, clinical officers, comprehensive and Essential Newborn Care trainers, —who has demonstrated clinical proficiency, leadership, and successfully completed national mentorship training. Mentors serve as role models, facilitators, and catalysts for change.
- **Mentee:** A frontline health provider actively providing newborn and child health services who seeks to strengthen their clinical competencies, confidence, and decision-making capacity through guided mentorship support.

Rationale:

Mentorship is a proven, high-impact strategy for bridging the "know-do" gap—turning theoretical knowledge into applied clinical excellence. It enables real-time learning, fosters accountability, and strengthens health systems from the inside out while directly contributing to reductions in under-five morbidity and mortality.

Approach:

- Onsite Mentorship: Ensures that learning is integrated into routine clinical care and tailored onsite simulation sessions, to address gaps in clinical skills.
- Contextualized capacity building: Providers learn in their actual service environment, making skills acquisition more relevant, targeted, and easily retained.
- Builds clinical skills through practice: Mentorship allows providers to build and refine clinical competencies through practice in skills labs.
- Promotes peer-to-peer learning: Providers learn from trusted colleagues in real time, which fosters confidence, team cohesion, and experiential mastery.

v. Target Groups

- County and Sub County Health Management Teams (SCHMTs)
- Mentors
- Mentees
- QI coordinators

Selection Criteria of Mentors

- A health care provider who is currently practicing and proficient in the technical area in which s/ he is to mentor.
- An experienced and skilled practitioner who is proficient in the provision of newborn and child health services to assure adequate skills transfer.
- Ability to mentor other health care providers.
- At least 1 year of clinical experience in a specific technical area of newborn and child health services.

Roles of Mentors

- Identify the clinical skills gap.
- Promote adherence to professional ethics.
- Executing skills and competencies in alignment with best practices
- Advocate for working environments conducive to quality patient care and continuous professional development.
- Document mentoring activities and the mentee's performance.
- Assesses the mentee and provides feedback
- Active participation in QI activities to promote positive behavior change.

Attributes of a mentor

- Appropriate skills and experience in the subject/area of mentorship
- Good Communication Skills - Mentors need to demonstrate excellent listening skills and, is empathetic
- Respectful: An effective mentoring relationship is characterized by mutual respect, trust, understanding.
- Patient and understanding- mentees learn at different paces; therefore, they require encouragement rather than passing judgment when their progress is proceeding slowly
- Good time management and prioritization of competing tasks
- Ability to source external technical support
- Available and willing to mentor others

Selection Criteria for choosing a mentee

- Should be a health care provider involved in the care of newborns and children
- Should be willing and committed to undertake the mentorship
- Must be working within the maternal, newborn, and child health departments

Roles of the Mentee

- Actively engaging in mentorship sessions, demonstrations, simulations, and feedback discussions.
- Completes tasks assigned and provide feedback through standard evaluation tools on mentorship sessions undertaken
- Active participation in QI activities to promote positive behavior change.

Step-by-Step Guide to Mentorship Process

- **Needs assessment-** Conduct an initial assessment to understand the specific needs of the healthcare providers regarding the provision of newborn and child health services. The assessment can be done during coaching or routine facility monitoring visits using the mentorship checklist.
- **Mentor Selection-** Identify individuals who have expertise in newborn and child health who can serve as mentors.
- **Mentee selection-** Selected mentees must be actively working within newborn and child health departments, and be prioritized for retention to enable effective application of acquired skills.
- **Mentor-mentee pairing-** The mentor-mentee pairing is based on mentee's needs and the mentor's expertise, following the training needs assessment report. This is done in a way that ensures the mentee receives the support and guidance they need to achieve their goals.
- **Planning-** Mentors plan for individualized mentee support based on their unique needs/gaps identified with

clear timelines for mentorship. An introductory session for mentors and mentees helps to establish rapport and set expectations. During the interactions, the mentors can also help the mentees set goals, including an after-mentoring activity plan. Mentors conduct practical training sessions

- **Mentee session-** The mentorship takes a Modular Approach that involves structuring the mentorship program into distinct, standalone modules or units, each focusing on specific newborn and child health topics. Practicum sessions using training mannequins and use of clients/patients in clinical settings.
- **Monitoring-**
  - Maintain a list/database of mentor providers who have undergone newborn and child health training and the mentorship TOTs (trainer of trainees) training.
  - A list of mentees and mentors to facilitate tracking progress.
  - Acquired skills set for mentees using the mentee logbooks to document progress
  - Maintain a register of mentees who are in mentorship;
  - Targeted joint supervision and performance reviews for the mentors and mentees to monitor implementation progress
  - At the program level, tracking the process will be done where the mentor's list, health facility, topics covered start and end dates will be captured and reported via digital platforms.

Mentorship Session Plan

Session	Methodology	Mode	Activities
1.	• Brainstorming • Short interactive PPT presentation	**Onsite**	**Mentor Led** • Introduction to the mentorship process and back-ground • Objective and goal setting • Discussing mentorship outcomes • Introduction to session
	• Short interactive PPT presentation • Case scenarios	**Onsite**	**Mentee self-directed (Sessions in modules)**
2.	• Brainstorming • Short interactive sessions Case studies • Role plays Simulation videos	**Onsite**	**Mentor Led** • Recap on the theory session based on needs assessment • Knowledge of newborn and child health topics • Managing common side effects • Demonstrations and return demonstrations bed-side or on the mannequins • Practical on documentation • Practice on the model for competency
3	• Learning by Doing • Practice on mannequins • Clinical exposure for mentees to sharpen their skills	**Onsite**	**Practice on mannequins and clinical practice** • Clinical placements in newborn and paediatric practical sites - mentees to practice hands-on the skills taught and reinforced during the classroom session with the mannequins • Clinical exposure sharpens their skills and helps them acquire competency. This process is aided using the Mentee logbook • This will be done in the health facilities where • mentorship is taking place
4	Assessment using OSCEs Use of a session-specific checklist	**Onsite**	Assessment for competency by the mentor.

MENTORSHIP STRUCTURE

A. Program Duration

As per the module sessions provided (preferably 1-2 sessions every week over 3-6 months)

Frequency of mentorship sessions

B. Phased Approach

1. Start-up Phase

- Mapping of existing mentorship programs and partner-supported platforms
- Situation analysis: Baseline skills assessment
- Facility readiness assessment
- Selection of mentors & mentees
- Development of mentorship materials & checklists

2. Capacity Building Phase

- Centralized training for mentors (e.g., IMNCI, GAPPD, QI)
- Orientation for mentees
- Soft skills training (communication, data use, ethics)

3. Mentorship Rollout

- Monthly onsite or virtual mentorship sessions
- Side-by-side clinical mentorship (bedside coaching)
- Simulation-based skill sessions (e.g., resuscitation) within the skills lab
- Use of real-time case reviews using online platforms e.g. WhatsApp, for urgent queries or remote support.
- Integration of maternal health linkages, especially where neonatal danger signs are influenced by delivery factors.

4. Supportive Supervision

- Use of scorecards, dashboards, QI projects
- Monthly mentorship reports plus feedback loops
- Data use for action: morbidity, case fatality rates, IMNCI indicators
- Include monthly mentorship debriefs at sub-county and county level.

5. Skills Lab

- Establish Skills Labs in County Referral Hospitals
- Selection of high-volume hospitals as initial mentorship hubs.
- Setup of skills labs to simulate clinical scenarios and enhance practical learning
- Training of National mentors, County mentors and facility-based mentors.Establishing a committees at all levels to coordinate activities at those levels and to include the leadership at all levels

- **Expansion Phase: Cascade Mentorship to Additional Facilities**
  - Rollout of mentorship activities to sub-county and peripheral facilities.
  - Continued use of skills labs for refresher training and mentorship review.
- **Consolidation Phase: Strengthen Systems and Ensure Sustainability**
  - Integration of mentorship and skills labs into county health plans.
  - Routine mentorship reviews, supportive supervision, and data-driven quality improvement.

6. Quality Improvement

6.1 Introduction

Ensuring quality of care requires the consistent application of evidence-based practices and the implementation of targeted, actionable intervention

6.2 Definition

Quality improvement (QI): A systematic and coordinated approach to solving a problem using specific methods and tools with the aim of bringing about a measurable improvement. Health services are effective, safe and provide a positive experience by being responsive and person-centered

Continuous quality improvement (CQI): is a progressive incremental or gradual improvement of processes, safety, and patient care. It includes improvement of operations, outcomes, systems processes, improved work environment, or regulatory compliance

Integrating QI and Mentorship

In the context of newborn and child health, mentorship provides the platform for skill transfer and behavior change at the point of care, while QI offers a structured, data-driven approach for identifying gaps and implementing sustainable solutions. Embedding QI within mentorship ensures that learning is both practical and results-oriented, leading to measurable improvements in care delivery and outcomes.

How Mentorship and QI Will Be Integrated:

Baseline Assessments:

At the start of the mentorship cycle, baseline assessments will be conducted at the facility level using Newborn and Paediatric Quality of Care assessment tool to identify gaps in knowledge, skills, infrastructure, and clinical outcomes. This includes:

- Health provider competency assessments
- Facility readiness checklists
- Tracking of newborn and child health indicators (e.g., neonatal mortality, sepsis rates, resuscitation success)

Mentorship will therefore be tailored to directly address the issues identified, allowing for a more targeted and results-driven intervention.

Setting Improvement Priorities:

Based on baseline findings, mentors and mentees will jointly identify priority areas for improvement.

Design and Implementation of QI Projects:

Mentees, with support from mentors, will develop simple, targeted QI projects using standard tools such as PDSA (Plan-Do-Study-Act) or root cause analysis. These projects will focus on solving specific clinical or systems challenges using data and teamwork.

Onsite Coaching on QI Processes:

Mentors will provide coaching on how to collect, analyze, and use routine data to track progress. This will include:

- Teaching basic data interpretation skills
- Supporting use of QI documentation tools (e.g., registrars, summary tool and KHIS)
- Encouraging regular review of facility dashboards and indicators

Continuous Monitoring and Feedback:

Mentorship sessions will integrate regular review of QI progress, data feedback, and reflection on what is working or not. Mentors will help mentees adapt and iterate their improvement strategies.

6.2.1 Outline of Steps in QI Process

- **Step 1:** Identifying a quality of care problem
- **Step 2:** Analyzing the problem and measuring quality of care
- **Step 3:** Developing and testing changes
- **Step 4:** Sustaining improvement

Step 1: Identify a quality of care problem. This includes:

- Carrying out assessments and reviewing data to identify problems
- Prioritizing the problems/gaps to work on
- Writing a clear aim/objective statement (s)
- Work Improvement Teams (WITs)-e.g newborn unit WIT, paediatrics unit WIT
- These are small teams that operate autonomously, utilize quality control concepts and techniques and other improvement tools, and promote self and mutual-development.
- When a WIT attains its purpose, new target of CQI would be selected based on the directions and objectives of the organization.
- Therefore, CQI will be attained through continuous WIT activities

Step 2: Analyzing the problem and measuring quality of care

- Explore in detail possible causes of a problem
- Helps focus on things that are within our control
- Gives an opportunity for everyone to give their insights based on their role in the process
- Helps us understand what is happening in the system at present and thus identify possible solutions

Tools/approaches for root cause analysis:

1. Fishbone
2. Five Why's
3. Pareto Principle
4. Process Flowchart

A. Fishbone: Identify all possible contributing factors

When best to use Fishbone analysis?

- To structure a brainstorming session.
- To analyze a complex problem when there are many causes;
- To identify all possible root causes for an effect or a problem;
- To look at a problem from a different point of view
- To uncover bottlenecks and identify where and why a process does not work

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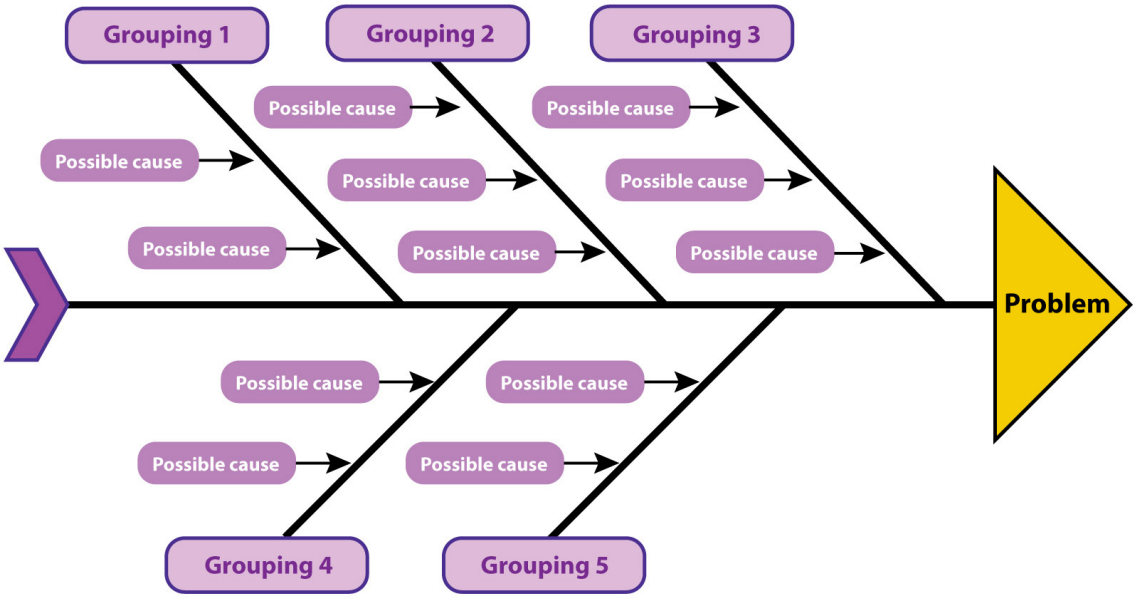


Figure 1. Fish Bone Analysis Structure

- Write the problem in a box on the right-hand side of a large sheet of paper, and draw a line across the paper horizontally from the box so that it looks like the head and spine of a fish.
- Next, draw a line off the "spine" of the fish and write down contributing factors. These may be different levels of the health systems, or building blocks of the system, such as people (staffing), place (equipment), procedure, policies (guidelines) etc.
- Now, for each of the contributing factors, identify possible causes. Show these possible causes as shorter lines coming off the "bones" of the diagram.
- Where a cause is large or complex, then it may be best to break it down into sub-causes. Show these as lines coming off each cause line.
- By this stage, the fishbone should show several possible causes of the problem.

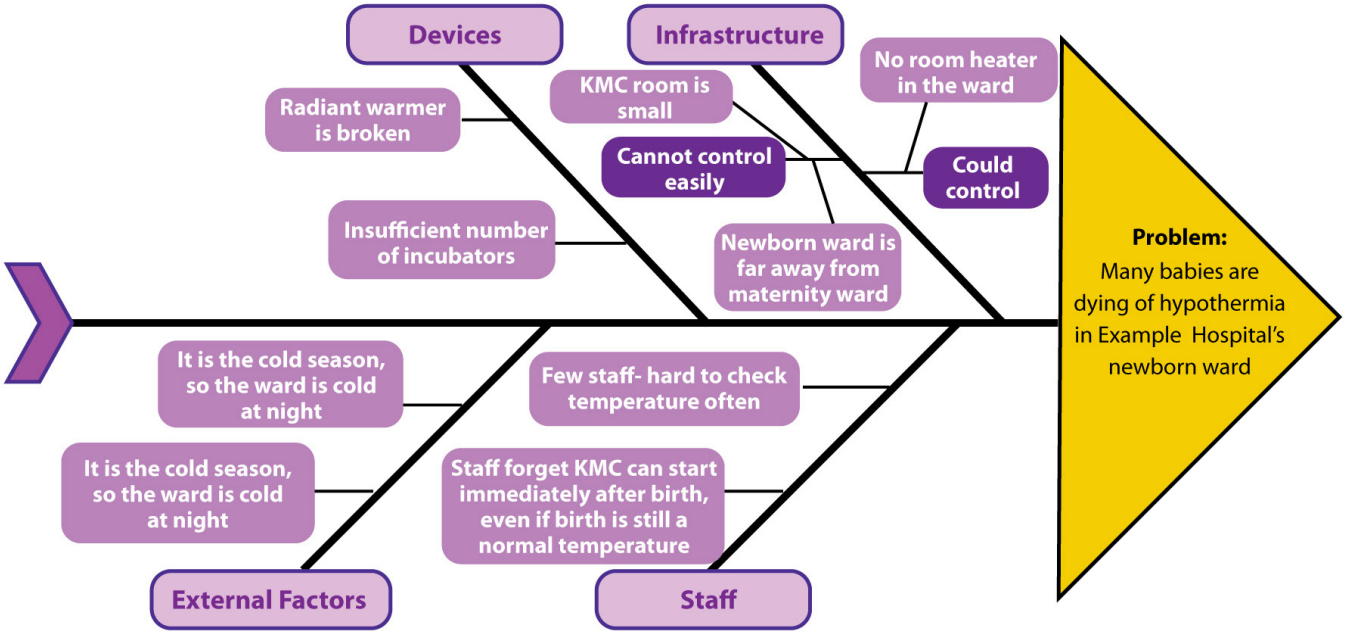


Figure 2. Example of a Completed Fish Bone Structure

B. "Five whys" - Understanding why something is the way it is?

- This is used to identify the root cause.
- Doing five whys involves asking 'why' a problem exists and then continuing to ask 'why' after each answer until you identify a possible way of fixing the problem
- There is no one perfect answer to a Five Why's analysis. It is not necessary to ask Why 5 times. It can be less or more.
- Additionally you might get a different chain of answers depending on the perspective of various people on the team.

When best to use the Five 'Why's?

- To analyze a problem to identify a single most important cause.
- For troubleshooting an emerging problem.
- Most effective when used to resolve simple or moderately difficult problems but not difficult and complex problems

Scenario

1. Babies are dying on the newborn ward from infections – Why?
2. Septic babies were not given antibiotics – Why?
3. No antibiotics in the pharmacy – Why?
4. The store keeper could not go to the Central Medical Stores over the past 2 weeks – Why?
5. The vehicle (truck) has broken down – Why?
6. The vehicle missed the scheduled maintenance last month.

C. Pareto Principle: 80% of the problem is due to 20% of the causes

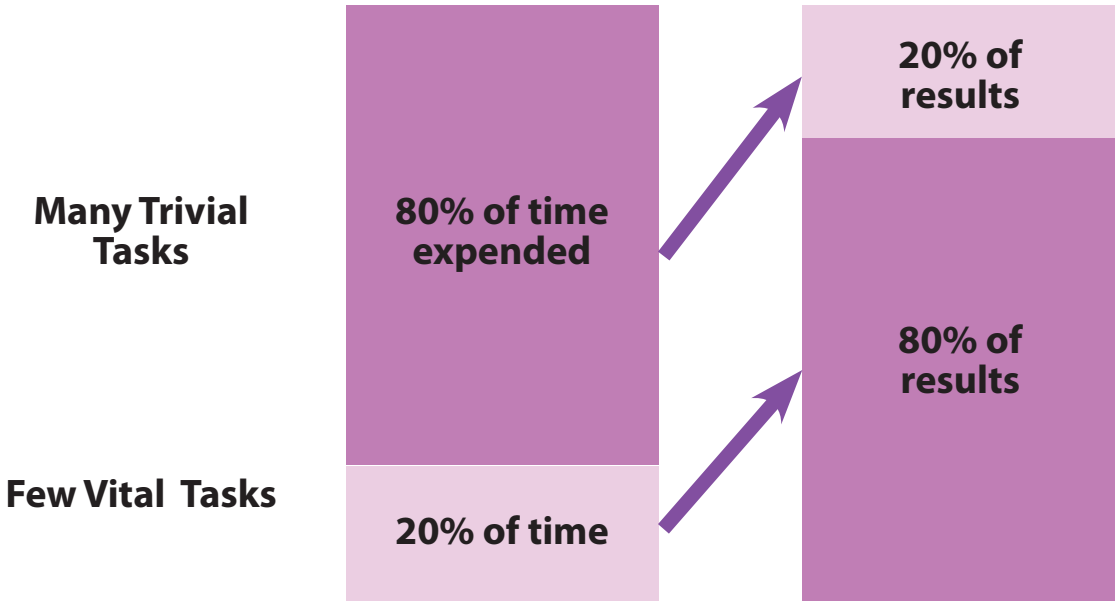


Figure 3. Pareto Principle

D. Process flowchart

- The process flow chart describes all the steps in a process (e.g. how essential newborn care is provided immediately after the delivery)
- Flow charts can help identify problems in the process, e.g.Steps that are being done in the wrong order
- Unnecessary or repetitive steps
- Steps that are contributing the most to the problems

Step 3: Developing & testing changes

It involves:

- Coming up with ideas about what to change
- Developing a plan-do-study-act (PDSA) cycle to test change ideas (Refer to figure >>>)
- Deciding on to do as you learn from a PDSA cycle
- Testing multiple change ideas to achieve your aim

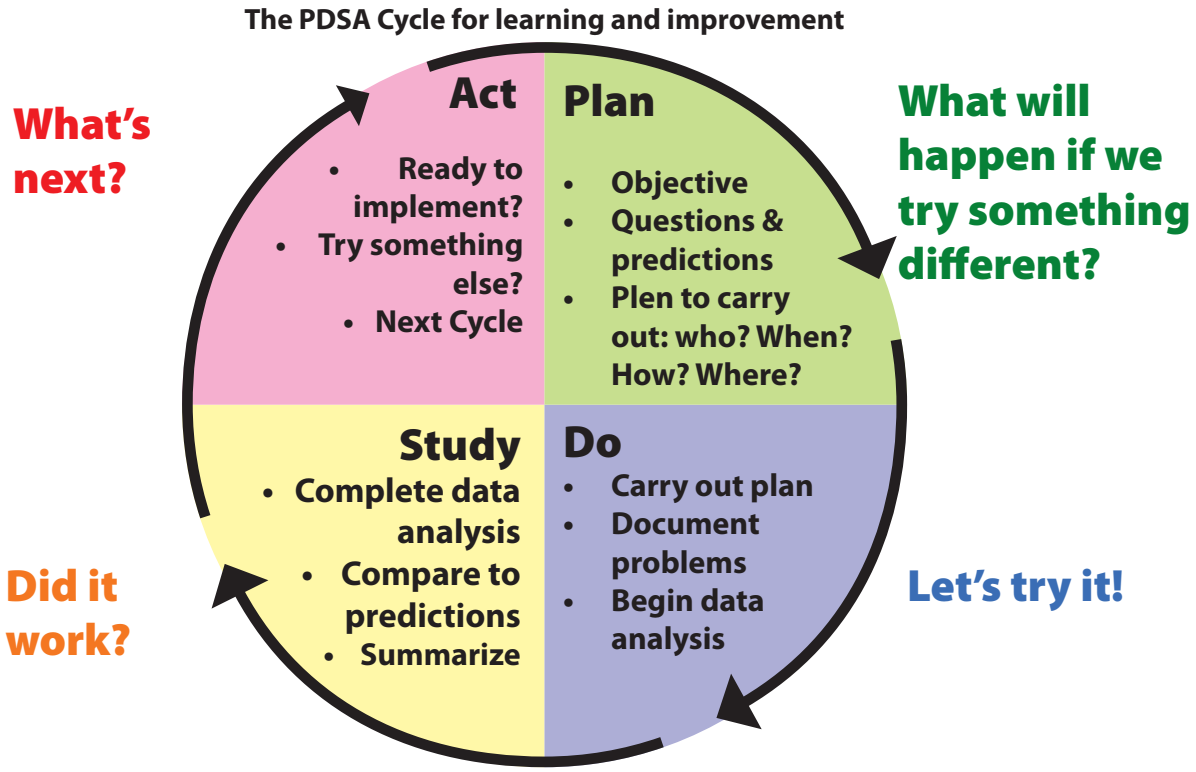


Figure 4: The PDSA Cycle for learning and improvement

Step 4: Sustaining improvement

This involves taking specific actions to sustain improvement and the gains. It includes:

- Embedding the new process in the system
- How to work with the system and involve the health workers from the beginning
- How to build enthusiasm, motivation, and recognition

6.3 Continuous Quality Improvement (CQI)

- CQI in newborn and child health ensures health care that respects the values, culture, choices, and preferences of a woman and her family, within the context of promoting optimal health outcomes.
- Managers and health care providers need to ensure CQI teams exist and are functional within various service delivery points.
- Availability of essential infrastructure for patient care is a pre-requisite for quality improvement
- Quality improvement is a never-ending journey. Continuous improvement of the overall performance should be the permanent objective of the facility
- Continuous Quality Improvement activities should be implemented by small teams called Work Improvement Team [WIT]
- The team is a small group consisting of first-line employees, who continually control and improve the quality of their network and services

6.4 Measuring Change

It is important to measure change continuously in order to:

- To know whether or not we have an improvement

- Helps us know how we are progressing in achieving our aim
- Data is objective – helps communicate with others and among the team
- Helps us to compare how we are doing over time
- Data allows us to make comparisons with other units/facilities

7. Follow-Up & Sustainability

- Utilization of facility-based mentors who have attained competency level on an ongoing basis, as opposed to external/visiting mentors
- Pool of mentors
- Incorporate mentorship programs into existing training government protocols

KEY MENTORSHIP MODULES (Technical Focus Areas)

Module	Key Topics
1. IPC	5 moments of hand hygiene and hand hygiene techniques
2. IFCDC	Swaddling, nesting, pain management, Sensory environment, Family involvement
3. Essential newborn care (ENC)	Immediate and subsequent ENC
4. Oxygen therapy	Identify hypoxemia, Use of pulse oximetry, O2 delivery devices for the newborn, Oxygen blenders
5. Thermoregulation	Risk factors, ways of losing heat, how to minimize heat loss, use of radi- ant warmer, use of the incubator
6. Newborn Resuscitation	Preparation (Including radiant warmer and suction machine) Initial sta- bilization, ABC management, post resuscitation care
7. Danger signs and sepsis	Identification of danger signs, diagnosis and management of sepsis
8. Care of the small and sick new- borns	Use of a plastic wrap, use of CPAP, management of AOP, KMC
9. Neonatal jaundice	Identification, use of nomograms, initiation of phototherapy with the appropriate irradiance
10. Neonatal hypoglycemia	Management, performing a heel prick, administration of buccal dex- trose
11. Newborn Feeding	Breastfeeding techniques, Expression of breast milk, Cup feeding, NGT/ OGT insertion and feeding, Safe administration of parenteral feeds e.g. use of syringe pump
12. Supportive topics	Documentation Referrals

SIMULATION PROCESS

Medical simulation enables mentors recreate real-life clinical experiences in a safe environment so that mentees can practice, get immediate feedback and learn.

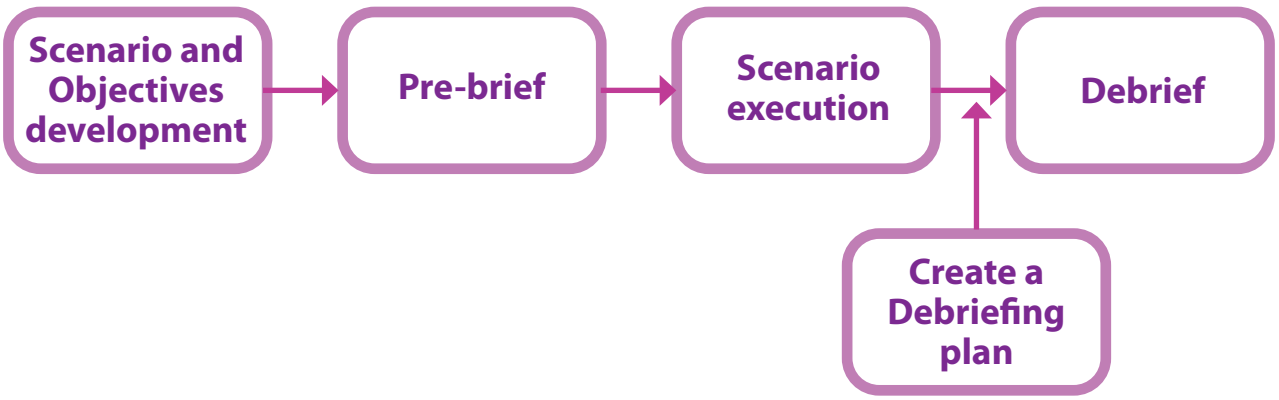


Figure 1: The flow and critical elements of simulation

The critical elements of simulation include:

Scenario and Objectives: Review the scenario and learning objectives.

Pre-brief – Mentor informs the mentees about the 'rules' that will govern the simulation about to be executed.

a. **Set expectations** ('the rules") of how the session runs and how feedback works
b. **Safe learning environment** – Everyone is there to learn; Respect others; Be self-reflective
c. **Roles** – Mentees take on roles they normally hold in real life.
d. **Confidentiality** – Mentee performance and discussions stay in the room
e. **Who's moderating/acting** – Introduce the facilitators and outline what extra roles, if any, they will take e.g. mother etc.; The moderator provides clinical findings that cannot be assessed from the manikin e.g. level of consciousness.
f. **Fiction Contract** – Treat the manikin as a real patient and perform actions in real time e.g. counting respiratory rate for a full minute.
g. **Equipment orientation** – Explain manikin limitations and provided equipment, how to consult externally and with whom. Demonstrate procedures fully within the manikin's limits.

Scenario execution: Run the scenario true to life and to time. Observe, don't interrupt unless needed for safety or clarity.

Creation of a debriefing plan

- Develop your plan from the scenario objectives, what you observed, the learner's agenda, and the instructor's agenda.
- Group topics by knowledge, skills, and teamwork & cooperation

Debrief – Use a structured conversation to turn action into learning using the framework below:

- It is made up of four phases:

a. Reactions phase – Prompt emotions/feelings about the experience and initial leaner priorities (learner agenda)
b. Description phase – Reconstruct the case and establish facts.
C. Analysis phase – Identify key points from Reactions/Description and the objectives. Explore mentee' perspectives on scenario events. Helps them gain new perspectives, understanding and skills.
  - Utilizes advocacy inquiry i.e. Preview, Advocacy 1, Advocacy 2, Inquiry and Listen (PAAIL)
d. Key messages and applications – Summarize and highlight the key lessons for future use

able 1: Debriefing framework

REACTIONS PHASE: *(Learners may reveal key areas that are important to them)* 1. "How did that feel?"/ "How was this experience for you?" ***Probe for an emotion***
DESCRIPTION PHASE: *(May shorten if mentees appear to have a shared understanding of the case)* 2. "In a couple of sentences, tell me what the case was about"
ANALYSIS PHASE: **3. Generate a list of key discussion points from steps 1-2 and the scenario objectives:** Discussion points: a. b. c. d.

4. Explore each point from step 3 individually using Advocacy-Inquiry (PAAIL):
Preview: "Let's start with (*name of topic*)"
Advocacy 1: "I saw/heard …"
Advocacy 2: "I think…"
Inquire: "I'm curious to know your thought process".
Listen: Listen for the frame(s) then follow up with an inquiry (e.g. "tell me more").
Invite peers: Ask other learners what thought/what was going on with them at the time

Discuss and teach

5. Strategies
Preview: "Let's us talk about how to address the challenge of (*topic you just discussed*). What strategies have you seen work to *(address the problem frames/actions)*."
Discuss and teach: Supplement the discussion with your point of view/experience/clinical practice guidelines.

6. Generalizing:
"What things might get in your way/help you in implementing these ideas we have discussed in your practice?"

KEY MESSAGES AND APPLICATIONS
7. **Summarize:** "Today we talked about …"
8. **Apply:** "How will you apply points from this scenario into your practice?"/" What are your key take-aways?"

TOOLS & RESOURCES

- Lecturette slides
- Videos- LCD projector , Laptop, Television
- Clinical Scenario Simulations
- Job aids- comprehensive newborn care protocols/ Basic Paediatric Protocol
- Newborn inpatient file
- Equipment and supplies- e.g. Mannikins(neonatalie, premiee-natalie, breast models), BVM, AIR devices
- Flip charts or pens

TARGET GROUPS

- **Primary mentees:** Nurses, midwives, pediatricians, obstetricians, anesthetists, medical officers, clinical officers, nutritionists
- **Mentors:** health care providers trained on comprehensive newborn care provider courses and generic instructor courses plus mentorship.

MODULE 1:
INFECTION PREVENTION AND CONTROL (IPC)

MODULE 1: INFECTION PREVENTION AND CONTROL (IPC)

I. Introduction

This module aims to enhance the skills and knowledge of mentees in Infection Prevention and Control (IPC)

II. Learning outcome

By the end of this module, the mentees should be able to demonstrate clear understanding of the core principles of IPC including standard and transmission-based precaution.

III. Learning Objectives

By the end of the session, mentees should be able to:

1. Demonstrate a clear understanding of the chain of infection.
2. Illustrate correct hand hygiene techniques and understand the WHO "5 Moments for Hand Hygiene.
3. Demonstrate proper processing of patient care items.
4. Discuss IPC QI strategies

IV. Module work plan

MODULE 1: INFECTION PREVENTION AND CONTROL (IPC)			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** Lecturette on IPC	Lecture	• Projector • Laptop • Smart Phone
15 minutes	**Session 2:** IPC videos on 5 moments of hand hygiene	Practicum	• Projector • Laptop • Smart Phone
30 minutes	**Session 3:** Practicum on hand hygiene	Practicum	• Alcohol Hand-Based Rub, • Running Water And Soap, • Paper Towels

Discussion on:

Aseptic Technique During Procedures (use of procedure trays, drug reconstitution and administration)

Environmental Hygiene.

- Regular cleaning and disinfection of surfaces, incubators, and equipment.
- Proper waste disposal and laundering of linen.
- Emphasis on one baby, one cot
- Spacing—Avoid overcrowding to ensure adequate spacing between beds/incubators.

Screening and Cohorting

- Early identification and isolation of infected or colonized neonates.
- Cohorting staff to care for infected versus non-infected neonates.

Device Management

- Management of medical devices depending on the type:
  - Non - critical patient care items - those which come in contact with intact and are processed by cleaning

(e.g. hat, hat clips, blood pressure cuff, tape measure, pulse oximeter probe)
- Semi - critical patient care items - typically contact mucous membranes or non intact and are processed through cleaning and disinfection (penguin sucker, Silicon CPAP nasal prongs)
- Critical patient care items - penetrate or contact soft tissue, bone, bloodstream or normally sterile tissue and are processed through cleaning and sterilization (i.e. IV access, surgical instruments)

- Use central line bundles and ventilator care bundles, CLABSI.
- Minimize the use of invasive devices and remove them as soon as no longer needed IV lines, CVC,

Antimicrobial Stewardship
- Rational use of antibiotics to reduce resistance
- Regular review of empirical therapy

Surveillance and Auditing
- Routine surveillance of HAIs to identify patterns and respond to outbreaks.
- Regular audits and feedback on IPC practices to staff.

Conduct IPC audits e.g. hand washing audits using IPC audit tool

MODULE 2:
INFANT AND FAMILY CENTRED DEVELOPMENTAL CARE (IFCDC)

MODULE 2: INFANT AND FAMILY CENTRED DEVELOPMENTAL CARE (IFCDC)

I. Introduction:

This module aims to equip mentees with knowledge and skills on how to offer infant and family centred developmental care

II. Learning outcome

By the end of this module, the mentee should be able to offer IFCDC to the neonate and the family

III. Learning Objectives

By the end of this session, the mentee should be able to:

- Perform swaddling and nesting of a neonate
- Identify a dysregulated neonate and offer responsive caregiving by taking into account the sensory environment
- Effectively communicate and involve the family in the caste of the newborn.

IV. Module work plan

MODULE 2: Infant and Family Centred Developmental Care (IFCDC)			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette on IFCDC	Lecture	• Projector • Laptop • Smart Phone
30 minutes	**Session 2:** Role play on effective communication with mother/family (two small skits, one with good communication skills, one with bad communication skills)	Practicum	• Neonatalie/Premie Natalie • Cap • Flannel • Chairs • Table • Baby Shawl/Linen
30 minutes	**Session 3:** Swaddling and nesting Identifying a dysregulated neonate and practice responsive caregiving	Practicum	• Neonatalie/Premie Natalie • Chairs • Table • Baby Shawl/Linen

MODULE 3:
ESSENTIAL NEWBORN CARE

MODULE 3: ESSENTIAL NEWBORN CARE

I. Introduction:

This module aims to equip the mentees with knowledge and skills to be able to offer quality Essential Newborn Care (ENC).

II. Learning outcome

By the end of this module, mentees will be able to:

- Competently deliver all aspects of ENC according to national guidelines

III. Learning Objectives

By the end of the session, participants should be able to:

- Perform ENC
  - Immediate ENC- drying & stimulation, skin to skin, delayed cord clamping and early initiation of breast-feeding
  - Subsequent ENC- TEO, Vit K, CHX application, Newborn examination

IV. Module work plan

MODULE 3: Essential Newborn care			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** Lecturette on ENC	Lecture	• Lecture Notes, • Flip Charts, • Marker • Pens, Projector, • Laptop.
15 minutes	**Session 2:** ENC video	Video	• Smartphone, • Laptop, • Projector.
30 minutes	**Session 3:** ENC case scenarios	Practicum	• •Timer Weighing Scale, • 2 Dry Towels, • Tape Measure, • Vit K Injection, • Tetracycline Eye Ointment, • Chlorhexidine, • Pulse Oximeter with Neonatal Probe, • Baby Cap, • Thermometer, • Neonatal Stethoscope, • Neonatalie/Baby, • Checklist, • Newborn Exam Checklist

Scenario:

You are called to receive a term baby who is about to be delivered. What do you do?

Action required	Information/result
Preparation **Review ANC and maternal history** • Gestational age, • Maternal comorbidities/complications, • Prenatal care, • ANC profile, • Ultrasound report (if present). **Safety** • Warm room (25-280C). Confirm using a digital room thermometer • Safe environment e.g no sharps • Hand hygiene prior to handling **Equipment Warmth** • Radiant warmer (prewarm mode) • 2 dry towels and a hat (prewarmed) **Airway** • Penguin sucker or suction machine. • Set the suction machine. • Suction catheters (size 6-8fr) and wide bore catheter (yankauer sucker). **Breathing** • BVM device (200-300 mls) • BVM masks- size 00, 0 and 1 • Neonatal nasal prongs • Neonatal non rebreather mask • Oxygen source • Oxygen tubing • Pulse Oximeter with neonatal probe/Cardio-respiratory monitor **Circulation** • Stethoscope **Others** • Clock/timer • Gloves *Perform hand hygiene and wear clean/sterile gloves.* **Note:** the time of delivery/start APGAR timer	Baby is delivered onto the mothers abdomen

Initial Stabilization
• Dry and Stimulate
• Observe for:
  • Cry/breathing
  • Tone
• Remove the wet towel
• Place in skin to skin contact with the mother and cover with warm dry towel
• Delayed cord clamping for 1-3 minutes
• APGAR at 1 min
	Baby is crying and moving vigorously

• Clamp and cut the cord • Initiate breastfeeding within 1 hour	Three minutes are over
Subsequent Care • APGAR score- 5 min and 10 min • Change gloves, apply TEO • Apply CHX and administer vitamin K • Head to to exam • Weighing • Monitor vital signs and feeding	
IFCDC • Congratulate mother • Talk about skin-to-skin contact • Breastfeeding position and attachment • Exclusive breastfeeding • Answer questions and concerns	
Documentation	

Simulation In Teams For Essential Newborncare

Scenario Objectives:

Knowledge

1. Describe components of Immediate Newborn Care (including early initiation of breastfeeding)
2. Describe Subsequent Essential Newborn Care

Skills

1. Perform drying, stimulation and immediate assessment of the newborn
2. Maintain warmth (change of towel, maintain skin to skin contact, placement of hat)
3. Demonstrate administration of Vitamin K, CHX and TEO
4. Demonstrate how to do a proper head to toe examination of the newborn

Attitude

1. Demonstrate effective communication (closed loop, directed and reflective)
2. Demonstrate compliance to guidelines-management and IFCDC
3. Demonstrate appropriate consultation

A term baby is about to be delivered in labour ward. What do you do?

Available collateral history

- Mother is a 29 years old para 1+0 gravida 2 at 39 weeks gestation
- No history of maternal health conditions
- Normal ANC profile

Patient assessment	Effective management	Consequences of ineffective management	Notes
1. Initial assessment Term Active Crying	• Observe safety, warmth and IPC • Note time of delivery • Dry and stimulate the baby • Assess tone, gestation and crying • Remove wet towel • Place baby skin to skin on the mother's abdomen • Delay cord clamping for 1-3 minutes. • Initiate breastfeeding	• If wet towel is not removed. Baby feels cold to touch and develops increased work of breathing • Terminate if	
2. Progression Baby is skin to skin with the mother, active, pink and has breastfed. Weight is 3.2kgs. No abnormal findings. Temp-36.80C SpO_2-94% on room air RR- 50bpm PR-130bpm	• Observe IPC • Weigh the baby • Administer 1% T.E.O • Administer 7.1% CHX • Administer I.M Vitamin K • Perform head to toe exam plus vital signs • Maintain Warmth- ensure rooming in • Monitor vital signs • Infant and Family Centered Developmental Care (IFCDC) • Documentation- MCH handbook		

MODULE 4:
OXYGEN THERAPY

MODULE 4: OXYGEN THERAPY

I. Introduction:

This module aims to equip the mentees with knowledge and skills to appropriately manage hypoxemia.

II. Learning outcome

By the end of this module, mentees should be able to competently administer and monitor a patient on oxygen therapy.

III. Learning Objectives:

By the end of the session, participants should be able to: Identify and manage hypoxemia by utilizing:

- Pulse oximetry.
- Oxygen delivery devices
- Oxygen blenders

IV. Module work Plan

Module 4: Oxygen Administration			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
20 minutes	**Session 1:** Lecturette on indications and safe use of oxygen Video on use of oxygen blenders	Lecture Video	Lecture Notes, Projector, Laptop, Smart Phone
30 minutes	**Session 2:** Lecturette Use of Pulse oximetry	Lecturette Practicum	Pulse Oximeter with Neonatal Probe, Mannikin/Baby,
30 minutes	**Session 3:** Oxygen delivery devices, prescribing and monitoring 02	Demonstration.	Oxygen Source, Nasal Prongs, Nrm, Oxygen Blender, Flow Splitters.

MODULE 5:
NEONATAL THERMOREGULATION

Module 5: NEONATAL THERMOREGULATION

I. Introduction:

This module aims to enhance the skills and knowledge of mentees in neonatal thermoregulation

II. Learning outcome

By the end of this module, the mentees should be able to demonstrate clear understanding on the prevention and management of neonatal hypothermia

III. Learning Objectives

By the end of the session, mentees should be able to:

1. Explain ways in which babies lose heat
2. Discuss prevention of hypothermia
3. Discuss management of hypothermia (Use of the radiant warmer and the Incubator)

MODULE 5: Neonatal Thermoregulation			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** • Lecturette on neonatal thermoregulation	Lecture	• Lecture Notes, • Flip Charts, • Marker • Pens, • Projector, • Laptop.
45 minutes	**Session 2:** • Use of radiant warmer	• Lecturette • Practicum	• Functional Radiant Warmer
45 minutes	**Session 3:** • Use of incubator and different settings	• Lecturette • Practicum	• Functional Incubator

MODULE 6:
NEWBORN RESUSCITATION

MODULE 6: NEWBORN RESUSCITATION

I. Introduction:

This module aims to equip the mentee with knowledge and skills to perform effective newborn resuscitation

II. Learning Outcome

By the end of this module, the mentee will be able:

- To initiate and conduct effective newborn resuscitation.

III. Learning Objectives

By the end of the session, the mentee will be able to:

1. Anticipate and prepare for newborn resuscitation
   - Review ANC and maternal history
   - Resuscitation checklist
2. Perform step-by-step resuscitation based on the national guidelines.
3. Perform post-resuscitation care, including appropriate transfer and referral if needed.
4. Document resuscitation interventions accurately in newborn care recordus.
5. Demonstrate how to use a radiant warmer and a suction machine/penguin sucker

IV. Module work plan

MODULE 6: Neonatal resuscitation			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** Resuscitation video (Prepare a video that follows the algorithm)	Video/Algorithm	• Projector • Tv
60 Minutes	**Session 2:** Skills teaching **Warmth** Use of a radiant warmer **Airway management** Use of a suction Machine and a penguin sucker **Breathing** Mask sizing C and E grip Ventilation	Demonstration	• Timer • Radiant Warmer. • Suction Machine. • Bvm • Masks. • Neonatalie • Air Device. **Airway** • Penguin Sucker • Suction Machine • Suction Catheters (6-8 Fr) • Yanker **Breathing** • Bvm 200-300 Mls, • Masks 00,0,1, • Oxygen Source, • Oxygen Tubings, • Pulse Oximeter, • Oxygen-Delivering Devices • Air Device.

	Circulation CPR		**Circulation** Stethoscope **Drugs** Adrenaline (1:10,000)
60 minutes	Session 2: Session 1 Practicum case scenarios on neonatal resuscitation Session 2 Simualtion in teams	Practicum	**Warmth** • Radiant warmer • 2 pieces of towels • Hat • Neonatalie **Airway** • Penguin sucker • Suction machine • Suction catheters (6-8 fr) • Yanker **Breathing** • BVM 200-300 mls, • Masks size 00,0,1, • Oxygen,sources • Oxygen tubings, • Pulse oximeter • Cardio-respiratory monitor • Oxygen-delivering devices **Circulation** • Stethoscope • Drugs • Adrenaline (1:10,000)
60 minutes	**Session 5:** monitoring skills using the AIR Device	Peer to peer activity	• Air Device, • Skills Lab • Abc Equipment

Scenario on neonatal resuscitation

Instructions

- In this session, the mentor will assess the mentee on the skills on newborn resuscitation
- Give a case scenario
- Each mentee will participate in the assessment
- The scenario can also be used for peer to peer mentorship

Case scenario

A term baby is about to be delivered after a prolonged second stage and there is a history of fetal distress.What do you do?

Action required	Information/result
Preparation **Review ANC and Maternal History** • Gestational age • Maternal comorbidities/complications • Prenatal care • ANC profile • Ultrasound report (if present) **Safety:** • Warm room (250-280C)- digital room thermometer. • Environment- no sharps etc • Hand hygiene **Equipment Warmth** • Radiant warmer (Prewarm mode). • 2 Pre warmed dry towels and a hat.	
Airway • Penguin sucker or suction machine. • Set the suction machine. • Suction catheters (size 6-8) and wide bore catheter (yankauer sucker). **Breathing** • BVM device (200-300 mls) • BVM masks- size 00, 0 and 1 • Neonatal nasal prongs • Neonatal non rebreather mask • Oxygen source • Oxygen tubing • Pulse Oximeter with neonatal probe/Cardio-respiratory monitor **Circulation** • Stethoscope **Others** • Clock/timer • Gloves *Perform hand hygiene and wear clean/sterile gloves. Start the timer/note the time and start the APGAR timer*	The baby is born and placed on the mother's abdomen

Initial Stabilization
• Dry and stimulate the baby as you assess for:
  • Gestation
  • Crying/breathing
  • Tone
• Remove the wet towel and wrap in a dry towel.
• Immediately cut the cord and transfer to a prewarmed radiant warmer
	Baby is term, appears floppy, and does not cry

Airway • Look into the mouth • Clear airway • Position into the sniffing position, using head tilt and chin lift maneuver	There are obvious secretions obstructing the mouth and nose Airway is now clear
Breathing Look, listen, and feel for breathing for 5 seconds	There is no breathing
Shout For Help	
• Size the BVM mask. • Using room air, give 40-60 continuous ventilations for 60 seconds. • Good C & E grip • Correct rate (BREATH, TWO THREE) • Ensure the chest rises	
Circulation • Feel the umbilical pulse for 5 seconds • Connect BVM to 100% oxygen- connect pulse oximeter • Location- lower 1/3 of the sternum • Use the 2-thumb hand encircling technique • Compress to 1/3 of the AP diameter • Give 3 Chest compressions for 1 ventilation (3:1) for 1 minute • Correct rate- ONE and TWO and THREE and BREATH • Allow chest to recoil N/B Minimize interruptions.	There is a heart rate of about 40/min Help arrived
Re-assess Airway, Breathing and Circulation.	The airway is clear The baby is gasping. HR is 80 beats/ min
Continue ventilations at 40-60 breaths/min • Good C & E grip • Correct rate (BREATH, TWO THREE) • Ensure the chest rises	
Re-assess Airway, Breathing and Circulation.	The airway is clear The baby is making some regular breathing efforts of 40 breaths /min the HR is 120/min
Post Resuscitation Care • Give oxygen using NRM at 10L/min as you monitor SpO2 and work of breathing • Titrate/wean off oxygen based on SpO2 • Ensure baby is kept warm (maintain body temp at 36.5 0 -37.5 0) • Change the radiant warmer from prewarm mode to baby mode	SpO_2 is 93%
Assess the baby's: **Airway** • Check for obstruction • Position airway	Airway is clear

Breathing: • Assess adequacy of breathing • Respiratory rate • Grunting • central cyanosis • lower chest wall indrawing • Sternal retraction • SpO_2 Switch to nasal prongs at 2l/min. Target SpO_2 of 90-95%	Nasal flaring, RR is 60 breaths/min and SpO_2 is 97%. No other signs of distress.
Circulation • Assess adequacy of circulation • Pulse rate • Capillary refill • Appearance/colour/pallor	PR is 140 beats/min, CRT is 1 sec and the baby is pink
Disability Check RBS	RBS is 2.9mmol/l
Exposure • Temp • Head to toe examination	No abnormal findings. Baby is now active and begins to cry
Perform ENC	
IFCDC	
Documentation, treatment plan	

SIMULATION IN TEAMS: Scenario on neonatal resuscitation

Scenario Objectives:

Knowledge

1. Demonstrate knowledge on preparation for newborn resuscitation (anticipation, equipment checklist)
2. Identify babies who require newborn resuscitation.
3. Describe the newborn resuscitation algorithm.
4. Describe post resuscitation care.

Skills

1. Demonstrate drying, stimulation and initial assessment of baby at birth
2. Demonstrate effective airway management (Airway assessment, clearing the airway if required and correct positioning)
3. Demonstrate effective ventilation
4. Demonstrate effective chest compressions
5. Demonstrate post resuscitation care

Attitude

1. Demonstrate team work
2. Demonstrate effective communication (closed loop, directed and reflective)
3. Demonstrate compliance to guidelines and IFCDC
4. Demonstrate appropriate consultation

Available collateral history

Mother is a 23-year-old primigravida at 39 weeks gestation, no maternal conditions and ANC profile is normal.

Patient assessment	Effective management	Consequences of ineffective management	Notes
1. Initial assessment Term Floppy Not crying • **A-**secretions in the nose and mouth • **B-** no breathing • **C-**PR is 30 beats/ min • **Reassessment** • **A-**Airway is clear • **B-** baby is gasping • **C-** PR is 80bpm • **Reassessment 2** • **A-**airway is clear • **B-** Baby breathing, RR-45bpm • **C-** PR 120bpm	Observe safety, warmth and IPC. Note time of delivery/ start APGAR timer. Dry and stimulate the baby. Assess gestation tone and crying. Remove wet towel. Cover with a dry towel and cover the baby's head with a hat. Immediately clamp and cut the cord. Transfer baby to a pre warmed radiant warmer. **ABCD approach** **A-**look into the mouth and nose Suction mouth then nose Position into sniffing position **B-** look, listen and feel for 5 secs Shout for help Size mask Initiate effective ventilation (40-60 breaths for 1 min) with room air. Ensure Good: • C&E grip • Chest rise • Rate -BREATH TWO THREE **C-** Assess pulse (umbilical pulse or auscultate the HR) for 5 seconds. Continue ventilation Connect 100% 0xygen (BVM +reservoir bag at 10-15l/min). Connect pulse oximeter. Initiate CPR at 3 chest compressions to 1 breath for one minute. Ensure correct: • Location. • Depth. • Technique (two thumb encircling technique). • Rhythm (ONE and TWO and THREE and Breath) to achieve 120 events **Reassess airway** Position into sniffing position **Reassess** **Breathing and circulation** for 5 secs Stop chest compressions Continue ventilation at 40-60 breaths for 1 min **Reassess** A then B and C for 5 seconds **Post resuscitation care** • Put on oxygen via NRM at 10-15L/minute. • Monitor SPO2 (maintain 90-95%) and other vital signs • Change the radiant warmer from pre-warm mode to baby mode	If towel not changed Baby feels cold to touch with a pale mottled skin. If ventilation is not effective give a lower HR or no HR If no 100% oxygen with chest compressions or wrong location, depth or technique pulse drops/no pulse	Note time taken to initiate effective ventilation Terminate session if no chest rise after 2 minutes of attempts at ventilation If participant fails to proceed to circulation and reassess the airway, remind them one minute of ventilation is over

2. Progression Baby is crying, pink and active. No abnormal findings Temp-36.8 0C SPO2 94% on room air, RR- 50b/minute PR- 130b/minute Weight 3kgs	• Perform head to toe exam plus vital signs and weight • Essential newborn care • Administer 1% T.E.O • Administer 7.1% CHX • Administer I.M Vitamin K • Maintain Warmth • Monitor vital signs • Infant and Family Centered Developmental Care (IFCDC) • Documentation		

SCENARIO 2: RESUSCITATION OF A BABY WHO IS UNRESPONSIVE IN THE WARD

Learning Objectives
By the end of the debriefing participants should be able to;

Knowledge
- To identify a baby who requires immediate resuscitation
- To outline the steps in neonatal resuscitation

Skills
- To demonstrate initial assessment of the airway, breathing and circulation.
- Demonstrate airway positioning
- Demonstrate effective ventilation
- Demonstrate effective chest compressions

Attitude/Behavior
- To perform IFCDC
- To demonstrate effective communication- (direct and clear instructions with closed loop communication)
- To demonstrate effective monitoring of babies on CPAP

SCENARIO
Case scenario stem:

A 3-day old term baby weighing 3 kgs at birth was found unresponsive by the nurse during routine clinical round at NBU.

Collateral history if requested
- Mother is a 16yr old who had prolonged second stage with MSL grade 3. APGAR 3/1,6/5,8/10.
- Was resuscitated for 5 minutes at birth.(BVM only).
- Baby was on management for moderate HIE and currently CPAP with PEEP OF 6 AND Fi02 OF 50%.
- PREGNANCY
- Un eventful

Scenario setting
Baby is on CPAP with blocked nostrils and nasal prongs are out

Patient Assessment	Effective Management	Consequence for Ineffective Mgt	Notes
1. Initial Presentation **A -** Blocked nostrils with mucus plug	Remove from CPAP Change setting if required Assess airway Suction the nostrils Positioning -sniff position	If airway not positioned and cleared ,effective ventilation not done, effective chest compression - baby will not breath and start worsening RR- No spontaneous breathing SPO2 40% HR 30/MIN (Proceed to progression 2)	Needs to note that CPAP prongs are out with blocked nostrils
B - SPO2 60% RR-gasping	Assess breathing (Look, Listen and Feel for 5 seconds) Effective ventilation for 1 minute on 100% oxygen • Sizing of the mask • C and E grip • Ensure Chest rise • Rate(40-60b/min)		
C - HR 50	Assess circulation for 5 seconds Effective chest compressions. • Technique (two thumb encircling) • Depth (1/3 AP Diameter) • Location (lower third of the sternum) • Rate (3:1)		
D - RBS 4.2mmo/l E - Temp 36.8'C	Explore and discuss possible causes of a collapsed newborn already on CPAP Hypoglycemia, ineffective monitoring(blocked airway, dislodged prongs, pneumothorax, equipment failure) *(Proceed to progression 3/recovery)*		
2. Progression (worsening symptoms) HR 30 /MIN SPO2 – 40% NO CHEST RISE	Assess airway and breathing Positioning -sniff position Effective ventilation • Sizing of the mask • C and E grip • Chest rise • Rate(40-60b/min) Effective chest compressions. • Technique (two thumb encircling) • Depth (1/3 AP Diameter) • Location (lower third of the sternum) • Rate (3:1)		If not done – terminate and debrief

3. Recovery Patient stable put back on CPAP – PEEP 6 of 6cm of water and FiO2 50% Vital HR – 140/MIN RR- 40/MIN SET ON SPO2 – 94%	• Supportive care provided- nutrition support, respiratory checks and monitoring of a baby on CPAP • Inform family		Terminate and debrief

MODULE 7:
IDENTIFICATION OF NEWBORN DANGER SIGNS AND MANAGEMENT OF NEONATAL SEPSIS

MODULE 7: IDENTIFICATION OF NEWBORN DANGER SIGNS AND MANAGEMENT OF NEONATAL SEPSIS

I. Introduction:

This module aims to equip mentees with knowledge and skills to identify newborn danger signs and to manage neonatal sepsis.

II. Learning Outcome

By the end of this module, mentees should be able to identify and respond to newborn danger signs and effectively manage neonatal sepsis.

III. Learning Objectives:

By the end of the session, the mentee should be able to:

- Identify the danger signs in a newborn
- Identify and effectively manage neonatal sepsis

IV. Module Work Plan:

MODULE 7: Newborn Danger Signs & Neonatal Sepsis			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette on Danger Signs & Neonatal Sepsis	Lecturette	• Lecture Notes, • Flip Charts, • Marker • Pens, • Projector, • Laptop.
10 minutes	**Session 2:** Neonatal danger signs video	Video	• Projector
45 minutes	**Session 3:** Practicum case scenarios on neonatal danger signs and neonatal sepsis	Case scenario	• Basic Paediatric Protocol, • Comprehensive Newborn Care Protocols
30 minutes	**Session 4:** Practicum on identification of danger signs	Bedside practicum	• Baby With Danger Signs
20 minutes	**Session 5:** How to draw samples for blood culture	Demonstration	• Alcohol Swabs, • Syringes, • Blood Culture Bottles, • Gloves
30 minutes	**Session 6:** Small group discussion on Triple elimination of HIV, Syphilis and Hepatitis B	Group discussion	• Designated Place For Discussion, Chairs, • Pens, • Flip Charts

IV. Case scenario:

An 8 day old neonate has been brought from home with a history of inability to breastfeed for 2 days, has hotness of body, and mother reports the baby has not passed urine for the past 1 day.

Action required	Information / result

• **Observe safety:**
  • Self (IPC)
  • Environment	

• **Observe baby** • **Stimulate baby**	• Baby appears term, baby appears floppy, has fast breathing • Baby has a weak cry
• **Shout for help** • Change setting (Place baby on a radiant warmer and assess ABCDE)	
Airway (look into the mouth)	Airway is clear

• **Breathing:** Look, listen and feel
• Assess adequacy
  • Central cyanosis
  • Grunting
  • RR
  • Sternal retraction
  • Intercostal recession
  • SpO_2
	Baby has fast breathing
	
	The RR is 65 bpm, SpO2 is 95%. No sternal retraction but has deep acidotic breathing (explain that the problem may not be respiratory)

• **Assess the circulation**
  • Pallor
  • Temperature gradient
  • Peripheral pulse
  • Capillary refill time
 	
• **Action:**
• Fix IV access
• Draw samples
• Weigh baby urgently and give IVF bolus (weight =2.2 kg)
	The baby's hands are cold, there is a fast pulse of 170b/minute that is easy to feel.
	Capillary refill over sternum 4 secs No pallor
	
	Volume of bolus and type of fluid? (22mls of normal saline over 30 - 60 minutes) using a syringe pump

Assess disability • Check RBS	RBS is 3.2 mmol/l
Exposure: • Core Temp, bruising, body rashes and and other obvious abnormalities • Expose the baby and repeat temperature in 30 min	**T= 38.90C** No other abnormalities detected
Take proper history using the NAR	• Baby was delivered at term via SVD in our facility. • APGAR was 9,10,10, Bwt of 3kg, current weight is 2.2 kg. • Mother reports the child has not breastfed well since birth, worsened in the last 2 days, and has not passed urine for 1 day. She has had fevers for the last 3 days • ANC history is normal
Physical examination	Baby is floppy Vitals as above No other significant findings

Differential diagnosis?	• Neonatal sepsis • Acute kidney injury • Neonatal meningitis
Investigations Blood culture, FHG, LP, UECs,CRP PCT	Awaiting results Discuss choice and priority investigations
Treatment: • Empirical antibiotics • Supportive: • IVF • NGT for feeding • Monitoring • IFCDC	**Discussion** • Why not gentamicin? • Discuss AKI • Discuss volume and choice of IVF • Use of the comprehensive monitoring chart
Review: • Continuous monitoring of the baby • Review within 3 hours with results and intervene accordingly • Emphasize on treatment compliance • Treatment and Discharge plan	

SIMULATION IN TEAMS: IDENTIFICATIAON OF NEWBORN DANGER SIGNS AND MANAGEMENT OF NEONATAL SEPSIS

Scenario objectives

Knowledge

1. Describe the common newborn danger signs
2. Describe differential diagnoses for a newborn with danger signs
3. Describe the management of a newborn with danger signs

Skills

1. Perform accurate newborn assessment to identify danger signs
2. Administer medication and fluids appropriately

Attitude

1. Demonstrate effective communication (closed loop, directed and reflective)
2. Demonstrate compliance to guidelines-management and IFCDC
3. Demonstrate appropriate consultation

Case scenario 1

An 8-day old neonate has been brought to the hospital with inability to breastfeed for 2 days, hotness of body and has reduced urine output for the past 1 day. What do you do?

Collateral history

- Term baby delivered to a 23-year-old, primigravida
- Birth weight of 3.5 kgs
- APGAR score 9, 10, 10.
- Discharged 12 hours after birth
- Mother reports feeling of inadequate breastmilk

Patient assessment	Effective management	Consequences of ineffective management	Notes
1. Initial assessment Floppy Fast breathing Weak cry **A-clear** **B-Nasal flaring** RR- 65 bpm SPO2-88% Sternal retraction **C-**PR-170 bpm Pulse easy to feel Cap refill- 4 secs Cold hands &feet No pallor Weight 2.6Kgs **D- RBS-4 mmol/l** **E-Temp- 38.9** No abnormalities	Ensure safety Observe and stimulate Shout for help Transfer to emergency setting/ radiant warmer **Assess ABCDE** **A-**Assess for obstruction Maintain airway patency **B-Assess adequacy** • Nasal flaring • Central cyanosis • Grunting • RR • Sternal retraction • Intercostal recession • Sp02 • Initiate oxygen via nasal prongs at 1-2l/min. Target SPO2 90-95% **C-Assess adequacy** • Pulse- large pulse and peripheral • Capillary refill • Temperature gradient • Pallor • Fix Iv access • Draw samples- FHG, U/E/Cs, Blood culture, CRP • Weigh baby • Bolus normal saline 10mls/kg (26mls) over 30 minutes using a syringe pump **D-Check RBS** **E-Check temperature** • Quick head to toe exam • Expose the baby • Repeat temp in 30 min • Reassess ABCDE after bolus and vital signs • (move to progression)	If setting not changed baby becomes apnoeic If oxygen not initiated, distress worsening, RR- 75 breaths/min, now grunting If circulation not assessed/bolus not given. Baby unresponsive HR increases to 190 beats/min, distress worsens with a RR of 80 breaths/min	Terminate if circulation is not assessed Terminate if no attempt to correct the shock

1. Progression **Vital signs** • Temp- 37.40C • HR-144 bpm • Spo2- 93% • RR- 58 bpm • Cap refill- 2 secs • Extremities warm **Lab results** (if requested) FHG • WBC- 3x109 • Neu- 0.5X 109 • Hb-15g/dl • Plt-80 x 109 **CRP** 100 (normal <10) **U/E/C** • Creat-200 umol/l • Urea- 15mmol/l • Sodium -148mmo/l • Potassium-5mmol/l	IV **antibiotics- Xpen and cefotaxime*** **Supportive management** **Maintenance fluids-IVF or EBM via NGT/ cup** **Monitoring of vital signs** **IFCDC**		*Discuss use of gentamicin in AKI Print lab results Discuss the use of comprehensive monitoring chart

CASE SCENARIO 2: NEONATAL CONVULSIONS

Scenario objectives

Knowledge

1. Describe the common causes of neonatal convulsions
2. Describe differential diagnoses for a newborn with convulsions
3. Describe the management of a newborn with convulsions

Skills

1. Perform accurate newborn assessment to identify signs of neonatal convulsions
2. Administer medication and fluids appropriately

Attitude

1. Demonstrate effective communication (closed loop, directed and reflective)
2. Demonstrate compliance to guidelines-management and IFCDC
3. Demonstrate appropriate consultation
4. Demonstrate clear role play as assigned

MANAGEMENT OF SIMPLE NEONATAL CONVULSIONS

A 2-day old neonate has just been admitted to the newborn unit as a referral from a peripheral facility with convulsions. What do you do?

Collateral history

- Term baby, delivered after prolonged labor to a 25-year-old, primigravida
- Birth weight of 3.8 kgs
- APGAR score 3, 4, 6.
- Resuscitated at birth with BVM and CPR for about 10 minutes
- Had twitches on the first day of life which worsened today necessitating the referral.
- Not on any medication

Patient assessment	Effective management	Consequences of ineffective management	Notes
1. Initial assessment Baby is on the cot and has a fixed gaze with repetitive and rhythmic jerking movements on the face and right side of the body **A-secretions in the mouth** **B-Nasal flaring** RR- 55 bpm SPO2-90% **C-PR-120 bpm** • Pulse easy to feel • Cap refill- 2 secs • No temperature gradient • No pallor **D-** RBS-4.3 mmol/l **E-Temp-** 37.30C No abnormalities **Weight** = 3.5kg	• Ensure safety • Observe baby • Shout for help • Transfer to radiant warmer **Assess ABCDE** **A-Assess** for airway obstruction Suction airway and position in left lateral position after the seizure **B-Assess adequacy** • Nasal flaring • Central cyanosis • Grunting • RR • Sternal retraction • Intercostal recession • $Sp0_2$ • Initiate oxygen via NRM at 10-15l/min. Target SpO_2 90-95% **C-Assess adequacy** • Pulse- large pulse and peripheral • Capillary refill • Temperature gradient • Pallor **D-Check RBS** • Fix IV access and draw samples for FHG, CRP, UECs, Calcium, Magnesium, blood culture, CSF **E-Check temperature** • Quick head to toe exam • Weight baby • IM phenobarbitone (20mg/kg = 70mg LD)	If setting not changed baby continues convulsing If airway not cleared and/or wrong positioning, baby gets respiratory distress, RR- 70 breaths/ min, grunting (go to progression 2) If RBS not checked, the convulsions worsen into status epilepticus (go to progression 3)	Terminate if RBS not checked despite scenario saver

2. Progression / worsening • Respiratory distress worsens • Baby now has grunting • RR = 70 • SPO2=89% • HR = 135	• Observe baby • Clear the airway and position into left lateral position	If this done, proceed to progression with the rest of the scenario above (ABCDE)	If participant still not positioning airway, terminate scenario and debrief
3. Progression Worsening convulsions Baby still has persistent convulsions RBS = 4.5 mmol/L	• Observe baby (ABCDE approach) • RBS checked at D	If this done, proceed to E and normal management	If not done, terminate and debrief
3. Progression/ recovery • Vital signs • Baby has stopped convulsions 1. Temp- 37.20C 2. HR-140 bpm 3. Spo2- 93% 4. RR- 58 bpm **Lab results** (if requested) FHG • WBC- 8x109 • Neu- 2.5X 109 • Hb-15g/dl • Plt-150 x 109 **CRP** 9 (normal <10) **U/E/C** • Creat-20 umol/l • Urea- 7mmol/l • Sodium -138mmo/l • Potassium-3.9mmol/l • Calcium-2.2mmo/L • Magnesium=0.7	• Supportive management (including prevention of hypoglycemia IVF/NGT feeding) • Monitoring of vital signs • IFCDC • Review 1 hour after loading dose of phenobarbitone • Start baby on maintenance dose of phenobarbitone at 5mg/kg once daily (at least 12 hours from loading dose)	If diazepam given at any one point, terminate the case and teach	*Discuss why diazepam is not used in neonatal seizure management • Print lab results • Discuss rationale of the 1 hour interval post administration of phenobarbitone before other drugs can be given • Discuss the transition from loading dose to maintenance dose of phenobarbitone

CASE SCENARIO 3: MANAGEMENT OF A NEONATE WITH PERSISTENT CONVULSIONS DESPITE RECEIVING INITIAL LOADING DOSE OF PHENOBARBITONE

Scenario objectives

Knowledge

1. Describe the common causes of neonatal convulsions
2. Describe differential diagnoses for a newborn with persistent convulsions
3. Describe the management of a newborn with persistent convulsions

Skills

1. Perform accurate newborn assessment to identify signs of neonatal convulsions
2. Administer medication and fluids appropriately

Attitude

1. Demonstrate effective communication (closed loop, directed and reflective)
2. Demonstrate compliance to guidelines-management and IFCDC
3. Demonstrate appropriate consultation
4. Demonstrate clear role play as assigned

CASE SCENARIO

A 2-day old neonate who has been in the newborn unit is reported to have persistent convulsions despite receiving treatment. What do you do?

Collateral history

- Term baby, delivered after prolonged labor to a 20-year-old, primigravida
- Birth weight of 3.8 kgs
- APGAR score 3, 4, 6.
- Resuscitated at birth with BVM and CPR for about 10 minutes.
- Had twitches since morning. Has received loading dose of phenobarbitone about 45 minutes ago but still actively convulsing. Blood samples for FHG, Ext. UECs were taken in morning.

Patient assessment	Effective management	Consequences of ineffective management	Notes
1. Initial assessment Baby is on the radiant warmer. has repetitive and rhythmic jerking movements on the face and both upper limbs with lip smirking and jerky eye movements **A-airway** is clear **B-**baby on oxygen at 10L/min • Nasal flaring • RR- 65 bpm • SPO2-90%	• Ensure safety • Observe baby • Shout for help **Assess ABCDE** **A-Assess for obstruction** • Maintain airway patency and position in left lateral position after the seizure **B-Assess adequacy** • Nasal flaring • Central cyanosis • Grunting • RR • Sternal retraction • Intercostal recession • Sp02 • Maintain oxygen via NRM at 10-15l/min. Target SpO_2 90-95%	If airway not cleared and/or wrong positioning (proceed to progression 2)	

C-PR-120 bpm • Pulse easy to feel • Cap refill- 2 secs • No temperature gradient • No pallor **D-** RBS-4.2 mmol/L **E-**Temp- 37.30C • No abnormalities Weight = 3.5kg	**C-**Assess adequacy Pulse- **large pulse and peripheral** **Capillary refill** **Temperature gradient** **Pallor** **D-**Check RBS **E-**Check temperature Quick head to toe exam Give IM phenobarbitone mini loading dose (10mg/kg = 35mg)1 hour from initial loading dose Proceed to progression 4	If RBS not checked (proceed to progression 3)	Terminate if RBS not checked despite scenario saver
2. Progression / Worsening (airway management) • Baby in respiratory distress, • RR- 70 breaths/ min, grunting	• Observe baby • Airway cleared and baby positioned to left lateral position	It this is done, proceed with case above	
3. Progression worsening (disability) Baby still has worsening convulsions RBS = 4.4 mmol/L	Observe baby ABCDE approach At D, Check RBS	If done correctly, proceed to E and subsequent management (mini loading dose)	

4. Progression (recovery) • Vital signs • Baby still has convulsions despite 2nd loading dose of phenobarbitone given one hour ago • Temp- 37.20C • HR-140 bpm • Spo2- 93% • RR- 58 bpm • RBS (after bolus) = 4.5 mmol/L	Reassess baby one hour after the mini loading dose of phenobarbitone Review Lab results and patient's medical records Note hypocalcemia as a possible contributor to the persistent convulsions and correct (iv bolus of 10% calcium gluconate 0.5-2ml/kg over 5-10 min) Supportive management (including prevention of hypoglycemia IVF/NGT feeding) Monitoring of vital signs IFCDC	If diazepam given at any one point, terminate the case and teach If hypocalcemia not noted, convulsions continue despite the 2nd loading dose of phenobarbitone. Give a scenario saver about review of the labs. If this does not help, terminate case and teach	Print lab results Discuss rationale of the 1 hour interval post
Lab results (if requested) • FHG • WBC- 8x109 • Neu- 2.5X 109 • Hb-15g/dl • Plt-150 x 109 **CRP** 9 (normal <10) **U/E/C** • Creat-20 umol/l • Urea- 7mmol/l • Sodium -138mmo/l • Potassium- 3.9mmol/l • Calcium- 1.8mmo/L • Magnesium=0.7 mmol/L			Administration of phenobarbitone before other drugs can be given **Discuss** hypocalcemia as a possible cause of persistent convulsions and its management (refer to BPP pg 15 for dosage)

5. Progression Baby has stopped convulsing • Temp = 36.8 • HR = 140 bpm • RR = 56 breaths/ min • SPO2 = 98% on 10l/min oxygen via NRM • RBS = 4.8 mmol/L	Review baby 1 hour after 2nd loading dose of phenobarbitone Re-examine baby's vitals plus RBS Change from NRM to nasal prongs at 1l/min, target SPO2 of 90-95% Continue supportive care (feeding via NGT or IVF) Plan to start maintenance dose of phenobarbitone (5mg/kg) at least 12 hours after the 2nd loading dose Document findings and interventions in the appropriate medical records	Failure to review baby at least one hour after 2nd loading dose, the convulsions resume	Discuss importance of review of patients after any intervention for decision making Terminate and debrief once convulsions have stopped

CASE SCENARIO 4:

Management of a neonate with persistent convulsions despite receiving initial loading dose and the mini- loading dose of phenobarbitone.

Scenario objectives

Knowledge

1. Describe the common causes of neonatal convulsions
2. Describe differential diagnoses for a newborn with persistent convulsions
3. Describe the approach to a neonate with persistent convulsions despite 2 doses of phenobarbitone.

Skills

1. Perform accurate newborn assessment to identify signs of neonatal convulsions
2. Administer medication and fluids appropriately

Attitude

1. Demonstrate effective communication (closed loop, directed and reflective)
2. Demonstrate compliance to guidelines-management and IFCDC
3. Demonstrate appropriate consultation
4. Demonstrate clear role play as assigned

Case scenario

A 2-day old neonate who has been in the newborn unit is reported to have persistent convulsions despite receiving the loading dose of phenobarbitone. He has also received and mini-loading dose of phenobarbitone about 45 minutes ago. What do you do?

Collateral history

- Term baby, delivered after prolonged labor to a 20-year-old, primigravida
- Birth weight of 3.8 kgs
- APGAR score 3, 4, 6.
- Resuscitated at birth with BVM and CPR for about 10 minutes
- Had twitches since morning. Had received loading dose of phenobarbitone and a mini loadiang dose about 45 minutes ago but still actively convulsing. Blood samples for FHG, Ext. UECs were taken in morning

Patient assessment	Effective management	Consequences of ineffective management	Notes
1. Initial assessment Baby is on the radiant warmer. has repetitive and rhythmic jerking movements on the face and both upper limbs with lip smirking and jerky eye movements **A-**airway is clear **B-**baby on oxygen at 10L/min • Nasal flaring • RR- 65 bpm • SpO_2-90% **C-**PR-120 bpm • Pulse easy to feel • Cap refill- 2 secs • No temperature gradient • No pallor **D-** RBS-4.2 mmol/L **E-** Temp- 37.30C No abnormalities Weight = 3.5kg	• Ensure safety • Observe baby • Shout for help **Assess ABCDE** **A-**Assess for obstruction Maintain airway patency and position in left lateral position after the seizure **B-**Assess adequacy • Nasal flaring • Central cyanosis • Grunting • RR • Sternal retraction • Intercostal recession • $Sp0_2$ • Maintain oxygen via NRM at 10-15l/min. Target SPO2 90-95% **C-**Assess adequacy • Pulse- large pulse and peripheral • Capillary refill • Temperature gradient • Pallor **D-**Check RBS **E-**Check temperature Quick head to toe exam *(proceed to progression 4)*	If airway not cleared and/or wrong positioning (proceed to progression 2) If RBS not checked (proceed to progression 3)	Terminate if RBS not checked despite scenario saver
2. Progression / Worsening (airway management) • Baby in respiratory distress, • RR- 70 breaths/min, grunting	Observe baby Airway cleared and baby positioned to left lateral position	It this is done, proceed with case above	

3.progression worsening (disability) Baby still has worsening convulsions RBS = 4.4 mmol/L	Observe baby ABCDE approach At D, Check RBS	If done correctly, proceed to progression 4	
4.Progression (recovery) Vital signs • Temp- 37.20C • HR-140 bpm • Spo2- 93% • RR- 58 bpm • RBS (after bolus) = 4.5 mmol/L **Lab results** (if requested) • FHG • WBC- 8x109 • Neu- 2.5X 109 • Hb-15g/dl • Plt-150 x 109 **CRP** 9 (normal <10) **U/E/C** • Creat-20 umol/l • Urea- 7mmol/l • Sodium -138mmo/l • Potassium-3.9mmol/l • Calcium-1.8mmo/L • Magnesium=0.7 mmol/L	Review Lab results and patient's medical records Note hypocalcemia as a possible contributor to the persistent convulsions and correct (iv bolus of 10% calcium gluconate 0.5-2ml/kg over 5-10 min)	If diazepam given at any one point, terminate the case and teach Give a scenario saver about review of the labs. If this does not help, terminate case and teach	Print lab results Discuss rationale of the 1-hour interval post administration of phenobarbitone before other drugs can be given Discuss hypocalcemia as a possible cause of persistent convulsions and its management (refer to BPP pg 15 for dosage)

Progression 3 Baby still actively convulsing • Temp = 36.8 • HR = 140 bpm • RR = 56 breaths/ min • SPO2 = 98% on 10l/min oxygen via NRM • RBS = 4.8 mmol/L	Review baby 1 hour after 2nd loading dose of phenobarbitone Escalate care to 2nd line anti-convulsants (either use levetiracetam loading dose of 30mg/kg iv infusion over 15 minutes, or phenytoin 15mg/kg iv infusion over 15 minutes) Consider radiological investigations Investigate for other potential causes of the persistent convulsion e.g cranial ultrasound • Plan for senior consultation/referral • Supportive management (including prevention of hypoglycemia IVF/NGT feeding) • Monitoring of vital signs • IFCDC	If participant not able to proceed to 2nd line anti-convulsants, terminate case and initiate discussion Once participants call for referral of consultation, terminate case and debrief	• Discuss the neonatal convulsions algorithm (reference BPP) • Discuss possible causes of persistent convulsions despite adequate management • Discuss

Closed discussion

Discuss the Triple elimination:
- PMTCT testing scheduling
- ARVs prophylaxis for infants

Prevention of mother to child transmission of syphilis and prophylaxis/treatment Prevention of mother to child transmission of hepatitis and prophylaxis/treatment

MODULE 8:
CARE FOR THE SMALL AND SICK NEWBORN

MODULE 8. CARE FOR THE SMALL AND SICK NEWBORN.

I. Introduction:

This module aims to equip mentees with knowledge and skills to be able to manage small and sick newborns

II. Learning Outcome:

By the end of this module, mentees should be able to comprehensively manage common conditions of the small and sick neonates.

III. Learning Objectives

By the end of the session the mentee should be able to:

Use of ballard score

Integrate the use of CPAP, caffeine citrate, KMC and plastic wraps in the management of small and sick newborn

IV. Module Work Plan

MODULE 8: Care For The Small And Sick Newborn			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Lecturette:** • Introduction to care of small and sick newborns	• Lecture	• Laptop, • Projector, • Smartphone
15 minutes	**Session 1:** • Use of plastic wraps	• Discussion, • Video and skills	• Plastic Wrap, • Premie Natalie/Preterm Smartphone
60 minutes	**Session 2:** • Ballard Score lecturette and video • Bedside mentorship	• Lecturette, • Video • Bedside skills	• Smartphones, • Laptop, • Ballards Score Chart
60 minutes	**Session 3:** • CPAP • Skills on assembly and use of CPAP • Monitoring babies on CPAP	• Lecturette • Practicum	• Premie Natalie/Preterm Baby, • CPAP Machine and its Components, • Pulse Oximeter, • Smartphone, • Oxygen Source, • Comprehensive Monitoring Chart
30 minutes	**Session 4:** • Apnea of prematurity and use of caffeine citrate	• Lecturette and Discussion and bedside skills	• Smartphone, • Caffeine Citrate
30 minutes	**Session 5:** • KMC	• Lecturette • Video • Practicum	• Smartphones, • Laptop, • KMC Wraps/Lesos, • Socks, • Cap, • KMC Daily Score Sheet, • KMC Register

Scenario 1

You are called to receive a preterm baby who is about to be born via SVD at 30 weeks.What do you do?

Action required	Information/result
Preparation **Safety** • Warm room (25o-28oc)- digital room thermometer. • Environment- no sharps etc • Hand hygiene **Equipment** **Warmth** • Radiant warmer (prewarm mode). • Pre warmed 2 dry towels and hat • Plastic wrap **Airway** • Penguin sucker or suction machine. • Set the suction machine. • Suction catheters (size 6-8) and wide bore catheter (yankauer sucker). **Breathing** • Bvm device (200-300 mls) • Bvm masks- size 00, 0 and 1 • Neonatal nasal prongs • Neonatal non rebreather mask • Oxygen source • Oxygen tubing • Pulse oximeter with neonatal probe **Circulation** • Stethoscope **Others** • Clock/timer • Gloves • **Perform hand hygiene and wear gloves** • **Start the timer/note the time**	Baby is born
Initial Stabilization • Dry head and face only as you observe for cry/breathing and tone. • Wrap the rest of the body in a plastic wrap • Cover the head with a hat • Wrap in a warm towel. • Delay cord clamping for 1-3 min, cut the cord and transfer baby to the pre warmed radiant warmer	Baby is preterm, active and is crying
Airway • Check for obstruction	Airway is clear

Breathing
• **Assess for adequacy;**
  • Nasal Flaring
  • Grunting
  • Central Cyanosis
  • Lower chest wall indrawing
  • Sternal and intercostal recession
  • RR
  • $Sp0_2$
	
	RR is 50 breaths/min. $Sp0_2$ is 95% on room air.
	No signs of distress

CIRCULATION • Assess adequacy • PR/HR. • Capillary RT over the sternum • Colour	 The pulse rate is 140 beats/ min Baby is pink CRT is immediate
EXPOSURE • Temp	Temp 36.7ºC
SUPPORTIVE CARE IN THE LABOUR WARD • Continue Keeping baby warm (temp 36.5 - 37.5^{0}C) • ENC • IFCDC • Inform NBU to prepare - SBAR • Start on prophylactic CPAP • FiO_2 - 50%, PEEP- 6 cm of H_20 • Continue monitoring SpO_2, temp, PR and RR and other parameters of the APGAR score • Document Transfer baby to NBU while still in the plastic wrap and on CPAP	 Settings?
CARE AT THE NBU • Admit – NAR • Ensure baby is kept warm • Gently open/ tear plastic wrap • Immediately dry the baby, weigh and put baby in the incubator/iKMC • Check temp after 30 min of removing wrap • Ct prophylactic CPAP and Vital signs monitoring • Check RBS? • Feeding via NGT (comprehensive newborn care protocols page 21) • Start prophylactic caffeine citrate -dose, route, trophic feeds, how long? Discuss discontinuation and follow up • IFCDC • Other supportive care- continuous monitoring, daily weighing, daily review, supplementation, ROP screening and IVH screening) • Documentation • Discharge plan	 Weight of the baby is 1.1 kgs Discuss medication Discuss use of antibiotics Discuss cord care and immunization in the preterm infants

SIMULATION IN TEAMS: CARE OF THE SMALL AND SICK NEWBORN

Scenario Objectives:

Knowledge

1. Describe the preparation for receiving a preterm baby (anticipation, equipment checklist- CPAP, caffeine citrate and thermoregulation)
2. Discuss the initial assessment and care of a preterm baby who doesn't require resuscitation.
3. Describe care of a preterm baby after stabilization (Essential newborn care, iKMC, prophylactic CPAP and use of prophylactic caffeine citrate)

Skills

1. Demonstrate correct use of plastic wrap and delayed cord clamping in a preterm baby not requiring resuscitation at birth
2. Demonstrate airway management and assessment of adequacy of breathing and circulation in a preterm baby.
3. Demonstrate initiation of prophylactic nasal CPAP in delivery room for an eligible preterm baby
4. Demonstrate correct administration and use of prophylactic caffeine citrate
5. Demonstrate transition from plastic wrap and correct positioning of a preterm baby for iKMC

Attitude/Behaviour

1. Demonstrate team work in receiving a preterm baby
2. Demonstrate effective communication (closed loop, directed and reflective)
3. Demonstrate compliance to guidelines and IFCDC for care of a preterm baby
4. Demonstrate appropriate consultation (NBU, receiving facility in case of referral)

SCENARIO

Case Story/ scenario stem:

A baby is about to be born in labour ward via SVD at 30 weeks. What do you do?

Collateral history if requested

Mother is a 30yr old PARA 2+0 G 3 with pre-eclampsia, No PPROM, has received maternal corticosteroids and magnesium sulphate for neuro-protection.no other maternal conditions ANC profile is normal

LIKELY PROBLEM/OBJECTIVE

Baby with prematurity and low birth weight, to be received in plastic wrap, initiate prophylactic CPAP and caffeine citrate and start iKMC.

Patient Assessment	Effective Management	Consequence for Ineffective Mgt	Notes
1. Initial Presentation Baby delivered Baby is preterm, active and crying	• Safety and IPC • Note time of delivery/ start APGAR timer • immediately wrap preterm using a plastic wrap • Dry the baby's head and face and put a cap while assessing for tone, gestation and crying • Cover with a dry towel on mother's abdomen • Practice delayed cord clamping for 1-3 minutes. • Do APGAR score appropriately (at Minute 1, 5 & 10)	If plastic wrap not placed Baby feels cold to the touch with a pale mottled skin. **Proceed to progression 2/ worsening**	
A: Clear, no obstruction	**Assess airway** • Assess airway for any obstruction • Maintain sniffing position		
B: Mild flaring, No grunting, no central cyanosis, no sternal recessions, RR 55 breaths/min, SPO2 90%,	**Breathing (check adequacy of breathing)** • Flaring of ala nasae • Grunting • Central cyanosis • RR for 1 minute • Sternal and intercostal recession • Connect pulse oximeter • Check SPO2		
C: CRT 2 seconds • Pulse is 130 beats/ minute • Baby is pink • Warm extremities • Normal BP	**Assess adequacy of circulation** • CRT • Pulse rate for 1 minute • Colour of baby • -Temp gradient • Blood pressure		
D -RBS- 3.2 mmol/l	**Disability -Check RBS**		
E- Temperature 36.8'C	**E-Exposure** • Change radiant warmer from prewarm to baby mode and appropriately place temperature probe • Check temperature	Proceed to progression 3/ recovery	

2. Progression (worsening) Baby feels cold to the touch with a pale mottled skin, increased RR to 72 breaths/min and grunting Temp 36.2'C	• Note that the baby is hypothermic and do corrective measures • wrap preterm using a plastic wrap • Put a cap • Skin to skin care • Transfer to radiant warmer		Terminate and debrief
3. Progression/ recovery (symptoms improves) Baby is crying, pink and active. No abnormal findings Temp-36.8c,SPO2 94% on room air, Respiratory rate 50b/minute, Pulse rate 130b/minute	Monitor SPO2 and other vitals • Maintain warmth • Initiate baby on prophylactic nasal CPAP • prepare the baby • prepare the machine CPAP settings(depending on CPAP machine available) • PEEP 6cm of water • Fi02 50% • -Essential newborn care • Tetracycline Eye Ointment 1% 7.1% Chlorhexidine digluconate • Vitamin K 0.5mg IM stat • Weigh baby • Prophylactic caffeine citrate loading dose at 22mg and maintenance of 5.5mg 24hourly PO with trophic feeds Orogastric feeding: start with 5mls and increase by 5mls per feed to 11mls 3 hourly (refer to protocol) Perform head to toe exam plus vital signs • Infant and Family Centered Developmental Care(IFCDC) • Documentation and transfer to NBU while on plastic wrap or remove plastic wrap and initiate iKMC	If patient not started on CPAP, baby worsens Respiratory distress worsens with subcostal recession RR 80 breaths/min SPO2 85% with grunting, subcostal Proceed to progression 4 Patients starts twitching if RBS is not done and feeding not iniatiated If progression 3 done correctly	Terminate and debrief

4. Progression (worsening) • Respiratory distress worsens recession • RR 80 breaths/ min • SPO2 85% with grunting, subcostal • RBS 1.8mmol/l if feeding not done	Monitor SPO2 and other vitals • Maintain warmth • Initiate baby on prophylactic nasal CPAP • prepare the baby • prepare the machine • CPAP settings(depending on CPAP machine available) • PEEP 6cm of water • Fi02 50% • Essential newborn care Tetracycline Eye Ointment 1% 7.1% Chlorhexidine digluconate Vitamin K 0.5mg IM stat • Weigh baby • Prophylactic caffeine citrate loading dose at 22mg and maintenance of 5.5mg 24hourly PO with trophic feeds Orogastric feeding: start with 5mls and increase by 5mls per feed to 11mls 3 hourly (refer to protocol)		Terminate and debrief if doesn't start CPAP despite above findings

MODULE 9:
NEONATAL JAUNDICE

MODULE 9: NEONATAL JAUNDICE

I. Introduction:

This module aims to equip the mentees with knowledge and skills to identify and manage neonatal jaundice appropriately

II. Learning outcome

By the end of this module, mentees should be able to competently manage a newborn with jaundice as per the National guidelines.

III. Learning Objectives

By the end of the module, mentees should be able to:

- Identify and investigate appropriately a neonate with jaundice
- Use the nomograms to determine the appropriate management
- Prepare a baby for phototherapy and initiate phototherapy with the appropriate irradiance

IV. Module Work plan

MODULE 9: Jaundice			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** • Lecturette on neonatal Jaundice	Lecture	• Slides, • Projector, • Comprehensive Newborn Care Protocol/ Basic Paediatric Protocol
30 minutes	**Session 2:** • Drills on use of nomograms	practicum	• Slide with The Scenarios, • Projector, • Comprehensive Newborn Care Protocol/ Basic Paediatric Protocol
30 minutes	**Session 3:** • Skills training/ bedside mentorship on phototherapy use	Practicum	• Led Phototherapy Unit, • Light Meter, • Eye Shield, • Diaper, Mannikin/Baby, • Bilirubin Levels Results, • Nomograms.

V. Drills on the use of nomograms to determine therapy

Gestational age (Wks.)	Birth weight (Kg)	Age	Risk factors	Total Serum Bilirubin (µmol/l)	Nomogram to be used	Therapy
36 weeks		3 days	Respiratory distress	420 µmol/l	B	Exchange Transfusion
31 weeks	1.4kg	7 days	Seizures, sick	280 µmol/l	E	Exchange Transfusion
34 weeks	1.55Kg	4 days	Stable	240 µmol/l	D	Standard Phototherapy
39 weeks		5 days	Dehydrated, sepsis	370 µmol/l	A	Intensive Phototherapy
40 weeks		3 days	Stable	240 µmol/l	A	No Phototherapy

VI. Skills teaching/bedside mentorship on the use of phototherapy

- Preparing baby for phototherapy (Comprehensive Newborn Care Protocols Section 2.7.6)
- Preparing and initiating phototherapy (Comprehensive Newborn Care Protocols, section 2.7.7)

SIMULATION IN TEAMS: NEONATAL JAUNDICE

SCENARIO OBJECTIVES

- To correctly identify and manage a newborn with jaundice.

Knowledge

- To highlight the risk factors for jaundice in a newborn.
- To describe how to use the correct nomogram to determine therapy.

Skills

- To demonstrate the clinical assessment of a baby with jaundice.
- To demonstrate the use of nomograms to determine therapy.
- To demonstrate the correct use of the phototherapy machine and light meter.

Attitudes

1. To demonstrate effective communication (closed loop, directed and reflective).
2. To demonstrate compliance to guidelines-management and IFCDC.
3. To demonstrate appropriate consultation.

A 2 day old preterm baby who has been in the newborn unit is noticed to have yellowness of the skin. What do you do?

COLLATERAL HISTORY

- A baby born at 34 weeks gestation and birth weight of 1950gms.
- Has difficulty in breathing.
- Jaundice started on day 2.
- Baby is f not breast feeding well.
- Blood group of the baby and the mother is B+ve.
- Temp of 37.5°C.

Patient assessment	Effective management	Consequence of in effective management	Notes
Initial assessment Baby is small with difficulty in breathing and is irritable.	Approaches the baby. Demonstrates quick assessments of ABCDE	Failure to identify danger signs. Mild LWCI, RR-78/min, SpO_2 60%.	
A-clear B-RR-70/min SPO2-88%, mild lower chest wall indrawing. No flaring, no central cyanosis. SPO2 is 94% at 0.5/l minutes C- CRT 1 sec, No temp gradient, HR 140/min Baby is pink D- RBS- 4. O mmol/l	A-look and maintain airway position B- check adequacy of breathing Nasal flaring Grunting Subcostal and intercostal recession Cyanosis RR SPO2 Baby put on blended oxygen via nasal prongs at 0.5 l/min. Performs continuous pulse oximetry and titrate to maintain spo2 90-95%. Access adequacy of circulation HR Pallor Temperature gradient Capillary refill time Do a random blood sugar		Participant to demonstrate a systematic approach in reviewing a sick neonate in the ward.

E-Temp 37.0C, Head to toe assessment- yellowness of the skin and eyes. Samples taken to the laboratory.	Check temp does a general examination and access for jaundice do head to to exam draw sample and take to the lab. • Bilirubin , • Fhg, • CRP/Procalcitonin, • Blood culture, • Lumbar puncture • U/EC.		
Laboratory results are back after 30min. TSB 220 mmol/l Direct bilirubin – 10mmol/l	Identify the correct nomogram (D) Determine the correct therapy and irradiance (30-35µ) i.e (Intensive).	If correct normogram and irradiance is not identified stop the scenario and teach.	Provide copies of the laboratory results. Blood culture results not available still being processed.
Eye shields present. Phototherapy machine present. Oral gastric tube present.	IFCDC Preparation of patient(eye shield, OGT placement) Prepare the phototherapy machine. Initiation of intensive phototherapy	If IFCDC is not done, mother becomes anxious, asks what is to be done to the baby and why an OGT is being inserted and the baby can breastfeed.	If eye shield is not placed on the baby highlight as a teaching point.
Baby is on intensive phototherapy. Vital signs HR-140 RR-50 SPO2-94% Temp 37.3	Monitoring of patient 3hourly vitals signs. 3hourly feeding via OGT. Checking of the irradiance with light meter (30-35µ). Repeat TSB at 6 hours (Indicate time).	If repeat TSB is not done at 6 hours.	Teach importance of teaching the importance of repeating TSB at 6 hours it to confirm effectiveness of therapy and or need to escalate to exchange transfusion. Terminate scenario and debrief.

Neonatal Laboratory Report

Patient: Baby M (Male, 2 days old)
Hospital No.: 002356
Ward: Neonatal Unit
Date of Collection: 01/10/2025
Requesting Clinician: Dr. A.

NOTE: FOR SIMULATION THE LABORATORY RESULTS TO BE PRINTED ON INDIVIDUAL FORMS.

1. Liver Function Tests (LFTs)

Parameter	Result	Reference Range (Neonate)
Total Serum Bilirubin	220 µmol/L	0 – 120 µmol/L
Direct Bilirubin	25 µmol/L	0 – 25 µmol/L
Indirect Bilirubin	195 µmol/L	0 – 95 µmol/L
ALT	28 U/L	10 – 40 U/L
AST	45 U/L	20 – 60 U/L
ALP	280 U/L	150 – 420 U/L
GGT	38 U/L	20 – 50 U/L
Albumin	36 g/L	30 – 45 g/L
Total Protein	56 g/L	50 – 70 g/L

2. Complete Blood Count (CBC)

Parameter	Result	Reference Range (Neonate)
Hemoglobin	15.0 g/dL	14 – 20 g/dL
Hematocrit	46%	42 – 65%
RBC Count	4.6 $\times 10^6$/µL	4.1 – 6.1
MCV	92 fL	88 – 120
WBC Count	12.5 $\times 10^3$/µL	9 – 30
Neutrophils	55%	40 – 70%
Lymphocytes	38%	20 – 45%
Platelets	230 $\times 10^3$/µL	150 – 450
Reticulocyte Count	4%	2 – 6%

3. Hemolysis & Blood Group Tests

Test	Result
Blood Group	Baby: B+ / Mother: B+
Direct Coombs Test	Negative
Indirect Coombs Test	Negative

4. Serum Electrolytes

Parameter	Result	Reference Range
Sodium (Na^+)	138 mmol/L	135 – 145
Potassium (K^+)	4.6 mmol/L	3.5 – 5.5
Chloride (Cl^-)	102 mmol/L	98 – 106
Bicarbonate (HCO_3^-)	21 mmol/L	20 – 28
Calcium (Ca^{2+})	2.2 mmol/L	2.0 – 2.7
Magnesium (Mg^{2+})	0.9 mmol/L	0.7 – 1.0
Phosphate (PO_4^{3-})	1.6 mmol/L	1.3 – 2.3

5. CSF Findings

Appearance	Not turbid	Reference ranges
Protein(g/L)	0.19	0.18-0.45
Glucose(mmol/L)	2.6	2.5-3.5
Gram stain	Negative	Normal
Glucose-CSF-Serum Ratio	0.6	0.4-0.6
WCC	3	0-3

SCENARIO: How to wean off phototherapy in a baby with neonatal jaundice

Learning objectives.

Knowledge

- To describe bilirubin monitoring and correct use of nomogram to determine therapy.

Skills

1. To demonstrate the correct use of nomogram based on lab results.
2. To demonstrate the clinical assessment of a baby with jaundice undergoing phototherapy.
3. To demonstrate the correct use of the light meter while on phototherapy machine.

Attitudes

1. To demonstrate effective communication (closed loop, directed and reflective).
2. To demonstrate compliance to guidelines-management and IFCDC.
3. To demonstrate teamwork and role play.

CASE SCENARIO

You are reviewing a 3 day old preterm baby who has been in the newborn unit on intensive phototherapy for the last 6 hrs. What do you do?

COLLATERAL HISTORY if requested.

- A baby born at 34 weeks gestation and birth weight of 1950gms.
- Jaundice started on day 2, intensive Phototherapy started 6 hours ago.
- Blood group mother and baby is B+ve.
- Temp of 37.3 C°.
- Initial total bilirubin was 220mmol/l at 72 hrs of life.
- NGT feeding 24mls 3hrly.

Patient assessment	Effective management	Consequence of in effective management	Notes
1. Initial assessment Baby has been on phototherapy for 6 hours. **A-**clear **B-** No flaring,No grunting,no subcostal &intercostal recession,no central cyanosis, Spo2- 92% **C-** CRT 1 sec, No temp gradient, HR 139/min Baby is pink **D-**RBS 3.8 mmol/l **E-** Baby is stable, baby has jaundice, no other abnormalities. Repeat TSB is 173mmol/l.	Assess the baby ABCDE **A-**look and maintain airway position **B-** check adequacy of breathing • Nasal flaring • Grunting • Subcostal and intercostal recession • Cyanosis • RR • SpO_2 Access adequacy of circulation • HR • Pallor • Temperature gradient • Capillary refill time Do a Random Blood Sugar Check temp does a general examination and access for jaundice Draw samples for bilirubin and taken to the lab. Refer to normogram D Determine the irradiance. Reduce Irradiance from intensive to standard phototherapy. Remove NGT Allow breast feeding on demand. Repeat bilirubin levels at 12-24hours.	If no reduction to standard phototherapy highlight for teaching.	Give the TSB figures. 70 below exchange levels and 20 above the standard phototherapy curve of risk factors. Discuss about how to stop phototherapy when TSB falls >50 below the phototherapy curve. Discuss the importance of repeat TSB 12 – 24hours after cessation on phototherapy. Terminate scenario and debrief

MODULE 10:
NEONATAL HYPOGLYCAEMIA

MODULE 10: NEONATAL HYPOGLYCAEMIA

I. Introduction

The aim of this session is to equip mentees with knowledge and skills to manage neonatal hypoglycaemia.

II. Learning Outcome

By the end of this module, the mentee should be able to recognize neonates at risk of hypoglycaemia and initi- ate appropriate management.

III. Learning Objectives

By the end of the session, the mentee should be able to:

- Identify babies at risk of hypoglycaemia
- Perform heel prick and blood glucose testing using a glucometer
- Interpret glucose levels and decide on appropriate interventions.
- Demonstrate buccal glucose therapy

IV. Module work plan

MODULE 10: Neonatal Hypoglycemia			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette (algorithm)	Lecturette	• Lecture Notes, • Flip Charts, • Marker Pens, • Projector, • Laptop.
30 minutes	**Session 2:** Taking blood glucose testing using heel prick video	Video practicum	• Projector, • Laptop, • Glucometer, • Prickers, • IPC Material (Alcohol Swabs, • Gloves), • Baby Anne Manikin
45 minutes	**Session 3:** Buccal glucose therapy	demonstration/ practicum	• 2cc Syringe, • Gloves, • 50% Dextrose, • Sterile Gauze, • Preemie Natalie

Skills teaching/bedside mentorship

Performing a heel prick (comprehensive newborn protocol section 3.9) Use the four stage skills teaching approach
Administration of Buccal dextrose (comprehensive newborn care protocols section 3.8)

SIMULATION IN TEAMS: NEONATAL HYPOGLYCEMIA

Learning Objectives

- By the end of the debriefing participants should be able to;

Knowledge

1. To identify an apnoeic baby who requires immediate stabilization.
2. To outline the causes of apnoea in a preterm.
3. To outline the management of an apnoeic preterm.
4. To identify and manage hypoglycemia

Skills

- To demonstrate stimulation and initial assessment of the airway, breathing and circulation.
- Demonstrate airway positioning
- Demonstrate effective ventilation
- Demonstrate how to perform a heel prick technique

Attitude/Behavior

- To demonstrate effective communication- (direct and clear instructions with closed loop communication)

SCENARIO

Case scenario:

A 15 day old preterm baby born at 31 weeks GBD with a birth weight of 1100gms. The current weight is now1100gms, was found cyanotic in the incubator.

Collateral history if requested

- Mother is a 40yr old who had pre-eclampsia. Born via an emergency C/S APGAR 8/1,10/5,10/10.
- Was not resuscitated.
- Baby is currently on room air on 14mls EBM 3hourly feeds via NGT, supplements and caffeine citrate at 6mg maintenance orally.

LIKELY PROBLEM

- Baby was noted to have hypoglycemia on Total feeds of (100mls/kg/day) at day 15.

Patient Assessment	Effective Management	Consequence for Ineffective Mgt	Notes
1. Initial Presentation No response to stimulation Airway is Clear	**Stimulate** Assess airway Positioning - sniffing position	• If no stimulation done, airway not positioned and cleared, effective ventilation not done- the heart rate will drop to 65/ min.	Needs to stimulate the baby initially.
B- No breathing Heart Rate 90 beats/ min RBS- 2.7 mmol/l	**Assess breathing** (Look, Listen and Feel for 5 seconds) **Shout for help** • Effective ventilation for 1 minute • Sizing of the mask • C and E grip • Ensure Chest rise • Rate(40-60b/min) **Circulation** Continue ventilation for 1 minute Check RBS Manage -Bolus D10% 2.2mls Explore and discuss possible causes of apnoea. Sepsis Electrolyte imbalance IVH/meningitis Hypoglycemia etc	• If they ventilate effectively and if hypoglycemia is not detected and managed - baby will convulse and not breath(proceed to progression 2)	
2. Progression (worsening symptoms) Airway clear No breathing SPO2 – 40%	Reassess airway Positioning -sniffing position Assess breathing (Look, Listen and Feel for 5 seconds) Effective ventilation for 1 minute Sizing of the mask C and E grip Chest rise Rate(40-60b/min)		

HR 65 /MIN Persistent apnoea and convulsions.	Circulation Check RBS • Manage -Bolus D10% 2.2mls • Explore and discuss possible causes of apnoea. • Sepsis • Electrolyte imbalance • IVH/meningitis • Hypoglycemia etc	If RBS is checked and corrected proceed to progression 3/recovery If they fail to check RBS terminate and debrief	
3. Progression / Recovery • SPO2 95% • HR-130min • RR-45/min • Baby with spontaneous breathing and will be pink	Recalculate the feeds and give the correct feeds at 25mls 3 hrly(180mls/kg/day) Check RBS after 30 minutes	If they check - terminate and debrief	

MODULE 11:
NEONATAL FEEDS AND FLUIDS

MODULE 11: NEONATAL FEEDS AND FLUIDS

I. Introduction

- This module aims to equip the mentee with knowledge and skills to support enteral and parenteral feeds in order to promote optimal extrauterine growth and development.

II. Learning Outcome

- By the end of this module, the mentees should be able to support both enteral and parenteral feeding in line with the national guidelines.

III. Learning Objectives

By the end of the session, the mentee should be able to:

- Initiate and support breastfeeding
- Support mothers to express breastmilk
- Determine appropriate feeding method and volume of feed
- Safely administer feeds.

Module work plan

MODULE11: Neonatal feeds and fluids			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
20 minutes	**Session 1:** • Lecturette on newborn feeding	Lecture video	• Lecture Notes, • Projector, • Laptop, • Smart Phone
30 minutes	**Session 2: Closed discussion on:** • Determining mode of feeding • Feed volume • Hunger cues	practicum	• Comprehensive Newborn Protocols • Basic Pediatric Protocol • Job Aids
30 minutes	**Session 3:** • Breastfeeding techniques • Lactation support	Video/simulation. Bedside skills (Postnatal ward)	• Projector, • Tv Sets, • Pillows, • Neonatalie/The Baby, • Breast Simulators/ Mama Breast, • Comfortable Chair
45 minutes	**Session 4:** • Feeds and fluids drills	Practicum	• Flipcharts, • Comprehensive Newborn Care Guideline, • Syringes, • Solusets, • Syringe Pumps/Infusion Pumps, • Perfuser Lines
45 minutes	**Session 5:** • Milk expression and cup feeding	Video and Practicum	• Milk Containers, • Breast Simulator, • Cups, • Baby Manikin, • Comfortable Chair.

45 minutes	Session 5: • OGT/NGT insertion and use	Video and Practicum	Ngts(Size 4-8), Syringes-2cc, 10cc Or 20cc, Blue Litmus Paper, Stethoscope, Adhesive Tape, Marker Pen, Premie Natalie

Closed discussion

Discuss the Feeding algorithm (comprehensive Newborn Care Protocols, section 1.5a):

- Who should be fed with what, when, how and how much – see section 1.5
  - Major factors that determine your mode of feeding newborn
    - Ability to breastfeed
    - Baby is unstable – define unstable as per the protocols
    - Weight of the baby
  - Determining the volume of feeds

Discuss hunger cues (Comprehensive Newborn Care Protocol, section 3.4) – applies to those who are breastfeeding or cup feeding . (NGT feeding is done 3 hourly)

Skills to be taught in 4 stage approach

- Manual expression of breast milk (section 3.5)
- Cup feeding (section 3.6)
- NGT/OGT insertion (section 3.7)

Perform bedside mentorship on the skills above as well as breastfeeding positioning and attachment

Feeds and Fluids Drills

Using the protocols work individually and write down prescriptions for fluid/feeds for the unstable babies listed below.

Birth Weight	Current Weight	Age In Days	Total Fluid Requirements	Ivf	Ebm
800g	750g	Day 2	100ml/kg/day	2mls/hr	3ml/3hrly
950g	-	Day 1	80ml/kg/day	3mls/hr	-
1300g	1200g	Day 4	140ml/kg/day	3mls/hr	14ml/3hrly
1300g	1100g	Day 5	160ml/kg/day	-	19ml/3hrly
2300g	-	Day 1	60ml/kg/day	6 ml/hr	-
2300g	2150g	Day 3	100ml/kg/day	4ml/hr	18ml/3hrly
1800g	1600g	Day 5	140ml/kg/day	2 ml/hr	26ml/3hrly
1800g	1650g	Day 7	180ml/kg/day	39 ml/hr	-

MODULE 12:
DOCUMENTATION AND REFERAL

MODULE 12: DOCUMENTATION AND REFERAL

Section 1: Documentation

I. Introduction:

This module aims to equip the mentees with knowledge and skills required for accurate, complete and timely medical documentation

II. Learning Outcome

By the end of this module, mentees should be able to document information accurately, completely and timely as per national guidelines.

III. Learning Objectives

By the end of the session, mentees should be able to:

- Utilise standard documentation format in recording patients information
- Demonstrate proper documentation practices.
- Identify documentation errors and strategies to avoid them
- Use data for decision making

IV. Module work plan

MODULE 12: Documentation			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
One tool per session	**Session 1:** Practicum on how to fill the different forms/tools **NB:** Pick a documentation tool per session	Practicum • Pick one of the documentation tools and fill it out correctly. • Review already filled sections in the files and registers to ensure the information is accurate.	**Pen** **Neonatal Inpatient File** • Newborn Admission Record • Birth defects assessment form • Thompson encephalopathy score sheet (for asphyxia) • Growth monitoring chart • Comprehensive newborn monitoring chart • Newborn transfer-in form • Informed consent for admission • Treatment sheet • Blood transfusion observation chart • Adverse transfusion reaction • In-patient continuation sheet • Nursing cardex and nursing care plan • KMC daily score sheet • Newborn unit discharge form • Referral form **MCH handbook (MOH 216)** **Registers** • Kangaroo Mother Register (MOH 374) • Inpatient Neonatal register (moh 373)

Section 2: Referrals systems and follow up of high-risk newborn.

I. Introduction

This module aims to equip mentees with the knowledge and skills necessary to recognize when a newborn requires referral, be able to complete referral documentation correctly, and ensure timely and effective transfer of care.

II. Learning outcome

By the end of this module, mentees should be able to:

- Know the indications for referral in newborns and competently complete and communicate the referral process according to national protocols.

III. Learning Objectives

By the end of the session, mentees should be able to:

- Identify clinical signs and conditions that require referral of a newborn
- Accurately complete a newborn referral form

Module Work Plan

MODULE 1: Referral systems and follow up of high risk neonates			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** • Discussion on indications for referral, • Referral process and newborn transport	• Interactive discussion/ case based training	• Flip Charts, • Markers, • Case Cards
45 minutes	**Session 2:** • Referral Form Completion & Communication	• Practicum	• Sample Referral Forms, • Pens, • Example Cases

Section 3: Discussion

Indications for Referral

- Preterm infants with a Bwt <1500g or gestation <32 weeks
- Respiratory distress requiring CPAP or assisted ventilation
- Severe hypoxic-ischemic encephalopathy
- Life threatening sepsis
- Intractable seizures
- Bleeding/hemodynamically unstable neonates
- Congenital anomalies
- Severe jaundice
- Surgical conditions
- Acute kidney injury
- Meconium aspiration syndrome

MODULE 13: MONITORING & EVALUATION

MODULE 13: MONITORING & EVALUATION

Introduction

This module aims to equip mentees with the knowledge and skills necessary to do proper documentation of care offered to newborns, prepare required reports (MOH monthly reports and mentorship indicators) and audit neonatal deaths.

Learning outcome

By the end of this module, mentees should be able to:

- Document properly in the primary data collection tools
- Prepare timely and complete monthly reports
- Conduct multidisciplinary mortality audits, determine factors contributing to neonatal deaths, formulate action plans and implement them to the later according to national protocols.

Learning Objectives

By the end of the session, mentees should be able to:

- Document in the in-patient file, plot growth charts and report on the mentorship indicators
- Participate actively in neonatal mortality audits and MPDSR activities

Module Work plan

MODULE 13: Monitoring and Evaluation			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** • Discussion on Primary data collection tools • Practical chart audit of in-patient files (bedside) to assess the quality of documentation in the unit	• Interactive discussion/ case based training	• Flip Charts, • Markers, • Data collection tools—files, NCH Handbook
45 minutes	**Session 2:** • Lecturette on how to conduct multidisciplinary neonatal death audits • Practical session of neonatal death audit	Lecturette Practical session	• Neonatal death audit tool, • Pens, • Files
15 minutes	**Session 3:** • Discuss neonatal mentorship M and E indicators	Interactive discussion	• Flip charts, markers. registers

NEWBORN INDICATORS

	INDICATORS	NUMERATOR	DENOMINATOR	SOURCE OF DATA
1.	Proportion of mothers with preterms below 34 weeks gestation, admitted in the NBU, who received at least one dose of antenatal corticosteroids	Number of mothers with preterms, admitted in the NBU below 34 weeks gestation who received at least one dose of antenatal corticosteroids	Total number of mothers with preterms below 34 weeks admitted to the newborn unit	Newborn transfer form In-patient neonatal register Newborn Admission Record
2.	Proportion of newborns <2000g weight who were initiated on KMC within 2 hours of birth admitted to the KMC/NBU	Number of newborns <2000g weight who were initiated on KMC within 2 hours of birth	Total number of newborns <2000g weight admitted to the KMC/NBU	KMC register
3.	Proportion of neonates <2000g weight who were on KMC in the NBU/KMC	Number of neonates <2000g weight who were on KMC	Total number of neonates <2000g weight admitted in the newborn unit	KMC register In-patient neonatal register
4a.	Proportion of preterms <32 weeks gestation who were initiated on CPAP in the newborn unit	Number of preterms <32 weeks gestation who were initiated on CPAP in the newborn unit	Total number of preterms <32 weeks gestation admitted in the newborn unit	In-patient neonatal register
4b.	Proportion of neonates initiated on CPAP with continuous oxygen saturation monitoring in the newborn unit	Number of neonates initiated on CPAP with continuous oxygen saturation monitoring in the newborn unit	Total number of neonates initiated on CPAP in the newborn unit	Comprehensive newborn monitoring chart Health facility assessment
4c.	Proportion of neonates on CPAP who were successfully weaned off in the newborn unit	Number of neonates on CPAP who were successfully weaned off in the newborn unit	Total number of neonates initiated on CPAP in the newborn unit	(Facility to collect) In patient file
5a.	Proportion of neonates <34 weeks gestation who received prophylactic caffeine citrate in the newborn unit	Number of neonates <34 weeks gestation who received prophylactic caffeine citrate in the newborn unit	Total number of neonates <34 weeks gestation in the newborn unit	In-patient neonatal register NAR
5b.	Proportion of neonates <34 weeks gestation who received complete dose caffeine citrate in the newborn unit	Number of neonates <34 weeks gestation who received complete dose of caffeine citrate in the newborn unit	Total number of neonates <34 weeks who received Caffeine citrate in the newborn unit	(Facility to collect) In patient file In patient neonatal register
6.	Proportion of neonates admitted to the newborn unit who died (crude mortality)	Number of admitted neonates NBU who died	Total number of neonatal admissions in the newborn unit	In-patient neonatal register

7a.	Proportion of neonates who died in the newborn unit as per the different weight bands <1000g 1000-1499g 1500-1999g 2000-2499g >2500g	Number of neonates who died in the newborn unit as per respective weight bands	Total number of neonates admitted to newborn unit as per respective weight band	In-patient neonatal register
7b.	Proportion of neonates who died in the newborn as per the different gestational age <28 weeks ≥28 - ≤32 weeks ≥32 - ≤34 weeks ≥34 - ≤37 weeks >37 weeks	Number of neonates who died in the newborn as per respective gestational age band	Total number of neonates admitted to the newborn unit as per respective gestational age band	In-patient neonatal register
7c.	Proportion of neonates who died in the newborn unit and were referrals in	Number of neonates who died in the newborn unit and were referrals in	Total number of neonates admitted in the unit as referral in	In-patient neonatal register NAR
7d.	Number of monthly mortality audit meetings conducted in the newborn unit	-	-	Minutes of the Audit meeting
8a.	Proportion of neonates admitted to newborn unit with an admission temperature of <36.50C	Number of neonates admitted to newborn unit with an admission temperature of <36.50C	Total number of neonates admitted to newborn unit	NAR form
8b.	Proportion of neonates admitted to newborn unit with temperatures <36.50C who were referrals in	Number of neonates admitted to newborn unit with temperatures <36.50C who were referrals in	Total number of neonates admitted to newborn unit	NAR form
9.	Proportion of newborns with suspected sepsis admitted in the NBU with a blood culture done	Number of newborns admitted in the NBU with suspected sepsis with a blood culture done	Total number of neonates with suspected neonatal sepsis admitted in the NBU	NAR form In-patient neonatal register
10.	Proportion of neonates admitted to the newborn unit with a diagnosis of birth asphyxia	Number of neonates admitted to the newborn unit with a diagnosis of birth asphyxia	Total number of neonates admitted to the newborn unit	In-patient neonatal register NAR form

ANNEX

Annex 1: NEWBORN INPATIENT FILES

INFORMED CONSENT FOR ADMISSION, INVESTIGATIONS AND TREATMENT

NAME:		IP No. :	
AGE:		WEIGHT:	
DATE:	TIME AT TRIAGE:	DIAGNOSIS:	

INFORMED CONSENT FROM PARENT/GUARDIAN FOR A MINOR REQUIRING INVESTIGATION, MEDICAL OR SURGICAL TREATMENT/ INTERVENTION

This form is to be completed giving due consideration to "Informed consent to treatment at this facility"

Declaration of clinician obtaining consent

Tick the appropriate information to the stated procedure

- I have informed the parent/guardian of the child's medical condition and prognosis. I have also explained the relevant diagnostic treatment options that are available for the child and associated risks and benefits
- I have recommended the treatment/procedures/investigations noted below on this form. I have discussed the proposed procedure(s) and foreseen outcomes with the parent/guardian.
- I have given the parent/ guardian the opportunity to discuss the proposed procedure, benefits and risks (both general and specific) and the risk of not having the procedure.
- I have provided the parent/guardian with information specific to the procedure identified.

Treatment/Procedure/Investigation

List the treatment/procedures/investigations to be performed, noting correct site.

_____
_____
_____
_____
_____
_____
_____
_____

Signature of the clinician obtaining consent

Full name: _____

Designation:_____

Signature: _____ Date: _____ Time: _____

Parent/Guardian's Declaration *(Read To The Guardian/Parent If Not Able To Read)*

Please read the information carefully and tick either the following to indicate that you have understood and agree with the information provided in this form. Any specific concerns should be discussed with you doctor performing the procedure prior to signing this consent form.

- The doctor has explained the child's medical condition and prognosis to me, the relevant diagnostic treatment options that are available and associated risks, including the risk of not having the procedure
- The risks of the procedure have been explained to me, including the risks that are specific to the child and likely outcomes.
- I have had the opportunity to discuss and clarify any concerns with the doctor.

- I understand that any procedure, in addition to those described on this form will only be carried out if it is necessary to save the child's life or prevent serious harm to the child's health.
- I understand that if immediate life-threatening events happen during the procedure, the child will be treated as necessary to save the child's life or to prevent serious harm to the child's health.
- On behalf of the child, I give consent for my/ this child to undergo the procedure(s) or treatment(s) as documented in this form.
- I consent to the child having a blood transfusion.
- I consent to the child receiving prescribed donated human milk if needed.
- My questions and concerns have been discussed and answered to my satisfaction.

Confirmation of patient's consent

Parents/ Guardians full name: (Please print) _____

Parent/Guardians signature/ Thumb print: _____Date: _____

Time: _____

Relationship to patient: _____

Interpreters Declaration (in case of sign language)

- I have given a right translation in (state patients the language here) _____ of the consent form and assisted in the provision of any verbal and written information given to the patient/ substitute decision maker by the doctor.
- I declare I have interpreted the dialogue between the patient and the doctor to the best of my ability, and I have advised the doctor on concerns of any kind.

Interpreter's full name: _____

Interpreter's signature: _____Date: _____Time: _____

NEWBORN TRANSFER-IN FORM

Complete for all newborns requiring admission to the Newborn Unit

Date: ..... (dd/mm/yyyy) Time:..... (am/pm) Birth notification number.....

Mother's details									
Name					Age		IP No.		
Parity	+	Gestation	wks		LMP		dd/mm/yyyy	EDD	dd/mm/yyyy
ANC attendance	Y☐ N☐ visits ☐	Blood Grp	A☐ B☐ AB☐ O☐ unkn☐				Rhesus	Pos☐ Neg☐ unkn☐	
VDRL	Pos☐ Neg☐ unkn.☐	PMTCT Status	Pos☐ Neg☐ unkn.☐				Mother ARVs	Y☐ N☐	
Diabetes	Yes☐ No☐ unkn.☐	Current TB treatment	Y☐ N☐ unkn.☐				Antibiotics	Y☐ N☐	
Fever	Y☐ N☐	APH	Y☐ N☐	Multiple PG	Y☐ N☐	if YES number? =			
HTN in Pregnancy	Y☐ N☐ unkn.☐	Pre-eclampsia	Y☐ N☐	Eclampsia	Y☐ N☐				
Any other maternal condition									
Current Maternal medication									

Labour and Birth								
Labour	1st Stg	hr	2nd Stg	min	Time of Delivery	_____ am/pm	ROM	<18h☐ >=18h☐ unkn.☐
Fetal Distress	Y☐ N☐	Meconium Y☐ N☐ If yes, indicate grade: 1☐ 2☐ 3☐					Antenatal steroids Y☐ N☐ If yes No of doses_____	
Delivery	SVD☐ CS☐ Breech☐ Vacuum☐ Forceps☐		If CS, type? Elective☐ Emergency☐		Reason for Emergency CS:			
Delivery complications? Y☐ N☐ If yes specify _____	BVM Resuscitation? Y☐ N☐		Chest compressions? Y☐ N☐		Resuscitation duration(min)			
Oxygen? Y☐ N☐	CPAP Y☐ N☐	Delayed Cord clamping within 1 - 3min: Y☐ N☐						
Preventive care given	TEO Y☐ N☐	IM Vit K Y☐ N☐	CHX Y☐ N☐	OPV Y☐ N☐	BCG Y☐ N☐	Hep B Y☐ N☐		
Maternal status	Well☐ Unwell☐ Deceased☐	Where is the mother currently						

Infant's Details								
Date of Birth	(dd/mm/yyyy)	Sex	F☐ M☐ Indeterminate☐	IP. No				
Apgar	1m	5m	10m	Birth Wt.	_____ grams	Weight now:	_____ grams	
Baby from?	Theatre☐ Labour ward☐ Postnatal ward☐ paeds ward☐ Referral in☐ Home☐					Age	Days/hours	
Vital signs at labor ward:	Temparature	RR	SPO_2	PR				
If referral, name of referring facility: _____								
Reasons for referral to NBU: _____								
Completed by(Name):		Signature						
Baby received in NBU by: Name_____								
Signature: _____ Time: _____am/pm								

NEWBORN UNIT ADMISSION FORM

Infant's details									
Name				Date of Admission		IP No.		Unique No.	
DOB	days		Age hrs		Sex	F ☐ M ☐ Indeterminate ☐		Gestation	LMP U/S wks
ROM	<18h ☐ >=18h ☐ unkn. ☐		Mode of child birth	SVD ☐ CS ☐ Breech ☐ Forceps ☐ Vacuum ☐				If CS, type	Elective ☐ Emergency ☐
Multiple Delivery	Y ☐ N ☐		If YES number? _____			BVM Resuscitation at birth? Y ☐ N ☐			
APGAR Score	1m	5m	10m	Born outside this facility? Y ☐ N ☐		If Yes, where? Home/Roadside ☐ Other facility ☐			

Mother's details							
Name		IP No.		Age		Parity	
Blood Grp	A ☐ B ☐ AB ☐ O ☐ unkn. ☐		Rhesus	Pos ☐ Neg ☐ unkn. ☐		Anti D	Y ☐ N ☐ unkn. ☐
Hep B	Pos ☐ Neg ☐ unkn. ☐		VDRL	Pos ☐ Neg ☐ unkn. ☐			If pos, treatment given? Y ☐ N ☐
PMTCT Status	Pos ☐ Neg ☐ unkn. ☐		Mother on ARVs?	Y ☐ N ☐	Diabetes	Y ☐ N ☐ unkn. ☐	
Hypertension in Pregnancy	Y ☐ N ☐ unkn. ☐		APH	Y ☐ N ☐		Prolonged 2nd Stage	Y ☐ N ☐ unkn. ☐

Mother's problems during pregnancy / labour & relevant maternal treatment/ ultra sound results
Any maternal illness / fever? Any maternal treatment for TB or antibiotics in labour? (Describe)

Any other important history and family / social history?
Problems in previous pregnancies

Vital Signs	Temp(°c)		Resp Rate bpm		RBS mmol/l	Pulse	/min	0_2 Sat	%	BP mmhg
Anthropometry	Birth wt	grams	Weight now	grams	Head circumference		cm	Length	cm	
Time baby seen		am/pm								
Fever	Y ☐	N ☐	Reduced/Absent movement						Y ☐	N ☐
Difficulty breathing	Y ☐	N ☐	Passed meconium/stool						Y ☐	N ☐
Difficulty feeding	Y ☐	N ☐	Vomiting						Y ☐	N ☐
Convulsions/twitching	Y ☐	N ☐	Passed urine in the last 12 hours						Y ☐	N ☐
Apnoea	Y ☐	N ☐								

Infant's Presenting Problems & any treatment given? When did problems start, how did they progress and what are problems now?

Circle the findings							
General Exam	Appearance	Well	Sick	Dysmorphic			
	Nutrition status	Normal	SGA/ Wasted	Large (>4kg)			
	Odour	Normal	Foul smelling				
	Jaundice	None	+ (tinge)	++ (Gum)			
	Pallor	None	+			+++ (palm and Sole of the foot)	
	Skin	Normal	Bruising	Rash Pustules		Dry/Peeling/Wrinkled	Others
Airway / Breathing	Cry	Normal	Hoarse	Weak / Absent			
	Airway	Normal	Stridor	Noisy breathing			
	Grunting	None	Audible with stethoscope			Audible	
	Nasal flaring	None	Minimal	Marked			
	Cyanosis	None	Central	Peripheral			
	Chest wall indrawing	None	Mild	Severe			
	Xiphoid retraction	None	Minimal	Marked			
	Intercostal retraction	None	Minimal	Seesaw respiration			
	Chest movement	Symmetrical	Respiratory lag	Crackles		Rt Lt	Other:
	Breath Sounds	Normal	Reduced Rt Lt				
Circulation	Pulses Present	Radial R L	Brachial R L	Femoral R L			
	Skin warm up to	Wrist	Elbow	Sholder			
	Capillary refill (Sternum)	≤3sec	>3sec				
	Preductal SpO_2 right hand	_____ %	Post ductal SpO_2 left foot done simultaneously	_____ %			
	Heart sounds	Normal Yes ☐ No ☐	Murmur Yes ☐ No ☐	Site			
Disability	Movements	Normal Active	Not spontaneous only if stimulated		None	**Moro:** Complete / Incomplete	
	Abnormal movements	None	Jittery	Convulsions			
	Tone	Normal	Floppy/ Reduced	Stiff/ Increased		Reflexes: (✓normal, X Absent, ↓Reduced)	
	Suck reflex/ feeding	Normal	Weak / Partial	Absent		**Palmar grasp R L**	
	Fontanelle	Normal	Bulging	Sunken		**Plantar grasp R L**	
	Head shape	Normal	Caput / Cephalohaematoma	Other trauma: (Specify)		**Rooting R L**	
Abdomen	Abdomen	Normal	Distended	Scaphoid	Bowel sounds Yes ☐ No ☐	Liver _____cm	Spleen _____ cm
	Umbilicus	Normal	Flare/red skin	Pus	Bleeding	Defect/ Abnormality	
Others	Genital	Normal Male / Female	Ambiguous	Testes descended R L			Other abnormalities
	Anus/	Normal/patent	Imperforate	Other Abnormality			
	Meconium	Meconium passed	Meconium not passed	Meconium not passed within the first 24 hours			
	Hips	Stable	Unstable				

Others	Spine/ Back	Normal	Abnormal: (Specify)	
	Mouth	Normal	Abnormal: (Specify)	
	Eyes	Normal	Abnormal: (Specify)	
	Ears	Normal	Abnormal: (Specify)	
	Neck	Normal	Abnormal: (Specify)	
	Limbs	Normal	Abnormal: (Specify)	
	Other Abnormalities			
GAge	GA by Ballard Score _____ Wks		AGA ☐ SGA ☐ LGA ☐	

Admission Diagnoses or Impression. Select ONE primary diagnosis (tick box indicating "1") and ANY secondary diagnoses (tick box indicating "2")						
Prematurity	1 ☐	2 ☐	Meconium Aspiration Syndrome	1 ☐	2 ☐	Others (List below)
LBW	1 ☐	2 ☐	Multiple Gestation	1 ☐	2 ☐	
Perinatal Asphyxia	1 ☐	2 ☐	Meningitis	1 ☐	2 ☐	
RDS	1 ☐	2 ☐	Congenital Anomaly	1 ☐	2 ☐	
Neonatal sepsis	1 ☐	2 ☐	Jaundice	1 ☐	2 ☐	

Investigations done at admission and results							
Investigation	Done		Results	Investigation	Done		Results
Random blood sugar	Y ☐	N ☐	_____mmol/L	U/E/C	Y ☐	N ☐	
Full blood count	Y ☐	N ☐		Bilirubin	Y ☐	N ☐	
C - Reactive Protein	Y ☐	N ☐		Blood Culture	Y ☐	N ☐	
Blood Gas Analysis	Y ☐	N ☐		CSF analysis	Y ☐	N ☐	
Chest X- Ray	Y ☐	N ☐		Coangulation profile	Y ☐	N ☐	
LFTs	Y ☐	N ☐		Others			

Interventions at admission							
IM Vit K	Y ☐	N ☐	Prophylaxis for PMTCT	Y ☐	N ☐	CPAP	PEEP:_____ FiO_2: _____
TEO	Y ☐	N ☐	Blood Transfusion	Y ☐	N ☐	Mechanical ventilation Y ☐ N ☐	
Nutrition/ Feeds Breastfeeding EBM Infant Formula	 Y ☐ Y ☐ Y ☐	 N ☐ N ☐ N ☐	Phototherapy	Y ☐	N ☐	Others	
IV Fluids	Y ☐	N ☐	Caffeine citrate	Y ☐	N ☐		
Incubator care/ Keep warm	Y ☐	N ☐	Surfactant	Y ☐	N ☐		
KMC	Y ☐	N ☐	Oxygen	Via: NRM/ Nasal Prongs		Flow rate	Target SPO_2
Antibiotics	Y ☐	N ☐	Specify: _____				
Other Interventions / Treatment							

Completed By:			
Date: _____ (dd/mm/yy)	Time: _____ Am/pm	Name: _____ (Capital Letters)	Sign: _____

BIRTH DEFECTS ASSESSMENT FORM

EARLY IDENTIFICATION OF CONGENITAL ABNORMALITIES

(Tick as appropriate if a sign is observed)

Neonatal Data			
Time of delivery		Date of delivery	
Gender			
		Normal Ranges (For Term baby = >37 weeks Gestation)	
Birth Weight		≥ 2.5 < 4	
Head circumference		35 ± 2	
Birth Length		50 ± 2	
Foot Length		7cm ± 1	

Head size:	Normal ☐ _____cm	☐ Abnormal • Extra small (micro cephalic): ☐ _____cm • Extra big (hydrocephalic): ☐ _____ cm • Others Specify: _____	**Remarks**
Eyes	Normal ☐	☐ Abnormal White reflex Yes ☐ No ☐ Others specify_____	
Mouth and Gums	Normal ☐	☐ Abnormal • Cleft lip: ☐ • Palate: ☐ • Others Specify _____	
Ears	Normal ☐	☐ Abnormal If yes, specify: _____	
Heart	Normal heart sounds ☐	☐ Abnormal heart sounds If yes, specify: _____	
Arms and legs	Normal Arms: R ☐ L ☐ Normal Legs: R ☐ L ☐	☐ Abnormal • Club foot: R ☐ L ☐ • Congenital hip dislocation: R ☐ L ☐ • Webbed fingers or toes: R ☐ L ☐ • Extra fingers and toes: R ☐ L ☐ • Others Specify: _____	
Shoulders	Normal ☐	☐ Abnormal Specify: _____	
Muscle Tone	Normal ☐	☐ Abnormal • Floppiness ☐ Rigidity ☐ • Other specify: _____	
Joints move-ment	Flexible ☐	☐ Abnormal • Not Flexible ☐ • Other specify: _____	

Spine/ neck/ back	Normal ☐	Abnormal ☐ • Any neck swellings ☐ • Protrusions along the spine ☐ • Dimple/hair/marks along the spine ☐ • Specify: _____	
Body Move-ment	Normal ☐	☐ Abnormal • Baby becomes floppy when lying in certain position ☐ If yes, specify: _____	
Abdomi-nal wall	Normal ☐	☐ Abnormal Specify: _____	
Genitalia	Normal: M ☐ F ☐	☐ Abnormal Specify: _____	
Anus	Perforate (Normal) ☐	Imperforate (Abnormal) ☐	

List any abnormal findings (not captured above): _____

NB: Assessment to be done within 48 hours after childbirth. To be repeated at 6 weeks.

Mothers medical history before pregnancy	**Mothers medical history during pregnancy**
Diabetes: Yes ☐ No ☐	Diabetes: Yes ☐ No ☐
Epilepsy: Yes ☐ No ☐	Epilepsy: Yes ☐ No ☐
Anticonvulsant use: Yes ☐ No ☐	Anticonvulsant use: Yes ☐ No ☐
Smoking: Yes ☐ No ☐	Smoking: Yes ☐ No ☐
Radiation exposure: Yes ☐ No ☐	Radiation exposure: Yes ☐ No ☐
Alcohol intake: Yes ☐ No ☐	Alcohol intake: Yes ☐ No ☐
Folic acid supplement: Yes ☐ No ☐ unknown ☐	Folic acid supplement: Yes ☐ No ☐ unknown ☐
Others	Others

Mother's medical history(hx):

Previous pregnancies

Number of previous pregnancies: _____ No of births: Live Births: _____ Still Births: _____

Neuro Tube Defects in previous babies: Yes ☐ No ☐

Other birth defects in previous pregnancies: Yes ☐ No ☐

If yes, specify type of other birth defects: _____

_____

BALLARD SCORE

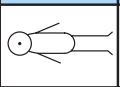
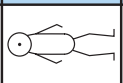
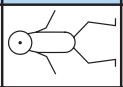
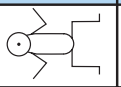
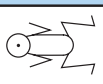
NAME: _____ IP NO.: _____

DATE/TIME OF BIRTH: _____ DATE/TIME OF EXAM: _____

AGE WHEN EXAMINED: _____ SEX: ☐ M ☐ F ☐ I BIRTH WEIGHT: _____

ASSSESSED BY: _____

NEUROMUSCULAR MATURITY

NEUROMUSCULAR MATURITY SIGN	SCORE							RECORD SCORE HERE
	-1	0	1	2	3	4	5	
POSTURE								
SQUARE WINDOW (Wrist)	 >90°	 90°	 60°	 45°	 30°	 0°		
ARM RECOIL		 180°	 140 –180°	 110 –140°	 90 –110°	 <90°		
POPLITEAL ANGLE	 180°	 160°	 140°	 120°	 100°	 90°	 <90°	
SCARF SIGN								
HEEL TO EAR								
							TOTAL NEUROMUSCULAR MATURITY SCORE	

PHYSICAL MATURITY

PHYSICAL MATURITY SIGN	SCORE							RECORD SCORE HERE
	-1	0	1	2	3	4	5	
SKIN	sticky friable transparent	gelatinous red translucent	smooth pink visible veins	superficial peeling & / or rash, few veins	cracking pale areas rare veins	parchment deep cracking no vessels	leathery cracked wrinkled	
LANUGO	none	sparse	abundant	thinning	bald areas	mostly bald		
PLANTAR SURFACE	heel-toe 40–50 mm: -1 < 40 mm: -2	>50 mm no crease	faint red marks	anterior transverse crease only	creases ant. 2/3	creases over entire sole		
BREAST	imperceptible	barely perceptible	flat areola no bud	stippled areola 1–2 mm bud	raised areola 3–4 mm bud	full areola 5–10 mm bud		
EYE / EAR	lids fused loosely: -1 tightly: -2	lids open pinna flat stays folded	sl. curved pinna; soft; slow recoil	well-curved pinna; soft but ready recoil	formed & firm instant recoil	thick cartilage ear stiff		
GENITALS (Male)	scrotum flat, smooth	scrotum empty faint rugae	testes in upper canal rare rugae	testes descending few rugae	testes down good rugae	testes pendulous deep rugae		
GENITALS (Female)	clitoris prominent & labia flat	prominent clitoris & small labia minora	prominent clitoris & enlarging minora	majora & minora equally prominent	majora large minora small	majora cover clitoris & minora		
							TOTAL PHYSICAL MATURITY SCORE	

Reference
Ballard JL, Khoury JC, Wedig K, et al: New Ballard Score, expanded to include extremely premature infants. J Pediatr 1991; 119:417–423. Reprinted by permission of Dr Ballard and Mosby—Year Book, Inc.

SCORE

Neuromuscular _____
Physical _____
Total _____

MATURITY RATING

SCORE	WEEKS
-10	20
-5	22
0	24
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

GESTATIONAL AGE (weeks)

By dates _____
By ultrasound _____
By exam _____

PHYXIA)

						IP Number:							
D2	D3	D4	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14

IN-PATIENT CONTINUATION SHEET

Name:_____ IP No._____

IP NO ____________________________

ANTIMICROBIAL SECTION

Antibiotic, Antiviral, Antifungal

Prophylactic antibiotic orders will lapse after 24 hours; Empiric antibiotic orders will lapse After 72 hours unless renewed or extended; Therapeutic, antibiotic order will lapse after 72 hour unless renewed

Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	6 AM								Date	Qty	Sign
Duration	Rate of Admin		10 AM										
Date	Time		12 AM										
Doctor's name		Sign	2 PM										
Special Instructions			6 PM										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			10 PM										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	6 AM								Date	Qty	Sign
Duration	Rate of Admin		10 AM										
Date	Time		12 AM										
Doctor's name		Sign	2 PM										
Special Instructions			6 PM										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			10 PM										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	6 AM								Date	Qty	Sign
Duration	Rate of Admin		10 AM										
Date	Time		12 AM										
Doctor's name		Sign	2 PM										
Special Instructions			6 PM										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			10 PM										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	6 AM								Date	Qty	Sign
Duration	Rate of Admin		10 AM										
Date	Time		12 AM										
Doctor's name		Sign	2 PM										
Special Instructions			6 PM										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			10 PM										

NARCOTICS PRESCRIPTIONS ONLY (IN WORDS)

Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions:			**6 PM**										
			10 PM										

GENERAL MEDICINES SECTION

IP NO ____________________________

Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions			**6 PM**										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**10 PM**										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions			**6 PM**										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**10 PM**										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions			**6 PM**										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**10 PM**										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions			**6 PM**										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**10 PM**										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions			**6 PM**										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**10 PM**										

Drug			**Date**								**Pharmacy use only**		
			Time										
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions ☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**6 PM**										
			10 PM										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions ☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**6 PM**										
			10 PM										
Drug			**Date**										
			Time								**Pharmacy use only**		
Dose	Route	Freq.	**6 AM**								Date	Qty	Sign
Duration	Rate of Admin		**10 AM**										
Date	Time		**12 AM**										
Doctor's name		Sign	**2 PM**										
Special Instructions ☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**6 PM**										
			10 PM										

	DISCHARGE MEDICINES	**Pharmacy use only**		
		Qty	**Name**	**Sign**
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

BLOOD TRANSFUSION OBSERVATION CHART

Name of Patient: _____

IP NO: _____

Ward: _____

Age: _____ Sex M ☐ F☐ I☐

Date of transfusion: _____

Type of Blood Transfused:

Whole Blood ☐ Packed Red Cells ☐ FFP ☐ Platelets ☐ Others _____

Blood Unit Donor Number: _____

Transfusion Started By: _____

Counter Checked by: _____

Time Transfusion Started: _____ Rate of Transfusion: _____-ml/minute

Observations

HOURS OF OBSERVATION	EXACT TIME	BP	TEMP 0^C	PR	RR	SpO_2	RBS	REMARKS
00 Mins								
15 Mins								
45 Mins								
1 hr. 15 Mins								
1 hr 45 Mins								
2 hrs 15 mins								
2 hrs 45 Mins								
3 hrs 15 Mins								
3 hrs 45 Mins								
4 hrs. 15 Mins								
4 hrs 15 Mins after Blood Transfusion								

Time Transfusion Ended: _____

Amount Transfused: _____ml

Sysmptoms Or Signs Of Transfusion Reactions Observed

1. General: Fever, Chills/ Rigors, Flushing, Nausea/ Vomiting
2. Dermatological: Urticaria, Other Skin rash
3. Cardiac/ Respiratory: Chest Pain, Dispones Hypotension, Tachycardia
4. Renal: Hemoglobinuria, Oliguria, Anuria
5. Hematological: Unexplained bleeding
6. Others

Interventions?

Drugs given: _____

Name of the clinician: _____

Signature: _____

REHENSIVE NEWBORN MONITORING CHART

	IP No.	Sex: M ☐ F ☐ Indeterminate ☐	D. O. A.	D.O.B	
	Diagnosis				
_____ gm	Interventions: CPAP ☐ Oxygen ☐ Phototherapy ☐ Blood transfusion ☐ Exchange transfusion ☐ KMC ☐				

n Feed and Fluid prescription				Monitoring Freq _____ hrs | Time														
	Current Wt = _____ gm																		
fluid= _____ mls/kg/day = _____ mls				Vitals	Temp (°C)														
EBM ☐ Term Formula ☐					Pulse (b/min)														
mula ☐					Resp Rate (b/Min)														
☐ NGT ☐ OGT ☐					Oxy Sat (%) or Cy^0 Cy^+														
equency _____mls 3hrly ☐ 2hrly ☐					Resp Distress 0, +, +++														
olume _____mls					CPAP Pressure (cm H_2O														
ditives	Vol (ml)	Duration		Assessment	FiO_2 (%)														
					Jaudice 0, +, +++														
					Apnoea Y/N														
					Blood Sugar (mmol/l)														
					Completed by (Name)														
ibing instructions				Feed	Breastfeeding sufficient Y/N														
					EBM vol given (ml)														
					Formula vol given (ml)														
				Fluid	IV volume given (ml)														
					IV Line working Y/N														
me: _____ Time: _____				Output	Vomit Y/N														
Nursing Plan					Urine Y/N														
					Stool Y/N														
= _____ mls (_____ drops/min)					Completed by (Name)														
= _____ mls in _____hrs																			

ift notes: ☐ B ☐ C ☐	Total feed + Fluid in this shift _____ mls Shift deficit _____ mls	Completed by: (Name) _____
shift notes: ☐ B ☐ C ☐	Total feed + Fluid in this shift _____ mls Shift deficit _____ mls	Completed by: (Name) _____
notes: ☐ B ☐ C ☐	Total feed + Fluid in this shift _____ mls Shift deficit _____ mls Total feed + fluid input in 24hrs _____ mls	Completed by: (Name) _____ 24hr deficit _____ mls

): no jaundice, + (Mild): visible on the face or upper body, +++ (Severe): has extended to soles of the feet
0: Normal respiratory rate, no signs of respiratory distress. +: Mild increase in respiratory rate or slight difficulty breathing +++: Severe respiratory distress, nasal flaring, grunting, or chest retractions.

NURSING CARDEX

Name: _____ IP No: _____

Medical diagnosis:_____

Date	Time	Notes	Name	Sign

KMC DAILY SCORE SHEET

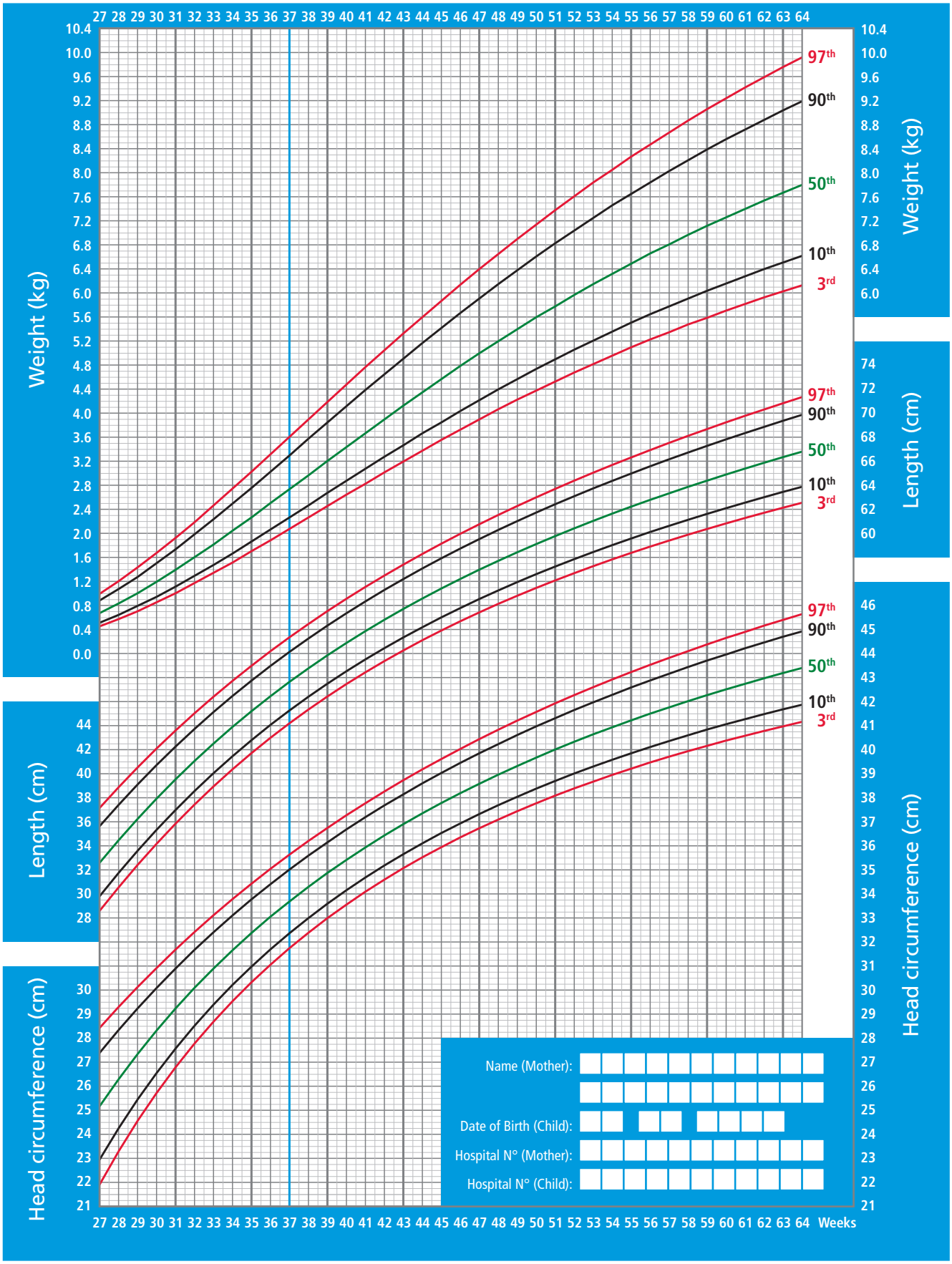
KMC Daily Score Sheet				Date:	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16
Name:		Breastfeeding:		Started 24h KMC																
IP No:		Formula:																		
Evaluation	Score			Weight																
	0	1	2	Remarks																
Socio-economic support	No help or support	Occasional help or support	Good support system																	
Mother's milk production	Expresses 0-10ml breast milk	Expresses 10-20ml breast milk	Expresses 20-30 ml breast milk	Must score 2 before discharge. N/A for formula																
Positioning and latching baby onto breast	Always needs assistance	Occasionally needs assistance	No assistance needed	Not applicable for formula feeding																
Baby's ability to suckle at the breast	Gets tired very quickly	Gets tired infrequently	Takes all feeds well																	
Confidence in handling baby i.e. feeding, Top tailing	Always needs assistance	Occasionally needs assistance	No assistance needed																	
Baby's weight gain per day	0-10g	10-20g	20-30g	Must score 1 or 2for a few daysbefore discharge																
Confidence in administering vitamin and iron drops	No confidence	Some confidence	Fully confident																	
Knowledge of KMC	No Knowledge	Some Knowledge	Knowledgeable																	
Acceptance & application of KMC	Does not accept or apply KMC method	Partly accepts& applies KMC method	Fully accepts and applies KMC method	Applies KMC without having to be told																
Confidence in caring for baby at home	Does not feed sure or able	Feels slightly unsure & unable	Feels confident																	
TOTAL SCORE per day:																				
				Sign																

GROWTH MONITORING CHART

UNIVERSITY OF OXFORD

International Postnatal Growth Standards for Preterm Infants (Boys)

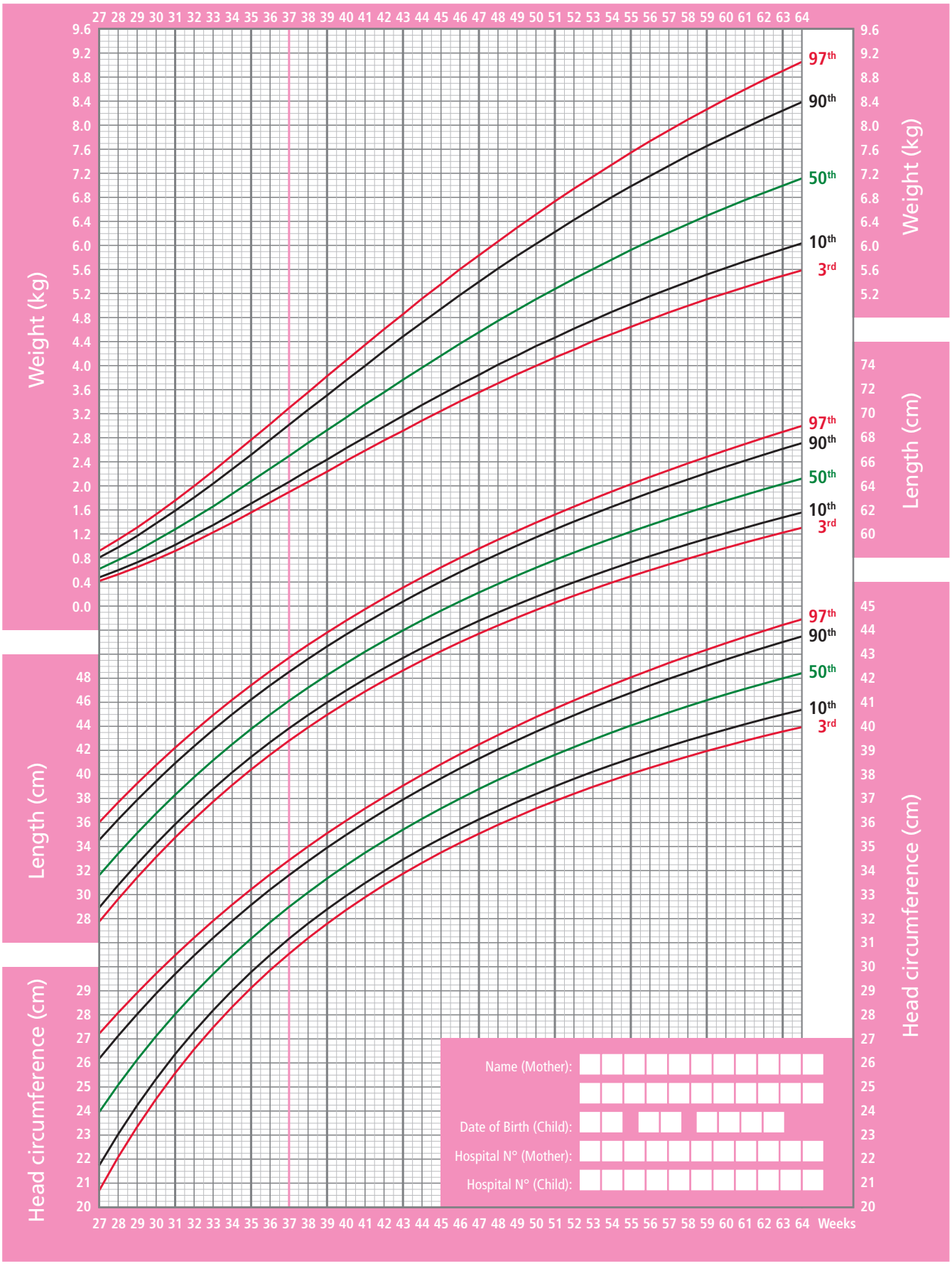
INTERGROWTH-21st



UNIVERSITY OF OXFORD

International Postnatal Growth Standards for Preterm Infants (Girls)

INTERGROWTH-21st



Ref: Villar et al *Lancet Glob Heath* 2015;3:e681-91.

REHABILITATION FORMS

Name: _____ Age: _____ IPNO: _____

SEX: M ☐ F ☐ I ☐ Ward: _____

Date of first Assessment: _____

Patients Assessment report: _____

Occupational therapy diagnosis: _____

Treatment plan: _____

Treatment sessions given

	Date	sign		Date	sign		Date	sign
1			1			1		
2			2			2		
3			3			3		
4			4			4		

Total No of sessions Given: _____

Discharge summery_____

Date of Discharge from Occupational Therapy_____

PHYSIO THERAPY FORM

Name: _____ Age: _____ IPNO: _____

SEX: M ☐ F ☐ I ☐ Ward: _____

Date of first Assessment: _____

Patients Assessment report: _____

Occupational therapy diagnosis: _____

Treatment plan: _____

Treatment sessions given

	Date	sign		Date	sign		Date	sign
1			1			1		
2			2			2		
3			3			3		
4			4			4		

Total No of sessions Given: _____

Discharge summery_____

Date of Discharge from Occupational Therapy_____

NEWBORN UNIT DISCHARGE FORM *(To be filled in duplicate and perforated)*

Health Facility Name:_____

Community Health Unit Name: _____

Patient Name				IP No.			
Date of birth		Gestational age at birth		Corrected GA at discharge			
Age days	Sex	F ☐ M ☐ Indeterminate ☐		Birth wt grams		Discharge wt	grams
Mode of delivery	SVD ☐ CS ☐ Breech ☐ Vacuum ☐ Forceps ☐			Date of Admission	dd/mm/yyyy		
Infant HIV sero-exposed?	Y ☐ N ☐	If yes ARVs given?	Y ☐ N ☐	Date of Discharge/ Referral	dd/mm/yyyy		
Outcome	Discharged ☐ Absconded ☐ Referred ☐						
If dead, Underlying causes:							
Discharged through		Reason					

Neonatal Diagnoses: Select ONE primary diagnosis (tick 1) and for secondary diagnoses (tick 2)

Birth asphyxia Encephalopathy severity: Mild ☐ Moderate ☐ Severe ☐	1 ☐	2 ☐	Neonatal sepsis	1 ☐	2 ☐	Jaundice	1 ☐	2 ☐	Highest bilirubin =_____	
			Meningitis	1 ☐	2 ☐	Anaemia	1 ☐	2 ☐	Discharge HB =_____	
Preterm	1 ☐	2 ☐	Other diagnoses-name and indicate if primary(1) or secondary(2)							
Newborn RDS	1 ☐	2 ☐		1 ☐	2 ☐		1 ☐	2 ☐		
Meconium aspiration	1 ☐	2 ☐		1 ☐	2 ☐		1 ☐	2 ☐		

Supportive Care given							
iKMC KMC	Y ☐ N ☐ Y ☐ N ☐	CPAP	Y ☐ N ☐	Phototherapy	Y ☐ N ☐	Transfusion	Y ☐ N ☐

Preventive Care given									
OPV	Y ☐ N ☐	BCG	Y ☐ N ☐	HEP B	Y ☐ N ☐	TEO	Y ☐ N ☐	Vit K	Y ☐ N ☐
CHX	Y ☐ N ☐								
Feeding at Discharge	Breast Milk only ☐ Formula only ☐ Formula & Breastmilk ☐ Fortified breastmilk ☐								

Summary of Key Investigations, Interventions, Progress & Needs at Discharge

Condition on Discharge	Normal ☐ Neuro Sequelae ☐ Screened for ROP: Y ☐ N ☐ Screened for hearing: Y ☐ N ☐. If yes Pass: ☐ Fail: ☐ Other Complication ☐ = _____
Follow up:	CWC ☐ POPC/NOPC ☐ OT ☐ PMTCT ☐ CHU ☐ Other facility ☐ If other facility: (Specify name) _____
	Weeks after discharge = _____ Date: _____ Time: _____
	CHP Name

DISCHARGE CHECKLIST FROM THE NEWBORN UNIT – TARGETING MOTHERS OF SMALL AND SICK NEWBORNS

Essential checklist for the mother and baby while in the NBU before discharge	Yes	No	Response (Feedback)
Confirm the mother has been counselled on the following danger signs:			
• Baby poorly feeding or refusing to breastfeed	☐	☐	
• Baby is breathing fast	☐	☐	
• Baby is convulsing	☐	☐	
• Baby is cold (Hypothermia <36.50C)	☐	☐	
• Baby has Fever (>37.50C)	☐	☐	
• No movement or movement only when stimulated	☐	☐	
• Baby has any yellowing	☐	☐	
• Discharge or bleeding from umbilicus	☐	☐	
• Inconsolable cry or irritability	☐	☐	
Confirm essential newborn care interventions have been provided as per the national guidelines:			
• Newborn immunizations and multivitamins given	☐	☐	
• TEO	☐	☐	
• Cord care	☐	☐	
• Vit K	☐	☐	
• Ensure that breastfeeding has been established	☐	☐	
• Proper physical exam (head to toe) with documentation of findings	☐	☐	
• Ensure the baby has passed urine and meconium	☐	☐	
Conduct physical examination for the mother:			
• Temperature	☐	☐	
• Blood pressure	☐	☐	
• Heart rate	☐	☐	
Confirm you have counselled the mother on postpartum family planning, including the benefits of birth spacing:	☐	☐	
Confirm the woman has a plan to start a contraceptive method of her choice	☐	☐	
Confirm that the woman has selected a contraceptive method of choice as part of Postpartum contraception (before discharge from the NBU)	☐	☐	Family Planning Method selected: _____
Confirm the women has been referred to access the contraceptive method of choice: – within the hospital (MCH clinic / other department)	☐	☐	Referral Date: _____
Confirm the women has been referred to access the contraceptive method of choice: - In another facility post discharge	☐	☐	Referral Facility: _____ Referral Date: _____
Confirm you have counselled the mother on the following:			
• General hygiene including hand washing and cord care	☐	☐	
• How to keep the baby warm	☐	☐	
• Danger signs for the baby and the mother	☐	☐	
• Where to seek care if any danger sign occurs	☐	☐	
• Breastfeeding (positioning, attachment, latching)	☐	☐	
• Exclusive breastfeeding for the first 6 months	☐	☐	
• Nutritional support for the mother	☐	☐	
• Sleeping under long-lasting insecticide treated nets	☐	☐	
• Follow up care and when to return	☐	☐	
• Prevention of infections including protection from STDs (including HIV)	☐	☐	
• Adherence to antiretroviral therapy (where applicable)	☐	☐	

NEWBORN DISCHARGE FORM *(Copy)*

(HEALTH FACILITY NAME):_____

Community Health Unit Name: _____

NEWBORN UNIT DISCHARGE FORM: _____

Patient Name				IP No.			
Date of birth		Gestational age at birth		Corrected GA at discharge			
Age days	Sex F ☐ M ☐ Indeterminate ☐			Birth wt grams		Discharge wt grams	
Mode of delivery	SVD ☐ CS ☐ Breech ☐ Vacuum ☐ Forceps ☐			Date of Admission	dd/mm/yyyy		
Infant HIV sero-exposed?	Y ☐ N ☐	If yes ARVs given?	Y ☐ N ☐	Date of Discharge/ Referral / Death	dd/mm/yyyy		
Outcome	Died ☐ Alive ☐	If alive: Discharged ☐	Absconded ☐	Referred ☐			
Referred to		Reason					

Neonatal Diagnoses: Select ONE primary diagnosis (tick 1) and for secondary diagnoses (tick 2)									
Birth asphyxia Encephalopathy severity: Mild ☐ Moderate ☐ Severe ☐	1 ☐	2 ☐	Neonatal sepsis	1 ☐	2 ☐	Jaundice	1 ☐	2 ☐	Highest bilirubin =___
			Meningitis	1 ☐	2 ☐	Anaemia	1 ☐	2 ☐	Discharge HB =_____
Preterm	1 ☐	2 ☐	Other diagnoses-name and indicate if primary(1) or secondary(2)						
Newborn RDS	1 ☐	2 ☐		1 ☐	2 ☐		1 ☐	2 ☐	
Meconium aspiration	1 ☐	2 ☐		1 ☐	2 ☐		1 ☐	2 ☐	

Supportive Care given							
iKMC KMC	Y ☐ N ☐ Y ☐ N ☐	CPAP	Y ☐ N ☐	Phototherapy	Y ☐ N ☐	Transfusion	Y ☐ N ☐

Preventive Care given									
OPV	Y ☐ N ☐	BCG	Y ☐ N ☐	HEP B	Y ☐ N ☐	TEO	Y ☐ N ☐	Vit K	Y ☐ N ☐
CHX	Y ☐ N ☐								
Feeding at Discharge	Breast Milk only ☐ Formula only ☐ Formula & Breastmilk ☐ Fortified breastmilk ☐								

Summary of Key Investigations, Interventions, Progress & Needs at Discharge	
Condition on Discharge	Normal ☐ Neuro Sequelae ☐ Screened for ROP: Y ☐ N ☐ Referred? ☐ Screened for hearing: Y ☐ N ☐. If yes Pass: ☐ Fail: ☐ Other Complication ☐ = _____
Follow up:	CWC ☐ POPC/NOPC ☐ OT ☐ PMTCT ☐ Other facility ☐ If other facility: (Specify name) _____
	Weeks after discharge = _____ Date: _____ Time: _____
	Linked Community Health Promoter Y ☐ N ☐ If Y, indicate Name and contacts of CHU: _____
Discharge Drugs:	

REFERRAL FORM

Date: _____ Time: _____*(Decision to refer)*

Referral category

County referral ☐ Inter county ☐ National referral ☐ International ☐

Emergency ☐ Urgent ☐ Not Urgent ☐

Health Facility Details

Referring From:	Referring To:
Department:	Department:
County:	County:
Sub-county:	Sub-County:
Keph level of care: [L1] [L2] [L3] [L4] [L5] [L6]	Keph level of care: [L1] [L2] [L3] [L4] [L5] [L6]
Facility Ownership: Private [ ] Public [ ] FBO [ ]	Facility Ownership: Private [ ] Public [ ] FBO [ ] NGO [ ]

Patient Details

Name of patient: _____ Sex: ☐ M ☐ F ☐ I Age: _____ Weight(kg): _____

Date of Admission: _____ IP/OP No.: _____

Caregivers Name: _____ Phone Number: _____

Patient Diagnosis: _____

_____

History: _____

_____

_____

_____

_____

_____

Investigations: _____

Reason for referral: _____

Mode of transport: Ambulance: ☐ Self ☐(Specify): _____

Referral facility contacted: Yes ☐ No ☐

Name of health care provider contacted: _____

Prereferral instructions: _____

Officer taking the decision to refer Name: _____ Designation: _____

Department physician/ specialist

Name: _____ Designation: _____-_____

Condition During Referral (Tick As Appropriate)

General Condition

☐ level of consciousness /A_V_ P _U_

☐ Unable to drink or [ ] Vomits everything

☐ Is lethargic or unconscious

Feeding mode: Breastfeeding ☐ Cup ☐ NGT ☐

Newborn referred in KMC position: Yes ☐ No ☐

☐ Convulsions in this illness

☐ Severe Pallor

☐ Severe Respiratory Distress (Fast breathing/ Grunting /Stridor)

☐ Severe Wasting / Oedema {Foot/Knee/Face} / Loss of Muscle tone (floppy)

Others specify? _____

_____

VITAL SIGNS:

Temperature_____ Respiratory Rate: _____ Pulse Rate _____

Cap Refill: ≤3sec / >3 sec: _____ SpO_2_____ RBS _____

Date: _____ Time: _____

(the ambulance/patient left the referring health facility).

Interventions during referral:

Resuscitation: Yes ☐ No ☐ _____ Oxygen Yes ☐ No ☐

Fluids _____ Amount Start Time: _____ Stop Time: _____

Drugs given: _____

Additional Notes: _____

Accompaning or referring officer:

Name: _____Designation: _____

Signature: _____Telephone No: _____ Date: _____

Condition of Patient on Arrival

Stable ☐ Critical ☐ dead ☐

Temperature: _____ Pulse: _____ Respiratory rate: _____ SPO_2: _____

Name of receiving officer: _____

Designation: _____ sign: _____

Date: _____ Time: _____

* To be filled in duplicate

OUT-PATIENT FOLLOW UP FORM

Name:_____ IP No:_____

ADR REPORTING FORM

(FOM001/MIP/PMS/SOP/001)

MINISTRY OF HEALTH
PHARMACY AND POISONS BOARD
P.O. Box 27663-00506 NAIROBI
Tel: (020)-3562107 Ext 114, 0720 608811, 0733 884411 Fax: (020) 2713431/2713409
Email: pv@pharmacyboardkenya.org

IN CONFIDENCE

SUSPECTED ADVERSE DRUG REACTION REPORTING FORM

REPORT TITLE: .....

The report is on:
☐Suspected adverse drug reaction ☐Therapeutic ineffectiveness

Report Type:
☐Initial Report ☐Follow Up Report

Product category (Tick appropriate box)
☐Medicinal product ☐Blood and blood products. ☐Herbal product. ☐Cosmeceuticals. ☐Others.....

Institution details

Name of Institution	Contact/Tel No.	Facility Code:	County:

1. Patient Information
Patient name/initials: ..... IP/OP. No: .....
D.O.B/Age: ..... Patient address: ..... WARD/CLINIC:.....
(NAME/NUMBER)
Gender: ☐ Male ☐ Female

Any known allergy ☐No ☐Yes (specify).....
Pregnancy status
☐ Not Applicable ☐ Not pregnant
☐ 1st Trimester ☐ 2nd Trimester ☐ 3rd Trimester
Weight: ..... kg Height: .....cm

2. Suspected Adverse Reaction
Date of onset of reaction: .....
Brief description of reaction:.....

3. Medical History. (Other relevant history including pre-existing medical conditions e.g. allergies, smoking, alcohol use, hepatic/ renal dysfunction etc)
.....
.....

4. List all medicines being currently used by the patient including OTC, and herbal products (* Tick the suspected medicine)**

Tick (√) Suspected drug	INN/ Generic Name	Brand Name	Batch/ Lot No.	Manufacturer	Dose	Route	Frequency	Treatment Period		Indication
								Start date	Stop Date	

5. Past medication history (List all medicines used in the last 3 months including OTC, herbals, if pregnant indicate medicines used in the 1st trimester)

INN/Generic Name	Brand Name	Batch/Lot No.	Manufacturer	Dose	Route	Frequency	Treatment Period		Indication
							Start date	Stop date	

6. Dechallenge/Rechallenge
Did the reaction resolve after the drug was stopped or when the dose was reduced?
☐Yes. ☐No ☐Unknown. ☐N/A
Did the reaction reappear after the drug was reintroduced?
☐Yes. ☐No. ☐Unknown ☐N/A

7. Any lab investigations and results.....
.....

8. Grading of the reaction /event
I. Severity of reaction : ☐Mild ☐Moderate ☐Severe ☐Fatal ☐Unknown
II. Is the reaction serious? ☐Yes ☐No
III. Criteria/reason for seriousness : ☐Hospitalization/Prolonged Hospitalization ☐Disability. ☐Congenital anomaly ☐Life threatening ☐Death
IV. Action taken : ☐Drug withdrawn. ☐Dose reduced. ☐Dose increased. ☐Dose not changed ☐Not applicable. ☐Unknown
V. Outcome : ☐Recovered. ☐Recovered with sequelae. ☐Recovering ☐Not recovered ☐Death. ☐Unknown

9. Any other comment .....
.....

10. Reporter Details

Name of Initial reporter:	Cadre/designation:	Mobile no: Email:	Date of report:
Name of Person Submitting to PPB if different from reporter:	Cadre/designation:	Mobile no: Email:	Date of Submission:

You need not be certain..... just be suspicious!

Your support towards the National Pharmacovigilance system is appreciated
Submission of a report does not constitute an admission that medical personnel or manufacturer or the product caused or contributed to the event.
Patient's identity is held in strict confidence and program staff is not is not expected to and will not disclose reporter's identity in response to any public request.
Information supplied by you will contribute to the improvement of drug safety and therapy in Kenya. Once completed please send to:
The Pharmacy and Poisons Board on the above address

Annex 2: NEWBORN REGISTER

	BABY IDENTIFIERS			MATERNAL/ CAREGIVER DETAILS	INTERVENTIONS	DISCAHRGE AND OUTCOME											
SR No.	BABY'S IP NO	DATE OF ADMISSION	TIME OF ADMISSION	ADMISSION/ RE-ADMISSION	1=Referred from CU; 2=Referred from another HF; 3= Not applicable	BABY'S NAME	SEX(M/F)	AGE (DAYS)	DATE OF BIRTH	TIME OF BIRTH	GESTATION IN WEEKS	MODE OF DELIVERY (1= Normal Delivery 2= Assisted Vaginal Delivery 3= Breech, 4= Caesarean Section, 5=Unknown)	APGAR SCORE	PLACE OF BIRTH	BIRTH WEIGHT (GRAMS)	ADMISSION WEIGHT (GRAMS)	DIAGNOSIS ON ADMISSION
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R

Total Admissions by Gestation	Male	Female
<28WKS:Extreme Preterm		
≥28- <32 WKS: Very Preterm		
≥32-<34 WKS: Moderate Preterm		
≥34- <37 WKS: Late Preterm		
≥37WKS		
Total newborn admissions		

Total Deaths by Gestation	Male	Female
<28WKS:Extreme Preterm		
≥28- <32 WKS: Very Preterm		
≥32-<34 WKS: Moderate Preterm		
≥34- <37 WKS: Late Preterm		
≥37WKS		
Total newborn deaths		

Total Referrals by Gestation	Referral in	Referral out	Discharged alive
<28WKS:Extreme Preterm			
≥28- <32 WKS: Very Preterm			
≥32-<34 WKS: Moderate Preterm			
≥34- <37 WKS: Late Preterm			
≥37WKS			
Totals			

Total by admission weight	Total
Weight at < 1000 gms	
Weight between 1001 - 1499 gms	
Weight between 1500 - 1999gms	
Weight between 2000-2499gms	
Weight above 2500gms	

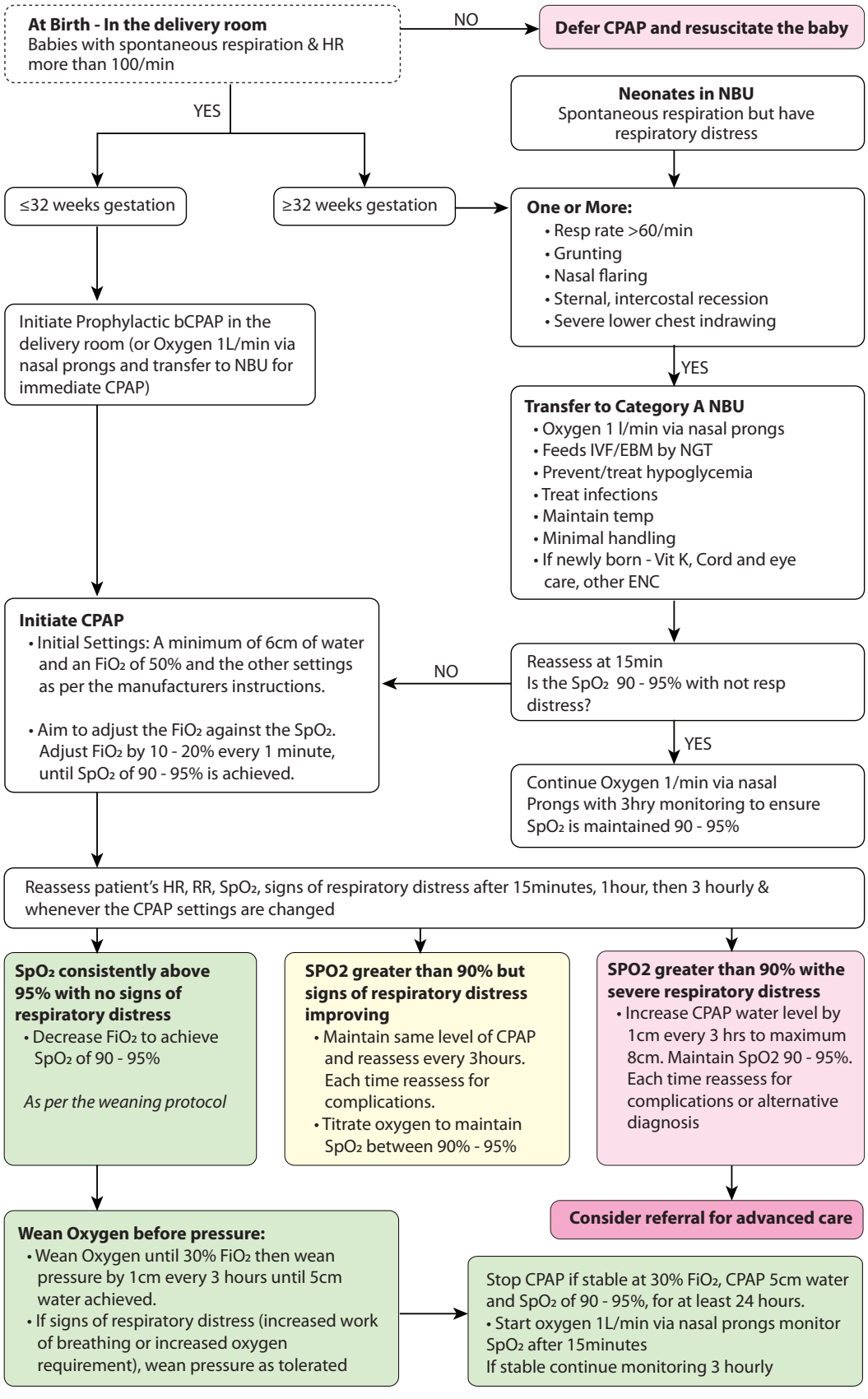
Total deaths by weight	Total
Weight < 1000 gms	
Weight between 1001 - 1499 gms	
Weight between 1500 - 1999gms	
Weight between 2000-2499gms	
Weight above 2500gms	

Date of Admission	Admission/Re-admission 1= first admission, 2= second, 3= third 4= Others (Specify)	In-patient No.	Full Name	Age	Sex M= Male, F = Female, I= Intersex	County/ Sub County	Village / Estate / Landmark	Next of kin	Caregiver Telephone/Mobile Number	Referrals from: 1=From Other Health Facility 2=From Community Health Unit 3=Not applicable	Temperature	Respiratory rate	Oxygen saturation reading	Pulse rate
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

Statistics		Number	Statistics	Number
Total number of admission 1-59momths			Total number of children screened for TB	
Total number of admissions 5- up to 10 years			Total number of patients with known HIV status	
Total number of admissions 10-19years			Total number of patients who were measured SPO2	
Total number of referrals from other facilities			Total no of children with Hypoxaemia (SpO2 <90%) who received oxygen	
Total number of patients admitted With Moderate Acute malnutrition(MAM)			Total no of patients with severe pneumonia initiated on Oxygen	
Total number of patients admitted with Severe Acute Malnutrition			Total number of patients with diabetes	

Annex 3: OXYGEN AND CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) ALGORITHM

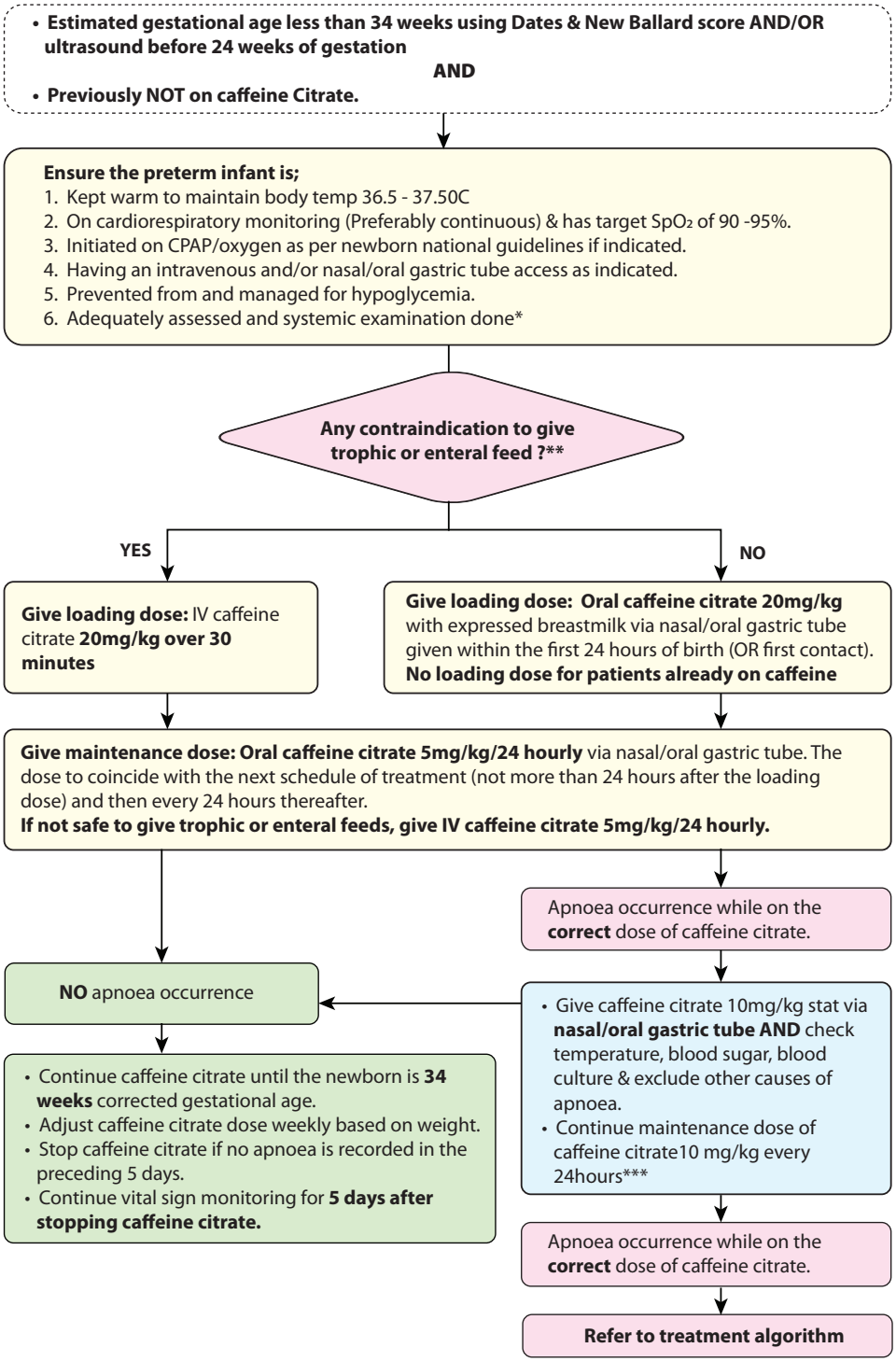
Supporting respiratory efforts - Use of oxygen and continuous positive Airway Pressure (CPAP)



CPAP not to be done for neonates with: APGAR score of less 4 at 5min
Defer CPAP for neonates with:
1. Uncontrollable seizure
2. Apnoea or gasping respiration

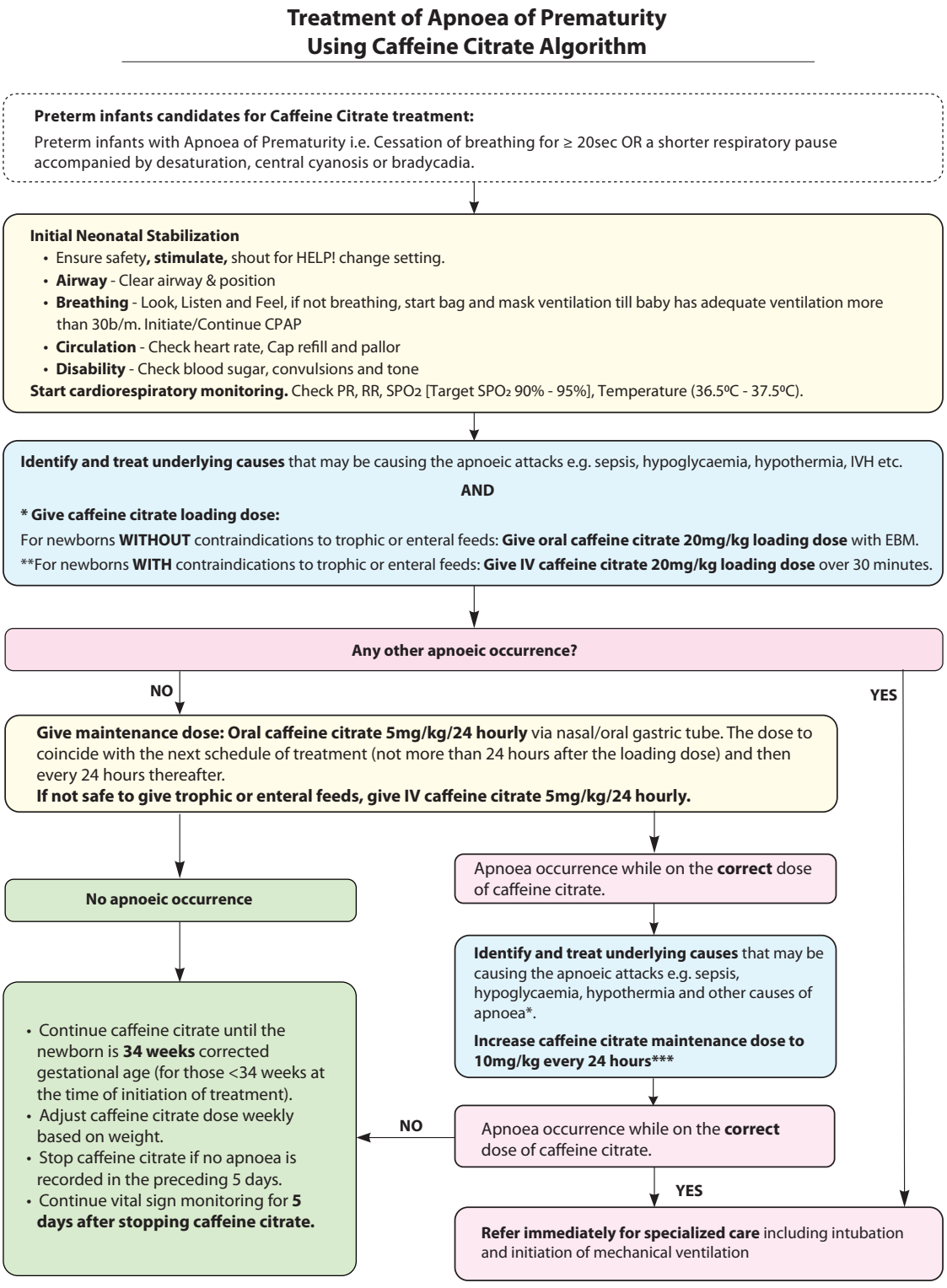
Annex 4: CAFFEINE CITRATE PROPHYLAXIS ALGORITHM

Prevention of Apnoea of Prematurity
Using Caffeine Citrate Prophylaxis Algorithm



- **Caffeine citrate should **NOT** be given to newborns with kernicterus or symptomatic heart disease, esp arrhythmia. Caution for newborns with renal or hepatic disease or seizures.*
- *Withhold caffeine citrate if the heart rate is persistently over 180 bpm at rest.*
- *Caffeine citrate is compatible with breast milk.*
- *For Caffeine citrate vials, once opened use immediately and discard the unused portion.*
- ***Adjust the dose of caffeine citrate weekly** (on a fixed day) based on change in body weight.*
- *Use birth weight less than 1500 grams for eligibility for caffeine when baby is over 4 days old if gestational age is not available.*
- *****Contraindications to enteral feeding:** Surgical complications such as; trachea-esophageal fistula, necrotizing enterocolitis and intestinal obstruction*
- ******Clinician may continue with caffeine citrate 5mg/kg if the apnea episode is associated with hypoglycemia or hypothermia.***

Annex5: Treatment of Apnoea of Prematurity Using Caffeine Citrate Algorithm



- *For newborns >34 weeks corrected gestational age at the time of initiation of treatment, stop caffeine citrate if no apnoea is recorded in the preceding 5 days.*
- *Other causes of apnea include airway obstruction, sepsis, seizures, anaemia, hypoglycemia, intraventricular hemorrhage, hypothermia etc. Escalate care if apnea persists despite appropriate intervention.*
- **Caffeine citrate should **NOT** be given to newborns with kernicterus or symptomatic heart disease, esp arrhythmia. Caution for newborns with renal or hepatic disease or seizures.*
- *Withhold caffeine citrate if the heart rate is persistently over 180 bpm at rest.*
- *Caffeine citrate is compatible with breast milk.*
- *For Caffeine citrate vials, once opened use immediately and discard the unused portion.*
- ***Adjust the dose of caffeine citrate weekly** (on a fixed day) based on change in body weight.*
- *****Contraindications to enteral feeding:** Surgical complications such as; trachea-esophageal fistula, necrotizing enterocolitis and intestinal obstruction*
- ******Clinician may continue with caffeine citrate 5mg/kg if the apnea episode is associated with hypoglycemia or hypothermia.***

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