REPUBLIC OF KENYA

MINISTRY OF HEALTH

INFANT AND CHILD MENTORSHIP

"Access to Quality Paediatric Care Everywhere"

MENTOR'S MANUAL

CONTENTS

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

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

ABBREVIATIONS

BGA	Blood Gas Analysis
BLS	Basic Life Support
BPP	Basic Paediatric Protocol
BVM	Bag Valve Mask
CCP	Critical Care Pathway
CHMT	County Health Management Team
CLABSI	Central Line Associated Bloodstream Infection
CPAP	Continuous Positive Airway Pressure
CPR	Cardiopulmonary Resuscitation
CQI	Continous Quality Improvement
CRP	C-reactive Protein
CRT	Capillary Refill Time
CVC	Central Venous Catheter
DKA	Diabetes Ketoacidosis
D10	Dextrose 10%
ECC	Emergency Cardiovascular Care
ETAT	Emergency Triage Admission & Treatment
GAPPD	Global Action Plan for Prevention and Control of Pneumonia & Diarrhoea
HAI	Hospital Acquired Infection
ICCM	Integrated Community Case Management
IFCDC	Infant and Family Centred Developmental Care
IGRA	Interferon Gamma Release Assay
IMNCI	Integrated Management of Newborn and Childhood Illnesses
IPC	Infection Prevention & Control
IO	Intraosseous
IV	Intravenous
KHIS	Kenya Health Information System
KMC	Kangaroo Mother Care
M&E	Monitoring & Evaluation
MTB	Mycobacterium Tuberculosis
MUAC	Mid Upper Arm Circumference
NGT	Nasogastric Tube
NRM	Non - Rebreather Mask
NS	Normal Saline
OPA	Oral pharangeal Airway
OSCE	Objective Structured Clinical Examination
PAR	Paediatric Admission Record
PBF	Peripheral Blood Film
PMTCT	Prevention of Mother to Child Transmission
PPE	Personal Protective Equipment
PTB	Pulmonary Tuberculosis
QI	Quality Improvement
RBS	Random Blood Sugar

RL	Ringers Lactate
RUTF	Ready to Use Therapeutic Feeds
SAM	Severe Acute Malnutrition
SCHMT	Subcounty Health Management Team
TDD	Total Daily insulin Dose
TOT	Trainer of Trainers
TST	Tuberculin Skin Test
UEC	Urea, Electrolyte and Creatinine
URTI	Upper Respiratory Tract Infection
WHZ	Weight-for-Height Z-score
WITS	Work Improvement Team

INTRODUCTION TO INFANT AND CHILD 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, competency and confidence 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, communication and feedback between supervision, clinical mentoring systems and monitoring and evaluation (M&E).
4. To expand and build valuable professional connections

III. Mentorship Definition & Rationale

Mentorship is a hands-on, facility 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 - who are ETAT+/IMNCI/iCCM/CNC 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.

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 skills teaching and 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.

IV. Target Groups

- County and Sub County Health Management Teams (CHMTs & SCHMTs)
- Healthcare workers- mentors
- 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.
- Have training in neonatal and child health provider courses.

Roles of Mentors

- Identify the clinical skills gap.
- Promote adherence to professional guidelines ethics.
- Executing skills and competencies in line 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 be empathetic
- Respectful: An effective mentoring relationship is characterized by mutual respect, trust, and 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

- Qualified and licensed healthcare worker
- Should have foundational / basic training in newborn and child health
- 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.

Baseline assessment of QI indicators

- **Mentor Selection:** Identify individuals who have expertise in newborn and child health who can serve as mentors.
- **Mentee selection:** 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.

Mentors adopt facilities or mentees to work with

- **Planning:**

Plan for an introductory session to establish rapport and set expectations

Plan for training sessions

Help mentees set QI goals

- **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 background • 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 bedside or on the mannequins • Practicals 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. Simulation and Skills Laboratories

- **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 master mentors and facility-based mentors.

- **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

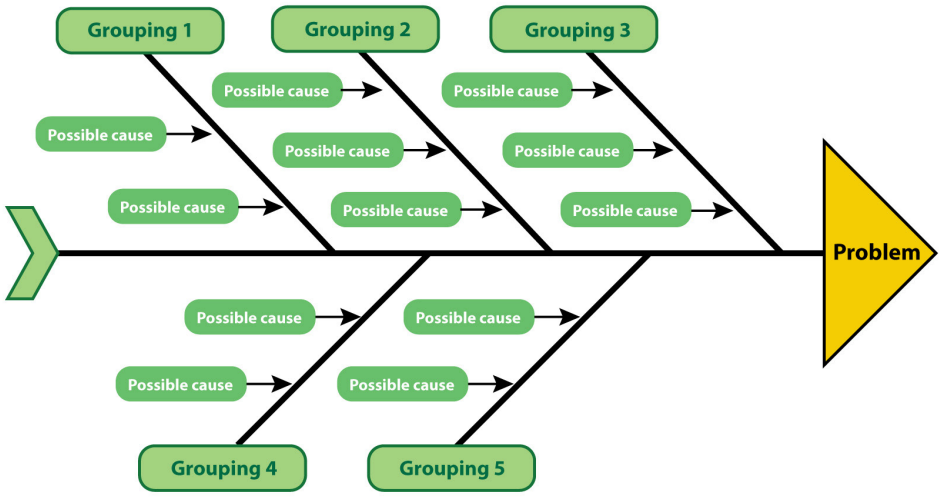


Figure 1. Fish Bone Analysis Structure

- 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.

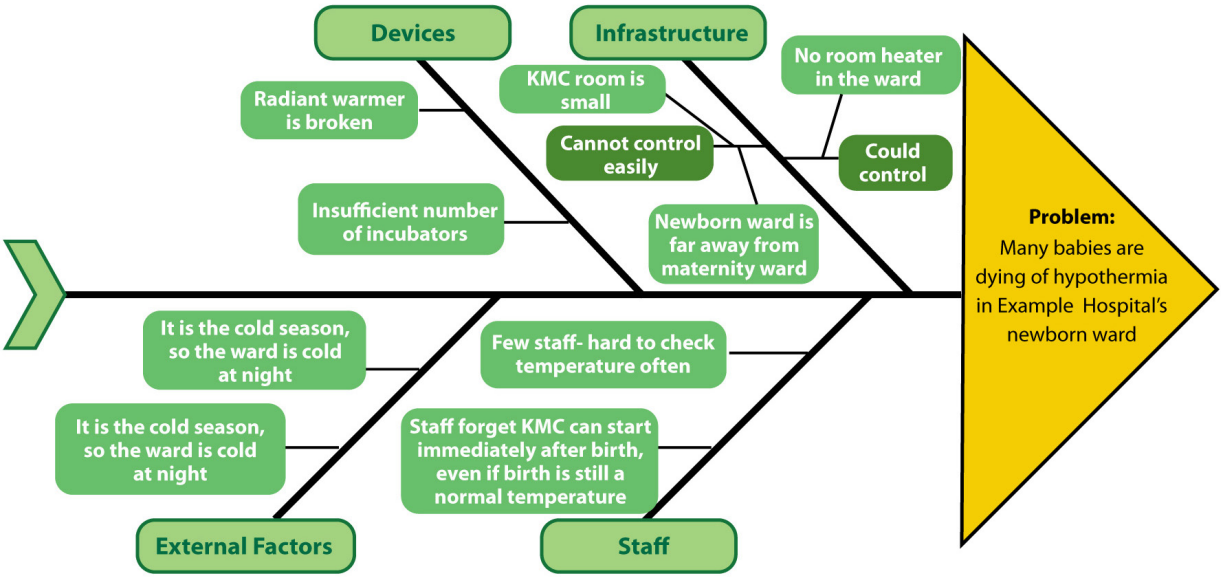


Figure 2. Example of a Completed Fish Bone Structure

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. Babies with neonatal sepsis 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

Also know as the 80/20 rules states that 80% of the issues in the wards/units are attributed to 20% of the causes and that 80% of results will come from 20% of the effort.

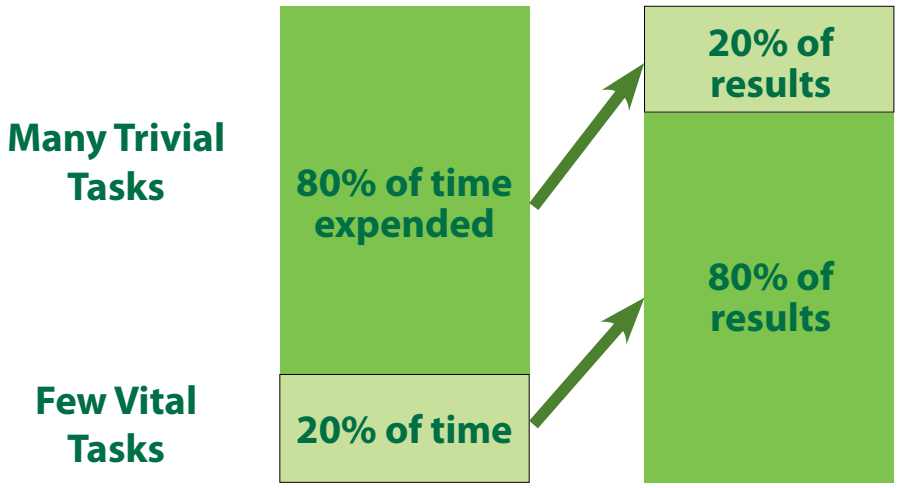


Figure 3. Pareto Principle

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

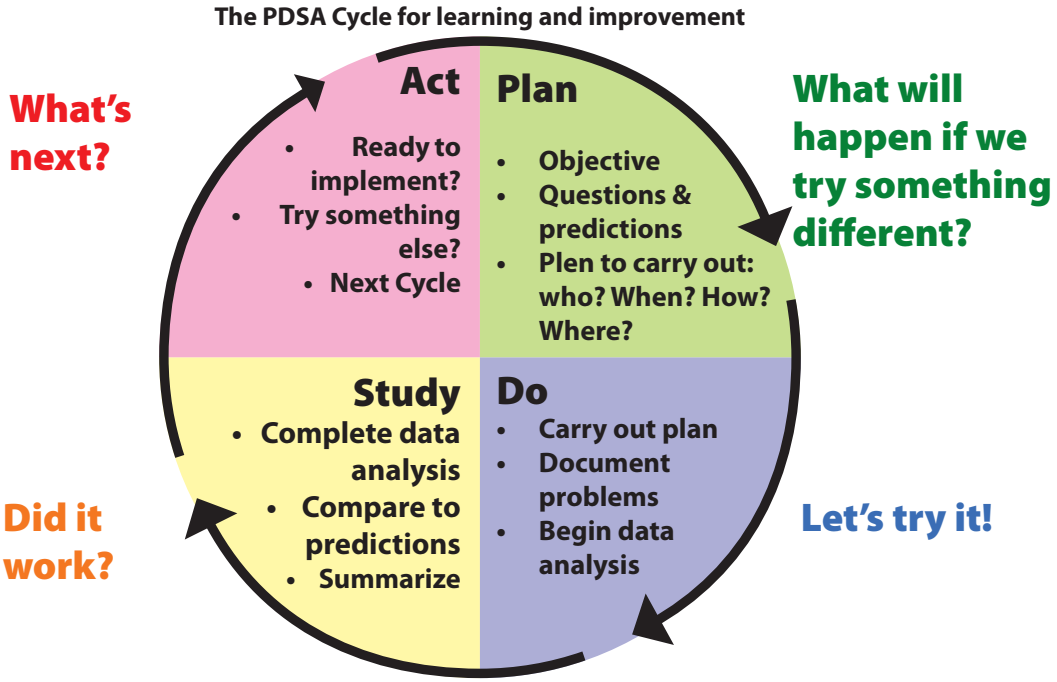


Figure 4: The PDSA Cycle for learning and improvement

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

INFANT AND CHILD MENTORSHIP

V. KEY MENTORSHIP MODULES (Technical Focus Areas)

Module	Key Topics
1. Infection Prevention Control (IPC)	5 moments of hand hygiene and hand hygiene techniques
2. Infant and Family Centered Developmental Care (IFCDC)	Swaddling, nesting, pain management, Sensory environment, Family involvement
3. Triage	Identifying and acting on the ABCD for emergency signs. Identifying and acting on 3Ts, 3Ps, 3Rs and MOB for priority signs.
4. Basic Life Support for infant/child	Structured approach to Basic Life Support (BLS) for both infants and children.
5. Assessment and management of a sick infant/ child with signs of life	Initial rapid assessment of a sick infant/child with signs of life Identifying and managing life threatening emergencies using ABCDE approach
6. Oxygen therapy	Appropriate use of pulse oximetry Oxygen delivery methods Monitoring (oxygen titration and weaning) and documentation
7. Management of an infant/ child with respiratory distress	Assessment of adequacy of breathing in cases of respiratory distress Classification of pneumonia and asthma Management of asthma and pneumonia Diagnosis and management of pulmonary TB
8. Management of dehydration in an infant/ child with diarrhea/& vomiting	Classification of dehydration in infants and children with diarrhoea and/or vomiting Management for infants and children with diarrhoea and/or vomiting Intraosseous needle insertion and use
9. Management of severe acute malnutrition in an infant/ child aged 6-59 months	Diagnosis of severe acute malnutrition Management of acute medical complications associated with SAM Appropriate feeding for children with SAM
10. Management of an infant/child with altered consciousness	Assessment and stabilization of infant/child with altered consciousness and convulsions; Management of hypoglycemia Diagnosis and treatment of meningitis and severe malaria
11.Diabetic ketoacidosis and routine care in type 1 diabetes	Assessment, diagnosis, classification and management of DKA Routine care of children and adolescents with type 1 diabetes
12. Documentation using the paediatric inpatient file	• Paediatric Admission Form • Triage Initial Assessment Form • DKA monitoring chart • Inpatient Treatment sheet • Nursing Cardex • Input output monitoring chart • Blood transfusion Form

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.

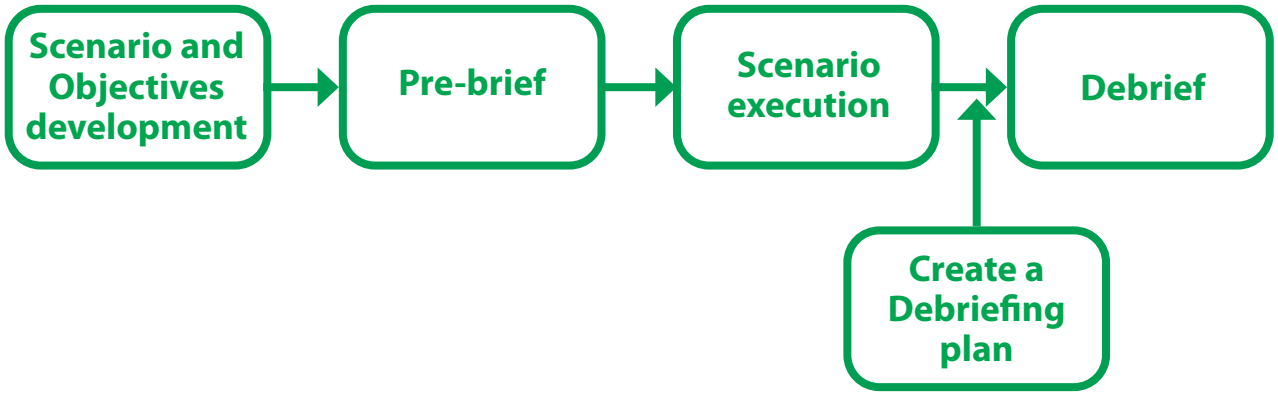


Figure 1: The flow and critical elements of simulation

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

Table 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?"

VI. Tools & Resources

- Lecturette slides
- Videos
- Skills teaching using the four stage approach
- Clinical Scenario Simulations
- Workshops / group discussion
- Reference materials- Basic Paediatric Protocol, National DM guidelines, National IMAM Guidelines
- Paediatric inpatient file
- Equipment and supplies- e.g. Manikins, breast model, BVM etc.
- Flip charts or pens

VII. Monitoring & Evaluation

Indicator Type	Examples
Process	# of mentorship visits conducted, % mentees trained
Output	% improvement in assessment and management of a collapsed child (BLS)
Outcome	Reduced case fatality rate for pneumonia, diarrhea with dehydration, severe acute malnutrition
Satisfaction	Mentee satisfaction scores, mentor feedback loops

VIII. Implementation Considerations

- Embed within national Child Health Policy or Strategy
- Establish skills labs
- Align with County/Facility workplans
- Integrate with QI and supportive supervision platforms
- Leverage digital mentorship tools (e.g., WhatsApp, Zoom, KoboToolbox)
- Ensure MoH ownership and partner coordination

IX. Sustainability

- Transition mentorship to local teams over time
- Institutionalize into routine performance appraisals
- Document lessons learned, success stories
- Create mentorship "hubs" in high-volume referral centers

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:

- Demonstrate a clear understanding of the chain of infection.
- Illustrate correct hand hygiene techniques and understand the WHO "5 Moments for Hand Hygiene.
- Demonstrate proper processing of patient care items.
- 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 provide infant and family-centred developmental care within the broader context of nurturing care.

Nurturing care, as emphasized in the WHO/UNICEF Nurturing Care Framework and national child health guidelines, refers to the stable environment created by parents, caregivers, and communities that ensures:

- Good health
- Adequate nutrition
- Safety and security
- Responsive caregiving
- Opportunities for early learning

These elements are essential for optimal brain development, healthy growth, and the overall well-being of infants and children.

II. Learning outcome

By the end of this module, the mentee should be able to offer infant and family-centred developmental care (IFCDC), applying the principles of nurturing care in everyday interactions with infants, young children, and their families.

III. Learning Objectives

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

1. Explain the components of nurturing care for infants and young children (health, nutrition, safety, responsive caregiving, and early learning).
2. Demonstrate practical caregiving techniques (e.g., swaddling, skin-to-skin contact, responsive feeding, safe play, and stimulation).
3. Identify signs of stress or dysregulation in infants/children and apply strategies for soothing and responsive caregiving.
4. Engage and communicate effectively with parents and caregivers to empower them as primary providers of nurturing care.
5. Integrate the family in care planning, recognizing cultural and community contexts.

MODULE 2: Infant and Family Centered Developmental Care (IFCDC)			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette on IFCDC & nurturing care	Lecture	• Projector • Laptop • Smart Phone
30 minutes	**Session 2:** Role play on effective family communication (two skits: good vs poor communication)	Practicum	• Infant manikin • Cap • Flannel • Chairs • Table • Baby Shawl/Linen
30 minutes	**Session 3:** Practical caregiving skills: swaddling, soothing, responsive feeding, play & early stimulation	Practicum	• Infant manikin • Chairs • Table • Baby Shawl/Linen

MODULE 3:
TRIAGE

MODULE 3: TRIAGE

I. Introduction

This introduces the mentees to the principles and the approach to triage. Triage can be performed by anyone in the health facility.

II. Learning Outcome

By the end of the training and mentorship program, mentees should:
Have acquired skills and competencies in triage.

III. Learning Objectives

By the end of the training and mentorship program, mentees should:

- Have acquired competencies in:
- Identifying and acting on the ABCD for emergency signs.
- Identifying and acting on 3Ts, 3Ps, 3Rs and MOB for priority signs.

IV. Module work plan

MODULE 3: TRIAGE			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette	Lecturette	• Lecture Notes, • Flip Charts, • Marker • Pens, • Basic Paediatric Protocols
30 minutes	Case scenarios	Drills	• Pencils, • Pens, • Flip Charts, • Marker Pens, • Basic Paediatric Protocols
	Practicum	Drills	• Pencils, • Pens, • Basic Paediatric Protocols

Triage – Case Scenarios	
Requirements	• Pencils, • Pens, • Flip Charts, • Marker Pens, • Basic Paediatric Protocols
Instructions	• Case scenarios will be provided to the mentees • The mentor will read the participants the information from the drills provided • Participants can use the charts from the basic paediatric protocols • This will be an open discussion session
For each case given	• Ask one participant to tell you how they would triage • Make sure they go through in sequence, a, b, c, d, priority etc. • As soon as an abnormality is detected, ask them the action required

Case Scenarios

ETAT+ Triage Tables

1. A baby of about 1 year comes to your desk

Check	Finding	Action
Airway & Breathing	The child has obvious stridor	Emergency – Immediate transfer for attention.

2. A child of about 2 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No respiratory distress • Weak / irregular breathing	Emergency – Immediate transfer for attention.

3. A child of about 9 months comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress • Breathing regularly	Proceed to check circulation
Circulation 1	Cold Hands	Proceed to check circulation in detail
Capillary refill	Capillary refill 3 sec	Emergency – Immediate transfer for attention.
Pulse	Pulse very fast (>160 bpm)	

4. A child of about 3 months comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress	Proceed to check circulation
Circulation 1	Cold Hands	Proceed to check circulation in detail
Capillary refill Pulse	Capillary refill 3 sec *Pulse slow (<60 bpm)*	Emergency - Immediate transfer for attention

5. A child of about 4 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	• Child moving • Not convulsing *Does not respond to your voice or the mother's voice*	Emergency - Immediate transfer for attention

6. A child of about 3 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	Child is convulsing	Emergency - Immediate transfer for attention

7. A child of about 1 year comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	*No convulsion* • Looking at the mother • Not obviously confused	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
• Tiny • Temperature • Trauma • Pain • Poisoning • Pallor	*1 year old* • Slightly not dry • No trauma • No pain • No story of poisoning • Palms very pale	Priority Case - front of the queue to be seen as soon as possible. Check: Weight and TPR

8. A child of about 7 months comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	*No convulsion* • Looking at the mother • Not obviously confused	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
• Tiny • Temperature • Trauma • Pain • Poisoning • Pallor • Restless / Irritable • Respiratory Distress	• 7 months • Slightly hot, not very hot • No trauma • Not in pain • No story of poisoning • No pallor* • Not restless / irritable *Lower chest wall indrawing*	Priority Case - front of the queue to be seen as soon as possible. Check: Weight and TPR

9. A child of about 2 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	• Looking at the mother • Not obviously confused	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
• Tiny • Temperature • Trauma Pain • Poisoning • Pallor • Restless / Irritable Respiratory Distress • Referral • Malnutrition • Oedema • Burns	• 2 years • Slightly hot, not very hot • No trauma • Not in pain • No story of poisoning • No pallor • Not restless / irritable • No respiratory distress • No referral letter *Visible severe wasting*	Priority Case - front of the queue to be seen as soon as possible. **Check:** Weight and TPR

10. A child of about 5 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	*No convulsion* • Looking at the mother • Not obviously confused	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
• Tiny • Temperature • Trauma • Pain • Poisoning • Pallor • Restless / Irritable • Respiratory Distr. • Referral • Malnutrition • Oedema • Burns	• 5 years • Slightly hot, not very hot • No trauma • Not in pain • No story of poisoning • No pallor • Not restless / irritable • No respiratory distress • No referral letter • No visible severe wasting	Non-urgent case – ask the parent and child to queue to be seen routinely.

11. A mother comes with a small infant wrapped up to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	*No convulsion* • Seems to be asleep, wriggles when stimulated	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
Tiny	*5 weeks old*	Priority Case - front of the queue to be seen as soon as possible. **Check:** Weight and TPR

12. A child of about 2 years comes to your desk

Check	Finding	Action
Airway & Breathing	*Struggling to breathe*	Emergency - Immediate transfer for attention

13. A child of about 6 months comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Cold Hands	Proceed to check circulation in detail
Capillary refill Pulse	*Capillary refill 5 sec*	Emergency - Immediate transfer for attention

14. A child of about 4 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	Child moving Not alert, no response to voice and only groans in response to pain	Emergency - Immediate transfer for attention

15. A child of about 3 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s

Coma / Convulsions / Confusion	*No convulsion* • Looking at the mother • Not obviously confused	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
• Tiny • Temperature • Trauma	• 3 years • Slightly hot, not very hot *Rt forearm = fracture*	Priority Case - front of the queue to be seen as soon as possible. **Check:** Weight and TPR

16. A child of about 5 years comes to your desk

Check	Finding	Action
Airway & Breathing	• No stridor • No cyanosis • No severe respiratory distress *Breathing regularly*	Proceed to check circulation
Circulation 1	Warm Hands	Proceed to check other "C"s
Coma / Convulsions / Confusion	*No convulsion* • Looking at the mother • Not obviously confused	Proceed to check for Diarrhoea / dehydration
Diarrhoea / dehydration	No sunken eyes	Proceed to check for priority signs
• Tiny • Temperature • Trauma • Pain • Poisoning • Pallor • Restless / Irritable • Referral	• 5 years • Slightly hot, not very hot • No trauma • Not in pain • No story of poisoning • No pallor • Not restless / irritable *Referred from a local H/C with hot and slightly red knee*	Priority Case - front of the queue to be seen as soon as possible. **Check:** Weight and TPR

Summary Points

Triage is an ABCD approach that can be used by anyone as a screening tool to ensure seriously ill children are seen as emergencies / priorities

MODULE 4:
BASIC LIFE SUPPORT FOR INFANT/CHILD

MODULE 4: BASIC LIFE SUPPORT FOR INFANT/CHILD

I. Introduction

This module aims to equip mentees with skills that help healthcare workers to assess and manage a collapsed infant/child. It outlines the approach and techniques required for life support and management of a very sick child in a hospital setting.

II. Learning Outcome

By the end of the training and mentorship program, mentees should have:

- Acquired skills and competencies in airway management, BVM ventilation and chest compression.

III. Learning Objectives

By the end of the training and mentorship program, mentees should be able to:

- Describe and demonstrate the structured approach to Basic Life Support (BLS) for both infants and children.

IV. Module Work Plan

Module 4: Basic Life Support For Infant/Child			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** Lecturette (Basic life support)	Lecturette	• Lecture Notes, • Flip Charts, • Marker Pens, • Basic Paediatric Protocols
10 minutes	**Session 2:** Demonstration video	Video	• Screen/Projector, • Flip Charts, • Marker pens
20minutes	**Session 3:** Group discussion. Components maintenance and function of a BVM, Sizes of BVM bags for different age groups.	Group discussion	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocols
30 minutes	**Session 4:** Skills teaching: Airway management (patency and position)	Demonstration	• Mannikin, • Suction catheters • Penguin sucker • OPA different sizes • BVM 500ms, 750mls, 1,000mls • BVM mask size 1, 2,3 • Oxygen tubings • NRM infant and child size • SPO2 • Stethoscope • IV/IO Access • Glucometer • If fluids, NS, RL, D10 • Adrenaline • Basic Paediatric Protocol
	Session 5: Skills teaching: Airway management (sizing and insertion of oropharyngeal airway)	Demonstration	
	Session 6: Skills teaching: Breathing (Effective BVM ventilation)	Demonstration	
	Session 7: Skills teaching Circulation (Effective CPR)	Demonstration	

30 minutes	**Session 8:** Simulation teaching (ABC approach scenarios)	Demonstration	• Mannikin, • Equipment and supplies for the practicum, • Basic Paediatric Protocols

Skills Demonstration

Part 1: Airway and ventilation skills station

The purpose of this opening session is to ensure ALL participants become familiar with the equipment used and gain the skills of opening the airway, using a bag and mask effectively and how to give chest compressions. The instructor explains and demonstrates the equipment – asking questions and ensuring understanding.

First:

- Demonstrate looking in the airway (If there are secretions causing obstruction then clear the airway) and position the airway using Head tilt chin lift manouvre to a sniffing position (the correct position for all ages) and discuss jaw thrust (for trauma).
- How to size and insert an oro-pharyngeal airway – discuss pros and cons.
- Demonstrate mask sizing, 'C' and 'E' grip and effective ventilation(Good chest rise)
- Explain components of BVM – maintenance and function, valves.
- Discuss size of bag for different age children
- Demonstrate how to assess for signs of life, including where to look for a large pulse in a collapsed infant / child
- Demonstrate how to give external chest compressions:
  - Landmarks (lower ½ of the sternum, 1 fingerbreadth above the xiphisternum)
  - Depth (1/3rd of the AP chest diameter, allow for chest recoil)
  - Rate (90-105 chest compressions/ min and 12-14 breaths/min)
  - Ratio 15:2
  - Minimize interruptions to less than 10 secs

Mentee should practice the skills for each section

Second:

Demonstrate the flow of the resuscitation steps (Putting it together)

Demonstrate the SSS, ABC(D), R on an infant/child by mentor.

Mentor to practice the structured approach for resuscitation of a collapsed infant/child.

1. Safety (Scene safety and use PPEs)
2. Stimulate, call and tap (verbal and tactile stimulation
3. Shout for help if there is a poor response.
4. Look – is there something in the mouth?
   a) Remove only what is visible, do not use a blind sweep
5. Position airway:
   a) Head tilt / chin lift (no trauma) _Sniffing position for all ages now (slightly extended).
   b) If bubbling of secretions heard - "Suck to where you can see"
   Blind, deep suction should be avoided as it may cause apnoea, bradycardia and trauma to the airway.
   c) If obstructed by tongue, consider oropharyngeal airway
6. Look, Listen & Feel – for chest movement / air movement / noises of breathing and signs of life

7. NO BREATHING and no other signs of life – proceed to 5 rescue breaths.
8. Check for signs of life and if none, proceed to give compressions. If a second rescuer is available check for a large pulse (during rescue breaths). If pulse is absent or less than 60bpm proceed to give chect compressions.
9. Continue with a ratio of 15 Compressions:2 breaths and after 2 mins, reassess
10. Reassess A, then B & C together by Look, Listen and Feel and AT THE SAME TIME check the large pulse.
11. Consider Drugs and manage reversible causes

Mentees to practice the structured approach for resuscitation of a collapsed infant/child.

After everyone has had a chance to demonstrate these skills:

Invite Questions

Summarise: Airway, ventilation and circulation skills. BLS process.

BLS CASE SCENARIOS

Instructions

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

Scenario Title: Basic Life Support One

Learning Objectives

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

Knowledge

- Recognize a child requiring basic life support
- Understand indication for Ventilation
- Understand the indication for chest compressions

Skills

- Initiate appropriate airway management - head tilt chin lift manuevre into sniffing position
- Demonstrate competence in BVM ventilation - "C" and "E" grip, chest must rise

Attitude/Behaviour

- Demonstrate effective communication (closed loop, directed and reflective)
- Demonstrate compliance to BLS and nurturing care guidelines
- Demonstrate appropriate team dynamics

Equipment

Physical props/ equipment	Medication
• Gloves • Hand sanitizer/Handwashing station • Sharp box • Waste bins - red, yellow and black • Gowns/Apron • Child Manikin • Suction catheters FR 6, 8, 10 • Penguin sucker • OPA / LMA different sizes • BVM 500ms, 750mls, 1,000mls • BVM mask size 1, 2,3 • Oxygen tubings • NRM infant and child size • Pulse oximeter • Stethoscope • IV cannulae 20, 22, 24 • Paediatric IO Access • Syringes	• If fluids, NS, RL, D10, blood • Adrenaline (1mg in 10mls preparation) • Water for injection • IV Paracetamol
• Needles 21G, 23G • Glucometer • Clinical thermometer • Weight estimating chart/tape • Full hemogram result • Basic Paediatric Protocol	

Scenario

Case scenario

A 5 year old girl with a fever is triaged as an emergency because the breathing is irregular and she is said to be unconscious. What do you do?

Collateral history

- Unwell for four days.
- Positive history of travel to Kisumu.

The script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: a. Unresponsive b. Airway is clear c. Irregular gasps, RR 8bpm d. SPO2 70% e. HR 80bpm	• Observe safety and IPC measures. • Shout for HELP from the team with allocated roles • Change the setting • Position the airway using head tilt chin lift manouvre into sniffing position • Support with OPA if available	• Pulse rate drops to 40bpm if no effective ventilation done • Move to Progression (Worsening)	• Estimated weight 18kg

	• Look, listen and feel for breathing • Establish effective BVM ventilation (with 100% oxygen) 5 rescue breaths; ensure chest rise • Continue BVM 20-30bpm • Reassess • Move to Progression (Recovery)		
2. Progression (Worsening): • Reassess ABC • Airway is clear • No breathing • SPO2 unrecordable • HR 40bpm	• Shout for HELP • Start CPR at 15 compressions: 2 breaths for 2 mins • Reassess and move to progression/recovery	If still no effective ventilations and compressions, terminate the scenario and debrief	
3. Progression (Recovery): a Airway is clear b Breathing regularly at a rate of 30 breaths per minute. c SpO2 94% NRM d HR 100bpm e AVPU now at V f RBS 3.5mmol/L g Temp 38ºC	• Start post-resuscitation care • Maintain sniffing position • Start child on oxygen via NRM at 10-15 litres/min • Fix an IV cannula and take samples (CBC, GXM) • PRBC 180mls over 3-4hours • IV Paracetamol 10-15mg/kg (180 - 270mg) • Admit the child using the PAR form • IFCDC • Supportive management • Feeds and fluids • Definitive management • Escalate care to PICU		Hb 1g/dL, **Platelet Count:** 40,000 /µL, **Total WBC:** 15,000 /µL

Discussion points:

Complete Blood Count

Parameter	Result	Normal Range
Haemoglobin (Hb)	1.0 g/dL	11.5 – 13.5 g/dL
Hematocrit (PCV)	4 %	34 – 40 %
RBC Count	0.6 $\times 10^6$/µL	4.0 – 5.2 $\times 10^6$/µL
MCV	68 fL	75 – 87 fL
MCH	17 pg	24 – 30 pg
MCHC	24 %	32 – 36 %
RDW	17%	11 – 15 %
WBC Count	15,000 /µL	5,000 – 11,000 /µL
Neutrophils	55 %	40 – 60 %

Lymphocytes	30 %	20 – 40 %
Monocytes	10 %	2 – 8 %
Eosinophils	3 %	1 – 4 %
Basophils	2 %	0 – 1 %
Platelet Count	40,000 /µL	150,000 – 400,000 /µL

Scenario Title: Basic Life Support Two

Learning Objectives

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

Knowledge

- Recognize a child requiring basic life support
- Understand indication for Ventilation
- Understand the indication for chest compressions

Skills

- Initiate appropriate airway management - head tilt chin lift manuevre into sniffing position
- Demonstrate competence in BVM ventilation - "C" and "E" grip, chest must rise
- Demonstrate competence in landmarking for chest compressions, attaining appropriate depth and rate

Attitude/Behaviour

- Demonstrate effective communication (closed loop, directed and reflective)
- Demonstrate compliance to BLS guidelines and IFCDC
- Demonstrate appropriate team dynamics

Equipment

Physical props/ equipment	Medication
• Gloves • Hand sanitizer/Handwashing station • Sharp box • Waste bins - red, yellow and black • Gowns/Apron • Child Manikin • Suction catheters FR 6, 8, 10 • Penguin sucker • OPA / LMA different sizes • BVM 500ms, 750mls, 1,000mls • BVM mask size 1, 2,3 • Oxygen tubings • NRM infant and child size • Pulse oximeter • Stethoscope • IV Cannulae 20G, 22G, 24G • Paediatric IO Access • Syringes • Needles 21G, 23G • Glucometer • Weight estimating chart/tape • Basic Paediatric Protocol	• If fluids, NS, RL, D10 • Adrenaline (1mg in 10mls preparation) • Water for injection

Scenario

Case story / scenario stem

A 4 year old being treated for pneumonia becomes unresponsive in the ward. What do you do?

Collateral history

- Child has been AVPU at P in the ward

The script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: a. Unresponsive b. Airway is clear c. Gasping respirations, RR 5bpm d. SPO2 unrecordable e. PR 10bpm	• Observe safety and IPC measures • Shout for HELP from the team with allocated roles • Change the setting • Position the airway using head tilt chin lift maneuver into sniffing position • Support with OPA if available • Look, listen and feel for breathing • Establish effective BVM ventilation (with 100% oxygen) 5 rescue breaths; ensure chest rise • Landmark for effective compressions (Lower ½ of the sternum, 1 finger- breadth above the xiphisternum) • Give 15 compressions to 2 breaths on 100% oxygen for 2mins • Reassess A then B and C together after every 2 min • Move to Progression (Recovery)	• If no effective ventilation or compressions done, no breathing and pulse remains unrecordable • Move to Progression (Worsening)	Estimated weight 12kg

2. Progression (Worsening): a Reassess ABC b Coffee-ground secretions c No breathing d SPO2 unrecordable e No pulse	• Suction secretions then position airway using head tilt chin lift maneuver • Start CPR at 15 compressions: 2 breaths over 2 mins • Administer Adrenaline 1.2mls of 1mg in 10mls preparation **(to be administered only if 3rd help is present)** • Continue CPR for another 2 mins • Reassess • Move to Progression (Recovery)	If still no effective ventilations and compressions, terminate the scenario and debrief	**To make adrenaline 1mg in 10mls preparation (1:10,000):** Dilute 1mg of adrenaline (1mg in 1ml i.e. 1:1000) with 9mls of NS/water for injection
3. Progression (Recovery): a. Airway is clear b. Breathing regularly at a rate of 30 breaths per minute. c. SpO2 94% NRM d. HR 100bpm e. AVPU now at V f. RBS 4.5mmol/L	• Start post-resuscitation care • Maintain sniffing position • Start child on oxygen via NRM at 10-15 litres/min • Admit the child using the PAR form • IFCDC • Supportive management • Feeds and fluids • Definitive management • Escalate care to PICU		

Discussion points:
Scenario Title: Basic Life Support Three

Learning Objectives
- By the end of the session participants should be able to:

Knowledge
- Recognize a child requiring basic life support
- Understand indication for Ventilation
- Understand the indication for chest compressions
- Recognize post-resusciation care targets

Skills
- Initiate appropriate airway management - head tilt chin lift manuevre into sniffing position
- Demonstrate competence in BVM ventilation - "C" and "E" grip, chest must rise
- Demonstrate competence in landmarking for chest compressions, attaining appropriate depth and rate

Attitude/Behaviour
- Demonstrate effective communication (closed loop, directed and reflective)
- Demonstrate compliance to BLS and nurturing care guidelines
- Demonstrate appropriate team dynamics

Equipment

Physical props/ equipment	Medication
• Gloves • Hand sanitizer/Handwashing station • Sharp box • Waste bins - red, yellow and black • Gowns/Apron • Child Manikin • Suction catheters FR 6, 8, 10 • Penguin sucker • OPA / LMA different sizes • BVM 500ms, 750mls, 1,000mls • BVM mask size 1, 2,3 • Oxygen tubings • NRM infant and child size	• If fluids, NS, RL, D10 • Adrenaline (1mg in 10mls preparation) • Water for injection
• • Pulse oximeter • Stethoscope • IV Cannulae 20G, 22G, 24G • Paediatric IO Access • Syringes • Needles 21G, 23G • Glucometer • Weight estimating chart/tape • Basic Paediatric Protocol	

Scenario

Case story / scenario stem

A 3-year-old boy who is unresponsive is triaged as an emergency because his breathing is irregular. What do you do?

Collateral history

Had cough for past 3 days and today difficulty in breathing worsened.

The script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: a. Unresponsive b. Airway - gurgling sound heard c. Irregular respirations, RR 5bpm d. SPO2 unrecordable e. HR - 30bpm	• Observe safety and IPC • Shout for HELP from the team with allocated roles • Change the setting • Suction the airway • Position the airway using head tilt chin lift manouvre into sniffing position	• If no effective ventilation or CPR done, no breathing and pulse becomes unrecordable • Move to Progression (Worsening)	Estimated weight 14kg

	• Support with OPA if available • Establish effective BVM ventilation (with 100% oxygen) 5 rescue breaths; ensure chest rise • Landmark for effective compressions (Lower ½ of the sternum, 1 finger- breadth above the xiphisternum) • Give 15 compressions to 2 breaths on 100% oxygen • Reassess A then B and C together after every 2 min • Move to Progression (Worsening)		
2. Progression (Worsening): a Reassess ABC b Coffee-ground secretions c No breathing d SPO2 unrecordable e No pulse	• Suction secretions then position airway using head tilt chin lift manourve • Start CPR at 15 compressions: 2 breaths over 2 mins • Administer Adrenaline 1.4mls of 1mg in 10mls preparation **(to be administered only if 3rd help is present)** • Continue CPR for another 2 mins • Reassess • Move to Progression (Recovery)	If still no effective ventilations and compressions, terminate the scenario and debrief	**To make adrenaline 1mg in 10mls preparation (1:10,000):** Dilute 1mg of adrenaline (1mg in 1ml i.e. 1:1000) with 9mls of NS
3. Progression (Recovery): a Airway is clear b Breathing regularly at a rate of 30 breaths per minute. c SpO2 94% NRM d HR 100bpm e AVPU now at V f RBS 3.0mmol/L	• Start post-resuscitation care • Secure the airway with OPA, LMA • Start child on oxygen via NRM at 10-15 litres/min • SPO2 target 94-98% • Admit the child using the PAR form • IFCDC • Supportive management • Feeds and fluids • Definitive management • Escalate care to PICU		

Discussion points:

MODULE 5:
ASSESSMENT AND MANAGEMENT OF A SICK INFANT/CHILD WITH SIGNS OF LIFE

MODULE 5: ASSESSMENT AND MANAGEMENT OF A SICK INFANT/CHILD WITH SIGNS OF LIFE

I. Introduction

This module aims to equip mentees with knowledge, skills and behaviours that help to assess and manage a sick infant/child with signs of life.

II. Learning Outcome

By the end of the module, mentees should be equipped with the skills and competencies to promptly make life-saving emergency decisions using the A, B, C, D, E approach.

III. Learning Objectives

By the end of the training and mentorship program, mentees should be able to demonstrate skills on:

- Initial rapid assessment of a sick child with signs of life
- Identifying and managing life threatening emergencies using ABCDE approach

IV. Module Work Plan

Module 5: Assessment And Management Of A Sick Infant/Child With Signs Of Life (No Trauma)			
Time (Minutes)	**Session**	**Methodology**	**Materials**
15 minutes	**Session 1:** Lecturette	Lecturette	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocol
10 minutes	**Session 2:** Demonstration video	Video	• Screen/Projector, • Speaker, • Flip Charts, • Marker Pens
15minutes	**Session 3:** Group discussion Adequacy of breathing	Group discussion	• Flip Charts, • Marker pens • Basic Paediatric Protocol
15 minutes	**Session 4:** Group discussion Adequacy of circulation	Group discussion	• Flip Charts, • Marker pens • Basic Paediatric Protocol
20 minutes	**Session 5:** Group discussion: Assessment of disability	Group discussion	• Flip Charts, • Marker Pens, • Basic Paediatric Protocol
20 minutes	**Session 6:** Group discussion: Oxygen delivery devices and prescription	Group discussion	• Flip Charts, • Marker pens, • Nasal prongs, neonatal, paediatric and adult size • NRM, neonatal, paediatric and adult sizes • Oxygen source with flow-meter • Oxygen tubings • Basic Paediatric Protocol

20 minutes	**Session 7:** Practicum Assessing adequacy of breathing	Drills	• Basic Pediatric Protocol, • Pulse Oximeter • Oxygen delivery equipment mentioned in section 6 • Nebulizer • Stethoscope, • BP machine • Clock • IV/IO access • Sample bottles
	Session 8: Practicum Assessing adequacy of circulation	Drills	
30 minutes	**Session 9:** Simulation	Demonstration	• Manikin • Equipment and supplies for the practicum mentioned in section 7 and 8 • Medication • Salbutamol • Adrenaline • RL, NS, D10, Blood • Basic Paediatric Protocol

Skills Demonstration

- Demonstrate the skills of assessing the infant / child who is NOT ALERT.
- Tell the mentees the manikin capabilities
- Alert the mentees the findings the instructor will verbalise

1. Observe

Think of: Safety, Observe (check for eye contact), Stimulation if not alert, Shout (for help), Change Setting.

2. Check Airway:

- Check if airway is clear (Suction if needed)
- Position airway into sniffing position
- Listen for noisy breathing. If stridor is present, check the cause and nebulize with adrenaline

3. Check Breathing

For demonstration, the baby will need OXYGEN after checks:

- Look, Listen & Feel – look for chest movement / listen for noises of breathing / feel for air movement.
- If weak & slow breathing (<10-12 bpm depending on age) or there is only intermittent gasping proceed to BVM ventilation.
- If breathing is not weak / slow, assess breathing adequacy by checking for:
  I. Respiration Rate (should come first)
  II. Head nodding
  III. Nasal flaring
  IV. Central Cyanosis
  V. Grunting - what is it and what can it mean?

VI. Depth of breathing (is it deep / acidotic) – (symmetry also useful)
VII. Lower chest wall indrawing
VIII. Auscultation – is there wheeze?
IX. Pulse Oximetry
Administer oxygen and/or bronchodilators as indicated

4. Assess circulation:

- Assess the large pulse for the rate (should come first)– use brachial pulse for infants and carotid pulse for the older child
- Measure the Blood pressure
- Check for the temperature of extremities and if cold assess for temperature gradient
- Check the peripheral pulse – is it weak?
- Assess the capillary refill time
- Assess pallor and/or sites of haemorrhage
- Attach ECG monitor if available
- Demonstrate / explain you will check for severe malnutrition
- If signs of impaired circulation, ask about diarrhoea frequency & duration and check for dehydration using sunken eyes and skin pinch to identify hypovolemic shock. Check for evidence of sepsis, anaphylaxis and cardiac problems to identify other types of shock.
- Give fluid boluses or blood as needed (Refer to BPP page 27)

5. Assess disability

- Use the AVPU scale to assess level of consciousness
- Check if infant/child is Alert - is the child having eye contact?
- If Alert, assess ability to drink/feed
- If not Alert check for response to Voice/sound
- If not responding to voice check for appropriate response to Pain
- Check for tone
- Check for posture of the baby
- Check the pupils for size and reaction to light
- Measure MUAC
- Measure RBS
- Administer 2-5mls/kg of 10% glucose if needed

6. Assess for other signs (on Exposure):

- Look for any rashes
- Look for signs of injury (bruising, wounds, including intentional injury)
- Deformities
- Medical /Surgical access devices, stomas/drains, implanted devices
- Medication patches
- Take core body temperature

Scenario Title: A-B-C-D-E approach to a sick child SCENARIO ONE

Learning Objectives

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

Knowledge

- Understand importance of systematic approach to a child with signs of life
- Identify the clinical signs indicative of oxygen therapy
- Match the oxygen need with the right oxygen delivery method

Skills

- Systematically assess the child with signs of life using the ABCDE approach
- Administer oxygen using the appropriate oxygen delivery devices.

Attitude/Behaviour

- Demonstrate effective communication (closed loop, directed and reflective)
- Demonstrate compliance to guidelines
- Demonstrate appropriate team dynamics

Equipment.

Physical props/ equipment	Medication
• Gloves • Hand sanitizer/Handwashing station • Sharp box • Waste bins - red, yellow and black • Infant manikin • Suction catheters FR 6, 8, 10 • Penguin sucker • OPA / LMA different sizes • BVM 500ms, 750mls, 1,000mls • BVM mask size 1, 2,3 • Oxygen tubings • Nasal prongs neonatal, paediatrics and adult sizes • NRM infant and child size • Oxygen source • Pulse oximeter • Stethoscope • IV cannulae 20G, 22G, 24G • Paediatric IO Access • Syringes • Needles 21G, 23G • Vacutainers • ECG monitor • Glucometer • Clinical thermometer • Weight estimating chart/tape • MUAC Tape • Basic Paediatric Protocol	• If fluids, NS, RL, D10 • Adrenaline (1mg in 10mls preparation) • Water for injection

Scenario

Case story / scenario stem

A 4 months old boy is triaged as an emergency because of laboured breathing. What do you do?

Collateral history

He has been unwell for the last 2 days. Now has nasal congestion and being too breathless to feed for 1 day

The script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: a. Not alert and looks sick b. On stimulation makes a weak cry but does not open the eyes and seems floppy c. Airway - clear d. Feel air on your cheek and see chest movement e. RR 55bpm f. Head nodding - no g. Nasal flaring - no h. Central cyanosis - no i. Grunting - Yes j. Acidotic breathing - no k. Lower chest wall indrawing - mild l. Auscultation - widespread crackles m. SpO2 - 85% n. Pulse easy to feel o. HR - 154bpm p. Warm extremities q. CRT 2 secs r. No palmar pallor s. AVPU is at P t. RBS 2mmol/L u. Temp 37.3 C v. MUAC 13cm	• Observe safety and IPC measures • Observe the baby in the caretaker's arms • Ask the caretaker to stimulate the child • Change the setting • Shout for HELP from the team with allocated roles • Check the airway • Position the airway into sniffing position • Look, listen and feel for breathing • Assess adequacy of breathing: RR, Head nodding, Nasal flaring, Central cyanosis, Grunting, Acidotic breathing, Lower chest wall indrawing, Auscultate,SpO2 • Administer oxygen 1L/min via nasal prongs; Target SpO2 90-95% • • Assess adequacy of circulation: Pulses, HR, Warmth of extremities, CRT, palmar pallor • Assess AVPU • Measure RBS • • IV access • Administer 35mls D10 over 2-3mins • Expose the infant • • Move to Progression (Recovery)	• If does not start oxygen, respiratory distress worsens • If does not administer glucose, infant starts to convulse • Move to Progression (Worsening)	Measured weight 7kgs

2. Progression (Worsening): a. RR 70bpm b. Head nodding - yes c. Nasal flaring - yes d. Central cyanosis - no e. Grunting - yes f. Acidotic breathing - no g. Lower chest wall in-drawing - severe h. Auscultation - wide-spread crackles i. SpO2 - 75%	• Shout for HELP • ABCDE • Start oxygen at 1L/min via nasal prongs; Titrate oxygen to target SpO2 90-95%; May switch to NRM if SpO2 <90% on 4L/min via nasal prongs • Move to Progression (Recovery).	• If still does not initiate oxygen, infant develops gasping respirations. • Terminate the scenario and debrief.	
3. Progression (Recovery): a. SpO2 94% on 1L/min via nasal prongs b. RR 50bpm c. AVPU at V d. RBS 5.2mmol/L	• Take full history and exam • Record in PAR • Admit to Paeds ward • Appraise the caregiver		

Discussion points:

Scenario Title: A-B-C-D-E approach to a sick child SCENARIO TWO

Learning Objectives

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

Knowledge

- Understand importance of systematic approach to a child with signs of life
- Identify the clinical signs indicative of fluid therapy
- Intervene with the appropriate circulatory intervention

Skills

- Systematically assess the child with signs of life using the ABCDE approach
- Administer fluid therapy appropriately

Attitude/Behaviour

- Demonstrate effective communication (closed loop, directed and reflective)
- Demonstrate compliance to guidelines
- Demonstrate appropriate team dynamics

Equipment

Physical props/ equipment	Medication
• Gloves • Hand sanitizer/Handwashing station • Sharp box • Waste bins - red, yellow and black • Infant manikin • Suction catheters FR 6, 8, 10 • Penguin sucker • OPA / LMA different sizes • BVM 500ms, 750mls, 1,000mls • BVM mask size 1, 2,3 • Oxygen tubings • Nasal prongs neonatal, paediatrics and adult sizes • NRM infant and child size • Oxygen source • Pulse oximeter • Stethoscope • IV cannulae 20G, 22G, 24G • Paediatric IO Access • Syringes • Needles 21G, 23G • Vacutainers • ECG monitor • Glucometer • Clinical thermometer • Weight estimating chart/tape • MUAC Tape • Basic Paediatric Protocol	• If fluids, NS, RL, D10 • Adrenaline (1mg in 10mls preparation) • Water for injection

Scenario

Case story / scenario stem

A 1 year old is triaged as an emergency because she has cold hands and a weak pulse. What do you do?

Collateral history

History of diarrhoea for the past 4 days

The Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: a. Infant is very drowsy b. On stimulation makes a weak cry but does not open the eyes and seems floppy c. Airway - clear	Observe safety and IPC measures Observe the baby in the caretaker's arms Ask the caretaker to stimulate the child Change the setting Shout for HELP from the team with allocated roles	If does not start oxygen, respiratory distress worsens If does not administer glucose, child starts to convulse Moves to Progression (Worsening)	Measured weight 10kgs

d. Feel air on your cheek and see chest movement e. RR 51bpm f. Head nodding - no g. Nasal flaring - no h. Central cyanosis - no i. Grunting - Yes j. Deep/Acidotic breathing - yes k. Lower chest wall indrawing - yes l. Auscultation - clear lungs m. SpO2 - 82% n. Rapid brachial pulse o. HR - 160bpm p. Peripheral pulse is weak q. Extremities cold to the elbows and knees r. CRT 5 secs s. No palmar pallor t. Positive history of diarrhoea u. Eyes sunken v. Skin pinch 2 secs w. No visible severe wasting x. No nutritional oedema y. AVPU is at P z. RBS 2.2mmol/L aa. Temp 36.2ºC bb. MUAC 14cm	• Check the airway • Position the airway into sniffing position • Look, listen and feel for breathing • Assess adequacy of breathing: RR, Head nodding, Nasal flaring, Central cyanosis, Grunting, Acidotic breathing, Lower chest wall indrawing, Auscultate,SpO2 • Administer oxygen 1L/min via nasal prongs; Target SpO2 90-95% • • Assess adequacy of circulation: Pulses, HR, Warmth of extremities, CRT, palmar pallor • Assess dehydration: history of diarrhea, sunken eyes, skin pinch • Diagnosis: Severely impaired circulation AND diarrhoea/dehydration (hypovolemic shock) • Establish IV/IO access; collect samples • Administer IV 20mls/kg (200mls) RL over 15mins • • Assess AVPU • Measure RBS • Administer 50mls D10 over 2-3mins • • Expose the infant • • Move to Progression (Recovery)	• If does not administer fluids appropriately, gets into cardiac arrest. Terminate at this point	

2. Progression: a. RR 70bpm b. Head nodding - yes c. Nasal flaring - yes d. Central cyanosis - no e. Grunting - yes f. Deep/Acidotic breathing - yes g. Lower chest wall indrawing - severe h. Auscultation - clear lungs i. SpO2 - 75%	• Shout for HELP • Start oxygen at 1L/min via nasal prongs; Titrate oxygen to target SpO2 90-95%; May switch to NRM if SpO2 <90% on 4L/min via nasal prongs • Move to Progression (Recovery)	• If still does not initiate oxygen or glucose, infant develops gasping respirations. • Terminate the scenario and debrief.	
3. Progression/Recovery: a. SpO2 94% on 1L/min via nasal prongs b. RR 48bpm c. PR 148bpm d. Extremities warm e. Cap refill 2 seconds f. Peripheral pulse easy to feel g. AVPU at V h. RBS 5.2mmol/L	• Take full history and exam • Record in PAR • Admit to Paeds ward • Appraise the caregiver		

Discussion points:

MODULE 6:
OXYGEN THERAPY

MODULE 6: OXYGEN THERAPY

I. Introduction

This module focuses on appropriate detection of hypoxaemia, use of pulse oximetry, oxygen administration and delivery systems and monitoring of patients on oxygen therapy

II. Learning Outcome

By the end of this module, mentees should have:

- Acquired skills and competencies in detection of hypoxemia, appropriate oxygen administration, monitoring of patients on oxygen therapy and preventing oxygen therapy complications.

III. Learning Objectives

Mentees should demonstrate skills and competencies in:

- Appropriate use of pulse oximetry
- Oxygen delivery methods
- Monitoring (oxygen titration and weaning) and documentation

IV. Module Work Plan

Module 6: Oxygen Therapy			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
30 minutes	**Session 1:** Lecturette (conditions associated with hypoxemia, detection, prescription of oxygen, oxygen delivery devices, safe handling of oxygen devices)	Lecturette	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocol
30 minutes	**Session 2:** (Skills teaching 1) **Oxygen Administration** The Mentor shall demonstrate to the mentees in the skills lab how to size and use paediatric: 1. Nasal prongs 2. Nasal Catheter 3. Non-Rebreather Mask All mentees shall do a return demonstration See Annex for Notes	Demonstration	• Pencils, • Pens, • Flip Charts, • Marker Pens, • Basic Paediatric Protocol, • Oxygen Monitoring Chart, • Oxygen Source, • Oxygen Delivery Devices,

30 minutes	**Session 3: (Skills teaching 2)** Use of pulse oximeter, oxygen concentrator and oxygen splitter The Mentor shall demonstrate to the mentees how to use: 1. A pulse Oximeter 2. An Oxygen Concentrator 3. An Oxygen cylinder 4. An Oxygen flow splitter All mentees shall do a return demonstration See Annex for Notes	Demonstration	• Pulse Oximeter, • Oxygen Delivery Devices, • Oxygen concentrator • Oxygen splitter

Summary

- Pulse oximetry is a non-invasive, painless method to detect oxygen saturation (SpO_2).
- Oxygen is a medicine, therefore it should be properly prescribed, administered and monitored.

MODULE 7:
MANAGING AN INFANT OR CHILD WITH RESPIRATORY DISTRESS

MODULE 7: MANAGING AN INFANT OR CHILD WITH RESPIRATORY DISTRESS

I. Introduction

This module aims to provide the healthcare provider with skills and competencies in the assessment and management of common conditions in children that present with respiratory distress.

II. Learning Outcome

By the end of the module, mentees should have acquired skills and competencies in assessment, diagnosis and management of respiratory distress using the ABCDE approach

III. Learning Objectives

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

- Accurately assess adequacy of breathing in cases of respiratory distress
- Correctly classify pneumonia and asthma
- Effectively manage both asthma and pneumonia
- Diagnose and manage pulmonary TB

IV. Module Work Plan

MODULE 7: Managing an infant or Child with Respiratory distress			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette	Lecturette (Pneumonia)	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocol
10 minutes		Lecturette (Asthma)	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocol
10 minutes		Lecturette (TB)	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocol
20 minutes	**Session 2:** Group Discussion 1: Recognizing, classifying and managing a child with wheeze or asthma,	Group discussion	• Pencils, • Pens, • Flip Charts, • Marker Pens, • Basic Paediatric Protocol
	Session 3: Group Discussion 2: Recognizing, classifying and managing a child with pneumonia	Group discussion	• Pencils, • Pens, • Flip Charts, • Marker Pens, • Basic Paediatric Protocol

	Session 4: Group Discussion 3: Recognizing, classifying and managing a child with TB. Insert hyperlink on how to interpret paediatric chest x-rays - https://theunion.org/technical-publications/diagnostic-cxr-atlas-for-tuberculosis-in-children	Group discussion	• Pencils, • Pens, • Flip Charts, • Marker Pens, • Basic Paediatric Protocol
20 minutes	**Session 5:** Video demonstration use of inhaler spacer and mask, nebulisers	Video	• Video, • Projector, • Speaker
	Session 6 : Skills teaching use of a inhaler , spacer and mask	Demonstration	• Spacer Devices, and • Masks
20 minutes	**Session 7:** Simulation	Demonstration	• Inhalers, • Spacer Devices, and • Masks And Nebulizers

Scenario One: Respiratory distress Asthma/pneumonia

Learning Objectives

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

Knowledge

1. Correctly classify pneumonia and asthma
2. Effectively manage both asthma and pneumonia

Skills

1. Correctly assess child with signs of respiratory distress
    - **i.** Initial assessment (ABCDE)
    - ii. History taking, physical exam
2. Appropriately manage a child with respiratory distress due severe pneumonia and/or Asthma as per the Basic Paediatric Protocol
    - i. Oxygen administration
    - ii. Bronchodilator administration
    - iii. Appropriate investigation (CBC, UECs, CRP, BS for MPS, ABGs, CXR)
    - iv. Appropriate definitive treatment

Attitude/Behavior

1. Demonstrate teamwork
    - i. Effective communication
    - ii. Appropriate role assignment
    - iii. Team leadership
2. Demonstrate patient centered care

Equipment

Physical props/ equipment	Medication
Mannequin **A** • Suction tubes FR. 8 and !0 • Suction machine • Oropharyngeal Airway of appropriate paediatric sizes • ETT (4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered dose inhaler • Spacer and Mask • Paediatric Nebulizing kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Solusets • Infusion Pumps • Sample bottles-EDTA, Biochemistry • Heparin **D** • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer **IPC** • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins • Nutritional Assessment Equipment MUAC Tape Weighing Scale Stadiometer **Others:** Pen Torch, Reference material (Reference Guidelines e.g. BPP, Drug index), Mobile phone, Patient file	• Crystalline penicillin • Gentamicin • Ceftriaxone • Amikacin • Amoxil DT • Anti-TBs • Salbutamol • Prednisone • Paracetamol • 10%Dextrose • Ringer lactate • Normal Saline • 50% Dextrose • Investigation Results print outs • CBC • UECs • CRP • BS for MPS • ABGs • CXR • RBS

Case Story/ scenario stem:

- A 2-year-old girl presents in the outpatient department with difficulty in breathing for 2 days.

Collateral history if requested

- Unable to drink and feed
- Fever for 1 day
- Has been generally well with no Chronic illness
- Weight 12kg
- Fully Vaccinated as per EPI
- Family history of asthma

The script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1**. Initial Presentation** Child seated on mother's lap and alert **A** • No stridor • B- Grunting • No Cyanosis • No Head bobbing • Lower Chest Wall Indrawing • Nasal Flaring • Bilateral Crackles • Wheeze • SPO2-85% • RR-45 • C- HR-114 • BP-80/50 • CRT-1 sec • Warm extremities • Pulse not weak • No Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-A • RBS-6mmol/l **E** • T-38.5 • MUAC-12.5cm • CVS-Normal findings • CNS-Normal Findings • P/A-Normal Findings	Observe safety and Infection prevention measures ABCDE approach, shout for help and allocate roles **A-**Checking of airway status **B-** Assess adequacy of breathing and intervene by: Oxygen Administration (prongs-1-4L/min, NRM-10-15L/Min) Target SPO2 90%-95% Nebulise with salbutamol-2.5mg, if using MDI with spacer and mask-puffs in 20minutes for severe asthma. **C-** Assesses Circulation-pulses, CRT, pallor and temperature gradient Take blood samples for: Lab-CBC, UECs, CRP, BS for MPS, ABGs **D-**Checks AVPU and does RBS-6mmol/l E-Check Temperature IV/PO/ NGT Paracetamol 120mg 8hrly Progress to Recovery	• If Bronchodilator and Oxygen not administered: • SpO_2 drops to75% • RR rises to 55 • AVPU-V • HR increases to 140 • Progress to worsening	• RBS-3 to 7mmol/l • PRBCs at 10ml/kg • SpO_2 94%-98% • RR-25-35/min • PR-80-140/min • BP-Systolic (85-105mmHg, Diastolic 55-70mmHg) • Crystalline Penicillin at 50000IU/Kg six hourly • Gentamicin at 7.5mg/kg 24 hourly • Paracetamol at 10mg/kg 8 hourly • Prednisolone at 2mg/kg/day • Weight 12kg Key Results in investigations: • WBC-20.2 (leukocytosis) • CRP 100mg/dl • BGA-Respiratory Acidosis CXR-Pneumonia

2.Worsening Signs • SpO_2 drops to75% • RR rises to 55 • AVPU-V • HR increases to 140	ABCDE Approach and Start Bronchodilator and Oxygen via Nasal prongs targeting SPO2 >90%	Terminate Scenario and Debrief	
3. Recovery Reassess **A -** No stridor B • No Grunting • No Central Cyanosis • No Head bobbing • No Lower Chest Wall Indrawing • No Nasal Flaring • Bilateral Crackles • No Wheeze • SPO2-95% • RR-38 • C • HR-100 • BP-80/50 • CRT-<2sec • Warm extremities • No Pallor • No sunken eyes • Skin Pinch Immediate **D** AVPU-A **E** • T-37.5 • MUAC-12.5cm • CVS-Normal findings • CNS-Normal Findings • P/A-Normal Findings	Supportive and definitive treatment NGT feeding Administering Correct Antibiotic- IV Crystalline Penicillin 600000IU six hourly and IV Gentamicin 90mg 24 hourly. PO/NGT Prednisolone at 24mg 12hourly Imaging-CXR Admit and document in the PAR form in Paediatric inpatient file and monitor appropriately.		

Respiratory Distress Case scenario 1 Investigation results

COMPLETE BLOOD COUNT (CBC) RESULTS:

	Result		Normal Range
White Blood Cell (WBC) Count	20.2	10^9/L	5.5–15.5
Red Blood Cell (RBC) Count	4.5	10^{12}/L	3.9–5.3
Hemoglobin (HGB)	12.8	g/dL	11.5–13.5
Hematocrit (HCT)	39.0	%	34.0–40.0
Platelet Count	350	10^9/L	150–450

White blood cell differential

Neutrophils	12.1	10^9/L	1.5–8.5
Lymphocytes	6.8	10^9/L	2.0–8.0
Monocytes	0.9	10^9/L	0–1.0
Eosinophils	0.3	10^9/L	0–0.7
Basophils	0.1	10^9/L	0–0.2

CRP RESULTS

- 100mg/L(0-10mg/L)

BLOOD SLIDE FOR MALARIA

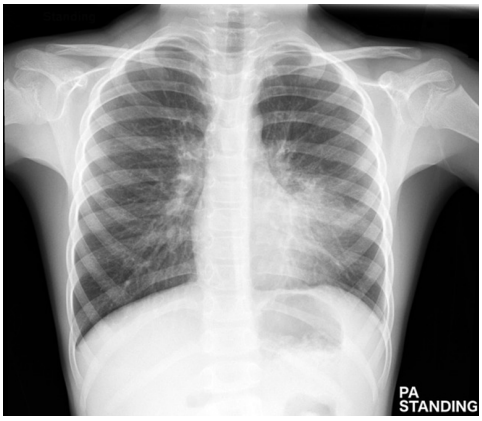
- No Malaria Parasite Seen

UECS

	Result	Normal range	Unit
Creatinine	0.46	0.3–0.7	mg/dL
Blood Urea Nitrogen (BUN)	12	7–20	mg/dL
Sodium	140	135–145	mEq/L
Potassium	4.0	3.4–4.7	mEq/L

ARTERIAL BLOOD GAS

- PH- 7.3 (7.35-7.45)
- CO2-48mmHg(35-45mmHg)
- HCO3-25mEq/L(22-26mEq/L)
- LACTATE -1.2
- CHEST X RAY



Discussion points:

Scenario Two: Respiratory distress with Severe Anaemia

Learning Objectives

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

Knowledge

- Effectively manage respiratory distress due to severe anaemia

Skills

Correctly assess child with signs of respiratory distress due to severe anaemia

i. Initial assessment (ABCDE)

ii. History taking, physical exam

Appropriately manage a child with respiratory distress with severe anaemia as per the Basic Paediatric Protocol

i. Oxygen administration

ii. Appropriate investigation (CBC, UECs, CRP, GXM, BS for MPS, ABGs, CXR)

iii. Appropriate treatment

Attitude/Behavior

- 1. Demonstrate teamwork

i. Effective communication

ii. Appropriate role assignment

iii. Team leadership

Demonstrate Patient centered care

Equipment

Physical props/ equipment	Medication
Mannequin **A** • Suction tubes FR. 8 and !0 • Suction machine • Oropharyngeal Airway of appropriate paediatric sizes • ETT (4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered dose inhaler • Spacer and Mask • Paediatric Nebulizing kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Solusets • Infusion Pumps • Sample bottles-EDTA, Biochemistry • Heparin	• Crystalline penicillin • Gentamicin • Ceftriaxone • Amikacin • Amoxil DT • Anti-TBs • Salbutamol • Prednisone • Paracetamol • 10%Dextrose • Ringer lactate • Normal Saline • 50% Dextrose • Investigation Results print outs • CBC • UECs • CRP • GXM • BS for MPS • ABGs • CXR • RBS

D • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer • IPC • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins • Nutritional Assessment Equipment • MUAC Tape • Weighing Scale • Stadiometer **Others** • Pen Torch • Reference material (Reference Guidelines e.g. BPP, Drug index) • Mobile phone • Patient file	

Case Story/ scenario stem:

- A 1-year-old boy presents in the outpatient department with difficulty in breathing for 3 days.
- Collateral history if requested
- Unable to drink and feed
- Fever for 3 days
- Has been generally well with no Chronic illness
- Weight 10kg
- Fully Vaccinated as per EPI
- No diarrhoea
- History of travel to Busia

The Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
Initial Presentation Child seated on mother's lap and alert **A-** No Stridor **B -** Grunting • No Cyanosis • No Head bobbing • Lower Chest Wall Indrawing • Nasal Flaring • Deep Acidotic Breathing • No Crackles • No Wheeze • SPO2-85% • RR-60 **C-** HR-160 • BP-80/50 • CRT-2 sec • Warm extremities • Pulse not weak • Severe Pallor • No sunken eyes • Skin Pinch Immediate **D-** AVPU-A **E-** T-40 • MUAC-12.5cm • CVS-Normal findings • CNS-Normal Findings • P/A-Normal Findings • Weight 10kg • Worsening Signs • SPO2 drops to75% • RR rises to 80 • AVPU-V • HR increases to 220	Observe safety and Infection prevention measures **ABCDE approach, shout for help and allocate roles** **A-**Checking of airway status **B**- Assess adequacy of breathing and intervene by: Checks RBS **Oxygen Administration** (prongs-1-4L/min, NRM-10-15L/Min) Target SPO2 90%-95% **C**- Assesses Circulation-pulses, CRT, pallor and temperature gradient Take blood samples for: Lab-CBC, UECs, CRP,GXM, BS for MPS, ABGs **Transfuse PRBCs** at 100mls over 4 hours **D-**Checks AVPU and does RBS-6mmol/l **E-**-Checks Temperature,Exposure and administration of IV/PO/ NGT Paracetamol 100mg 8hrly **Progress to Recovery** **Start High flow Oxygen via NRM and Transfuse urgently targeting SPO2 94%-98%**	• If Oxygen and Blood Transfusion not administered: • SpO_2 drops to75% • RR rises to 80 • AVPU-V • HR increases to 220 • Progress to Worsening **Terminate scenario and debrief**	• PRBCs at 10ml/kg • SPO2 90%-95% • RR-25-35/min • PR-80-140/min • BP-Systolic (85-105mmHg, Diastolic 55-70mmHg) • Crystalline Penicillin at 50000IU/Kg six hourly • Gentamicin at 7.5mg/kg 24 hourly • Paracetamol at 10mg/kg 8 hourly • Artesunate at 3mg/kg at 0hrs, 12hrs and 24hrs then review • Weight 10kg Key Results in investigations: • Hb-3.2g/dl • WBC-20.2 (leukocytosis) • CRP 150mg/dl • BGA-Metabolic Acidosis • BS for MPS-Malaria Parasite seen

3. Recovery -Reassess **A** Clear Airway **B** • No Grunting • No Central Cyanosis • No Head bobbing • No Lower Chest Wall Indrawing • No Nasal Flaring • No Crackles • No Wheeze • No Acidotic breathing • SpO_2-95% • RR-38 **C** • HR-100 • BP-80/50 • CRT-<2sec • Warm extremities • Mild Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-A **E** • T-37.5 • MUAC-12.5cm • CVS-Normal findings • CNS-Normal Findings • P/A-Normal Findings	**Supportive and definitive treatment** NGT feeding Administering antimalarials-IV Artesunate 30mg at 0hrs, 12hrs and 24hrs **Admit and document in the PAR form in Paediatric inpatient file and monitor appropriately**		

Respiratory Distress Case scenario 2 Investigation results

Complete Blood Count (CBC) Results:

	Result		Normal Range
White Blood Cell (WBC) Count	20.2	10^9/L	5.5–15.5
Red Blood Cell (RBC) Count	2.5	10^{12}/L	3.9–5.3
Hemoglobin (HGB)	3.2	g/dL	11.5–13.5
Hematocrit (HCT)	12.0	%	34.0–40.0
Platelet Count	350	10^9/L	150–450

White blood cell differential

Neutrophils	12.1	10^9/L	1.5–8.5
Lymphocytes	6.8	10^9/L	2.0–8.0
Monocytes	0.9	10^9/L	0–1.0
Eosinophils	0.3	10^9/L	0–0.7
Basophils	0.1	10^9/L	0–0.2

CRP RESULTS

- 150mg/L(0-10mg/L)
- BLOOD SLIDE FOR MALARIA
- Malaria Parasite Seen
- 10 parasites/High Power Field

UECS

	Result	Normal range	Unit
Creatinine	0.46	0.3–0.7	mg/dL
Blood Urea Nitrogen (BUN)	12	7–20	mg/dL
Sodium	140	135–145	mEq/L
Potassium	4.0	3.4–4.7	mEq/L

ARTERIAL BLOOD GAS

- PH- 7.3 (7.35-7.45)
- CO2-34mmHg(35-45mmHg)
- HCO3-18mEq/L(22-26mEq/L)
- LACTATE -3mmol/l
- Dision points:scus

Scenario Three: Respiratory distress-TB

Learning Objectives

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

Knowledge

- Identify signs and symptoms of Pulmonary TB
- Effectively manage respiratory distress due to Pulmonary TB

Skills

1. Correctly assess child with signs of Pulmonary TB

i. Initial assessment (ABCDE)
ii. History taking, physical exam

2. Appropriately manage a child with pulmonary TB as per the National guidelines

i. Oxygen administration
ii. Appropriate investigation (CBC, ESR,Gene X pert,HIV,CXR)
iii. Appropriate treatment

Attitude/Behavior

1. Demonstrate teamwork

i. Effective communication
ii. Appropriate role assignment
iii. Team leadership

2. Demonstrate Patient centered care

Equipment

Physical props/ equipment

Mannequin

A

- Suction tubes FR. 8 and !0
- Suction machine
- Oropharyngeal Airway of appropriate paediatric sizes
- ETT (4, 4.5, 5)
- Laryngoscope, blade size 1,2

B

- Oxygen source
- Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2)
- Pulse Oximeter
- Stethoscope
- Metered dose inhaler
- Spacer and Mask
- Paediatric Nebulizing kit

C

- Patient monitor with Paediatric BP cuffs
- IV cannulas-Gauge 24, 22
- Solusets
- Infusion Pumps
- Sample bottles-EDTA, Biochemistry
- Heparin

D

- Glucometer+lancets+strips
- NG tube-8,10,12

E

- Thermometer

IPC

- Gloves-Clean/sterile
- Alcohol Hand Rub
- Alcohol Swabs
- Sharp box
- Waste disposal bins

Nutritional Assessment Equipment

- MUAC Tape
- Weighing Scale
- Stadiometer

Medication

- Crystalline penicillin
- Gentamicin
- Ceftriaxone
- Amikacin
- Amoxil DT
- Anti-TBs
- Salbutamol
- Prednisone
- Paracetamol
- 10%Dextrose
- Ringer lactate
- Normal Saline
- 50% Dextrose
- **Investigation Results print outs**
- CBC
- ESR
- UECs
- LFTS
- HIV
- GENE X PERT
- CRP
- BS for MPS
- CXR
-

Others

- Pen Torch
- Reference material (Reference Guidelines e.g. BPP, Drug index)
- Mobile phone
- Patient file

Case Story/ scenario stem:

Ann, a 4 year old, presents to the pediatric outpatient department with a persistent cough for the past two weeks and notable weight loss over the last month.

Collateral history if requested

- On and off treatment for chest infection for two months without improvement
- Poor feeding with reduced appetite
- Reduced playfulness
- There is someone with TB in the household
- Fever on and off with sweating alot at night

The Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial Presentation • Child seated on mother's lap and alert **A-** No stridor **B** • Grunting • No Cyanosis • No Head bobbing • Lower Chest Wall Indrawing • Nasal Flaring • No Acidotic Breathing • Crackles present • No Wheeze • SpO_2-86% • RR-45 **C** • HR-140 • BP-90/60 • CRT-1 sec • Warm extremities • Pulse not weak • No Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-A **E** • T-37.8 • MUAC-11.9cm • Weight-12kgs • WHZ- -2 • CVS-Normal findings • CNS-Normal Findings • P/A-Normal Findings	Observe safety and Infection prevention measures **ABCDE approach, shout for help and allocate roles** **A-**Checking of airway status **B**- Assess adequacy of breathing and intervene by: **Oxygen Administration** (prongs-1-4L/min, NRM-10-15L/Min) Target SPO2 90-95% **C**- Assesses Circulation-pulses, CRT, pallor and temperature gradient Take blood samples for: Lab-CBC,ESR, Gastric aspirate for Gene X pert,CXR, LFTs, CRP, UECs,HIV, BS for MPs, ABGs **D-**Checks AVPU and does RBS-6mmol/l **E**-Check Temperature. Expose child and administer IV/PO/ NGT Paracetamol 100mg 8hrly **Progress to Recovery**	If Oxygen administered: • SpO_2 drops to75% • RR rises to 60 • AVPU-V • HR increases to 160 • Progress to Worsening	• PRBCs at 10ml/kg • SPO2 94%-98% • RR-20-30/min • PR-80-120/min • BP-Systolic(90-1110mmHg, Diastolic 55-70mmHg) • Rifampicin at 15mg//Kg 24hrly • Isoniazid at 10mg/kg 24 hourly • Pyrazinamide at 35mg/kg 24hrly • Ethambutol at 20mg/kg 24hrly • Pyridoxine at 10-25mg once a day • Paracetamol at 10mg/kg 8 hourly • Prednisone at 2mg/kg once a day Key resultss in investigations: • WBC-20.2 (leukocytosis) • CRP 45mg/dl • ESR-68mm/hr • HIV-Negative • CXR-Suggestive of PTB • GENE X PERT-Negative • Baseline LFTs and UECs-Normal
2. Worsening Signs • SpO_2 drops to75% • RR rises to 60 • AVPU-V • HR increases to 160	**Start Oxygen and targeting SPO2 90%-95%**	Terminate scenario and debrief	

3. Recovery Reassess **A-** Clear Airway **B** • No Grunting • No Central Cyanosis • No Head bobbing • No Lower Chest Wall Indrawing • No Nasal Flaring • No Crackles • No Wheeze • No Acidotic breathing • SPO2-95% • RR-38 • **C** • HR-100 • BP-90/60 • CRT-1 sec • Warm extremities • No Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-A **E** • T-37.5 • MUAC-11.9cm • CVS-Normal findings • CNS-Normal Findings • P/A-Normal Findings	**Supportive and definitive treatment** Imaging-CXR NGT therapeutic feeding Take blood samples for: Administering anti TBs and pyridoxine as per National guidelines- PO prednisone 24mg once a day Contact tracing Counselling **Admit and document in the PAR form in Paediatric inpatient file and monitor appropriately**		

Respiratory Distress Case scenario 3 Investigation results

COMPLETE BLOOD COUNT (CBC) RESULTS:

	Result		Normal Range
White Blood Cell (WBC) Count	8.9	10^9/L	5.5–15.5
Red Blood Cell (RBC) Count	3.6	10^{12}/L	3.9–5.3
Hemoglobin (HGB)	9.2	g/dL	11.5–13.5
Hematocrit (HCT)	27.0	%	34.0–40.0
Platelet Count	410	10^9/L	150–450

White blood cell differential

Neutrophils	3.1	10^9/L	1.5–8.5
Lymphocytes	4.9	10^9/L	2.0–8.0
Monocytes	0.6	10^9/L	0–1.0
Eosinophils	0.2	10^9/L	0–0.7
Basophils	0.1	10^9/L	0–0.2

CRP RESULTS

- 45mg/L(0-10mg/L)
- ESR
- 68mm/hr
- HIV Test
- Negative
- BLOOD SLIDE FOR MALARIA
- No Malaria Parasite Seen
- GENE X PERT
- Negative

UECS

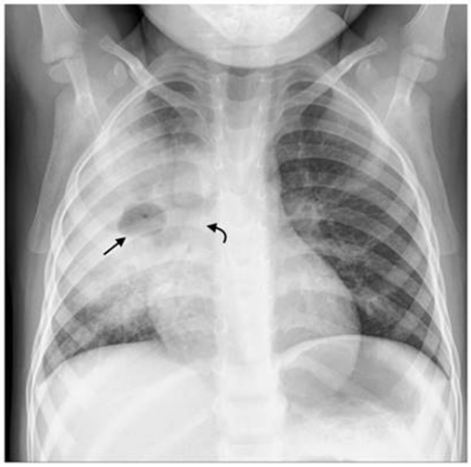
	Result	Normal range	Unit
Creatinine	0.46	0.3–0.7	mg/dL
Blood Urea Nitrogen (BUN)	12	7–20	mg/dL
Sodium	140	135–145	mEq/L
Potassium	4.0	3.4–4.7	mEq/L

ARTERIAL BLOOD GAS

- PH- 7.34 (7.35-7.45)
- CO2-46mmHg(35-45mmHg)
- HCO3-25mEq/L(22-26mEq/L)
- LACTATE -1.2mmol/l
- LIVER FUNCTION TEST

LFT component	Example result	Pediatric reference range (4-6 years)
Alanine aminotransferase (ALT)	40 IU/L	35–52 U/L
Aspartate aminotransferase (AST)	35 IU/L	30–50 U/L
Alkaline phosphatase (ALP)	350 IU/L	150–380 U/L
Total bilirubin	0.9 mg/dL	0.2–1.3 mg/dL
Albumin	4.0 g/dL	3.5–5.2 g/dL

CHEST X RAY



Discussion points:

MODULE 8:
MANAGEMENT OF DEHYDRATION IN AN INFANT/ CHILD WITH DIARRHOEA AND/ OR VOMITING (NO SAM)

MODULE 8: MANAGEMENT OF DEHYDRATION IN AN INFANT/CHILD WITH DIARRHOEA AND/ OR VOMITING (NO SAM)

I. Introduction

This module aims to provide mentees with the essential skills and competencies needed to assess and treat infants and children with diarrhoea and/or vomiting. It offers a structured approach for identifying clinical signs, classifying the level of dehydration, and appropriate management based on the severity of dehydration.

II. Learning Outcome

By the end of the module, HCWs are expected to have acquired the skills and competencies necessary to accurately classify levels of dehydration in infants and children with diarrhoea and/or vomiting, and to initiate timely and appropriate management.

III. Learning Objectives

By the end of the training and mentorship program, HCWs should be able to:
Accurately classify level of dehydration in infants and children with diarrhoea and/or vomiting
Initiate timely and appropriate management for infants and children with diarrhoea and/or vomiting
Demonstrate intraosseous needle insertion and use

IV. Module Work Plan

Module 8: management of dehydration in an infant/child with diarrhoea and/or vomiting (no sam)			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
15 minutes	**Session 1:** Lecturette	Lecturette	• Lecture Notes, • Flip Charts, • Marker pens, • Basic Paediatric Protocol
20 minutes	**Session 2:** Skills teaching (Insertion and use intraosseous needle)	Demonstration	• Mannikin, • Equipment and supplies for the practicum, • Basic Paediatric Protocol, • Chicken Thigh Pieces, • Intraosseous Needles/21G needle, • Sharps Containers, • Plastic sheeting and waste bags, • Syringes 5cc X 2, • Blue or Green Food Colouring, • Gloves
20 minutes	**Session 3:** Simulation teaching (Management and protocol for dehydration)	Demonstration	• Mannikin, • Basic Paediatric Protocols, • Flip Charts, • Marker Pens, • IV Cannula, • IV Fluids, • Ors-Zinc, • Cups, • NGT Size 8

Practicum

Procedure for demonstration of insertion of an intraosseous line

- **Size** - use IO or bone marrow needle 15 - 18G if available or 16 - 21G hypodermic needle if not available
- **Sterility** - Clean after identifying landmarks then use sterile gloves and sterilize site
- **Site** - Middle of the antero-medial (flat) surface of tibia at junction of upper and middle thirds bevel to toes and introduce vertically (90o) advance slowly with rotating movement
- **Stop** advancing when there is a 'sudden give' - then aspirate with 5 mls syringe
- **Slowly** inject 3mls Normal Saline looking for any leakage under the skin - if OK attach IV fluid giving set and apply dressings and strap down.
    - Give fluids as needed - a 20 mls / 50 mls syringe will be needed for boluses
    - Watch for leg / calf muscle swelling
    - Replace IO access with IV within 8 hours

Simulation scenario: Management of Hypovolemic shock

Learning Objectives

Knowledge

- To recognize the clinical signs of hypovolaemic shock in a child with diarrhoea.
- To understand principles of resuscitation in shock, including airway, breathing, and circulation assessment.
- To know appropriate fluids, doses, and route (IV/IO) in shock management.

Skills

- Demonstrate competence in the ABCDE assessment.
- Demonstrate IO line insertion and safe fluid bolus administration.
- Reassess after interventions and adapt management.

Attitude / Behaviour

- Demonstrate effective communication (closed loop, directed and reflective).
- Work in a team, call for help appropriately.
- Show compliance with paediatric resuscitation guidelines and family-centred care.

Equipment

Physical props/ equipment	Medication
Manikin **A** • Suction tubes FR. 8 and 10 • Suction machine • Penguin Sucker • Oropharyngeal Airway of appropriate sizes • ETT(4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered Dose Inhaler • Spacer and Mask • Paediatric Nebulising Kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Syringes-2cc,5cc, 10cc, 20cc,60cc • Needles-G23,G22 • Solusets • Infusion Pumps,syringe pumps • Sample bottles-EDTA, Biochemistry **D** • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer **IPC** • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins **Nutrition Assessment** • MUAC Tape • Weighing Scale Stadiometer **Others** • Pen Torch • Reference material (Guidelines, Drug index) • Mobile phone • Patient file	• Phenobarbital • Midazolam • Diazepam • Leviteracetam • Phenytoin • Artesunate • Ceftriaxone • AL tablets • Paracetamol • 10%Dextrose • Ringer lactate • 50% Dextrose • Zinc sulphate/ORS-copack

Case Scenario 1:

A 15-month-old boy is brought to the outpatient department with a history of severe diarrhoea and vomiting. On arrival he is drowsy and appears very ill.

Collateral history if requested:

Mother reports 3 days of watery diarrhoea, vomiting several times a day, poor oral intake. No fever or cough. No known chronic illness. No severe wasting.

Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: **Airway- clear** **Breathing-** • Air current felt on cheek, chest movements seen • RR 44/min • Head nodding- No • Nasal flaring -Yes • Central Cyanosis -No • Grunting- Yes • Lower chest wall indrawing-Yes • Acidotic breathing- Yes • Auscultation- no crackles SpO_2 85% **Circulation** • Pulse rapid but weak, • PR 140b/min • cold extremities to elbows and knees • Palmar pallor Yes Cap refill 5 sec Sunken eyes • Skin pinch 4 sec • No signs of severe acute malnutrition **Disability** Child drowsy, AVPU = P RBS 2.4mmol/l **Exposure** MUAC 14cm Temp 36.8°C	Observe Safety and IPC measures Stimulate the child,change setting shout for help ABCDE approach: **A- Check patency, position airway** Position airway to sniffing **B- Assess adequacy of breathing** • Give oxygen via nasal prongs 1-4 l/min target 90-95% SPO2 **C-** Diagnose shock IV access fails 2 times establish IO access • Take blood samples (FBC, UECs, cultures, malaria slide, RBS-) • Give Ringer's lactate 20 ml/kg (220 ml) over 15 min • D- Give 10% dextrose 5 ml/kg (55 ml) • Correct management move to progression (recovery)	Without appropriate fluids child worsens, move to progression (worsening)	Estimated weight 11kg

2. Progression (Worsening) • **A-** Patent • **B-** RR 54b/ min,SPO275% • **C-** Absent peripheral pulses • PR 160 b/min • child still cold to elbows and knees, cap refill 6 sec. • **D-** AVPU = U.	• Still in shock • **A-**airway positioned at sniffing position • **B-** Oxygen via nasal prongs at 1-4l/ min • **C-** IO access in place, bolus Ringer's lactate 20 ml/kg (220 ml) over 15 min • Correct management move to progression (recovery)	If fluid management still inappropriate, terminate scenario and debrief	
3. Progression (Recovery): • After the bolus reassess • **A-** clear • **B-** breathing regularly 45 b/min SPO2 92%, • **C-** HR ~140 b/min, cap refill 2 sec, warm peripheries, sunken eyes, skin pinch 2 sec. • **D-**AVPU improving at V. • RBS 4mmol/l	• Shock resolved • Move to Plan C step 2 for severe dehydration (IV Ringers Lactate 770mls over 2.5 hrs and ORS 55ml/hr via NGT • Continue to monitor hourly ABCDE and RBS. • Continue with step 2 Plan C fluids • Complete history and examination • IFCDC- Educate caregiver on prevention, ORS use, warning signs • Admit the child using the PAR form • Supportive management- Zinc, probiotic, breastfeeding and other feeds		

Case Scenario 2 : Management of severe dehydration

A 10-month-old girl is brought to the outpatient clinic with a history of diarrhoea. The mother reports she looks weak. On initial assessment she is noted to have cold hands and a very fast pulse.

Collateral history if requested:

Diarrhoea for 2 days, watery, multiple episodes. Reduced feeding. No vomiting in the last 12 hours. No fever. Breastfed. No history of chronic illness.

Learning Objectives

Knowledge

- To recognize and classify dehydration using clinical signs.
- To understand fluid management (Plan C) for severe dehydration.
- To know the role of ORS and IV fluids in management of severe dehydration
- To outline monitoring and review steps during rehydration.

Skills

- Perform a rapid ABCDE assessment in a sick child.
- Establish IV access and safely administer fluids for severe dehydration.
- Reassess dehydration after rehydration step 1.
- Initiate ORS via NGT if no IV access.

Attitude / Behaviour

- Demonstrate effective team communication and closed-loop instructions.
- Apply national guidelines correctly.
- Ensure family-centred care, including breastfeeding support.

Equipment

Physical props/ equipment	Medication
Manikin **A** • Suction tubes FR. 8 and 10 • Suction machine • Penguin Sucker • Oropharyngeal Airway of appropriate sizes • ETT(4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered Dose Inhaler • Spacer and Mask • Paediatric Nebulising Kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Syringes-2cc,5cc, 10cc, 20cc,60cc • Needles-G23,G22 • Solusets • Infusion Pumps,syringe pumps • Sample bottles-EDTA, Biochemistry **D** • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer	• Phenobarbital • Midazolam • Diazepam • Leviteracetam • Phenytoin • Artesunate • Ceftriaxone • AL tablets • Paracetamol • 10%Dextrose • Ringer lactate • 50% Dextrose • Zinc sulphate/ORS-copack

IPC • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins **Nutrition Assessment** • MUAC Tape • Weighing Scale Stadiometer **Others** Pen Torch Reference material (Guidelines, Drug index) Mobile phone Patient file	

Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: • Lying in mother's arms, weak but eyes open **Airway- clear** **Breathing -** • You can Feel air on your cheek and see chest movements • RR 48 b/min • Head nodding- No • Nasal flaring -No • Central Cyanosis -Yes • Grunting- No • Lower chest wall indrawing-Yes • Acidotic breathing-Yes • Auscultation- no crackles SPO2 82% **Circulation-** • Palpable peripheral pulse, • PR 155 b/min • cold hands and feet • Palmar pallor No Cap refill 4 sec Sunken eyes • Skin pinch 3 sec • No visible wasting or nutritional edema • Unable to drink	Safety observe IPC no sharps ABCDE approach: **A-** is clear **B-**Give Oxygen via nasal prongs 1-4l/min target SPO2 90-95% **C-** diagnose severe dehydration Establish IV access Take blood samples (FBC, UECs, malaria slide, RBS, cultures) Plan C Step 1: IV Ringer's lactate at 30ml/kg (228mls) over 1 hr (or if not able to start IV give ORS at 120ml/kg (912 mls) over 6 hrs via NGT) Correct management move to progression (Recovery)	Without appropriate IV fluids child worsens progresses to shock, move to progression (worsening)	Estimated weight 7.6 kg

Disability: AVPU = A (alert), but too weak to drink. RBS 4mmol/l **Exposure:** MUAC 13.7 cm, Temp 36.8 °C, no rashes, bruising or signs			
2. Progression (Worsening) **Airway**- clear **Breathing**- RR 56b/min,grunting, nasal flaring, acidotic breathing, SPO2 75% **Circulation**-peripheral pulse not palpable, PR 160b/min, cold peripheries upto the knees and elbows CRT 5 sec, sunken eyes, delayed skin pinch **Disability**-AVPU= P.	Now in shock **A**- position airway at sniffing position **B**- Increase Oxygen via nasal prongs at 1-4l/ min target 90-95% **C-** access in place, bolus Ringer's lactate 20 ml/kg (220 ml) over 15 min Correct management move to progression (recovery) Continue assessment, complete history/exam while fluids running.	If fluid management still inappropriate, terminate scenario and debrief	
3. Progression (Recovery) • Reassessment after 1 hr • B-RR 42b/min no cyanosis, SPO2 92% • C-pulse strong PR 120b/min Cap refill 3 sec, and skin pinch improved • AVPU-A	• Move to Plan C Step 2: IV Ringers lactate 70mls/kg(532mls) over 5 hrs and ORS 5mls/kg/hr (38mls/hr) via NGT • Continue to monitor hourly ABCDE and RBS. • IFCDC- Educate caregiver on prevention, ORS use, warning signs • Admit the child using the PAR form • Supportive management- Zinc, probiotic, breastfeeding and other feeds		Always check ability to drink before classifying dehydration
Reassessment at hr 6 **A** is clear **B** RR 40b/min no cyanosis, SPO2 98% **C**- pulse is strong 124b/min, peripheries are warm, sunken eyes, skin pinch 2 sec is able to drink AVPU -A	• Treat as some dehydration Plan B– ORS 75 ml/kg over 4 hrs (≈570 ml). Use cup/ syringe if able to drink, . Continue breastfeeding. Give zinc. • Continue monitoring		

MODULE 9:
MANAGEMENT OF SEVERE ACUTE MALNUTRITION IN INFANTS AND CHILDREN AGED 6-59 MONTHS

MODULE 9: MANAGEMENT OF SEVERE ACUTE MALNUTRITION IN INFANTS AND CHILDREN AGED 6-59 MONTHS.

I. Introduction

This module aims to provide healthcare providers with the essential skills and competencies needed to diagnose and manage severe acute malnutrition (SAM) with medical complications. It highlights the 10-steps for managing SAM.

II. Learning Outcome

By the end of the module, HCWs are expected to have acquired the skills and competencies necessary to accurately classify SAM in infants and children and to initiate timely and appropriate management.

III. Learning Objectives

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

- Identify cases of severe acute malnutrition
- Manage acute medical complications associated with SAM
- Prescribe appropriate feeding for children with SAM
- Use of CCP in the management of SAM

IV. Module work plan

Module 9: Management of Severe Acute Malnutrition in Infants and Children Aged 6-59 Months.			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
30 minutes	**Session 1:** Lecturette (SAM 1)	Lecturette	• Lecture Notes, • Flip Charts, • Marker Pens, • Basic Paediatric Protocol
30 minutes	**Session 2:** Lecturette (SAM 2)	Lecturette	• Lecture Notes, • Flip Charts, • Marker Pens, • Basic Paediatric Protocol
20 minutes	**Session 2:** Group discussion (Signs of SAM, Interpretation of WHZ , calculation of feeds and fluid management)	Group discussion	• Flip Charts, • Marker Pens, • Basic Paediatric Protocol
	Session 3: Group discussion (Use of the critical care pathway chart in initial management of SAM)	Group discussion	• Flip Charts, • Marker Pens, • Basic Paediatric Protocols

10 minutes	**Session 4:** Skills teaching: (Growth assessment using MUAC,weight, length and height)	Demonstration	• MUAC Tape, • Pens, • Basic Paediatric Protocols, • Length Board, Stadiometer, • Weighing Scale
20 minutes	**Session 5:** Simulation teaching	Drills	• MUAC Tape, • Pens, • Basic Paediatric Protocols, • Flip Charts, • Marker Pens, • Length Board, • Stadiometer

Simulation scenarios: Severe acute malnutrition

Learning Objectives

Knowledge

- To identify clinical signs and classify severe acute malnutrition (SAM).
- To outline the 10 steps of SAM management.
- To appropriately prescribe feeding regimens (F75, F100).

Skills

- Perform a rapid ABCDE in a child with SAM.
- Take anthropometric measurements (MUAC, weight, height).
- Calculate appropriate feeds and fluid.

Attitude / Behaviour

- Demonstrate nurturing care and sensitive communication.
- Apply national SAM protocols consistently.
- Encourage teamwork between clinicians and nutriti**onists on feeding/monitoring.**

Equipment

Physical props/ equipment	Medication
Manikin **A** Suction tubes FR. 8 and 10 Suction machine Penguin Sucker Oropharyngeal Airway of appropriate sizes ETT(4, 4.5, 5) Laryngoscope, blade size 1,2	• Phenobarbital • Midazolam • Diazepam • Leviteracetam • Phenytoin • Artesunate • Ceftriaxone • Amoxicillin • AL tablets • Paracetamol • Lasix • 10%Dextrose

B • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered Dose Inhaler • Spacer and Mask • Paediatric Nebulising Kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Syringes-2cc,5cc, 10cc, 20cc,60cc • Needles-G23,G22 • Solusets • Infusion Pumps,syringe pumps • Sample bottles-EDTA, Biochemistry **D** • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer • IPC • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins • Nutrition Assessment • MUAC Tape • Weighing Scale • Stadiometer • Others • Pen Torch • Reference material (Guidelines, Drug index) • Mobile phone • Patient file • Graduated cup • Saucer • Blankets/space heater for warmth	• Ringer lactate • 50% Dextrose • Resomal • Zinc sulphate/ORS-copack • Therapeutic feeds and fluids (F75, F100)

Case scenario 1

A 3-year-old girl is brought to the outpatient clinic by her grandmother. She is said to have swelling of both feet and lethargy.What do you do?

Collateral history if requested

Mother away in Saudi Arabia. No history of symptoms of heart, liver or kidney disease.

Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: • •Child is on grandmother's laps eyes open watching things, **A-patent** **Breathing-** • You can Feel air on your cheek and see chest movements • RR 42 b/min • Head nodding- No • Nasal flaring -No • Central Cyanosis -no • Grunting- No • Lower chest wall indrawing-no • Acidotic breathing-no • Auscultation- no crackles SPO2 91% **Circulation** • Palpable large and peripheral pulse, • PR 140 b/min • Warm peripheries • Palmar pallor severe Cap refill 2 sec Sunken eyes No • Skin pinch immediate • Has bilateral edema • able to drink **Disability** AVPU=A, RBS 3.2 mmol/l	Observe safety and IPC measures ABCDE approach: **Airway/breathing**; no urgent intervention **Circulation**: severe anaemia but no shock, no urgent intervention, fix IV line, take labs **Disability**- no urgent intervention **Exposure**- Diagnose SAM with severe anaemia. Start SAM protocol **Prevent and treat Hypothermia** • Keep warm, extra clothing, radiant heater and close windows • Prevent Hypoglycemia+ prevent dehydration+correct electrolyte imbalance+ correct micronutrient deficiencies+ cautious feeding • Start feeds within 30 min of arrival Start F75- 78mls(130ml/kg/day) 2hrly frequent small feeds (including night feeds). Given via cup and saucer or administer via NGT if unable to take orally	If blood not transfused, move to progression worsening	Estimated weight 7.2 kg Labs: FHG HB 3.5 g/dl, MPS negative, HIV test negative **Normal ranges RR** 0-<2mo->60bpm 2-11mo->50bpm 12-59mo->40bpm **Normal ranges PR** 0-1yr- 100-160bpm 1-3yrs- 90-150bpm 3-6yrs- 80-140bpm **Blood transfusion in SAM** Whole blood at 10ml/kg or PRBCs 5-7ml/kg if in heart failure **Threshold for transfusion** <4g/dl or <6g/dl if in respiratory distress. **Antibiotics dosing** IV Crystalline penicillin 50,000iu/kg 6hrly IV Gentamicin 7.5mg/kg 24hrly Amoxicillin 40mg/kg/dose 12hrly

Exposure- Oedema on both feet, Anthropometry: MUAC 11.2 cm, Wt 7.2 kg, Ht 77 cm, WHZ < -3SD, Temp 36.2°C, no eye signs	**Severe anaemia** Transfuse 10ml/kg(72ml) of whole blood with lasix 1mg/kg (7.2mg) at beginning of the transfusion **Presumptive treatment of Infection** • IV crystalline Penicillin 360,000 iu 6hrly for 2 days (based on clinical improvement) then amoxicillin 288mg 12 hrly for 5 days AND Gentamicin 54mg 24hrly for 5 days • Monitor temp,vital signs, glucose, danger signs • Admit to the ward, fill PAR and CCP • Advise mother on feeding with F75, night feeds, danger signs		
2. Progression (Worsening): **Airway- clear** **Breathing-** • RR 56 b/min • Head nodding- Yes • Nasal flaring -Yes • Central Cyanosis -yes • Grunting- No • Lower chest wall indrawing-yes • SPO2 87% on room air **Circulation** PR 170bpm **Disability-**AVPU= A	**A-** no urgent intervention **B-** Oxygen via nasal prongs at 1-4l/ min target 90-95% **C-** Transfuse 10ml/kg(72ml) of whole blood with lasix 1mg/kg (7.2mg) at beginning of the transfusion Correct management continue with 10 steps of SAM management	If fluid management still inappropriate, terminate scenario and debrief	

Simulation Scenario 2: SAM with shock

Learning Objectives

Knowledge

- To manage shock in SAM .
- To treat hypoglycaemia promptly (oral/sub-lingual sugar or IV if needed).
- To plan full SAM care (10 steps).
- To screen and treat for other illnesses HIV, TB, malaria in SAM

Skills

- Perform ABCDE in SAM child.
- Recognise and manage shock.
- Establish IO/IV access and administer feeds and fluids cautiously.
- Initiate feeding (F75).

Attitude / Behaviour

- Maintain gentle, safe handling (fragile child).
- Communicate urgently with family(nurturing care)
- Adhere strictly to SAM fluid/feeding protocols

Equipment

Physical props/ equipment	Medication
Manikin **A** • Suction tubes FR. 8 and 10 • Suction machine • Penguin Sucker • Oropharyngeal Airway of appropriate sizes • ETT(4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered Dose Inhaler • Spacer and Mask • Paediatric Nebulising Kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Syringes-2cc,5cc, 10cc, 20cc,60cc • Needles-G23,G22 • Solusets • Infusion Pumps,syringe pumps • Sample bottles-EDTA, Biochemistry	• Phenobarbital • Midazolam • Diazepam • Leviteracetam • Phenytoin • Artesunate • Ceftriaxone • Amoxicillin • AL tablets • Paracetamol • Lasix • 10%Dextrose • Ringer lactate • 50% Dextrose • Resomal • Zinc sulphate/ORS-copack • Therapeutic feeds and fluids (F75, F100)

D • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer **IPC** • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins **Nutrition Assessment** • MUAC Tape • Weighing Scale • Stadiometer **Others** • Pen Torch • Reference material (Guidelines, Drug index) • Mobile phone • Patient file • Graduated cup • Saucer • Blankets/space heater for warmth	

Case Scenario 2

A 2-year-old girl is brought to the outpatient by her aunt. She has had vomiting and diarrhoea for 3 days. She is severely wasted and looks very unwell.

Collateral history if requested

She has been having a cough for the last 1 month, is an orphan and just recently came to live with her aunt. Parents died from HIV.

Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial assessment: Child is lying in aunt's arms hardly moving on stimulation groans to pain no eye opening, **Airway clear,** **Breathing-** You can Feel air on your cheek and see chest movements	Observe safety and IPC measures Stimulate the child Change setting, place on couch,shout for help and allocate roles **ABCDE approach**: **A**- check airway status,put in sniffing position	If inappropriate administration of IV fluids RR 60b/min,grunting, nasal flaring, acidotic breathing, SpO_2 75% **C**-peripheral pulse not palpable, PR 170b/min, cold peripheries upto the groin and elbows CRT 5 sec, move to progression (worsening)	Estimated weight 6.5 kg **Lab Results** HIV positive TB- positive gastric aspirate, and CXR features

• RR 56 b/min • Head nodding- No • Nasal flaring -Yes • Central Cyanosis -no • Grunting- Yes • Lower chest wall indrawing- Yes • Acidotic breathing- Yes • Auscultation- bilateral crackles SPO2 87% **Circulation-** • Weak peripheral pulse, • PR 160 b/min • Extremities cold to the groin • Palmar pallor Yes Cap refill 4 sec Sunken eyes Yes • Skin pinch 5sec • Unable to drink • Visible wasting **Disability:** AVPU = P. RBS 2.2mmol/l **Exposure:** MUAC 10.5cm, severe wasting, Temp 35.80C, oral thrush, no eye signs, Wt-6.5kg Ht-74cm WHZ <-3SD **Reassessment after 1 hr** **A-**clear **B-**RR 50b/min, SPO2 90%, **C-**peripheral pulse is improving, • PR 150 b/min • Extremities cold to the knee • Palmar pallor Yes Cap refill 3 sec Sunken eyes Yes • Skin pinch 3 sec • Unable to drink • PR 150b/min, temp gradient upto the knee,cap refill 3 sec	**B-Assess adequacy of breathing** Start on oxygen via nasal prongs 1-4l/min target SPO2 90-95% **C- Assess adequacy of circulation**. Diagnose hypovolemic shock in malnutrition Establish IV access take samples FBC, BS for MPS, culture, HIV,RBS Start on IV RL in 5%D at 65ml(10mls/kg) over 1hr, reassess, **D**-Asses AVPU and RBS Give 10% dextrose 33mls (5 ml/kg) IV After reassessment give another 65mls of IV RL in 5%D over another 1 hr Move to recovery		

2. Progression (Worsening) **A-** clear **B-** RR 60b/min,grunting, nasal flaring, acidotic breathing, SPO2 75% **C-**peripheral pulse not palpable, PR 170b/min, cold peripheries upto the groin and elbows CRT 5 sec, move to **D-**AVPU= P.	Shock still persists **A-** position airway at sniffing position **B-** Oxygen via nasal prongs at 1-4l/ min target 90-95% consider NRM **C-** access in place, bolus Ringer's lactate 20 ml/ kg (220 ml) over 15 min Correct management move to progression (recovery) Continue assessment, complete history/exam while fluids running.	If fluid management still inappropriate, terminate scenario and debrief	
3. Progression (Recovery) Reassessment after 2nd hr **A-** clear **B-**RR 42b/min no cyanosis, SpO_2 97% **C-**pulse strong PR 120b/min Cap refill 3 sec, and skin pinch improved AVPU-A	**A-** no intervention **B-** titrate oxygen down to target SPO2 90-95% **C-**Switch to oral or NG rehydration with ReSoMal at 7.5mls/kg in alternate hours with F-75 (2 hourly amounts) for up to 10 hours. Use the CCP to initiate. IFCDC- Educate caregiver on prevention,appropriate feeding, ResoMal use, danger signs Admit the child using the PAR form Supportive management- IV crystalline Penicillin 325,000 iu 6hrly for 2 days (based on clinical improvement) then amoxicillin 260mg 12 hrly for 5 days AND Gentamicin 49mg 24hrly for 5 days oral nystatin Start anti-TB and initiate HAART after 2 weeks		Always check ability to drink before classifying dehydration HAART - See national guidelines for latest dosing and regimens TB - See national guidelines for TB treatment in an HIV exposed / positive child for dosing and regimen

MODULE 10:
APPROACH TO AN INFANT/ CHILD WITH ALTERED CONSCIOUSNESS

MODULE 10: APPROACH TO AN INFANT/ CHILD WITH ALTERED CONSCIOUSNESS

I. Introduction

This module covers common conditions that can cause altered consciousness in children, including convulsions, hypoglycemia, meningitis and severe malaria. If these conditions are not recognized and managed early, they can lead to death and other complications.

II. Learning Outcome

By the end of the module, mentees should be equipped with the skills and competencies to appropriately manage a child with altered consciousness and use diagnostics to identify and treat the underlying causes.

III. Learning Objectives

By the end of the training and mentorship program, mentees should be able to demonstrate skills and competencies on:

- Assessment and stabilization of infant/child with altered consciousness and convulsions;
- Management of hypoglycemia
- Diagnosis and treatment of meningitis and severe malaria

IV. Module Work Plan

Module 10: Approach To Management Of Infant/ Child With Altered Consciousness			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
30 minutes	**Session 1:** Lecturette (convulsions, malaria, meningitis, hypoglycemia)	**Lecturette**	• Lecture notes, • flip charts, • marker pens, • Basic pediatric protocol
10 minutes	**Session 2:** Demonstration video (convulsions , recovery position)	**Video**	• Screen/projector, video, flip charts, marker pens
	Session 3: Skills teaching - recovery positioning (recovery position for older children and left lateral for infants	**Demonstration**	• Manikins, • equipment and supplies for the practicum,
30 minutes	**Session 4:** Skills teaching - administration of PR diazepam	**Demonstration**	• Manikins, • equipment and supplies for the practicum, • Basic Pediatric Protocol
30 minutes	**Session 5:** Skills teaching- NG tube insertion	**Demonstration**	• Manikins, • equipment and supplies for the practicum, • Basic Pediatric Protocol
30 minutes	**Session 6:** Skills teaching- Lumbar puncture	**Demonstration**	• Manikins, • equipment and supplies for the practicum, • Basic Pediatric Protocol

	Session 7: Simulations	**Drills**	• Manikins, • equipment and supplies for the simulation, • Basic Pediatric Protocols

Scenario Title: Altered consciousness one-Hypoglycaemia

Learning Objectives

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

Knowledge

- 1. Manage a child with altered consciousness due to hypoglycemia

Skills

1. Correctly assess child with altered consciousness

i. Initial assessment (ABCDE)

ii. History taking, physical exam

2. Appropriately manage a child with altered consciousness due to hypoglycaemia as per the Basic Paediatric Protocol

i. Appropriate investigation (RBS, BS for MPS, CBC, UECs, CSF analysis)

ii. Demonstrate appropriate definitive and supportive care for a child with hypoglycemia

Attitude/Behavior

1. Demonstrate teamwork

i. Effective communication

ii. Appropriate role assignment

iii. Team leadership

2. Demonstrate Patient centered care including Nurturing Care

Equipment

Physical props/ equipment	Medication
Mannequin **A** • Suction tubes FR. 8 and !0 • Suction machine • Oropharyngeal Airway of appropriate paediatric sizes • ETT (4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered dose inhaler • Spacer and Mask • Paediatric Nebulizing kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Solusets • Infusion Pumps • Sample bottles-EDTA, Biochemistry • Heparin **D** • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer **IPC** • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins **Nutritional Assessment Equipment** • MUAC Tape • Weighing Scale • Stadiometer **Others** • Pen Torch • Reference material (Reference Guidelines e.g. BPP, Drug index) • Mobile phone • Patient file	• Medication • Artesunate • Ceftriaxone • AL tablets • Paracetamol • Phenobarbital • Diazepam • Midazolam • 10%Dextrose • Ringer lactate • Normal Saline • 50% Dextrose • • Investigation Results • CBC • UECs • BS for MPS • CSF analysis

Case Story/ scenario stem:

A 4 year old boy presenting with 2 day history of fever and drowsiness. He has not been feeding well.

Collateral history if requested:

- Has been generally well with no Chronic illness
- History of travel to Kisumu 2 weeks ago
- Weight 15kg
- Passing urine well

The Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial Presentation Drowsy on examination couch **A** No stridor **B** • No Grunting • No Central Cyanosis • No Head bobbing • No Lower Chest Wall Indrawing • No Nasal Flaring • No Bilateral Crackles • No Wheeze • SpO_2-89% • RR-25 **C** • HR-114 • BP-80/50mmHg • CRT-<2sec • Warm extremeties • Mild palmor Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-V • RBS-2mmol/l **E** • T-40.1°C • MUAC-13cm • CNS-PBERL,Soft Neck, Kernigs Negative • Weight-15kg	Observe safety and Infection prevention measures ABCDE approach, shout for help and allocate roles **A** - positioning to sniffing **B-** Oxygen Administration (prongs-1-4L/min,) Target $SPO_2$90%-95% **C-** Take blood samples for: Lab-CBC, UECs, BS for MPS, CSF Analysis **D-** Hypoglycemia correction-IV 10% Dextrose 75mls Bolus (2 to 3 minutes). **E-** Expose and IV/ NGT Paracetamol 150mg 8hrly Progress to Recovery	If Dextrose not administered: • Generalised Tonic Clonic Convulsions • RR rises to 35 • AVPU-U • HR increases to 140 Progress to worsening	• RBS-3 to 7mmol/l • 10% Dextrose at 5ml/kg for hypoglycaemia • PRBCs at 10ml/kg • SPO2 90%-95% • RR-20-30/min • PR-80-120/min • BP-Systolic(90-110mmHg, Diastolic 55-75mmHg) • Paracetamol at 10mg/kg 8 hourly • Artesunate at 3mg/kg 0 hrs, 12hrs, 24hrs • Ceftriaxone at 50mg/kg 12hourly • Weight 15kg Key abnormalities in investigations: • Low initial RBS-2mmol/l • CRP-150mg/dl(High) • BS for MPS-Malaria Parasite Seen • CSF-Normal

2. Worsening Signs · Generalised Tonic Clonic Convulsions · RR rises to 35 · AVPU-U · HR increases to 140	• ABCDE approach, • RBS-1.7 mmol/L • Correct Hypoglycemia-IV 10% Dextrose	Terminate Scenario and Debrief	
3. Recovery **Reassess** **A** • No stridor.Airway patent **B** • No Grunting • No Central Cyanosis • No Head bobbing • No Lower Chest Wall Indrawing • No Nasal Flaring • No Bilateral Crackles • SPO2-95% • RR-28 **C** • HR-100 • BP-80/50 • CRT-<2sec • Warm extremities • Mild Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-A **E** • T-37.5 • CVS-Normal findings • CNS-Alert otherwise Normal findings • P/A-Normal Findings	Admit and document in the PAR form in Paediatric inpatient file Supportive and definitive management: • NGT feeding/IV maintenance fluids • Administering Correct Antimalarial- IV Artesunate 45mg 0hrs, 12hrs, 24hrs • Vital signs monitoring		

Altered Consciousness Case scenario 1 Investigation results

COMPLETE BLOOD COUNT (CBC) RESULTS:

	Result		Normal Range
White Blood Cell (WBC) Count	14.0	10^9/L	5.5–15.5
Red Blood Cell (RBC) Count	3.9	10^{12}/L	3.9–5.3
Hemoglobin (HGB)	10.8	g/dL	11.5–13.5
Hematocrit (HCT)	32.0	%	34.0–40.0
Platelet Count	350	10^9/L	150–450

White blood cell differential

Neutrophils	6.0	10^9/L	1.5–8.5
Lymphocytes	6.8	10^9/L	2.0–8.0
Monocytes	0.9	10^9/L	0–1.0
Eosinophils	0.3	10^9/L	0–0.7
Basophils	0.1	10^9/L	0–0.2

CRP RESULTS

- 150mg/L(0-10mg/L)
- BLOOD SLIDE FOR MALARIA PARASITE
- Malaria Parasite Seen.
- 10 parasites/High Power Field

UECs

	Result	Normal range	Unit
Creatinine	0.46	0.3–0.7	mg/dL
Blood Urea Nitrogen (BUN)	12	7–20	mg/dL
Sodium	140	135–145	mEq/L
Potassium	4.0	3.4–4.7	mEq/L

CSF ANALYSIS

- Appearance: Clear
- WBC count-0/HPF
- Protein-15mg/dl(15-45mg/dl)
- Glucose 2mmol/l
- No organisms on Microscopy

Discussion/Debrief

- Scenario Title: Altered Consciousness 2-Active convulsions

Learning Objectives

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

Knowledge

1. Effectively manage a child with Convulsions
2. Correct treatment of underlying cause

Skills

1. Correctly assess child with active convulsions

i. Initial assessment (ABCDE)

ii. History taking, physical exam

2. Appropriately manage a child with active convulsions as per the Basic Paediatric Protocol

i. Appropriate investigation (CBC, UECs, RBS, BS for MPS, CSF analysis)

ii. Appropriate supportive and definitive management of the convulsions

Attitude/Behavior

1. Demonstrate teamwork

i. Effective communication
ii. Appropriate role assignment
iii. Team leadership

2. Demonstrate Patient centered care including Nurturing care

Equipment

Physical props/ equipment	Medication
Mannequin **A** • Suction tubes FR. 8 and !0 • Suction machine • Oropharyngeal Airway of appropriate paediatric sizes • ETT (4, 4.5, 5) • Laryngoscope, blade size 1,2 **B** • Oxygen source • Oxygen delivery devices (Paediatric nasal prongs and NRM, BVM-0,1,2) • Pulse Oximeter • Stethoscope • Metered dose inhaler • Spacer and Mask • Paediatric Nebulizing kit **C** • Patient monitor with Paediatric BP cuffs • IV cannulas-Gauge 24, 22 • Solusets • Infusion Pumps • Sample bottles-EDTA, Biochemistry • Heparin **D** • Glucometer+lancets+strips • NG tube-8,10,12 **E** • Thermometer **IPC** • Gloves-Clean/sterile • Alcohol Hand Rub • Alcohol Swabs • Sharp box • Waste disposal bins	• Phenobarbital • Midazolam • Diazepam • Leviteracetam • Phenytoin • Artesunate • Ceftriaxone • AL tablets • Paracetamol • 10%Dextrose • Ringer lactate • Normal Saline • 50% Dextrose • Investigation Results • RBS • CBC • UECs • BS for MPS • CSF analysis

Nutritional Assessment Equipment • MUAC Tape • Weighing Scale • Stadiometer **Others** • Pen Torch • Reference material (Reference Guidelines e.g. BPP, Drug index) • Mobile phone • Patient file	

Case Story/ scenario stem:
A 13 months girl presenting with active convulsions.

Collateral history if requested:
- Has been generally well with no Chronic illness
- Second convulsion in 5 minutes
- No History of travel to malaria endemic zones
- Fever
- Weight 11kg
- Passing urine well

The Script

Patient Assessment	Effective Management	Consequence for Ineffective management	Notes
1. Initial Presentation Actively convulsing girl on couch. **A** Gurgling sounds with secretions **B** Hard to assess breathing adequacy due to convulsions **C** CRT-<2sec Warm extremeties Peripheral pulse- **D** -RBS-4mmol/l	Observe safety and Infection prevention measures ABCDE approach, shout for help and allocate roles **A-** Place in left lateral position and suction **B-** Oxygen Administration (High flow oxygen viaNRM-10-15L/ Min) Target SPO2 90%-95% **C-** Establish IV access if possible **D-** Anticonvulsant-IV diazepam 3.3mg STAT or PR 5.5mg STAT Reassess ABCDE **A** -Maintain sniffing postion **B** -Wean off Oxygen, Target SPO2 90%-95%	If anticonvulsant not administered: · Generalised Tonic Clonic Convulsions frequency increases · RR rises to 35 · AVPU-U · HR increases to 140 Progress to worsening	• RBS-3 to 7mmol/l • 10% Dextrose at 5ml/kg for hypoglycaemia • PRBCs at 10ml/kg • SpO_2 90%-95% • RR-20-30/min • PR-80-120/min • BP-Systolic(90-110mmHg, Diastolic 55-75mmHg) • Paracetamol at 10mg/kg 8 hourly • Artesunate at 3mg/kg 0 hrs, 12hrs, 24hrs • Ceftriaxone at 50mg/kg 12hourly • Weight 11kg

	C- Establish IV access and Take blood samples for: Lab-CBC,CRP, UECs, BS for MPS, CSF Analysis **D** -No urgent intervention Progress to Recovery		**Key Results in investigations:** · CRP 100mg/dl · CSF-Turbid with elevated Total protein and low glucose · BS for MPS-No Malaria Parasite Seen
2. Worsening Signs • Generalised Tonic Clonic Convulsions • RR rises to 35 • AVPU-U • HR increases to 140	ABCD Give anticonvulsants and antibiotics as per the BPP	Terminate Scenario and debrief	
3. Recovery Reassessment after convulsion stops **A** Clear **B** • No Grunting • No Central Cyanosis • No Head bobbing • No Lower Chest Wall Indrawing • No Nasal Flaring • No Bilateral Crackles • No Wheeze • SPO2-97% • RR-25 **C** • HR-114 • BP-80/50mmHg • CRT-<2sec • Warm extremeties • Mild palmor Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-V • RBS-4 mmol/l	• Supportive and Definitive Treatment • Exposure and IV/ NGT Paracetamol 110mg 8hrly • NGT feeding/IV maintenance fluids • Administering Correct Antibiotics- IV Ceftriaxone 550mg 12hourly Admit and document in the PAR form in Paediatric inpatient file and monitor appropriately		

E • T-40.1°C • MUAC-13cm • CVS-Normal findings • CNS-PBERL,Stiff Neck, Kernigs positive • P/A-Normal Findings • Weight-11kg • Mild Pallor • No sunken eyes • Skin Pinch Immediate **D** • AVPU-A **E** • T-37.5 • MUAC-13cm • CVS-Normal findings • CNS-Stiff neck. Kernig's positive. • P/A-Normal Findings			

Altered Consciousness Case scenario 2 Investigation results

COMPLETE BLOOD COUNT (CBC) RESULTS:

	Result		**Normal Range**
White Blood Cell (WBC) Count	14.0	10^9/L	5.5–15.5
Red Blood Cell (RBC) Count	3.9	10^{12}/L	3.9–5.3
Hemoglobin (HGB)	10.8	g/dL	11.5–13.5
Hematocrit (HCT)	32.0	%	34.0–40.0
Platelet Count	350	10^9/L	150–450

White blood cell differential

Neutrophils	6.0	10^9/L	1.5–8.5
Lymphocytes	6.8	10^9/L	2.0–8.0
Monocytes	0.9	10^9/L	0–1.0
Eosinophils	0.3	10^9/L	0–0.7
Basophils	0.1	10^9/L	0–0.2

CRP RESULTS

100mg/L(0-10mg/L)

BLOOD SLIDE FOR MALARIA PARASITE

No Malaria Parasite Seen

UECs

	Result	Normal range	Unit
Creatinine	0.46	0.3–0.7	mg/dL
Blood Urea Nitrogen (BUN)	12	7–20	mg/dL
Sodium	140	135–145	mEq/L
Potassium	4.0	3.4–4.7	mEq/L

CSF ANALYSIS

- Appearance: Turbid
- WBC count-15/HPF
- Protein-80mg/dl(15-45mg/dl)
- Glucose 1mmol/l
- No organisms on Microscopy

Discussion/Debrief

MODULE 11:
INTRODUCTION TO TYPE 1 DIABETES, DIABETIC KETOACIDOSIS AND ROUTINE CARE IN TYPE 1 DIABETES

MODULE 11: INTRODUCTION TO TYPE 1 DIABETES, DIABETIC KETOACIDOSIS AND ROUTINE CARE IN TYPE 1 DIABETES

I. Introduction

This module provides mentorship on Type 1 diabetes, management of diabetic ketoacidosis (DKA) and routine care.

II. Learning Outcome

By the end of the module, mentees should demonstrate competencies and skills in identifying and managing children with type 1 diabetes, DKA and their routine care

III. Learning Objectives

By the end of the module, mentees should have acquired skills and competencies in:

- Identifying children with type 1 diabetes
- Assessing, diagnosing, classifying and managing DKA
- Providing routine care to children and adolescents with type 1 diabetes

IV. Module Work Plan

Module 11: Introduction to Type 1 Diabetes, Diabetic Ketoacidosis and Routine Care of Type 1DM			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
10 minutes	**Session 1:** Lecturette	Introduction to T1DM	• Lecture Notes, Flip Charts, Marker pens, • Pesk_moh T1DM OJT Slides, BPP • National Diabetes Guideline
30 mins	**Session 2:** Lecturette	DKA	
10 Mins	**Session 3:** Lectuarette	Transition after DKA	
15 Mins	**Session 4:** Lecturrette	Insulin Therapy	
15 Minutes	**Session 5:** Lecturette	Introduction to Routine care	
15 minutes	**Session 6:** Lecturette		
10 minutes	Practicum/ skills teaching	Insulin therapy	• Flip Charts, • National Clinical Guidelines on Management of DM, Insulin vials/ pens • Insulin Demo Pens,insulin needles • Insulin Storage Demo Appa- ratus,insulin job aids.

10 minutes	Practicum/ skills teaching	Blood glucose monitoring	• Gloves Swabs,Diary, • Lancet and Lancing Device, Glucometer Strips, • Safety Box, • Needles,
10 minutes	Practicum/ skills teaching	Nutrition	• Food group chart, food group samples. Pen and paper
30 minutes	Practicum/ Skills teaching	Growth monitoring Practicum:Use of growth charts	• Growth Monitoring Charts, Stadiometer, • Measuring Board, Weighing Machine, Infant Weighing Machine • Orchidometer • Head circumference tape
20 Minutes	**Session 7:** Group discussion	Management of hypoglycemia (1 tablespoon of sugar/ glucose)	• Pencils, Rubbers, Pens, • Flip Charts, • Marker Pens,Hypoglycemia kit(glucose/sugar, spoon, water, • Hypoglycemia job-aid
20 Minutes	Group discussion	Structured Diabetes Education	• Structured diabetes education job aid
30 minutes	**Session 8:** Simulation In Teams. Case Scenarios	Demonstration	• Flip Charts, • National Clinical Guidelines on Management Of DM, Basic Paediatric Protocol

Practicals: T1DM

Insulin Practical

Check list for this practicum- Ensure you have the following items

1. All types of insulin - vials and pens (long acting like glargine/detemir; intermediate acting like NPH, Short acting like regular/soluble, rapid acting like aspart/lispro)
2. *N/B: Please note you can provide empty pens and vials for demonstration to avoid buying new ones.*
3. Insulin syringes / needle size 4 mm for children, 6-8 mm for adults.
4. Insulin pen demos ---at least 6 per site
5. Pen- needles (microfine 4-6 mm size)-around 30-50 per site
6. Poster for demonstrating injection sites and rotation of sites
7. Dummy to demonstrate insulin injection technique
8. Storage options- the pots (a small pot and a big pot with sand in between the 2); charcoal with a big and a small plastic container.
9. Disposal tools-sharp box, yellow/red /black bin

Objectives

During this practical, we are going to:-

a) Learn and demonstrate different types of insulin
b) Discuss Onset and duration of action of different types of insulin
c) Highlight Insulin schedule/ time of injection
d) Demonstrate the recommended Injection sites/ rotation of injection sites
e) Discuss assessment of injection sites
f) Highlight possible complications at injection sites
g) Demonstrate Different modes of insulin delivery
h) Discuss Insulin Storage options
i) Demonstrate disposal of insulin needles and syringes

Procedure

Demonstrate different types of insulin available:- show the participants the vials and the pens as you go through the list.

a) Rapid acting- e.g Novorapid,
b) Soluble/ regular Insulin- e.g Actrapid
c) Intermediate acting- NPH e.g Insulatard
d) Long- acting- glargine e.g Lantus, Detemir e.g Levemir

Take them through the onset and duration of action of all types of insulin
Insulin regimens and the timing of injections

a) Basal- bolus is recommended
b) Long acting- once daily at specific time e.g 8 p.m daily/ 9 p.m daily e.t.c
c) Intermediate acting: 2/3 in the morning, 1/3 in the evening
d) Premeal-
    i. rapid acting- 15 minutes before main meals
    ii. Soluble/ regular Insulin- 30 minutes before main meals

Go through the diagram showing different injection sites as you narrate the specific sites

a. Discuss rotation of sites; demonstrate how to rotate
b. Discuss possible complications at injection sites: Mention: Lipohypertrophy, lipoatrophy, abscesses
c. Ask mentees to highlight ways of preventing these complications-
d. Emphasise that the rotation sites should be assessed at every visit.

Tell mentees the different modes of insulin delivery

a) Insulin Syringes and Needles- Sizes 4-6;
    • Emphasise that the recommended size of needles is size 4

b) Insulin Pens
    • Show participants the different types of PENS- demonstrate the different parts of the pen,
c) Mention other modes of insulin delivery- Insulin pumps,
d) Demostrate insulin injection technique using a syringe and a pen-
    • Highlight the steps of insulin injection
    • Allow mentess to practise

Discuss and demonstrate how insulin is stored

a. Mention the recommended temperature 2-80C
b. Insulin should be stored in a refrigerator
c. Incase there is no refrigerator- Explain and show them how they can improvise cool storage-

Show them Clay pots, use of Charcoal containers

d. Highlight storage of insulin pens when travelling

Discuss and demonstrate disposal of insulin syringes, needles and Vials

FURTHER DETAILS FOR THE MENTOR:

SITES OF INJECTION

Abdominal region avoiding any area that has a previous scar and 1 finger breath away from the umbilicus.
Upper outer thigh.
Upper outer part of the arms.

SITE ROTATION

- Do not inject one place, keep on migrating the sites of injection.
- Rotation within each injection sites (width of 1-2 finger apart). Why? To avoid hard fatty lumps (Lipohypertrophy) and ensure consistent absorption of insulin
- Simple structured rotation plan for abdomen, thighs. (Divide the injection site into quadrants or halves and use one section per week and move clockwise.)

INSULIN INJECTION TECHNIQUE USING OF PEN DEVICE

- Selection of the needle length preferably use 4MM thickness needle Connect the needle to the injecting device
- Priming the insulin pen device using 2 units Dialing up appropriate dose
- Inject 900, while using 4MM and 8MM needle,
- Remember to pinch the skin for gauges above 8mm needle. Push the dialer until it counts back to zero,
- Count 8-10 seconds before you remove the needle after which you remove the needle. After injecting do not rub the site of injection.
- If you observe small spillage on the site you injected insulin, apply very little pressure for like 30 secs. Do not press the area too hard.

INJECTION TECHNIQUE USING USE OF SYRINGE

- Pull the plunger to the preferred dose
- Expel the air into the vial while holding the vial upside down Allow the syringe to fill back to the preferred selected dose
- Confirm the dose and check the presence of air bubbles in the syringe
- If air present, hold the syringe upside down, tap the air bubble until it rests under the base of the needle and gently pull the plunger to estimate the air bubble then push it until it comes out.
- Confirm the dose then inject
- Inject 900, or 450 pinching the skin depending on the size of the needle After injecting do not rub the site of injection.
- If you observe small spillage on the site you injected insulin, apply very little pressure for like 30 secs. Do not press the area too hard.

INSULIN STORAGE

- Any insulin that is not in use keep under refrigerator between 20 C to 80 C
- Cold environment can be improvised by use of local available materials like the earthen vessels or plastic and aluminum material
- Get one bigger vessel and a smaller one of either
- Put the smaller vessel into the larger vessel and put crashed charcoal in between the two vessels

- Pour water into the crashed charcoal and store the insulin vials or pens into the inner smaller vessel and have it well covered with a lid.
- Cover the larger vessel also with a well fitting lid. Always make sure the vessels are well cleaned regularly.

SHARPS MANAGEMENT

Have a hard plastic container with its lid or hard plastic bottle Dispose your sharps into this container
When ¾ full, take it to the nearest health facility for safe disposal

2. GROWTH CHART MONITORING, INTERPRETATION, AND CHARTING PRACTICAL

Requirements:

- Stadiometer
- Measuring board
- Weighing machine
- Infant weighing machine
- Growth charts: CDC 0-24 months, 2-20 years for both Female and male; BMI for 2-20 years for both male and female. Provide 25 each (for 2-20 years) per station for participants to chart their own parameters.

Growth charts are essential for monitoring the physical development of children, identifying potential health issues or abnormalities, and tracking progress over time.

- By regularly assessing a child's growth and development, you can identify and address any growth or developmental delays, with timely intervention and appropriate care.
    - Chart on the growth chart appropriate for age and gender
    - Identify the normal centile
    - Underinsulization =poor weight gain.
    - Prolonged underinsulinization=poor weight and height gain
    - Overinsulinization= Overweight
    - If the patient starts deviating from the centile then assess for the glycemic control, comorbidities or complications associated with type 1 DM

3. GLUCOSE MONITORING PRACTICUM

Requirements

- Glucometers
- Glucose strips
- Lancets
- Lancet pens
- Sharps container
- Swabs
- Red, yellow disposal bins
- A sample diary print out as shown below

1. IMPORTANCE OF A DIARY:

What:

It is a record of daily blood glucose levels, food, snacks eaten, insulin injected, and any other relevant occurrence in the day like exercise and sickness.

Why:

- To Identify times when at risk for hyper- or hypoglycaemia
- To help patient and family learn – not done for staff! The approach should not be judgmental.

How:

- 7-point testing: Pre-meal, post-meal, at bedtime, and at 3 am. is ideal.
- However, on the minimum 4 tests a day: Pre-meals and bedtime or
- If strips unavailable, 3 tests a day done at pre-meal can be employed.

Blood glucose targets:

- Random blood glucose: 4 - 10 mmol/L
- Fasting (morning): 4 - 8 mmol/L
- Bedtime: 7 - 10 mmol/L

Sample diary:

	Breakfast		**Lunch**		**Dinner**		**Bedtime**		**Notes**
Date:	**before**	**2 hrs after**	**before**	**2 hrs after**	**before**	**2 hrs after**	**10pm**	**3am**	
Blood Sugar									
Insulin Dose									
Carbs eaten									
Exercise									

- Next describe what a glucometer is,
- how to use the lancet pen in pricking,
- how to store the strips,
- how to dispose the needles.

4. NUTRITION PRACTICALS

REQUIREMENTS

1. Food group charts
2. Food group samples
3. Pen and paper
4. Carb counting practical calculation

Emphasis on healthy eating in T1DM
NO DIABETIC DIET IN T1DM

STRUCTURED DIABETES EDUCATION JOB AID:

Name: _____ Date of Birth: _____Age: _____
Gender:_____ OP/IP No: _____Tel No: _____ Email: _____Old/
New Patient: _____

Employment status of: Father/Guardian_____Mother/Guardian_____ Education level of: Father/Guardian _____ Mother/Guardian_____
Date of Diagnosis:_____/_____/_____ Diabetes Type: Type 1 ☐ Type 2 ☐
Other (specify) _____
_____

VISIT 1	**DATE:**	**NOTES**
Establish support system ☐		
Definition of diabetes ☐		
Type of diabetes ☐		
Role and types of insulin ☐		
Insulin injection sites ☐		
Injection technique ☐		
Return demonstration by client ☐		
Insulin storage ☐		
Hypoglycemia: Signs and symptoms ☐		
Management of hypoglycemia ☐		
Hypo-kit ☐		
Nutrition ☐		
Physical activity ☐		
Self-monitoring of blood glucose:		
Blood glucose targets ☐		
When to monitor ☐		
Testing technique and sites ☐		
Record keeping ☐		
Encourage positive attitude ☐		

Reviewed by Name: _____ Designation: _____
Time: _____ Signature: _____
_____

VISIT 2	**DATE:**	**NOTES**
Growth assessment ☐		
Interpreting blood sugar results ☐		
How to adjust insulin doses ☐		
Honeymoon stage ☐		
Diet review ☐		
Hypoglycemia ☐		
Hyperglycemia ☐		
Picnic bag ☐		
Diabetes and school ☐		

State the need for other tests (thyroid, lipid profile, HbA1C) ☐
Reviewed by Name: _____ Designation: _____
Time: _____ Signature:_____

VISIT 3 **DATE:** **NOTES**

Insulin: patient to state type, dose, time, route ☐
Injection technique ☐
Injection site assessment ☐
State time action of drugs ☐
Insulin storage ☐
Signs and symptoms of infection ☐
Sick day management ☐
Ketone testing ☐

Annual review: remind about assessment for microvascular complications, thyroid assessment ☐

Reviewed by Name: _____ Designation: _____ Time: _____ Signature: _____

_____

VISIT 4 **DATE:** **NOTES**

Growth assessment ☐
Exercise ☐
Diet review ☐
Hyperglycemia ☐
Reviewed by Name: _____ Designation: _____
Time: _____ Signature: _____

_____

VISIT 5 **DATE:** **NOTES**

Traveling, holidays and camps ☐
Parties and festive seasons ☐
Diet review ☐
Exercise review ☐
Insulin review ☐
Support system education ☐
Reviewed by Name: _____ Designation: _____ Time: _____ Signature: _____

_____

VISIT 6 **DATE:** **NOTES**

Foot care ☐
Lifestyle issues: alcohol, smoking, drugs, sexual health ☐
Ongoing dietary assistance ☐
Supplemental education ☐
Reviewed by Name: _____ Designation: _____
Time: _____ Signature: _____

_____

OTHER VISITS (Notes)

Simulation Scenario Title: Diabetic Ketoacidosis

Learning Objectives

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

a) Knowledge

- Identify the clinical signs of Diabetic Ketoacidosis (DKA)
- Demonstrate proficiency in interpreting laboratory results
- Classify DKA
- Manage a child with DKA

b) Skills

- Demonstrate competence in assessing ABCDE and appropriately intervening in a child with DKA
- Demonstrate competence in calculation of fluids and insulin therapy in a child with DKA

c) Attitude/Behavior

- Demonstrate effective communication (closed loop, directed and reflective.)
- Demonstrate Compliance to National Guidelines and Nurturing Care.
- Demonstrate effective multidisciplinary teamwork.

Equipment	
• Physical props/equipment: • Handwash station/Sanitizer/ Gloves, • Suction machine • Suction tube FR 6,8,10 • Paediatric Nasal prongs • Paediatric Non-rebreather mask • Oxygen pulse oximeter with Paediatric Probe • Oxygen source • Stethoscope • Cannula different sizes 18,20, 22 • Alcohol swabs • Tourniquet • Strapping • Giving sets • Infusion pump • Syringe pump • Vacutainers • Glucometer and its Strips • Clinical thermometer • Weighing machine • BP machine • Child manikin • Patient monitor • Print out for various lab results: Full hemogram,Urinalysis, RBS, BGA,UECs • Lancets • Lancing device • Urinalysis strips	**Medication** a) Fluids, normal saline 500mls, Ringer's lactate, 10% dextrose, 50% dextrose b) Soluble insulin c) Potassium chloride (KCL) d) Mannitol e) 3% Hypertonic saline solution f) Rapid-acting bolus insulin g) Long-acting basal insulin h) Antibiotics

• Safety Box • Disposal bins- Red, Yellow, Black • Needles, • National Clinical Guidelines on Management of DM • Basic Paediatric Protocol • Print Out of DKA Monitoring Chart	

SIMULATION SCENARIO

Simulation Case scenario :
GM, a 12 year old boy who was previously well presents with a 1 week history of abdominal pain, vomiting and labored breathing.

Collateral History if requested
- Has polyuria
- Weight loss
- No family history of diabetes
- No cough, No diarrhoea

The script

Patient Assessment	Effective Management	Consequence for Ineffective Mgt	Notes
1. Initial Presentation Unconscious **Airway-** Clear **Breathing-** Spontaneous breathing • Acetone Breath • Kussmaul/Deep acidotic breathing • Lower chest wall indrawing • RR = 32 bpm • SpO_2 = 75% room air, **Circulation –** • PR 150b/min • Cold peripheries up to the elbow and ankle joint. • Peripheral pulse is weak • Capillary refill time 4 seconds • No palmar pallor • BP- 95/70,	• Ensure Safety • Observe IPC • ABCDE Approach • Shout for help from the team allocated roles • Transfer to a resuscitation couch **Airway-**Check and position the airway **Breathing-**Assess Breathing- look ,listen and feel. Assess adequacy of breathing • Nasal flaring • Grunting • Cyanosis • Head nodding • Lower chest wall/ intercostal/ suprasternal recession • Respiratory rate • SpO_2	If oxygen not administered, Saturation drops to 70% If fluids not given- remains in shock (move to progession 2)	Laboratory Results RBS=33mmol/l Urinalysis:Urine Ketones 3+, Glucose 3+ BGA-PH-7.047, HC03-1.9mmol/l Full hemogram: WBC-28.5, neutrophilia of 85%, HB 14.5g/dl, PLT 428 CRP-61 UECs -potassium 4.38Mmol/lsodium 145Mmol/l chloride 105Mmol/l

D- • AVPU- P • RBS- 33 mmol/l • Exposure- • Temp 36.8 ^{0}C • Weight -30kgs.	Start oxygen via Nasal Prongs at 2 L/Min target saturations 90-95%(titrate appropriately) **Circulation-** Assess adequacy of Circulation • Pulse • Temperature gradient • Capillary Refill Time • Pallor • Blood pressure **Diagnosis-** hypovolemic shock • Fix- 2 wide bore cannulae, take samples for; • Hemogram • UECS • Blood culture • Blood glucose • BGA • CRP Correct shock with 20ml/ kg of Normal saline over 15 minutes-[600ml] Request for lab results- Dx- Severe DKA (move to progression 3)		
2. Progression/ Worsening **Reassess ABCDE** **Airway- Clear** **Breathing: SPO2 -70% Kussmaul's breathing, LCWI-** **Circulation: PR- 167bpm, Cold peripheries up to the shoulder and knee joint.** • Peripheral pulse rapid/ weak • Capillary refill time 6 seconds • Disability-unrecordably high RBS, AVPU at U	Shout for help • -O2 therapy • Correct shock with 20ml/ kg of Normal saline over 15 minutes-[600ml]		If Shock is not corrected- terminate the Scenario and debrief

3. Progression (recovery) Reassess ABCDE **A-** Clear **B-** Spontaneous breathing SPO2 -95% on NRM 10L/min RR is 30b/min, Kussmaul breathing **C-**Capillary refill time- 2 Seconds Temperature gradient-warm Peripheral pulse – easy to feel **D-** AVPU = V	• Start Fluid Replacement therapy • Maintenance+ Deficit fluid for 48 hours • 5800 mls in 48 hours that is 121 mls normal saline per hour as IV infusion • (Check Basic Paediatric protocol) • Insulin therapy after initial fluid resuscitation • 0.1 unit per kg per hour of soluble insulin given as IV infusion. (3 units soluble insulin per hour) • Potassium therapy concurrent with insulin therapy • Dose: 20 milliequivalents for every 500 mls of fluid given • Keep Nil Per Oral (NPO) • Start antibiotics • Continue monitoring patient using DKA monitoring chart . • Take Full history and examination • Record in Paediatric Admission Record (PAR) • Admit PICU (Call PICU to check for availability) • Inform Caregiver on diagnosis and plan of management.	If maintenance fluids not given- goes into shock If Insulin not given- worsening DKA- BGA- PH 6.9, Bicarbonate of 1.4mmol/l If Potassium not given Potassium drops to 2.1mmol/l Terminate case and debrief	If no PICU- admit in HDU or acute room awaiting PICU space or transfer to a facility with one.

Simulation Scenario Title: Management of cerebral oedema

Learning Objectives

By the end of the debriefing, the Mentee should be able to;

Knowledge

- Identify clinical signs indicative of cerebral oedema in a patient with DKA
- Manage a child with cerebral oedema as a complication of DKA

Skills

- Demonstrate competence in history taking, physical examination and monitoting of a patient on DKA treatment.

Attitude/Behavior

- Demonstrate effective communication (closed loop, directed, and reflective).
- Demonstrate Compliance with the National guidelines for the management of Diabetes mellitus
- Demonstrate appropriate consultation.

Equipmen	
Physical props/equipment: a) Handwash station/Sanitizer b) Oxygen pulse oximeter c) Sample bottles d) Cannula different sizes 18,20, 22 e) Giving set, f) Oxygen for high flow set g) Child Nasal prongs h) Child non-rebreather mask i) Clinical thermometer j) Weighing machine k) BP machine l) Oxygen source m) Child manikin n) Patient monitor o) Stethoscope r) Blood glucose report s) BGA report t) FBC results u) Gloves, v) Alcohol swabs w) Lancet and Lancing Device, Glucometer Strips, urinalysis strips x) Safety Box, y) Needles,	Medication a) Fluids, normal saline 500mls, Ringer's lactate, 10% dextrose, 50% dextrose b) Soluble insulin c) Potassium chloride (KCL) d) Mannitol e) 3% Hypertonic saline solution f) Rapid-acting bolus insulin g) Long-acting basal insulin h) Antibiotics

SCENARIO

Simulation Case Scenario

GM, a 12-year-old child who was admitted 12 hours ago, is currently on treatment for Severe DKA and has been complaining of a headache, which is worsening. what do you do?

Collateral history, if requested

- GM received approximately 2500ml of Normal saline
- Weighing 30 kgs.

The Script

Patient Assessment	Effective Management	Consequence for Ineffective Mgt	Notes
Initial assessment Child lying in bed unresponsive **a. Airway – Clear, no secretions** **b. Breathing, look, listen, and feel.** • Rate – 20b/min • Flaring – Yes • Grunting -Yes • No central cyanosis • Indrawing – mild • Deep acidotic breathing • SpO_2 – 87% on nasal prongs 4l/min **c. Pulse rate –77bpm** • Cap refill – 1 sec • BP-150/90mmhg • Warm extremities • No Pallor • Peripheral pulse - Normal volume **d. RBS – 13.4mmol** Pupils are bilaterally equal and reacting to light AVPU = V **e. Exposure – no additional findings** Temp – 36.8	Observe safety and IPC measures ABCDE Approach **A-** Check Airway and Position to sniffing position **B-**Change oxygen delivery from nasal prongs to NRM at 10/min -target saturation of 90%-95% Check RBS • Treat for cerebral edema, reduce IVF to 85mls per hour • Infuse 15gm mannitol over 15 min • Elevate the head of the bed at 45 degrees • Inform the senior consultant Move to progression 2[Recovery]	If Mannitol/ Hypertonic saline is not given and the amount of fluids is not reduced, The patient starts to convulse Move to progression 1 [worsening]	Reduce the rate of fluid administration by one-third (Give IV fluids at 85mls per hour instead of 121mls/hr) • Give mannitol 0.5-1 g/kg (15g) IV over 15 minutes. Repeat after 30 minutes if no response. • Hypertonic saline (3%), 2.5-5 ml/kg (75 ml) over 15minutes, may be an alternative to mannitol or an addition to mannitol if no response

Progression 1 Worsening Airway -clear no secretions • Grunting-yes • Head nodding-no • Central cyanosis- no • Rate-18 • Spo2 -91%on non-rebreather 10L • Deep acidotic breathing • HR - 67bpm • BP 166/100mmhg • AVPU - U • RBS-12.4mmol • Unequal Pupils	Position to sniffing position Continue oxygen via NRM 10l/min target spo2 90%-95% Check RBS • Treat for cerebral edema, reduce IVF to 85mls per hour • Infuse 15gm mannitol over 15 min • Elevate the head of the bed at 45 degrees Move to progression 2[Recovery]	If Mannitol/ Hypertonic saline not given and the amount of fluids not reduced, Terminate and debrief	
Progression 2 [Recovery] Reassess • Airway Clear No Secretion • Rate – 22 b/min • Flaring – Yes • No-Grunting -no • No central cyanosis • Indrawing – mild • Deep acidotic breathing • SpO2 – 94% on NBM 10l/min • PR 102bpm • BP 120/75mmHg	Continue care • Brain imaging after stabilizing the patient. Monitor using the diabetic monitoring chart. • Appraise the caregiver • Inform the senior consultant or refer Terminate and debrief		

Simulation Scenario Title: Transition to Basal-Bolus Insulin regimen (Multiple Daily Injections) after DKA management

Learning Objectives

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

a) Knowledge

- To identify features of resolved Diabetic Ketoacidosis (DKA)
- To understand insulin regimen recommended during transition.
- To correctly transition a patient with resolved DKA to basal bolus insulin.
- To prepare a patient with resolved DKA for discharge.

b) Skills

Demonstrate competence in calculating appropriate insulin transition dosage.

c) Attitude/Behavior

- Demonstrate effective communication (closed loop, directed and reflective.)
- Demonstrate Compliance to National Guidelines and Nurturing Care.
- Demonstrate effective multidisciplinary teamwork.

Equipment	
Physical props/equipment: Handwash station/Sanitizer/ Gloves, Stethoscope Alcohol swabs Strapping Giving sets Infusion pump Syringe pump Vacutainers Glucometer and its Strips Clinical thermometer Weighing machine BP machine Child manikin Patient monitor Print out for various lab results: Urinalysis, RBS, BGA, Lancets Lancing device Urinalysis strips Safety Box Disposal bins- Red, Yellow, Black Needles, Sample Diary National Clinical Guidelines on Management of DM Basic Paediatric Protocol	Medication a) Fluids, normal saline 500mls, Ringer's lactate, 10% dextrose, 50% dextrose b) Soluble insulin c) Rapid-acting bolus insulin d) Long-acting basal insulin

SIMULATION SCENARIO

Case scenario :

You have been called to PICU to review GM, a 12 year old boy currently on DKA management.

Collateral History if requested

- Admitted to PICU 22 hours ago
- Currently he has no complaints
- Mum reports great improvement since initiation of treatment.
- Baseline HBA1c – 14%
- Initial workup done in the ward: Eye review/ lipid profile, urine albumin/ creatinine ratio Normal.
- Current Treatment:
- Normal saline 121 mls per hour (2662 mls in 22 hours)
- Insulin infusion: 3 units per hour
- KCL- 20 meq for every 500mls of fluid
- Antibiotics
- Monitoring using DKA monitoring Chart

The script

Patient Assessment	Effective Management	Consequence for Ineffective Mgt	Notes
1. Initial Presentation Alert **Airway**- Clear **Breathing-** Spontaneous breathing, no signs of respiratory distress. SPO2 = 98% room air, **Circulation –** • PR-80bpm • Warm peripheries. • Normal pulse • Capillary refill time 1 second • No palmar pallor • BP- 96/73, **D-** RBS- 9 Mmols/l Able to tolerate oral fluids and food. Exposure- • Temp 36.8 0C • Weight -30kgs. • Puberty- tanners stage 1 (pre-pubertal) • Normal general and systemic exam	Observe Safety and IPC measures. Assessment: ABCDE Approach **Airway-** **Breathing-**Assess Breathing-look ,listen and feel. Assess adequacy of breathing • Nasal flaring • Grunting • Cyanosis • Head nodding • Lower chest wall/ intercostal/ suprasternal recession • Respiratory rate • SpO_2 **Circulation-** • Continue current mx **D-** checks Random Blood Sugar **E-** Head to toe examination of patient. Requests for Urinalysis/ BGA Checks results Dx- Resolved DKA Transition to Basal bolus insulin (move to progression 3)	If transition not done- IV insulin infusion is likely to continue causing recurrent hypoglycemic episodes. RBS- 2 mmol/l (move to progession 2)	Laboratory Results PH 7.38, HCO3 19.2 mmol/l, Urinary ketones- Negative
2. Progression/ Worsening Insulin infusion continues. ABC- normal assessment **D-** RBS 2 mmol/l AVPU- Alert	Correct hypoglycemia- 5 mls/kg 10%% dextrose IV.	If transitioning not done, patient at high risk of recurrent hypoglycemic episodes. Terminate scenario and debrief.	

3. Progression • Resolution of DKA • ABCD- Normal • RBS- 9 Mmol/l • Clinically well, able to tolerate oral feeds,.	Transition to Basal bolus insulin (Refer to National DM guideline Procedure of transitioning **Step 1-**Calculate the total Daily insulin dose (TDD) per day. 0.5 units/ kg/day- 15 units **Step 2-**Calculate amount of total basal insulin(insulin Glargine or Detemir) per day: 40-50% of Total Daily insulin dose. 50% of 15 units= 7.5 units rounded off to 8 units If using insulin Glargine as basal- Give 8 units once daily(same time every day e,g 8 p.m) If using insulin Detemir (give 50% a.m and 50 % p.m) 4 units in the morning and 4 units in the evening. **Step 3-** Calculate the amount of total bolus /pre-meal insulin (short/ rapid acting insulin) per day: 50-60% of total insulin dose. calculate the amount of bolus (pre-meal) insulin to be given before every meal (breakfast, lunch and dinner). Total daily bolus/ pre- meal insulin divided by 3 50% of 15= 7.5 units rounded off to 8 units divided by 3 Bolus insulin : order 3 units given subcutaneously before, breakfast, lunch and dinner.		Starting total insulin dose for transition to subcutaneous: Pre-pubertal: 0.5 - 0.7 units/kg/day Pubertal: 0.8 – 1.2 units/ kg/day Correction factor calculation: -If using rapid acting insulin: rule of 100: 100/ total insulin dose per day; 100/15 that is 1: 7, meaning 1 unit of rapid acting acting insulin will lower the blood glucose by 7 mmol/l -If using short acting/ soluble insulin: rule of 83: 83 /total insulin dose per day; 83/15 that is 1: 6, meaning 1 unit of rapid acting acting insulin will lower the blood glucose by 6 mmol/l Initial diabetes education:- • Diabetes definition • Recognition and treatment of hypoglycemia • Use of correction factor • Insulin regimen, injection sites,technique and schedule,insulin delivery modes and storage, sharps disposal • Monitoring of sugars/ ketones at home and diary keeping • Adherence to insulin therapy • Sick day management guidelines

	If using soluble/short acting insulin as the bolus: give the dose 30 minutes before main meals (breakfast, lunch and dinner) If using rapid acting insulin e.g Insulin aspart or Lispro as the bolus: give the dose 10- 15 minutes before main meals Overlap the first subcutaneous dose with the iv insulin infusion by 15-30 minutes (if transitioning with rapid acting insulin) or 30-60 minutes (if using short acting insulin), then stop the insulin infusion If you transition using basal insulin, overlap by 2 hours and then stop the insulin infusion Aim at optimal sugar control- Target Blood glucose levels (4-10 mmol/l) Calculate Correction Factor (to correct high sugars) Monitor blood glucose/ keep diary: before meals, 2 hours after meals and at night (3 a.m) and keep a diary . Adjust insulin dose based on blood glucose readings to achieve optimal control Do initial diabetes education Nutrition counselling Plan for discharge Give the patient a review date in the outpatient clinic after 1-2 weeks		After diabetes education- Discharge home on basal bolus insulin and insulin delivery supplies e.g pens, microfine pen needles (size 4-6 mm), glucometer, glucose strips, lancets and lancing device and a diary

Case Scenarios	
Instructions	Case scenarios/ Simulation Scenarios will be provided to the mentees With the help of the mentor, the mentees will execute the Scenarios This will be an open discussion session
For each case given	Make a management plan

Case Scenario 1

GM, a 12-year-old child weighing 30 kgs, presents with 1-week history of abdominal pains and a 1-day history of vomiting and labored breathing. GM was previously well and mother had realized the child was drinking a lot of water, eating a bit more but losing weight

Action required	**Information / result**
Safety	Wear Gloves / no sharps/ sanitize hands
Observe the child	The child is very drowsy in the mother's arms
Ask the caretaker to stimulate the child	The child makes a weak cry but does not open his eyes and seems floppy.
Place child on bed / resuscitation couch and stimulate the child	The child makes no response.
Call for help	Help is on the way
Look in the mouth to check for obstruction	There is nothing in the mouth
Open the airway (sniffing position) and Look, listen and feel for breathing	The child has labored breathing
Check for adequacy of breathing: **Resp rate** • Pulse oximetry • Central Cyanosis • Head nodding • Indrawing / Acidotic breathing • Grunting	SpO2-75% room Air, no cyanosis There is Deep Acidotic breathing, Kussmaul breathing. Lower chest wall indrawing RR 32b/min (administer oxygen via NRM 10L/Min) connect pulse oximeter – target saturations 90-96%
Assess large pulse	There is a fast pulse
Check for adequacy of circulation • Pallor • Temperature gradient of hands and feet • Peripheral pulse • Capillary refill time	• There is no palmar pallor. • Hands are cold upto the elbow and feet cold upto the ankle joints • The peripheral pulse is weak to feel. The capillary refill time is 4 seconds. No diarrhea, has a one day history of vomiting and no malnutrition • The patient is in hypovolaemic shock
Establish IV/IO Access and take blood samples Full haemogram, RBS, BGA, UEC's, blood cultures, CRP, procalcitonin	Quick rehydration phase: correct Shock {Give a bolus of Ringers lactate/ Normal saline 20ML/KG=600MLS Over 15 minutes

D**isability-** Establish level of consciousness (AVPU)	The child makes no response to his name or noises and does not localise a painful stimulus – AVPU = U.
Follow up on Lab results • Glucose • Urinalysis, BGA, UECs, Septic screen	• RBS-33 MMOl/l • Urine Ketones of 3+++ BGA- PH-7.047, HCO3- 1.9mmol/L, • WBC 28.5, neutrophilia of 85% • HB14.5g/dL, PLT 428 • UECs -potassium 4.38 mmol/l • Sodium 145mmol/L chloride 105mmol/L
Exposure: • Take temperature • Check for any suggestive rash	• Temp-36.8degrees • no rashes,
NB: Diagnosis Severe DKA	D-RBS 33 K-ketones 3+ A-PH- 7.047, HCO3- 1.9
Fluid requirement (Slow Phase) • Fluid therapy (Maintenance + Deficit): • Calculate fluid Requirement over 48 hours = • Maintenance fluid over 48 hrs + Deficit • 48 hrs (Time taken for rehydration) • Formula for deficit Fluid calculation (litres) = % dehydration x body weight (kg) x 10 • Resuscitation fluid: 20 mls/kg x 30kg = 600mls (was given over 15mins) • Deficit: 10mls x 30kg x 10 = 3000 mls in 48 hours • Maintenance: (100x10) + (50x10) +(20x10) =1700 in 24 hours • 1700x2=3400 in 48 hours • Total fluid = (3000 + 3400) =6400 • Initial Total fluid (6400)- initial resuscitation fluid (600) =5800mls in 48hrs • Hourly rate for the next 48 hours = 5800 48 = 121mls per hour = 121 drops per minute if using a soluset **Choice of Fluid** • Preferred choice of fluid is normal saline. If not available, use ringers lactate • If blood glucose is > 17 mmol/l- use 0.9% sodium chloride • If the blood glucose is 11- 16 mmol/L, use 5 % dextrose in 0.9% sodium chloride in, • If the blood glucose is less than 10 mmol/L , use 10% dextrose in 0.9% sodium chloride to prevent hypoglycemia.	Establish 2 IV access and start fluid-0.9% sodium chloride running at a rate of 129 mls per hour on one cannula.
Insulin therapy • Timing: Given after initial fluid resuscitation (from the 2nd hour of management) • Dose for a child >5 years: 0.1 unit/kg/ hour of soluble insulin • 30 kg x 0.1 = 3 units of soluble insulin per hour given as an IV infusion	Patient on insulin infusion on the second IV line at 3 units//hr

Potassium therapy • **Timing:** The potassium is within normal, start potassium replacement after fluid resuscitation and concurrent with initiation of insulin therapy. Ensure patient has passed urine • **Dose:** 20 meq (milliequivalents) or Mmol/l for every 500 mls of fluid	• Timing? • Dosage? • 20 meq of Potassium has been added to every 500ml of fluid **OR** • 40 mmol per every litre
Treat any infection and address any risk factor for DKA • Infection- Give appropriate empirical antibiotics	
Monitoring: • **Hourly:** heart rate, blood pressure, respiratory rate, level of consciousness, blood glucose meter reading, insulin therapy, hourly fluid intake • **Monitor** urine ketones in every sample of urine passed (atleast 4 hourly urinalysis) • **Record** urine output • **Repeat** U/E/Cs every 4 hours • **Measure** blood ketones (β-hydroxybutyrate) if possible • **Monitor** for complications, watch out for cerebral edema (altered consciousness, seizures, headaches, bradycardia, hypertension) (Emphasize and teach on use and interpretation of DKA monitoring tool)	Continue monitoring, Acidosis improving, PH now 7.2 HCO3 - 9 mmol/l

If patient has altered consciousness:
• Check blood glucose level to rule out **Hypoglycemia.** If hypoglycemia, correct it. If sugars are > 4 mmol/l, treat as **cerebral edema** as follows: -
  • Reduce the rate of fluid administration by one-third (Give IV fluids at 85mls per hour instead of 121mls/hr)
  • Give mannitol 0.5-1 g/kg (15g) IV over 15 minutes. Repeat after 30 minutes if no response.
  • Hypertonic saline (3%), 2.5-5 ml/kg (75 mls) over 15minutes, may be an alternative to mannitol or addition to mannitol if no response within 30 min. Elevate the head of the bed at 45^0.Intubate if there are signs of impending respiratory failure. Brain imaging after stabilizing patient. Monitor using the diabetic monitoring chart
	At the 12th hour the child develops a sudden headache, loss of consciousness and bradycardia.
	
	Check blood glucose, RBS is 13.4 mmol
	• Treat for cerebral edema reduce IVF to 85mls per hour
	• Infuse 15gm mannitol over 15 min
	• Elevate the head of the bed at 45^0

Resolution of DKA • Clinically well, able to tolerate oral fluids and food. • PH>7.3, HCO3 >18 mmol/l, Urinary ketones less than 2+	After 22 hours **The child is out of DKA**

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Transition to Basal bolus insulin

(Refer to National DM guideline 2024 pages 129-131) Procedure of transitioning

- Calculate the total Daily insulin dose (TDD) per day.
- Calculate amount of total basal insulin per day: 40-50% of Total Daily insulin dose.
- Calculate the amount of total bolus /pre-meal insulin per day: 50- 60% of total insulin dose.
- Then calculate the amount of bolus (pre-meal) insulin to be given before every meal (breakfast, lunch and dinner). Total daily bolus/pre- meal insulin divided by 3
- If using soluble/short acting insulin as the bolus: give the dose 30 minutes before main meals (breakfast, lunch and dinner)
- If using rapid acting insulin as the bolus: give the dose 10- 15 minutes before main meals

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Starting total insulin dose for transition to subcutaneous:

Pre-pubertal: 0.5 - 0.7 units/kg/day

Pubertal: 0.8 – 1.2 units/kg/day

Transitioned to Basal bolus regimen

Target sugars 4 – 10 mmol/L

Correction factor: 1:7

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If Transitioning using long acting insulin Determine for example Levemir (basal) and short/rapid acting insulin(bolus) as basal bolus regimen

30 kg pre-pubertal child

- Starting dose: 0.5 units/kg/day = 30 x 0.5
- Total daily insulin dose = 15 units per day
- Calculate Total Daily basal dose: 50% as long acting Detemir insulin= 7.5 units (round off to 8 units)
- Give ½ of total basal in the morning= 4 units
- ½ of total basal in the evening = 4 units
- Calculate Total Daily bolus dose:50 % as rapid acting insulin
- = 8 units divided by 3, given 10-15 minutes before main meals
  - 3 units before breakfast
  - 3 units before lunch
  - 3 units before dinner

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Monitoring of sugars after transition while in the ward done:

15 minutes pre- meals,(if on short- acting, 30 minutes before meals),

2 hours post meals and at 3 a.m Initial diabetes education started

Discharged home on basal bolus insulin and insulin delivery supplies

e.g pens, microfine pen needles (size 4-6 mm)

Ensure patient goes home with a glucometer, lancets and lancing device and glucose strips.

Patient should also have a diary before discharge

Give the patient a review date in the outpatient clinic after 1-2 weeks.

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If Transitioning using long-acting insulin glargine e.g lantus (basal) and short/rapid acting insulin(bolus) as basal bolus regimen:

30 kg pre-pubertal child

- Starting dose: 0.5 units/kg/day = 30 x 0.5
- Calculate Total Daily Dose(TDD) of insulin = 15 units per day
- Calculate Total Daily basal dose :40% long-acting basal insulin = 6 units SC given once daily at the same time every day
- Calculate Total Daily bolus dose: 50-60 60% rapid acting insulin
- = 9 units divided by 3, given 10-15 minutes before main meals:
  - 3 units before breakfast
  - 3 units before lunch
  - 3 units before dinner

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Transitioning using intermediate (basal) and short/rapid acting insulin(bolus) as basal bolus regimen.
30 kg pre-pubertal child
• Starting dose: 0.5 units/kg/day = 30 x 0.5
• Total daily insulin dose = 15 units per day
• Calculate Total Daily basal dose: 40% intermediate = 6 units total
  • 2/3 in the morning = 4 units
  • 1/3 in the evening =2 units
• Calculate Total Daily bolus dose: 60% rapid acting insulin = 9 units divided by 3, given 10-15 minutes before main meals
  • 3 units before breakfast
  • 3 units before lunch
  • 3 units before dinner
NB: the soluble/rapid acting insulin dosing may change with Carbohydrate counting (it is not always fixed!)	

Highlight target sugars: Random blood sugar: 4 - 10 mmol/L. Fasting (morning) target range: 4 - 8 mmol/L. Bedtime target range: 7 - 10 mmol/L **Calculate Correction Factor (to correct high sugars)** • If using rapid acting insulin: rule of 100: 100/total insulin dose per day; 100/15 that is 1: 7, meaning 1 unit of rapid acting acting insulin will lower the blood glucose by 7 mmol/l • If using short acting/soluble insulin: rule of 83: 83 /total insulin dose per day; 83/15 that is 1: 6, meaning 1 unit of rapid acting acting insulin will lower the blood glucose by 6 mmol/l **Monitoring of sugars after transition while in the ward should be done:** • 15 minutes before meals if on rapid acting insulin and 30 minutes before meals if on short acting insulin, • 2 hours post meals and at 3 a.m. Keep a record /diary of blood glucose. • Use diary to titrate insulin dose. **Start diabetes education on all aspects of diabetes care while still in the ward.** • Discharge patient home once stable and initial diabetes education has been done. • Discharge home on basal bolus insulin and insulin delivery supplies e.g pens, microfine pen needles size 4-6 mmol/l, clear instructions on insulin injection sites, rotation and storage. • Ensure patient goes home with a glucometer, lancets, lancing device,glucose strips and blood glucose diary. • Give the patient a review date in the diabetes outpatient clinic/ POPC after 1-2 weeks.	

Routine care in Type 1 DM

- Continuity of care is multidisciplinary.
- After transition to subcutaneous insulin, patients and their caregivers should be educated on routine care before discharge.

Case 2:

GM was discharged from the ward after recovery from DKA. He is currently on Basal bolus insulin: He has come to the clinic for follow up. Attached below is his blood glucose record/ diary What do you do?

Date	Fasting Blood Sugar	2hrs after breakfast	Pre- lunch	2 hrs after lunch	Before dinner	2hrs after dinner	Bed time	comments
12/4/25	2.8		3.9		3.0			
13/4/25	3.4		4.6		9.3			
14/4/25	2.5		7.6		8.2			
15/4/25	3.4		4.3		7.2			

Action required	Information / result
History to assess the general health of the patient Assess for any intercurrent health problems • Date of Diagnosis/Duration of DM • Review all medications and supplements, Current health, and compliance • History of hypoglycemic and hyperglycemic episodes • Blood or urine testing diary. • BP, pulse, weight, height and BMI • Visual acuity • Feet. • Blood glucose • 3-monthly HbA1c	HPC: Feels dizzy and weak occasionally, especially on waking up and before lunch. No intercurrent illness **Duration 3 weeks** • On Detemir Insulin (Levemir) 4 units in the morning and 4 units in the evening and Novorapid 3 units before meals. • Dizziness and recorded low sugars in the morning Diary present • BP:100/67mmHg, WT 31Kgs, Height 142 cm, BMI 15.38CM, HR, 82 RR 22, Temp 36.2 RBS 3.4mm/l 6/6 • Healing wound right hallux Blood glucose: 3.4mmol/l HBA1c at admission: 11%
Physical examination Assess pubertal status Vital signs **Dental exam** - Check for dental caries **Skin**- lipodystrophy/ atrophy and acanthosis nigricans, hirsutism **Abdominal exam** - check for Hepatomegaly **Neurological exam** - assess sensation- using monofilament Foot exam to rule out Diabetic foot	• Puberty tanner stage 1(testicular volume 3mls, no pubic hair) • BP-100/67MMHg , WT 31Kgs, Height 142 CM, BMI 15.38CM, HR, 82 RR 22, Temp 36.2 RBS 3.4mm/l • Treat hypoglycemia using Rule of 15[-Hypo Kit] • Teeth normal • Bumps on the upper arms (educate on rotation of sites) • PA: No hepatomegaly • Normal • Normal sensation in his feet but • Has a small wound on his right big toe falling an injury from playing (Treat and educate on wound care)

Insulin Therapy **Types of insulin** (refer to page 129 of National DM guidelines 2024) • Need to adjust insulin by • Reducing evening dose of long-acting Insulin [Detemir (levemir} by 10% **Target sugar levels:** • Fasting Sugars: 4-8 mmol/l • Random blood sugar: 5- 10 mmol/l • Before bed- >7 mmol/l **Risk Factors of Hypoglycemia:** **Insulin** [Excess insulin, accidental delivery, lack of diabetes education] **Food intake** [missed meal, reduced intake, excess aerobic exercise, alcohol ingestion]	Check the diary, the child has morning Hypoglycemia. The new dose will reduce by one unit [which will be Detemir (levemir) 4 units a.m and 3 units p.m] **NB/ Insulin Dosage is affected by many factors such as:** • Age Weight • Stage of puberty • Duration and Phase of diabetes state of injection sites nutritional intake • Exercise patterns • results of blood glucose monitoring and HBA1C and intercurrent illness
Nutrition Nutritionist to review • Review food patterns, activity versus insulin therapy • Assess for disordered eating behaviors 3 monthly **Diabetes Education:** Has patient previously received education on: Insulin therapy? ☐ NO ☐ YES Management of hyperglycemia? ☐ NO ☐ YES Management of hypoglycemia? ☐ NO ☐ YES Carbohydrate counting? ☐ NO ☐ YES Diabetes and exercise? ☐ NO ☐ YES	

Screening for comorbidities
Thyroid ☐, Adrenal ☐ , Celiac ☐ , Psychosocial ☐ issues TFTs ☐ : yearly
For Celiac/ Adrenal- if positive symptoms/ signs
☐ Screening for complications as per recommended criteria
☐ Cardiovascular/ macrovascular
☐ Microvascular:
  ☐ Retinopathy
  ☐ Nephropathy
  ☐ Neuropathy
General well-being
  ☐ Development
  ☐ Education,
  ☐ Sports
  ☐ Leisure
	Do baseline assessment
	
	HEADSS: Early adolescence
	
	Routine Review the patient after 1 month

Continue with Diabetes education focusing on the following: • Description of Type 1 diabetes and different types of diabetes • Self-monitoring of blood glucose, blood glucose targets, when to monitor, testing techniques and sites. • How to maintain a blood glucose, insulin and food diary. **Management of hypoglycaemia:** • Signs and symptoms • Correction (rule of 15). • The role of a hypoglycemia kit (hypokit). **Management of hyperglycaemia:** • Signs and symptoms Management including correction factor, taking a lot of water and exercise. Insulin: • Different types and their role • Multiple daily injections- Basal bolus insulin (Short/rapid-acting insulin and long-acting insulin) • Insulin storage. • Nutrition and how to balance insulin with carbohydrates **Injection techniques:** • Sites, rotation, technique Safe use of both needles and injection pens to include number of times to reuse and proper disposal (not in dustbins)	

MODULE 12:
DOCUMENTATION USING THE PAEDIATRIC INPATIENT FILE

MODULE 12: DOCUMENTATION USING THE PAEDIATRIC INPATIENT FILE

I. Introduction

This module is designed to equip mentees with the necessary competencies for effective documentation using the paediatric inpatient file and utilization of data.

II. Learning Outcome

By the end of the module, mentees should be equipped with the competencies to comprehensively document the admission, management and discharge processes for infants and children admitted to the paediatric ward. They should also effectively use this data to support clinical decision-making.

III. Learning Objectives

By the end of the module, mentees should be able to demonstrate competencies on proper utilization of the:

- Paediatric Admission Form
- Triage Initial Assessment Form
- Comprehensive Monitoring Form
- DKA monitoring chart
- Inpatient Treatment sheet
- Nursing Cardex
- Input output monitoring chart
- Blood transfusion Form

IV. Module Work Plan

Module 12: Documentation using the Paediatric Inpatient File.			
TIME (MINUTES)	**SESSION**	**METHODOLOGY**	**MATERIALS**
30 minutes	**Session 1:** Group discussion	Discussion	Paediatric Admission Form (filled and blank)
20 minutes	**Session 2:** Group discussion	Discussion	Triage Initial Assessment Form (filled and blank)
20 minutes	**Session 3:** Group discussion	Discussion	Comprehensive Monitoring Form (filled and blank)
20 minutes	**Session 4:** Group discussion	Discussion	DKA monitoring chart (filled and blank)
20 minutes	**Session 5:** Group discussion	Discussion	Inpatient Treatment sheet (filled and blank)
20 minutes	**Session 6:** Group discussion	Discussion	Input output monitoring chart (filled and blank)
20 minutes	**Session 7:** Group discussion	Discussion	Blood transfusion Form (filled and blank)

Summary

MONITORING & EVALUATION

INFANT AND CHILD MENTORSHIP: MONITORING & EVALUATION

INFANT AND CHILD INDICATORS

Module	Number	Indicator	Numerator	Denominator	Source Document
Module 4: Oxygen therapy	**1a**	Proportion of children under 5 years with hypoxaemia (SpO2 <90%) started on oxygen	Number of children under 5 years with hypoxaemia (SpO2 <90%) started on oxygen	Total number of children under 5 years with hypoxaemia (SpO2 <90%)	Paediatric Inpatient register (MOH 377)
Module 5: Child with respiratory distress	**2a**	Proportion of children under 5 years with severe pneumonia started on oxygen	Number of children under 5 years with severe pneumonia started on oxygen	Total number of children under 5 years with severe pneumonia	Paediatric Inpatient register (MOH 377)
	2b	Proportion of children under 5 years with pneumonia started on high dose Amoxicillin	Number of children under 5 years with pneumonia started on high dose Amoxicillin	Total number of children under 5 years with pneumonia	Paediatric Outpatient register (MOH 204A)
	2c	Proportion of children under 5 years with severe pneumonia started on Benzyl Penicillin and Gentamycin	Number of children under 5 years with severe pneumonia started on Benzyl Penicillin and Gentamycin	Total number of children under 5 years with severe pneumonia	Paediatric Inpatient register (MOH 377)
	2d	Proportion of children under 5 years with severe pneumonia who died	Number of children under 5 years with severe pneumonia who died	Total number of children under 5 years diagnosed with severe pneumonia	Paediatric Inpatient register (MOH 377)
Module 6: Child with dehydration due to diarrhea/ vomiting	**3a**	Proportion of children under under 5 years with diarrhea treated with ORS and zinc co-pack.	Number of children under 5 years with diarrhea treated with ORS and zinc co-pack.	Total number of children under 5 years with diarrhea	Paediatric Outpatient Register (MOH 204A), ORT corner register (MOH 283)

	3b	Proportion of children under under 5 years with hypovolaemic shock due to diarrhea treated with the correct volume of isotonic fluid	Number of children under 5 years with hypovolaemic shock due to diarrhea treated with the correct volume of isotonic fluid	Total number of children under 5 years with hypovolaemic shock due to diarrhea	Paediatric Inpatient Register (MOH 377)
	3c	Proportion of children under under 5 years with severe dehydration due to diarrhea treated with the correct volume of isotonic fluid	Number of children under under 5 years with severe dehydration due to diarrhea treated with the correct volume of isotonic fluid	Total number of children under 5 years with severe dehydration due to diarrhea	Paediatric Inpatient Register (MOH 377)
Module 7: Management of SAM in infants / child aged 6 – 59 months	**4a**	Proportion of children under 5 with SAM who died	Number of children under 5 with SAM who died	Total number of children under 5 with SAM	Paediatric inpatient register (MOH 377)
	4b	Proportion of children under 5 screened for malnutrition (MUAC/WHZ/ nutritional oedema) in the inpatient department	Number of children under 5 screened for malnutrition (MUAC/WHZ/ nutritional oedema) in the inpatient department	Total number of children under 5 admitted in the inpatient department	Paediatric inpatient register (MOH 377)
	4c	Proportion of children under 5 screened for acute malnutrition (WHZ/MUAC/ nutritional oedema) in the outpatient department	Number of children under 5 screened for acute malnutrition (WHZ/MUAC/ nutritional oedema) in the outpatient department	Total number of children under 5 seen in the outpatient department	Paediatric Outpatient(MOH 204A), Child welfare clinic register (MOH 511)

Module 8: Child with altered conciuosness	**5a**	Proportion of sick children under 5 years admitted with an RBS measurement	Number of sick children under 5 years admitted with an RBS measurement	Total number of sick children under 5 years admitted	Paediatric inpatient register (MOH 377)
	5b	Proportion of children under 5 years with severe malaria who died	Number of children under 5 years with severe malaria who died	Total number of children under 5 years diagnosed with severe malaria	Paediatric Inpatient register (MOH 377)
Module 9: Diabetes	**6a**	Proportion of patients aged 0-18 years with type 1 DM on basal bolus regimen	Number of patients aged 0-18 years with type 1 DM on basal bolus regimen	Total number of patients aged 0-18 years with type 1 DM.	Diabetes and hypertension comprehensive care register (MOH 222)
	6b	Proportion of children admitted with DKA who died	Number of children admitted with DKA who died	Total number of children admitted with DKA	Paediatric Inpatient register (MOH 377)
Module 10: Documentation		Number of mortality audit meetings conducted	N/A	N/A	Paediatric Inpatient register (MOH 377)

ANNEXES

Module Six Notes

Group Discussion: Oxygen Administration

Nasal Prongs

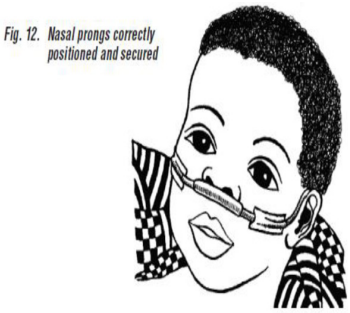


Fig. 12. Nasal prongs correctly positioned and secured

Proper Use Of Nasal Prongs

- Ensure airway is clear –suction if necessary, position
- Instill 2 drops of normal saline into nostrils before inserting the prongs
- Place prongs 2mm from nasal septum
- Secure on both cheeks with transpore adhesive, run the tubing to the back
- Adjust flow rate accordingly at 0.5L/min every 30 minutes to target SPO2 between 90%-95% as per table below:

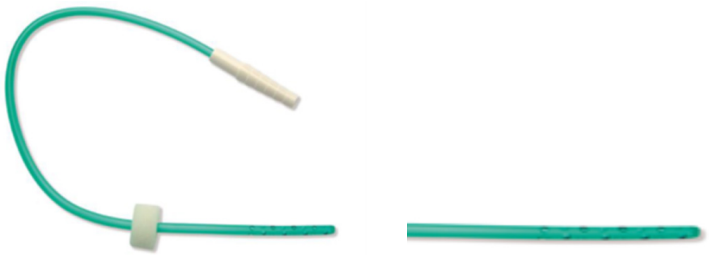
Oxygen Flow Rate Table

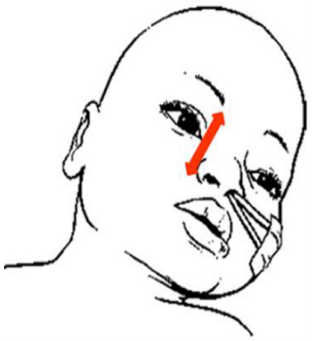
Flow Rate	Age Group	Volume	FiO_2
Standard	Neonates	0.5 L/min	30 – 35%
	Infant/Child	1 L/min	30 – 35%
High	Neonates	2 L/min	45 – 55%
	Infant/Child	4 – 8 L/min	45 – 55%

Nasal Catheter

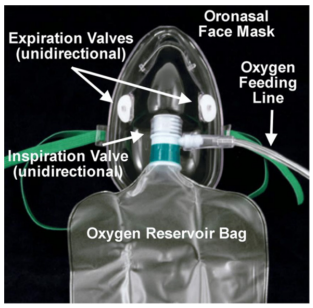
Proper Use of Nasal Catheter

- Ensure airway is clear –suction if necessary, position (wear N95 mask)
- Correct placement sizing –side of the nose to the inner margin of the eyebrow
- Insert appropriately sized nasal gastric (NG) tube in same nostril as oxygen catheter if giving high flow rates.
- Adjust flow rate at 0.5L/min every 30 minutes as for nasal prongs targeting SPO2 of between 90% to 95%





Non-Rebreather Mask



Proper Use of NRM

- Mostly used post resuscitation
- Ensure airway is clear –suction if necessary, position (wear N95 mask)
- Ensure the reservoir is filled with oxygen before placing mask on the child
- Ensure correct size of mask : covers nose and mouth (Not the eyes or below the chin)
- Adjust flow rate to 10 -15L/min for all age groups to deliver FIO2 80-90%

Indications for humidification

- High flow rates above 4L/min with nasal catheters/nasal prongs
- Use of Non-Rebreather Mask (10 –15L/min)
- Use clear distilled water ONLY
- Change the water daily-Reduces risk of bacterial contamination
- O_2 delivery at standard flow rate through a nasal catheter or nasal prongs does not require humidification

Titrating and Stopping Oxygen:

- When Oxygen is started, titrate every 15-30mins by 0.5L/min until SpO2 is 90%-95%
- Change the oxygen delivery methods (nasal prongs, catheter or NRM) and flow rates based on need
- Stop titrating and begin close monitoring if clinically stable (no emergency signs, SpO2 > 90% and no increase in Work of Breathing)
- Wean off oxygen every 15 –30 min and carefully examine for changes in WoB and SpO2to assess whether supplemental oxygen is still required.
- Once oxygen is stopped, recheck SpO2after 1h, as late desaturation can sometimes occur
- Discharge only if child has been stable with SpO2 ≥ 90% and no increased Work of Breathing (WoB) on room air for at least 24hrs

Trouble shooting

- Check Oxygen Source whether it is switched on, has oxygen or tubings well connected
- Check Flow meter whether attached and working. Adjust to prescribed level
- Check delivery device-prongs insertion, nasal blockage, appropriate size of prong/catheter/NRM. Is NRM fully inflated
- Check Tubing/Connections-inspect for twisting, kinking or disconnection
- Check functionality of monitoring equipment-e.g. if pulse oximeter accessories is appropriate paediatric size and functioning well

Monitoring a child on Oxygen

- Monitor patency of airways (obstruction/secretions)
- SPO2
- Monitor flow rates as prescribed
- Monitor for need of escalation to advanced care

Skills teaching: Use of pulse oximeter, oxygen concentrator and oxygen splitter

- The Mentor shall demonstrate to the mentees in the skills lab how to:
- Use a pulse oximeter
- Use of Oxygen Concentrator
- Use of Oxygen splitter

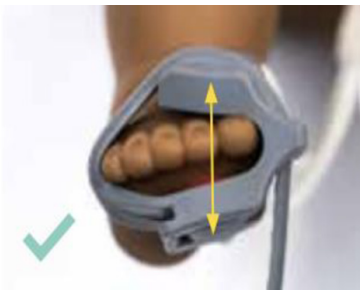
Use of pulse oximeter

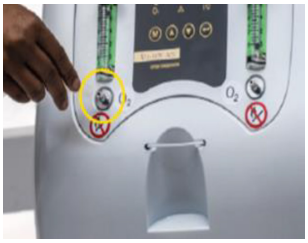
1. Attach probe to pulse oximeter
2. Press the power button to turn on the pulse oximeter
3. Ensure the probe has a red light and the settings are appropriate
4. Choose a well perfused site to attach probe
5. Attach the probe making sure the light source and sensor line up
6. Allow a normal trace to establish
7. Read the oxygen saturation

Correct placement is as per the images below:

Use of oxygen concentrator

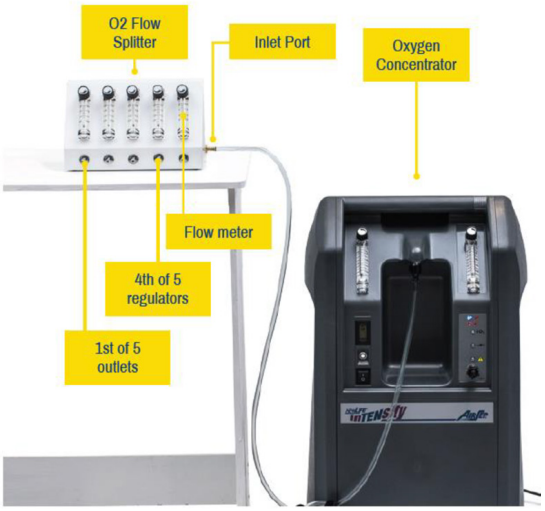
8. Follow Infection Prevention and Control protocol.
9. Place the concentrator at least 30cm from the wall
10. Oxygen concentrators should be located near oxygen splitters
11. Plug concentrator into a power source and turn on.
12. Allow to run for 5 minutes OR until the indicator light shows appropriate concentrations of oxygen are reached.
13. Connect humidifier if needed
14. Connect correctly sized oxygen nasal prongs/catheter to oxygen port
15. Open the oxygen flowmeter to the volume needed.
16. Read the flow rate at the top, middle or bottom of the ball in the flowmeter in use
17. Place fingers near the openings of nasal prongs/catheter to ensure that oxygen is flowing or bubble through water





Use of oxygen splitter

- Used to deliver independently controlled oxygen to multiple patients
- When you alter one valve flow, check that you adjusted the right valve for the intended child and ensure other valves remain as set.
- Read the flowmeter at eye level either above, middle or bottom of the ball based on manufacturer's recommendations.



Annex 1: PAEDIATRIC INPATIENT FILES

INFORMED CONSENT FOR A MINOR REQUIRING PARENTAL/GUARDIAN APPROVAL FOR INVESTIGATION, MEDICAL OR SURGICAL TREATMENT/ INTERVENTION

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

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: _____

PAEDIATRIC TRIAGE, INITIAL ASSESSMENT AND CARE FOR SICK CHILD FORM

NAME:		IP No. :	
AGE:			
DATE:	TIME AT TRIAGE:	DIAGNOSIS:	
TRIAGED AS:	EMERGENCY	PRIORITY	QUEUE

List one or more signs to qualify the category: _____

TIME AT ASSESSMENT AND INITIAL CARE:

ASSESSMENT (TICK)			**INTERVENTIONS**	
AIRWAY	Clear	☐ Y ☐ N	Propping Up	☐ Y ☐ N
	Suction Done	☐ Y ☐ N	Nebulization	☐ Y ☐ N
	Stridor	☐ Y ☐ N		
BREATHING	Rate	_____	Bag Mask Ventilation	☐ Y ☐ N
	Head Nodding	☐ Y ☐ N		
	Nasal Flaring	☐ Y ☐ N		
	Central Cyanosis	☐ Y ☐ N	Oxygen Precribed as: _____L/min **Mode of delivery:** Prongs ☐, Face mask ☐ Catheter ☐ SPO_2 before intervention:_____ SPO_2 after intervention:_____ Salbutamol ☐ Y ☐ N Dose: _____	
	Grunting	☐ Y ☐ N		
	Lower Chest In-drawing	☐ Y ☐ N		
	Deep/Acidotic Breathing	☐ Y ☐ N		
	Auscultate:			
	Wheeze	☐ Y ☐ N		
	Crackling	☐ Y ☐ N		
	SpO_2 (%)			
CIRCULATION	Large pulse	☐ Y ☐ N	Establish IV Access IV Fluids (RL): _____Mls Blood: _____Mls Any repeat bolus: _____ Total: _____Mls	
	Temp Gradient	☐ Y ☐ N		
	Radial Pulse Volume	☐ Normal ☐ Weak		
	Capillary Refill time	Secs		
	Pallor	0☐ +☐ +++☐		
	Sunken Eyes	☐ Y ☐ N		
	Skin Pinch	☐ >2sec ☐ <2sec		
	Severe Wasting	☐ Y ☐ N		
	Oedema	☐ Y ☐ N		
DISABILITY	AVPU	A V P U	Establish IV Access Administer dextrose (10%): _____mls Anticonvulsants (if any): _____ Time: _____ Dose: _____	
	Blood Glucose Level	_____ mmol		
	Convulsing	☐ Y ☐ N		
	Not able to drink or breastfeed	☐ Y ☐ N		

Additional Comments:

Assessed By:

Name:_____ Designation: _____ Sign: _____

Initial Care for Assessment

PAEDIATRIC ADMISSION RECORD

Name		IP No.	
Contact (Tel)		Relation	
Admission Date		Sex: M ☐ F ☐ I ☐	
County		Sub-county	
Village		Nearest Health Facility	
Is this first admission since birth?	Y ☐, N ☐	No of previous ad-missions	
Re-admission to this hospital?	Y ☐, N ☐	Discharged <1 month ago	
Is child referred from another health facility?	Y ☐, N ☐	Date first treated in other facility	
Presenting Complaints?			

History					
Weight	Height /Length (cm)	WHZ score	MUAC (cm)	Head Circum (cm)	BMI for age

Length of illness	_____ days
Fever – No. of days =	☐Y ☐N
Cough – No. of days =	☐Y ☐N
Cough > 2 weeks	☐Y ☐N
Contact with TB /Chronic cough (last 12 months)	☐Y ☐N
Difficulty breathing	☐Y ☐N
Diarrhoea No. of days =	☐Y ☐N
Diarrhoea > 14d	☐Y ☐N
Diarrhoea bloody	☐Y ☐N
Vomiting, No / 24hrs =	☐Y ☐N
Vomits everything	☐Y ☐N
Difficulty feeding	☐Y ☐N
Convulsions Number in last 24hrs =	☐Y ☐N
Partial /focal/ generalised fits?	☐Y ☐N
Passing blood/tea/cola coloured urine?	☐Y ☐N
Sleeps under mosquito net	☐Y ☐N
Pre- existing illness	☐None ☐N
Drugs taken last 2 weeks	☐Y ☐N
Any vaccine reaction suspected?	☐Y ☐N If yes, indicate most recent vaccine:
Additional history of presenting illness;	☐None

Vaccine	Received	Date
BCG	☐Y ☐N ☐Don't Know	
OPV 0(Birth)	☐Y ☐N ☐Don't Know	
OPV/Penta/PCV 1	☐Y ☐N ☐Don't Know	
Rota 1	☐Y ☐N ☐Don't Know	
OPV/Penta/PCV 2	☐Y ☐N ☐Don't Know	
Rota 2	☐Y ☐N ☐Don't Know	
OPV/Penta/PCV 3/Rota 3	☐Y ☐N ☐Don't Know	
IPV	☐Y ☐N ☐Don't Know	
RTS,S 1(Malaria)	☐Y ☐N ☐Don't Know	
RTS,S 2(Malaria)	☐Y ☐N ☐Don't Know	
RTS,S 3(Malaria)	☐Y ☐N ☐Don't Know	
RTS,S 4(Malaria)	☐Y ☐N ☐Don't Know	
Measles Rubella (6mo) HIV exposed	☐Y ☐N ☐Don't Know	
Yellow fever (9mo)	☐Y ☐N ☐Don't Know	
Measles Rubella 1 (9mo)	☐Y ☐N ☐Don't Know	
Measles Rubella 2/MR (18mo)	☐Y ☐N ☐Don't Know	
Vitamin A given within last 6 months? ☐Y ☐N ☐NA		
Birth/Antenatal History		
HIV status: ☐ Positive ☐ Negative ☐ Unknown Growth and Development: _____ Family/Social history: _____ Nutritional history: _____ Review of Systems: _____		

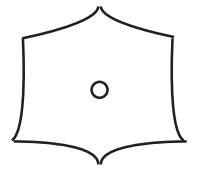
Examination						
Vital Signs	Temp ^{0}C	RR (bpm)	PR/min	SpO_2	BP (mmHg)	RBS

General Examination	
Oral thrush? Y ☐ N ☐ Lymph N > 1cm Y ☐ N ☐	
Finger Clubbing? Y ☐ N ☐	
Eye signs of malnutrition? Pus/inflamation ☐ Corneal ulceration ☐ Corneal clouding ☐ Bitot spots ☐ None ☐	
Jaundice	
Oedema *(tick all that apply)*	☐ None ☐ Foot ☐ Knee ☐ Face

Mark any significant clinical findings below:

A	Stridor	Y ☐	N ☐
B	Central Cyanosis	Y ☐	N ☐
	Indrawing	Y ☐	N ☐
	Grunting	Y ☐	N ☐
	Acidotic breathing	Y ☐	N ☐
	Wheeze	Y ☐	N ☐
	Crackles	Y ☐	N ☐
Circ & Dehy dr'n	Peripheral Pulse	☐ Normal	☐ Weak
	Cap Refill	secs	X = not possible
	Skin warm at:	☐ Hand ☐ Elbow ☐ Shoulder	
	Pallor / Anaemia	0 ☐ + ☐ +++ ☐	
	Sunken eyes	Y ☐ N ☐	
	Skin pinch (sec)	0 1 ≥ 2	
D	AVPU	A V P U	
	Can drink / breast-feed?	Y ☐	N ☐
	Stiff neck	Y ☐	N ☐
	Bulging fontanelle	Y ☐	N ☐
	Can sit without sup-port during this illness	Y ☐	N ☐
Infant < 1yr	Irritable	Y ☐	N ☐
	Reduced movement / tone	Y ☐	N ☐
	Umbilicus	Normal ☐ Pus ☐ Pus & red skin ☐	

Abdomen



Comments

Blantyre Coma Score= _____

Motor response	**Verbal response**	**Eye response**
☐ Localises pain=2	☐ Normal re-sponse=2	☐ Following objects=1
☐ Withdraws to pain =1	☐ Inappropri-ate=1	☐ Not following =0
☐ No response =0	☐ No re-sponse=0	

Posture *(tick that apply)*

Normal	Opisthotonus	Decerebrate	Decorticate

Blood/tea/cola coloured urine observed?

Y ☐ N ☐ Urine not seen ☐

Bones & Joints
Signs of rickets: Y ☐ N ☐

ENT exam:

Rt Ear Lt Ear

Nose

Throat

Neurological Examination (Normal, Increased ☐, Reduced ☐)					
	Normal	Right side	Left side		
		Upper limb	Lower limb	Upper limb	Lower limb
Power:					
Tone:					
Reflexes:					
Plantar responses:					
Sensation:					

Summary of presentation & problems (OR other additional examination findings)

Investigations Ordered (record subsequent tests and all results in medical record)

Malaria	☐ Blood slide ☐ Rapid Test	**Glucose**	☐ Stick test ☐ Laboratory
Haematology	☐ Full haemogram	**Chemistry**	☐ UEC ☐ Ca+Phos ☐ LFT
If full heamogram	WBC count _____ per litre		Lymphocyte count _____ per µl/mm3 _____%
	Neutrophil count_____ per µl/mm3 _____%		Platelets _____ per litre
Microbiology	☐ Lumbar Puncture ☐ Blood Culture	**HIV**	☐ Rapid test ☐ PCR
X-Ray	☐ CXR ☐ Wrist ☐ Other =_____	**Urine**	☐ Urinalysis ☐ Micro & culture
TB Test	☐ Microscopy for AAFBs ☐ Mantoux ☐ Xpert MTB/RIF ☐ Myco.TB culture	**Stool**	☐ Microscopy ☐ Micro & culture
COVID-19 Test	☐ Yes Date(s) of specimen collection: Date specimen send to the lab:	Results	Lab results: ☐ +ve ☐ -ve ☐ Inconclusive ☐ Unknown Date lab results were received: _____ dd /mm/yyyy
Other			

Admission Diagnoses – Select ONE primary diagnosis (tick box indicating "1") and ANY secondary diagnoses (tick box indicating "2"), then indicate level of severity or type of disease if required

Malaria	☐1 ☐2	☐ Severe ☐ Non-severe	Anaemia	☐1 ☐2	☐ Severe ☐ Non-severe
Pneumonia	☐1 ☐2	☐ Severe ☐ Non-severe	Sickle cell disease	☐1 ☐2	
Diarrhoea	☐1 ☐2	☐ Non-bloody ☐ Bloody (dysentery)	Meningitis	☐1 ☐2	
Dehydration	☐1 ☐2	☐ Shock ☐ Severe ☐ Some ☐ None	Rickets	☐1 ☐2	
HIV result		☐ Positive ☐ Exposed /PMTCT + ☐ Negative ☐ Declined test ☐ On HAART ☐ Indeterminate	Asthma	☐1 ☐2	Severe Mild/moderate
Malnutrition	☐1 ☐2	☐ SAM + Oedema ☐ SAM	Suspected TB	☐1 ☐2	
		☐ Moderate malnutrition ☐ None	Prematurity / LBW	☐1 ☐2	
			Neonatal sepsis	☐1 ☐2	
Differential diagnosis					
Other diagnosis					

Clinician Name:_____

Sign: _____ Date: ----/-----/-------- Time: _____(am/pm)

IN PATIENT TREATMENT SHEET

IP NO_____

PATIENT'S NAME: _____**AGE** _____**SEX**_____

DATE OF ADMISSION: _____**WEIGHT** _____ **HEIGHT** _____

WARD: _____**RM:** _____ **BED**_____

DRUG ALLERGIES

Considerations for choice of drug and dose adjustments (Tick as appropriate: attach laboratory reports when ordering medicines)

- ☐ Renal Impairment
- ☐ Hepatic impairment
- ☐ IV Fluids
- ☐ FBC
- ☐ Culture and sensitivity

Others (Specify) _____

STAT MEDICINES / ONCE ONLY MEDICINES

					NURSING			PHARMACY USE ONLY			
Date	**Drug**	**Dose**	**Route**	**Sign**	**Name**	**Sign**	**Time**	**Date**	**Qty**	**DISP. by**	**Sign**

FLUIDS AND PARENTERAL NUTRITION SECTION
(Administration details to be indicated in the fluid chart)

Date	**ITEM & ADMINISTRATION INSTRUCTIONS (Volume, Frequency, Rate, Duration)**	**Prescribed by**			**Pharmacy use only**		
		Name	**Sign**	**Date**	**Qty**	**Disp. by**	**Sign**

OXYGEN PRESCRIPTION

Date	**Time**	**Mode of delivery**	**Flow Rate**	**Frequency of monitoring**	**Target SpO_2**	**Name**	**sign**

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**								**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			**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			**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			**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			**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			**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			**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			**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			**6 PM**										
☐ Prophylaxis ☐ Empiric ☐ Therapeutic			**10 PM**										

	DISCHARGE MEDICINES	**Pharmacy use only**		
		Qty	**Name**	**Sign**
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13				

Prescriber Name: _____ **Sign:** _____

Designation: _____ **Date:** _____

PAEDIATRIC INPATIENT NURSING CARDEX

PAEDIATRIC INPATIENT NURSING CARDEX				
NAME			AGE	IP NO: _____
DATE: _____	TIME: _____	SEX: F ☐ M ☐ I ☐	DIAGNOSIS: _____	

HISTORY OF CURRENT DISEASE:

PAST MEDICAL/SURGICAL HISTORY:

FOOD AND DRUG ALLERGIES:

FAMILY MEDICAL, SOCIAL AND ECONOMIC HISTORY:

NUTRITION HISTORY:

BIRTH HISTORY:

DEVELOPMENTAL HISTORY:

IMMUNIZATION HISTORY:

PHYSICAL EXAMINATION (HEAD TO TOE):

DATE	TIME	NOTES (Include routine obs, emergency signs & actions taken)	NAME / SIGNATURE

NURSING CARE PLAN

NAME: _____ IP NO: _____ DATE: FROM: _____ TO: _____

DOA: _____ DIAGNOSIS: _____ WARD: _____ BED: _____

DATE/ TIME	ASSESSMENT/ CLUSTER OF CUES	NURSING DIAGNOSIS	GOAL/ EXPECTED OUTCOME	INTERVENTION/ PLAN OF ACTION	RATIONALE	IMPLEMENTATION	EVALUATION	SIGN & NAME

COMPILED BY: _____ SIGNATURE: _____ DESIGNATION: _____

COMPREHENSIVE MONITORING FORM - PAEDIATRIC VITAL SIGNS CHART

Name:_____ Age:_____ Ward: _____ IP No.: _____ Consultant: _____

DATE	TIME	WEIGHT	AVPU	TEMP	PR	RR	BP	RBS	SPO_2	OXYGEN FLOW	OXYGEN DEVICE	PASSED URINE	OPEN BOWEL	PAIN (Y/N)
Sign														

Key	Temperature x Oxygen de-vice:	BP >....<	Pulse & Resp . (dot)	Passed Urine Y/N Open Bowels Y/N
		P: Nasal prongs		

LABORATORY RESULTS MONITORING FORM

Name of patient: _____ **Age:**_____ **Wt:** _____ **IP:** _____								
		Results						
	Date: dd____dd___yyyy_____							
	Time: _____am _____pm							
	Test:							
Haematology	WBC total count							
	Granulocytes							
	Lymphocytes							
	Eosinophils							
	Monocytes							
	Basophils							
	Haemoglobin							
	RBC total count							
	MCV							
	MCH							
	MCHC							
	HCT							
	Platelet count							
	Reticulocyte Count							
	Peripheral blood film (PBF)							
	Bone marrow aspirate							
Blood grouping	Blood grouping and Cross-matching							
	Direct Coomb's Test							
	Indirect Coomb's Test							
Coagulation profile	INR							
	PT							
	Bleeding Time							
	Clotting Time							
Others	Sickling Test/Hb Electrophoresis							
	Erythrocyte Sedimentation Rate (ESR)							
	C- reactive protein (CRP)							
Blood Sugar	Random Blood Sugar							
	Fasting Blood Sugar							

Blood Bio-chemistry	Urea							
	Creatinine							
	Potassium							
	Sodium							
	Chloride							
	Calcium							
	Phosphate							
	Magnesium							
	Alkaline Phoshatase (ALP)							
	Alanine Transaminase - ALT (SGPT)							
	Aspartate Aminotransferase-AST (SGOT)							
	Total Bilirubin							
	Direct Birirubin							
	Indirect Bilirubin							
	Gamma-glutamyl transpeptidase (GGT)							
	Total Protein							
	Albumin							
	Thyroid Function Test (TFT)							
Serology	HIV Rapid Testing							
	Anti-Streptolysing O-Test (ASOT)							
CSF Analysis	Appearance							
	WBC count							
	Protein							
	Glucose							
	CSF microscopy, culture and sensitivity							
	CSF CRAG							
	Others							
Urinalysis	Urine-Protein							
	Urine-Blood							
	Urine-Pus cells							
	Urine SG							
	Urine PH							
Stool analysis	Stool microscopy (Ova cyst and occult blood)							
	Others							
Malaria test	RDT							
	Microscopy							
Others								

DIABETIC KETOACIDOSIS (DKA) MONITORING CHART

PATIENTS NAME: ..... **I.P NUMBER:** .....

WARD: ..... **AGE:** ..... **SEX:** ..... **WEIGHT:** ..... **DATE:** .....

HOUR	1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH
TIME												
LEVEL OF CONSCIOUSNESS												
HEART RATE												
RESPIRATORY RATE												
BLOOD PRESSURE												
TEMPERATURE												
BLOOD GLUCOSE												
KETONES												
U/E/C												
FLUID TYPE												
ROUTE												
RATE												
TOTAL INPUT												
URINE OUTPUT												
INSULIN DOSE												
MANAGEMENT												
HOUR	13TH	14TH	15TH	16TH	17TH	18TH	19TH	20TH	21ST	22ND	23RD	24TH
TIME												
LEVEL OF CONSCIOUSNESS												
HEART RATE												
RESPIRATORY RATE												
BLOOD PRESSURE												
TEMPERATURE												
BLOOD GLUCOSE												
KETONES												
U/E/C												
FLUID TYPE												
ROUTE												
RATE												
TOTAL INPUT												
URINE OUTPUT												
INSULIN DOSE												
MANAGEMENT												

NOTE: PATIENT SHOULD BE NIL PER ORAL

11. INPUT-OUTPUT MONITORING CHART

Name		**Ip No.:**	**Date:**
Age	**Weight:**	**Diagnosis:**	**Ward**
Fluid/Feed/Blood Prescribed:		**To Take…….....Mls Over The Next…….....Hours**	**Balance yesterday**
Start Time:		**End Time:**	**Output (Mls)**

INTAKE (ML)						**OUTPUT**			
Route: IV NG/Oral									
TIME	**TYPE OF FLUID OR BLOOD**	**IV AMOUNT**		**TYPE OF FEED/FLUID**	**FEED AMOUNT**				
		Targeted Amount	**Actual Amount**		**Actual amount (mls)**	**IF VOMITED (mls)**	**URINE (mls)**	**NG ASPIRATE/ DRAINS (mls)**	**DRAIN/FISTULA/STOOL (mls)**
	Total								
Grand total (IV+NG) intake over 24 hrs _____ hours= _____						**Fluid balance (Total input-Total output), specify negative (-) or positive (+): _____**			
Name: _____ Signature: _____									

INPATIENT THERAPEUTIC FEEDING CHART/CARD

Hospital						**REG.N***	
Name						**Referred From**	
Date of Admission		**Age**		**Sex**	**M☐ F☐ I☐**	**Admission criteria**	

	DATE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
MEASUREMENTS	**Height (cm)**												
	Weight (kg)												
	WHZ												
	MUAC (cm)												
	Oedema (+, ++, +++)												

WEIGHT CHART	**ADMISSION WT Kg**												

MEAL TIMES & FOOD INTAKE	**Milk/RUTF**													
	Amount Per Meal													
	Total Per Day													
	A= Absent V= Vomit R= Refuse ng= tube *indicate if ReSoMal or other fluids given*	**1**												
		2												
		3												
		4												
		5												
		6												
		7												
		8												
	PORRIDGE (Y/N)													

WEEKLY 24-HOUR FOOD INTAKE CHART

Name: ______________________________ **IP Number:** ______________________

Adm. Weight (kg): ______________________

Date:	Weight (kg)	Z Score	MUAC	Edema

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								

Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

Date:								
Time:	Amount of feed given:							
	Amount of feed remaining:							
Type of Feed:	Amount taken (a-b):							
	Amount taken by NGT m):							
Amount given:	Amount vomited (ml):							
	Number of times child had vomited:							
	Watery diarrhoea (Y/N)							
	No. of times had diarrhoea in 3hrs:							

BLOOD TRANSFUSION OBSERVATION CHART

Name of the patient: _____

IP NO:_____ Ward: _____ Age:_____ Sex: M ☐ F: ☐ I: ☐

Diagnosis :_____ Date of transfusion: _____

Types 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: _____ mls/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: _____ mls

Symptoms or Signs of Transfusion Reactions Observed

- General: Fever, Chills/Rigors, Flushing, Nausea/Vomiting
- Dermatological: Urticaria, Other skin rash
- Cardiac/Respiratory: Chest pain, Dyspnoea, Hypotension, Tachycardia
- Renal: Haemoglobinuria, Oliguria, Anuria
- Haematological: Unexplained bleeding
- Others: _____

_____

_____

Intervention/ Drugs Given

_____

_____

Name of the Nurse/Doctor/ Anaesthesist: _____

Signature: _____ Date: _____

PERIOPERATIVE FORMS

PERI OPERATIVE RECORD CHART

Surname: _____ Middle name: _____ First Name: _____

IP No: _____ Age: _____ Sex: ☐ M ☐ F ☐ I Ward: _____

Doctor/Dept: _____ Anaesthetist: _____

Diagnosis: _____ Procedure: _____

Tick when Completed	Description				Nursing: Action/Comment Observation
WARD	WARD CHECKLIST			THEATRE	
☐	Complete notes/Correct Documentation			☐	
☐	Complete consent form			☐	
☐	Complete anaesthesia assessment form			☐	
☐	Blood results			☐	
	Hb:	U&Es:			
	Blood Sugar				
☐	X-Match	Yes No	Blood Group		Units Available
	Medication				
☐	Pre-Medication			☐	
	Regular medication (Specify)				Time Given
☐	Allergies (State in Red)			☐	
☐	Nil by mouth: Fasted from			☐	
☐	Contact lens removed			☐	
☐	Hearing aid /Umb removed			☐	
☐	Implants/ Prosthetics			☐	
☐	Dental Caps/Crowns/Bridge work present			☐	
☐	Dentures removed/ Loose teeth			☐	
☐	Jewellery/ valuables removed			☐	
☐	Make up/Nail vanish removed			☐	
☐	Bath/ shower/ Gown on			☐	
☐	Shave/ Skin preparation			☐	
☐	Surgical site marked			☐	
☐	ID Band			☐	

Nursing observation (immediate Pre-Op)

Time Done: _____ Temp: _____ Pulse: _____ Resp: _____ BP: _____

CVP: _____ Height: _____ Weight in Kg: _____

X-rays & Scans Present / ECG other forms required: _____

Bladder emptied Yes ☐ No ☐ Time: _____ Urinalysis: _____

Pre-op visit done Yes ☐ No ☐ Comments: _____

O.R.Nurse: Name: _____ Sign: _____

Prepared By: _____ Handed over by: _____

Time Arrived at reception: _____ Received by: _____

Comments: _____

This document was developed by the Theatre Nurses Chapter of National Nurses Association of Kenya

PERIOPERATIVE FORMS

INTRA-OPERATIVE CHECK-LIST

INTRA-OPERATIVE MANAGEMENT

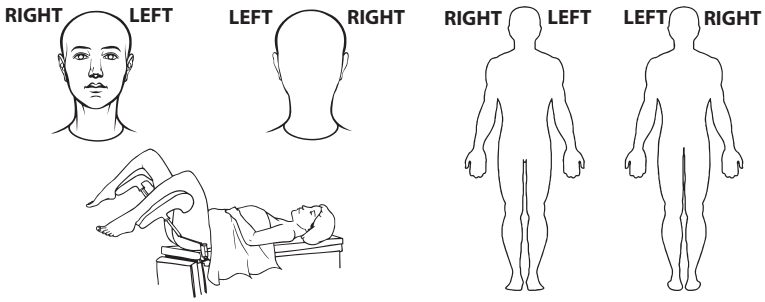
Date:	Theatre:				
Holding Area:	Time:	Stretcher ☐	Walking ☐	Carried ☐	Wheelchair ☐
SIGN IN: (Before Induction of Anaesthesia) Setting		**Setting**			
Anaesthesia assessment done	Yes ☐ No ☐	Coag:_____			
Difficult airway or risk of aspiration	Yes ☐ No ☐	Cutting:_____			
Risk of blood loss >500mls	Yes ☐ No ☐	Blend:_____			
AS CLASS ☐1 ☐2 ☐3 ☐4 ☐5		**Skin Assessment**			
Anaesthesia /medication check	Yes ☐ No ☐	Before: _____ By: _____ After: _____ By: _____			
Anaesthetic machine checked by Dr./Mr./Mrs./Ms. : _____					

FLID verified with Reg No.	Yes ☐	No ☐	
Op consent signed	Yes ☐	No ☐	
Site marked	Yes ☐	No ☐	
Pre op checklist completed	Yes ☐	No ☐	
Arrived with IV infusion	Yes ☐	No ☐	
Type and amount in bottle:_____			
IV canulation by:_____			Time: ____
Site RA.LA.RL.LL Other _____			
Prophylactic antibiotic ordered	Yes ☐	No ☐	
Time Given_____			
Shaving Done	Yes ☐	No ☐	
Sign In dose by Nurse: _____			
Anaesthesiologist: _____			
Time in OR suite:	_____		
Position			
Prone ☐	Supine ☐		Lateral ☐
Lithotomy ☐	Other:		
Safety Belt applied	Yes ☐	No ☐	
Arms secured	Yes ☐	No ☐	
Electric blanket used	Yes ☐	No ☐	
Other devices:			
Patient in proper body alignment	Yes ☐	No ☐	
Skin Assessment	Yes ☐	No ☐	

Tourniquet	R	L
Pressure		
Site		
Time on		
Time off		
Skin Assessment		
Before:_____ By: _____ After: _____ By: _____		

Wound Classification			
Clean		Clean Contaminated	
Contaminated		Infected	
Wound Irrigation			
Saline		Water	
Povidone Iodine		Antibiotic	
Other_____			
Type:_____		Site:_____	
Drain type			
Corrugated	Haemovac	UWB	NGT
Other:			
Arterial clamp:			
Clamp on:		Clamp off:	
TIME OUT (before incision)			
Introduction of members and roles			
Surgeon:			
Assistant:			
Anaesthetist:			
Scrub Nurse:			
Anaesthetic Tech:			
Circulating Nurse brief:			
Observers:			
Circulating Nurse brief:			
Surgeon brief:			
Anaesthesia brief:			
Scrub nurse brief:			
Sterility Check:			
Confirmation of operating site:			
Planned Surgery:			
Start time:			
Finish time:			

INTRA-OPERATIVE CHECKLIST (CONTINUATION)



Indicate these items on the diagrams provided

INCISION	DRAINS
EGG ELECTRODES	AREA PREPPED
ESU PAD	TOURNIQUET
Scrub Nurse's Signature:	
Circulating Nurse's Signature:	

SIGN OUT (Before patient leaves operating room)

SWABS INSTRUMENT AND SHARPS COUNT

	Raytec Swabs	Cottonnoids	Dissection Swabs	Needles	Blades	Instruments	Others	Others
Preliminary Check								
Wound closure								
Final Count								

Count Correct Yes ☐ No ☐

Complete Instruments, checklist Yes ☐ No ☐

If no, action taken _____

Surgical team informed Yes ☐ No ☐

Scrub nurse's signature: _____

Circulating nurse's signature: _____

WOUND CLOSURE

Skin Closure

Absorbable. _____

Non-Absorbable: _____

Other: _____

Dressing applied.

INTRAVENOUS INFUSIONS/ TRANSFUSION

Blood transfusion during surgery _____ mls

Packed cells: _____ mls

Whole:._____ mls

Others: _____ mls

Intravenous infusions: _____ mls

Estimated blood loss _____ mls

Urinary output (amount)._____ mls

MEDICATION INTRA-OP (SURGICAL SITE)				**SURGICAL IMPLANTS/ PROSTHESIS**	**LOT NO**	**SIZE**
MEDICATION/DOSE	**ROUTE**	**TIME**	**NAME**			

SPECIMENS VERIFIED	Yes ☐ No ☐	
Type	**Exam**	**Disposition**

Pre-op diagnosis: _____
Intra-op diagnosis: _____
Operation: _____
Equipment failure reported: _____
Pain Management: _____
Venous thromboprophylaxis indicated: _____
Sign out done by: _____
Name:_____ Sign: _____

Accurate paediatric documentation is essential for ensuring quality care and data-driven decision-making in clinical management, hence improved child health outcomes.

PERIOPERATIVE FORMS

Immediate Post-anaesthesia care monitoring form

IMMEDIATE POST ANAESTHESIA CARE

Handover given by: _____ Time: _____

Patient Position: _____ Items handed over: _____

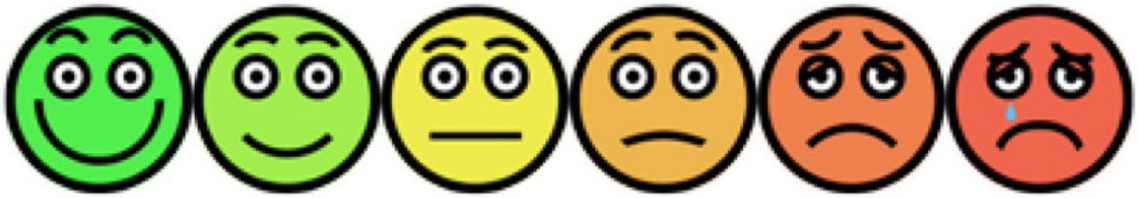
OBSERVATIONS

PAR SCORES			On adm						Disch.
Airway	2	Maintain good airway							
	1	Need airway maintained							
	0	Incubated							
Ventilation	2	Able to deep breathe & cough							
	1	Dyspnea or limited breathing							
	0	On ventilation							
Colour	2	Pink							
	1	Pale							
	0	Cyanotic							
Awareness	2	Fully awake							
	1	Arousable							
	0	Not responding							
Movement	2	Moves purposefully							
	1	Moves involuntarily							
	0	Not moving							
		Total Score							

Time	Adm.						Disch.
Respiratory retention							
Temperature							
Pulse rate							
Blood Pressure							
Oxygen Litres/min							
Oxygen Saturation							
CVC Monitoring							
Blood Transfusion							
Wound dressing check							
Bleeding checked /pv loss							
Wound packs removed							
Drains present (specify)							
Implants present							
X-rays present							
Nausea score							
Pain Score							

Medication for Nausea & Vomiting / pain Given ☐ Yes: ☐ No: ☐ Specify: _____ Time: _____

PAIN SCORE



0 NO PAIN | **1-2 MILD PAIN** | **3-4 DISCOMFORTING** | **5-6 DISTRESSING** | **7-8 INTENSE** | **9-10 EXCRUCIATING**

Post -op management discussed with doctor: Yes ☐ No ☐

IV fluids infusing: _____ Amount in bottle at handover: _____

Output Urine (mls): _____ Drains: _____ Other _____

Total Output (mls)_____ IV Care Done Yes ☐ No ☐

Specimen: Yes ☐ No ☐ Taken to_____By_____

Skin integrity_____

Recommended Post- op Nursing Position:_____

Immediate vital signs at handover: T_____P_____R_____BP_____

Items to be handed over: ☐ X-ray films ☐ USB disk / dvd for laparascopy ☐ Valuables

RECOVERY ROOM HANDOVER	**WARD RECEIPT**
Transferred by:	**Received by nurse :**
Name:	**Name:**
Signature	**Signature:**
Time	**Transferred to:**

This document was developed by the Theatre Nurses Chapter of National Nurses Association of Kenya

CHARGE SHEET

SNO	ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
STATIONERY (e.g patient file)				
1	**PATIENT FILE**			
2				
3				
4				
5				
PHARMACEUTICALS (eg. ORAL,IV/IM DRUGS, IV FLUIDS)				
1.				
2.				
3.				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
MEDICAL CONSUMABLES/ NON-PHARMACEUTICALS (eg. dressings, gloves, IV cannulas etc)				
1				
2				
3				
NUTRITION/THERAPEUTIC FEEDS AND FLUIDS (eg F75, F100,RUTF,TPN)				
1				
2				
3				
4				
LAB INVESTIGATION CHARGES				
1				
2				
3				
4				
5				
MEDICAL PROCEDURES				
1				
2				
3				
MEDICAL GASSES (OXYGEN, NITROUS OXIDE, MEDICAL)				
1				
2				
3				

4				
5				
THEATRE				
1	CONSOLIDATED MINOR THEA-TER CHARGES			
2	CONSOLIDATED MAJOR THE-ATER CHARGES			
PHYSIOTHERAPY CHARGES				
PHYSIOTHERAPY SERVICES		Number of sessions done	Unit cost	Total
OCCUPATIONAL THERAPY CHARGES				
OCCUPATIONAL THERAPY SERVICES		Number of sessions done	Unit cost	Total
1				
2				
3				
ORTHOPAEDIC PROCEDURES CHARGES (e.g POP)				
1				
2				
3				
ENT (DENTAL AND EYE PROCEDURE)				
1				
2				
3				
HOUSE KEEPING AND IPC CHARGES				
1	HOUSE KEEPING AND IPC CONSOLIDATED CHARGES			
2	Daily bed charges			
PROFESSIONAL CHARGES				
1	DAILY TEAM WARD ROUND (CONSULTANT, MO, NO, CO'S, PHARMACY,NUTRITION)	NUMBER OF DAYS……....		
REVIEWS		**NUMBER OF DAYS**	**UNIT COST**	
1	PAEDITRICIAN/NEONATOLOGIST CONSULT			
2	OTHER SPECIALIST REVIEW SERVICES	NUMBER OF VISITS		
	a)			
	b)			
	c)			
3	CLINICIAN SERVICES			
4	PHYSIOTHERAPY			
5	NUTRITION			
6	OTHER PROFESSIONAL CHARGES			
	a)			
	b)			
	c)			
Gross total				
Exemptions/ Waiver? Yes ☐ No ☐ if yes, Waiver no: _____			Insurance Claims?	
Other insurance?		Government policy programmes e.g. Linda Mama		
Net Total:				

PAEDIATRIC DISCHARGE SUMMARY

Patient name_____ Hospital name_____ IP No:_____					
Ward	Age…..... Yrs…....Mo…..	Days of admission	Date of Birth (dd/mm/yyyy)	Sex: F ☐ M ☐ I ☐	
Contact- (Tel)			Date of admission (dd/mm/yyyy)		
Consultant			Date of discharge (dd/mm/yyyy)		
Outcome ☐ Discharged ☐ Absconded ☐ Referred					
Vaccine given at discharge _____ _____					
Paediatric Discharge diagnoses					
Primary Diagnosis			**Secondary Diagnosis**		
Weight at Admission			Weight at discharge		
Summary of Key Interventions, investigations (Procedures) & Progress _____ _____ _____ _____ _____ _____ _____					
Condition on Discharge	Normal		Neurological sequelae		Other complications
Follow up	NONE	WARD	POPC	Nutrition Clinic / OT Clinic	Name of other clinic
	Days or Weeks after discharge		Days=	Weeks=	
Linkage to community health Unit	Yes		No	If Yes	Name of CHU
Discharge medications and special instructions (if any) _____ _____ _____ _____ _____ _____					
Compiled by (Name): _____ Designation: _____ Sign: _____ *To be filled in duplicate and original perforated*					

PAEDIATRIC REFERRAL FORM

Date: _____ Time: _____

Referral category

County ☐ Inter county ☐ National referral ☐ International ☐ Urgent ☐ Not Urgent ☐

REFERRAL FORM

HEALTH FACILITY DETAILS

Referring From:	Referring To:
Facility name:	Facility name:
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 ☐ NGO ☐	Facility Ownership: Private ☐ Public ☐ FBO ☐ NGO ☐

PATIENT DETAILS

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

IP/OP No.: _____

Caregivers Name: _____ Contact 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 _____

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_

☐ Apnoea/Gasping

☐ Severe respiratory distress (Fast breathing/Grunting /Stridor)

☐ Wheeze/Crackles

☐ Shock/severe dehydration

☐ Head nodding/ Nasal flaring/ Lower chest wall indrawing

☐ Unable to drink or Vomits everything

☐ Is lethargic or unconscious

☐ Convulsions in this illness

☐ Irritable/ Dullness

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

☐ Severe Pallor

☐ Severe Pain

☐ Visible external bleeding

☐ Trauma

☐ Burns

Others specify? _____

VITAL SIGNS:

☐ Temperature ☐ Respiratory Rate ☐ Pulse Rate ☐ Cap Refill: ≤3sec / >3 sec

☐ SpO_2 ☐ RBS

INTERVENTIONS:

1. Resuscitation: Yes ☐ No ☐ Oxygen Yes ☐ No ☐
2. Nebulization: Yes ☐ No ☐
3. Blood transfusion: Yes ☐ No ☐
4. Fluids _____ Amount _____ Start Time: _____ Stop Time: _____
5. 10% Dextrose Yes ☐ No ☐

Feeding mode: Breastfeeding ☐ Cup ☐ NGT ☐

Medications given:

_____

_____

_____

Additional Notes

_____

_____

_____

Referred by: Name: _____

Designation: _____

Signature: _____ Telephone No: _____

Accompaning officer name: _____

Designation: _____

Signature: _____ Telephone No: _____

CONDITION OF CHILD ON ARRIVAL

Stable ☐ Critical ☐ Dead ☐

Temperature: _____ Pulse: _____ Respiratory rate:_____ SPO2:_____

Name of receiving officer: _____

Designation: _____

Sign: _____ Date: _____

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 anomality ☐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

FOR OFFICIAL (PPB) USE ONLY
ADR Report No: ...../...../..... Date Received ...../...../.....
Vigiflow Entry Number..... Date Committed ...../...../.....

ADVERSE TRANSFUSION REACTION FORM

(FOM20/MIP/PMS/SOP/001

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

IN CONFIDENCE

ADVERSE TRANSFUSION REACTION FORM

In the event of a severe reaction following transfusion of blood or blood products please complete this form and send it to the laboratory with the specimens listed below.

PATIENT INFORMATION

Patient name:_____ Age: _____
Gender: ☐ Male ☐ Female Patient No.: _____

Diagnosis: _____
Ward:_____
Pre-transfusion HB: _____
Reason for transfusion: _____
Current Medications: _____

Obstetric History: ☐ N/A ☐ Gravid_____☐ Para ____
Previous Transfusion: ☐ Yes ☐ No
Comment: _____
Previous Reactions: ☐ Yes ☐ No
Comment: _____

REACTION INFORMATION

Type of reaction
1. General: ☐ Fever ☐ Chills/Rigors ☐ Flushing
☐ Nausea/ Vomiting
2. Dermatological: ☐ Urticaria, ☐ Other skin rash
3. Cardiac/Respiratory: ☐ Chest pain ☐ Dyspnoea
☐ Hypotension ☐ Tachycardia
4. Renal: ☐ Haemoglobinuria- Dark urine ☐ Oliguria
☐ Anuria
5. Haematological: ☐ Unexplained bleeding
6. Others (Specify): _____

Vital Signs: At Start: BP_____ During (15min) BP _____ At stop: BP_____
T_____ T _____ T_____
P_____ P _____ P_____
R_____ R _____ R_____

COMPONENT INFORMATION

Name of Nurse/Doctor: _____

Signature: _____

Type of component	Pint No	Expiry Date	Volume Transfused

Specimens required by the laboratory

1. *10mls post-transfusion whole blood from patient from plain bottle*
2. *2mls of blood in EDTA bottle*
3. *10mls First Void Urine*
4. *The blood that reacted together with the attached transfusion set*
5. *All empty blood bags of already transfused unit*

LAB INVESTIGATION: (Transfusion manager)

1. **Recipient's blood supernatant:**
Hemolysis ☐Present ☐ Absent ☐ Equivocal
If present ☐ Mild ☐ Moderate ☐Marked
2. **Recipient's blood:**
Agglutination ☐ Present ☐ Absent
3. **Haematological results:** WBC_____HB_____RBC_____HCT_____MCV _____
MCH_____MCHC_____PLT _____

Film Rbc:_____Wbc:_____PLt: _____

4. **Donor blood supernatant:**
Hemolysis ☐ Present ☐ Absent
5. **Age of donor pack:** _____
6. **Culture donor pack: Results:** _____
7. **Culture recipient blood: Results:** _____

8. Compatibility testing recipient serum (pretransfusion sample) and donor cells (pack)

Compatible	Saline Rt	☐	Saline 37	☐	AHG	☐	Albumin 37 ☐
Incompatible	Saline Rt	☐	Saline 37	☐	AHG	☐	Albumin 37 ☐

9. If negative (inconclusive results in 8) set up compatibility with enzyme treated cells Result: _____

10. In case of blood group O transfused to A or B or AB individual: Establish from the donor unit
Anti A titres_____Anti B titers_____

11. Urinalysis _____
12. Evaluation: Diagnosis
13. Was the adverse reaction related to transfusion?
☐ Yes ☐ No ☐ Inconclusive

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.
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The Pharmacy and Poisons Board on the above address

FOR OFFICIAL (PPB USE ONLY)	
ADR Report No: ...../...../.....	Date Received.....
Vigiflow Entry Number	Date Committed: .....

Annex 2: PAEDIATRIC REGISTER

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
Total number of admission 1-59months	
Total number of admissions 5- up to 10 years	
Total number of admissions 10-19years	
Total number of referrals from other facilities	
Total number of patients admitted With Moderate Acute malnutrition(MAM)	
Total number of patients admitted with Severe Acute Malnutrition	

Statistics	Number
Total number of children screened for TB	
Total number of patients with known HIV status	
Total number of patients who were measured SPO2	
Total no of children with Hypoxaemia (SpO2 <90%) who received oxygen	
Total no of patients with severe pneumonia initiated on Oxygen	
Total number of patients with diabetes	

		Anthropometry measures			Nutritional status																		
Blood Pressure	**Random Blood Sugar**	**Weight(Kg)**	**Height/Length(cm)**	**BMI-for-age (5-19years)**	**Z score** 1=Normal 2= Moderate Acute malnutrition 3=Severe acute malnutrition	**MUAC** 1= Green 2= Yellow 3= Red	**TB screening (Yes/No)**	**Presumptive TB** 1 =TB positive 2=TB negative	**Status on admission (triage)** 1=Emergency care, 2=Priority care, 3=Non-urgent care.	**Oxygen Administered (Yes/No)**	**Immunization status** 1 = [Up to 18 months] Fully immunized as per age 2= Not fully immunized as per age 3= Unknown 4 = Girls 10-14 years for HPV	**HIV Status** 1= positive 2 = Negative 3=KP 4=HIV Exposed Infant 5=Unknown	**Developmental Milestones (<5 yrs)** 1=Appropriate for age, 2= Not appropriate for age, 3=Not assessed	**Congenital Malformation**	**Disability** 1= Physical 2=Mental, 3= Hearing, 4= Visual	**Diagnosis on admission**	**Treatments given**	**Diagnosis at discharge**	**Outcome** Alive = A, Dead = D, U= Absconded	**Referrals To:** 1=To other Health Facility 2=To community Health Unit	**Date & Time of Referral**	**Date of discharge or death**	**Remarks**
P	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**AA**	**AB**	**AC**	**AD**	**AE**	**AF**	**AG**	**AH**	**AI**	**AJ**	**AK**	**AL**	**AM**

Statistics	Number
Developmental Milestones (under 5yrs)- Not appropriate for age (Summarize the not appropriate for age)	
Total number with Congenital Malformation	
Total no. of patients with any kind of disability	

Statistics	Number
Total number of patients with :	
a) Severe Pneumonia	
b) Diarrhea with severe dehydration	
c) Severe Malaria	
f) Meningitis	

Statistics	Number
Referrals from other Health Facilities	
Total number discharged home Alive	
Total number of deaths	

Annex 3: OXYGEN ALGORITHM

OXYGEN THERAPY

Hypoxeamia (SpO_2 <90%) can be assessed through clinical signs, pulse oximetry and blood gas analysis. It often presents in sick children and is a major risk factor for death regardless of the diagnosis.

Any child presenting with any of the following:

- Central cyanosis, head nodding, nasal flaring, grunting, severe lower chest-wall in-drawing, respiratory rate >70bpm
- Oxygen saturation (SpO2) <90%
- Convulsions
- Post resuscitation

GIVE OXYGEN

- Start giving oxygen at accurate and safe levels (Check flow rate, delivery method and oxygen prescription instructions on *page 29)*
- Target saturation: 91 - 95% for neonates, 90-95% for older children and 94 - 98% post resuscitation
- Titrate every 15 - 30mins by 0.5L/min until the target saturation is achieved

TARGET SATURATION ACHIEVED?

YES

- Maintain the oxygen flow rate
- Monitor the SpO_2 and work of breathing
- Treat any underlying medical problem

PATIENT STABLE?
SpO_2 >90%; No increased WoB; No emergency signs

YES

- Start weaning off oxygen by 0.5L/min every 30 mins
- Monitor the SpO2 and work of breathing
- Recheck SpO2 1 hour after stopping oxygen as late desaturation can occur

NO

- Refer patient for advanced care (high flow nasal cannula, CPAP or mechanical ventilation)
- Treat any underlying medical problem

NO

- Increase flow rates to achieve targets SpO2
- Change the oxygen delivery methods as appropriate
- Monitor the SpO_2 and work of breathing
- Treat any underlying medical problem

TARGET SATURATION ACHIEVED WITH HIGHEST FLOW RATE?

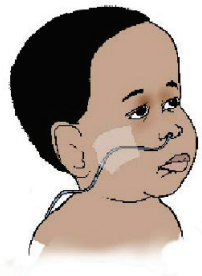
YES

NO

Discharge only if child has been stable with SpO2 ≥ 90% on room air and no increased work of breathing for at least 24 hrs.

Annex 4: PRESCRIBING OXYGEN

PRESCRIBING OXYGEN

Oxygen Administration Device.	**Flow rate**	**Fraction of inspired Oxygen (FiO_2)**
Nasal prong 	Standard Flow Rate: **Neonates:** 0.5 - 1 L/min **Infants:** 1 - 2 L min **Child:** 1 - 4 L min	Delivers **35%** O_2 to the patient.
	High Flow rate **Preterm Neonates:** 1L/min **Term neonates:** 2L/min **Infants:** 4 L/min **Child:** 4 - 8L/min	Delivers **50%** O_2 to patient
Nasal Catheter 	**Neonates:** Not recommended **Infants/child:** 1- 2L/min	Delivers **40%** O_2 to patient
Oxygen face mask with reservoir bag (non-rebreather mask) 	**All groups:** 10-15L/min (The bag should not deflate so as not to dilute the O_2 concentration)	Delivers **80-95%** O_2 to patient

*Humidification is needed for all patients on high flow rates
*Check for abdominal distension regularly.

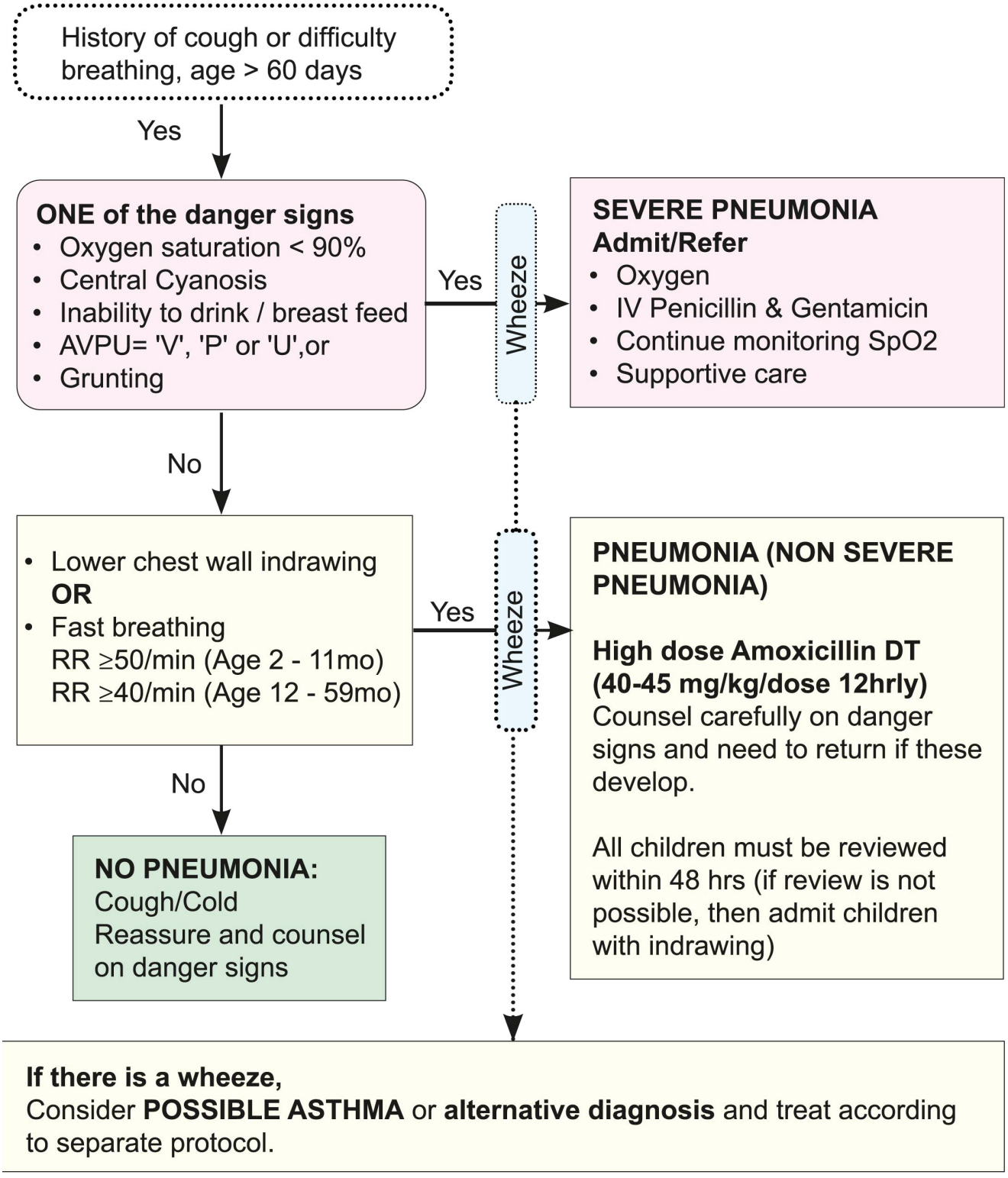
Always DOCUMENT the flow rate, delivery device, monitoring frequency and target oxygen saturation as part of the oxygen prescription.

Annex 5: PNEUMONIA MANAGEMENT

PNEUMONIA MANAGEMENT JOB AID

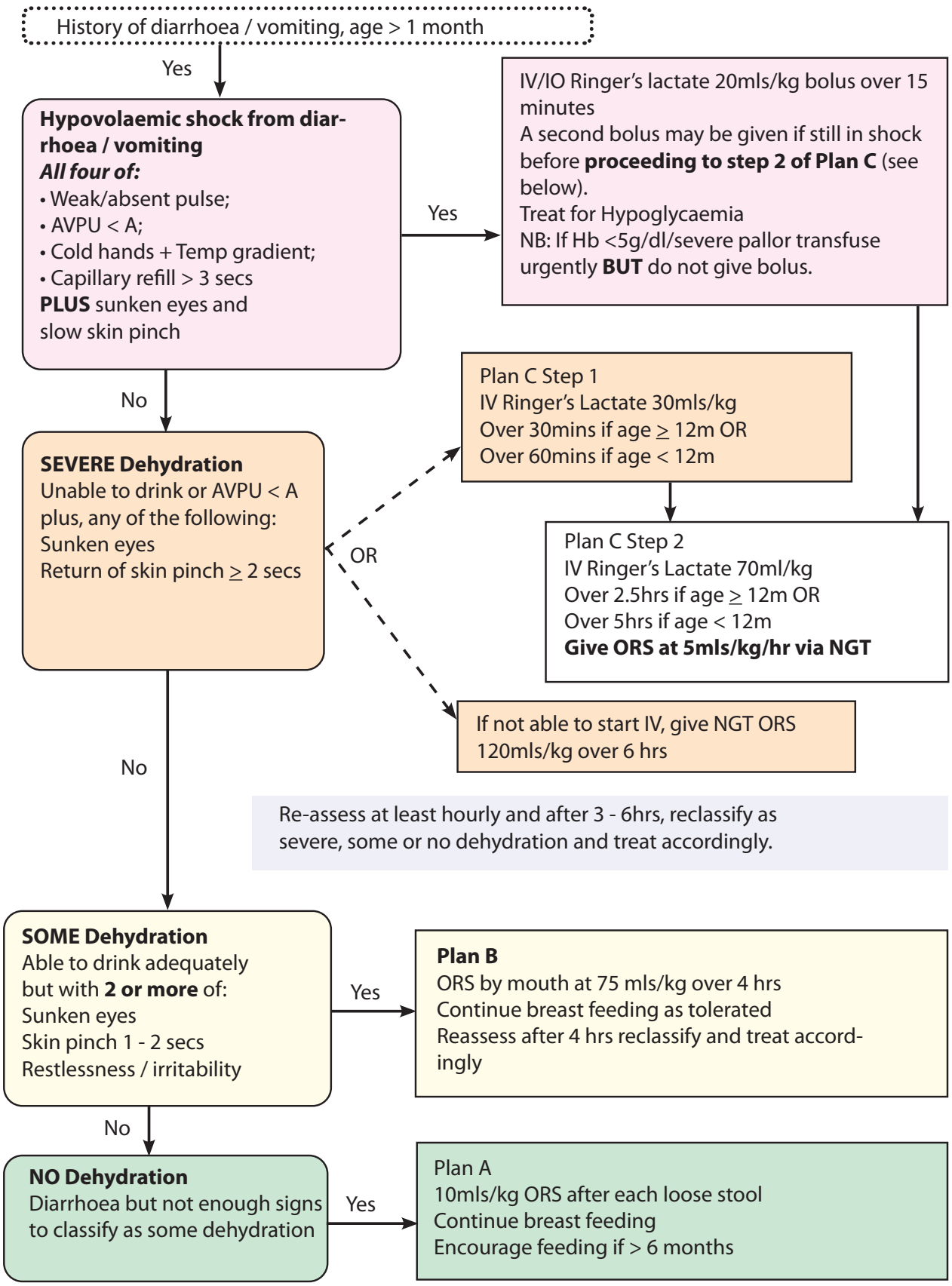
for children aged 2-59months without severe acute malnutrition

For HIV exposed/ infected children see separate protocol



Annex 6: DIARRHOEA ALGORITHM

Diarrhoea / Gastroenteritis
Age ≥ 1 month (excluding severe malnutrition)



All cases to receive Zinc. Antimicrobials are NOT indicated unless there is dysentery or proven amoebiasis or giardiasis.

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REPUBLIC OF KENYA

MINISTRY OF HEALTH