



Federal Ministry of Health

# KANGAROO MOTHER CARE (KMC) OPERATIONAL GUIDELINES



NOVEMBER 2021  
FIRST EDITION



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## Foreword

Each year, thousands of women, newborn and children die from preventable causes of death as a result of poor or lack of health care services. With an estimated population of about 200 million people, Nigeria's Maternal Mortality Ratio of 512 per 100,000 live births, Neonatal Mortality Rate of 38 per 1000 live births and Under-five Mortality Rate of 132 per 1000 live births, the newborn's ability to survive and thrive in the neonatal period and through infancy is strongly influenced by the birth weight. Low birth weight is the most important contributing factor to neonatal morbidity and mortality.

Preterm births and intra-uterine growth retardation lead to low birth weight (LBW), and are contributors to neonatal deaths. An estimated 31% of annual neonatal deaths are due to complications of preterm birth/low birth weights. Low birth weight newborns are four times more likely to die from common childhood diseases in the first year of life, than full term newborns.

Kangaroo Mother Care (KMC) is an evidence based simple, cost-effective way of caring for low birth weight infants. The concept has been adapted and integrated into Maternal, Newborn and Child Health guidelines and training modules in Nigeria. The Federal Ministry of Health (FMoH) and United States Agency for International Development - Maternal and Child Survival Program (USAID-MCSP) facility assessment of care of small newborns in Nigeria has observed that only few facilities have established functional KMC centres with capable frontline health workers to provide service. The development of KMC Operational guideline was therefore recommended to address the gaps observed during the facility assessment of care of small newborns.

This guideline will assist programme and health facility managers to establish KMC units across the country. It will also give a clear idea to service providers on what exactly KMC is and how KMC techniques can be implemented when caring for low birth weight infants and help in reducing neonatal mortality. To ensure standardization, harmonization and smooth implementation of KMC policies and practices in Nigeria, I therefore call on all stakeholders to adhere strictly to the Kangaroo Mother Care Operational Guideline.



**Dr Osagie Ehanire, MD, FWACS**  
Honourable Minister

## Acknowledgments

The Federal Ministry of Health, (FMoH) in collaboration with Professional bodies and development partners, developed the Kangaroo Mother Care (KMC) Operational Guideline in line with emerging issues on prematurity and small babies in the field of Newborn health.

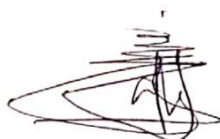
The Ministry appreciates the technical partnership of the Paediatrics Association of Nigeria (PAN), Nigerian Society of Neonatal Medicine (NISONM) and Society for Obstetrics and Gynecologists of Nigeria (SOGON) as well as the funding support from USAID-MCSP in this process, I also wish to acknowledge the excellent efforts of PAN/NISONM leadership of Prof. Angela Okolo, Prof. Austin Omoigberale, Prof. Chinyere Ezeaka and Prof. Mustapha Bello as well as the ENCC Consultants – Prof. Egun Adejuyigbe, Dr. Obumneme Ezeanosike, Dr. Suleiman Bello, Dr. Adejumo Ayede Idowu and the PAN/NISONM leadership that reviewed the initial draft of this document into which further inputs were made by other stakeholders.

I wish to particularly commend the support of our Development Partners notably USAID-MCSP, WHO, UNICEF, TSHIP, Save the Children, Pathfinder, IHP, JHPIEGO and others, for the technical support during the process of the development of the Operational Guideline of Kangaroo Mother Care.

The findings from the assessment of care of small newborns in Nigeria carried out at the facilities revealed that there is a great need for a KMC guideline and my appreciation goes to the Save the Children International for their support through this process and to all Consultants, who participated in the survey.

The commitment of Officers of the Child Health Division of the Department of Family Health who were at the driving seat of the review process was crucial to the overall success achieved. In this regard, the tireless efforts of Dr. Stella Nwosu, Head, Child Health Division and the Newborn Desk led by Dr. John Ovuoraye are recognized and highly appreciated.

If every second must count immediately after a child is born, definitely the effort of every stakeholder must be appreciated.



**Dr Salma Ibrahim Anas, MBBS, MWACP, FMCPH**  
Director, Family Health Department

## List of abbreviations

<b>BCC</b>	Behavior Change Communication
<b>CHEW</b>	Community Health Extension Worker
<b>EBF</b>	Exclusive Breast Feeding
<b>CHO</b>	Community Health Officer
<b>CHP</b>	Community Health Practitioner
<b>EBM</b>	Expressed Breast Milk
<b>ECSB</b>	Essential Care for Small Babies
<b>ECEB</b>	Essential Care for Every Baby
<b>ENCC</b>	Essential Newborn Care Course
<b>FMOH</b>	Federal Ministry of Health
<b>HR</b>	Human Resource
<b>HIV</b>	Human immunodeficiency virus
<b>IEC</b>	Information Education Communication
<b>JCHEW</b>	Junior Community Health Extension Workers
<b>KMC</b>	Kangaroo Mother Care
<b>LBW</b>	Low Birth Weight
<b>LGA</b>	Local Government Area
<b>LMIC</b>	Low- and middle-income countries
<b>M&amp;E</b>	Monitoring and evaluation
<b>MCSP</b>	Maternal and Child Survival Program
<b>NANNM</b>	National Association of Nigerian Nurses and Midwives
<b>NANPAN</b>	National Association of Nigeria Paediatric Nurses
<b>NISONM</b>	Nigerian Society of Neonatal Medicine
<b>SOGON</b>	Society of Gynaecologists and Obstetricians of Nigeria
<b>NSC-NH</b>	National Sub-Committee for Newborn Health
<b>NGT</b>	Nasogastric tube
<b>OGT</b>	Orogastric tube
<b>PTB</b>	Preterm Births
<b>PAN</b>	Paediatric Association of Nigeria



## Definition of terms

- **Birth weight:** This is the first weight of the newborn obtained after birth.
- **Normal weight newborns:** are newborns with a weight of 2500g and above at birth.
- **Low birth weight (LBW)** is defined as weight less than 2500 grams at birth regardless of the gestational age which can be a consequence of preterm birth or due to small size for gestational age or both.  
LBW babies may also be categorized as:
  - **Very LBW:** birth weight of less than 1500 grams.
  - **Extremely LBW:** birth weight of less than 1000 grams.
- **Preterm Birth (PTB):** is a baby born before 37 completed weeks of gestation counting from the first day of the mother's menstrual period.
  - **Extremely preterm:** less than 28 weeks gestational age.
  - **Very preterm newborns:** born from 28weeks to less than 32 completed weeks.
  - **Late to moderate preterm:** Born at 32weeks to less than 37 weeks (majority of PTBs are in this category).
- **Neonatal period:** This refers to the first 0-28 days of life of any baby.
- **Stable baby:** is a newborn baby whose vital functions (breathing and circulation) do not require continuous medical support and monitoring, and are not subject to rapid and unexpected deterioration.
- **Small baby:** Is a baby who is born preterm and/or baby with a low birth weight.
- **Small for gestational age newborn:** Are newborns with a birth weight less than the 10th centile for his or her gestational age. Many of these babies are term (ie 37 weeks gestational age and above) but are small due to insufficiency while in the womb.
- **Hypothermia:** body temperature (axillary) below 36.5 C.
- **Intrauterine growth restriction (IUGR):** impaired growth of the foetus in utero due to foetal disorders, maternal conditions or placental insufficiency.
- **Foremilk:** the milk that comes from the breast at the beginning of a feed.
- **Hind milk:** breast milk at the end of a feed. The hind milk contains more fat than the foremilk and has a higher calorie density.

Kangaroo Mother Care (KMC) Operational Guidelines

# CHAPTER 1

# INTRODUCTION



# CHAPTER 1: INTRODUCTION

- Kangaroo Mother Care (KMC) is defined as 'early, prolonged and continuous (as allowed by circumstances) skin-to-skin contact between a mother (or substitute for the mother) and her preterm/low birthweight infant (LBW), both in hospital and after early discharge (depending on circumstances), until at least the 40th week of post-natal gestational age, ideally with exclusive breastfeeding and appropriate follow-up.'*(Cochrane reviews 2011)*.
- Kangaroo Mother Care is conceptualized as a total health-care strategy, which is applied within a supportive environment where the mother of a LBW or premature small newborn is supported by health care workers and family members both in the health care facility and in the community once they are at home.
- KMC should not be confused with routine skin-to-skin care (SSC) at birth. World Health Organization (WHO) recommends skin-to-skin care immediately after delivery (for 1-2hours) for every newborn, irrespective of the birth weight to ensure warmth, and early initiation of breastfeeding in the delivery room. KMC is meant for stable preterm /LBW infants and denotes a sustained, prolonged-duration skin-to-skin contact.
- KMC intervention, when properly delivered, could reduce the risk of hypothermia by 66 percent, sepsis and hospital-acquired infections by 45 per cent, and overall neonatal mortality by 37 per cent. *(Cochrane reviews 2011)*.
- This document provides guidance to managers and health workers at all levels on making KMC the standard of care for all stable preterm and small newborn infants.

## Key features of KMC are:

- KMC Position: Early, continuous and prolonged skin-to-skin contact between the mother and the baby day and night.
- KMC Feeding: With early exclusive breastfeeding usually.
- KMC Support: Mothers and family require adequate support at the health facility and at home.
- KMC Discharge: Practice of KMC allows for early discharge of the mother and the baby to continue care at home.
- KMC Follow-up: Appropriate follow-up is recommended after they are discharged home.

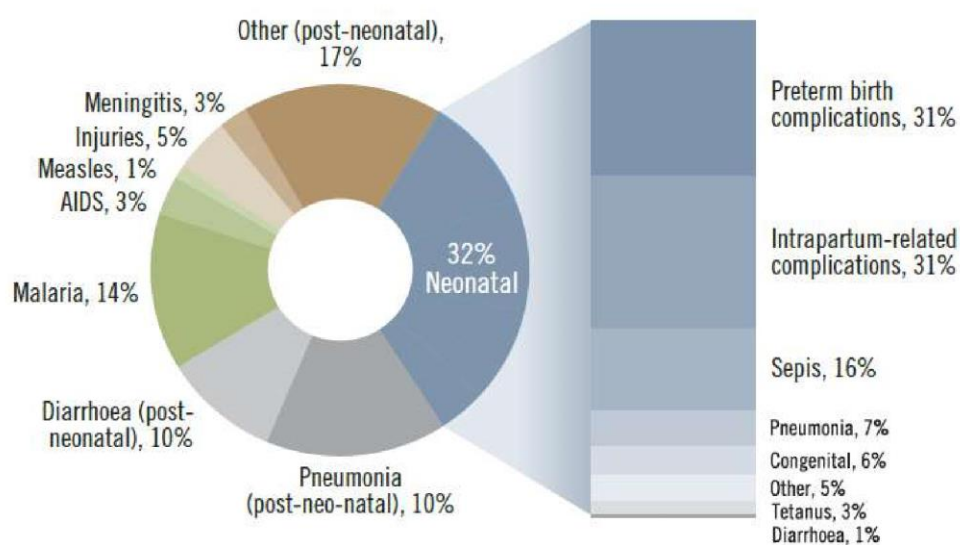
## 1.1: Burden of preterms and low birth weights

- Newborn deaths currently account for approximately 32% of all deaths of children under-five years of age in Nigeria (NiENAP 2016).
- Preterms/LBW (low birth weights) who are born too small, contribute significantly to the burden of neonatal morbidity and mortality. Thus, it is a major prerequisite to reduce newborn deaths in order to achieve a remarkable reduction in under-five mortality.
- Of the estimated seven million babies born in Nigeria every year, a total of 267,000 newborns, i.e 7 per cent of the global burden, still die each year within the first month of life. (FMOH: NiENAP 2016; Call to action 2014).
- In Nigeria, about 700 newborns die every day, the highest number in Africa, and the second globally. The three major causes of these deaths are complications due to prematurity (31%), intrapartum related deaths including asphyxia (31%), and infections (27%) (Sepsis (16%), Pneumonia (7%), Diarrhoea(1%) and Tetanus(3%). (FMOH: NiENAP 2016).

## KANGAROO MOTHER CARE (KMC)

- Birth weight is a significant determinant of newborn survival. Preterm births and babies who are born too small (low birth weight) with complications are the leading direct cause of 35% of the world's 2.9 million neonatal deaths. Nigeria ranks 3rd among the countries with the highest number of preterm births globally with an annual preterm birth of about 773,600 (Blencow et al 2012).
- The majority of cases of premature labour happen with no identifiable risk or cause making prevention difficult. However, some causes such as maternal diseases including infections, diabetes or hypertension can be identified and treated during antenatal care visits.
- One of the main reasons why low birth weight (preterm or growth restricted) newborns are at greater risk of illness and death is because they lack the ability to control their body temperature and therefore get cold very quickly. This poses a major challenge, as a cold newborn stop feeding and is more susceptible to infections.
- Prolonged skin-to-skin contact between the mother and her small newborn (preterm/ LBW) provides effective thermal control with a reduced risk of hypothermia, facilitating breastfeeding, and offers noticeable advantages to the baby and mother.

Figure 1: Causes of newborn and under-five mortality in Nigeria (NiENAP, 2016)



Data source: WHO and Maternal and Child Epidemiology Estimation Group (MCEE) 2015 data.unicef.org

**Preterm/low birth weight (born too small), intrapartum-related complications and infections remain the leading causes of newborn deaths in Nigeria.**

## 1.2: Thermal care for preterms/ low birth weights

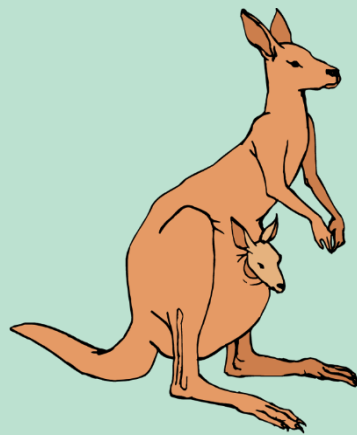
- Temperature control or thermoregulation in the neonate is a critical physiological function that is strongly influenced by physical immaturity, extent of illness and environmental factors. To help these babies survive outside of the womb, they are placed in an incubator, where available. The incubator environment should be kept clean according to standard aseptic procedures and at regulated temperature and humidity.
- However, challenges of incubator use include limited availability, inadequate cleaning/decontamination, frequent breakdowns, irregular maintenance, erratic power supply, non-availability of spare parts and lack of trained maintenance personnel. These further limit the number of available functional incubators.
- Furthermore, incubator care largely excludes the participation of the mother, leading to decreased breastfeeding, reduced maternal-newborn bonding with the attendant risk of abandonment and child abuse.
- KMC aims at bridging these challenges and gaps.
- Other means of keeping the baby warm include:
  - Radiant Warmer.
  - Open air crib with extra clothings/coverings, or with warmers underneath.
- It is noteworthy that skin to skin care position (SSC) has been recommended for keeping sick term newborns warm; and for transportation of all small and sick babies especially during referrals.

**The use of hot water bottle, hot charcoal, indoor burning of firewood are highly discouraged because of the attendant risks to the baby.**

### 1.3: History of Kangaroo Mother Care

- Kangaroo Mother Care is a simple, cost-effective method of caring for newborns, initiated by a team of paediatricians led by Drs Rey and Martinez, from the Maternal and Child Health Institute (Instituto Materno Infantil (IMI)) in Bogota, Colombia, in 1978, as a method of ambulatory care for preterm/low birth weights. (Charpak et al 1994).
- The aim was to provide thermal care for small LBW newborns as an alternative to inadequate and insufficient incubators. KMC was initially launched to address over-crowding and cross-infection.

KMC is conceptualized around the kangaroo animal which is found mostly in Australia. The mother Kangaroo naturally delivers its newborn called "joey" prematurely. This premature, baby kangaroo then crawls into the pouch of her mother, where it gets warmth and exclusive breast feeding for about 4-5 weeks, till it is mature enough to survive.



### 1.4: Benefits of Kangaroo Mother Care

- KMC is currently viewed as the highest impact intervention in the care of the LBW infants together with antenatal corticosteroids, and it is highly feasible to scale up in low-resource settings. (Lawn *et al* 2010).
- Almost three decades of implementation and research have made it clear that KMC is more than an alternative to incubator care. It can prevent up to half of all deaths in infants weighing <2000g (Lawn *et al* 2010).
- Furthermore, KMC can be integrated with other supportive care as needed, and emphasizes the important central role of the mother in the survival and well-being of her baby. KMC is an intervention that benefits everybody. It provides enormous advantages to the baby, mother and entire family, and to the health system generally.

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### 1.4.1: Benefits to the Baby

#### KMC:

- Stabilizes the baby's temperature and the baby utilizes less energy thereby preventing and reducing cold stress.
- Provides ready access to the breast thereby promoting and improving breastfeeding.
- Provides optimal infant growth and development,
- Has been found to reduce the frequency of infections including hospital acquired infections.
- Keeps the baby's heart and breathing rates stable, as the mother's heartbeat, breathing and voice help to stimulate the newborn, and helps to prevent apnoea.
- Keeps oxygenation, oxygen consumption and blood glucose levels equal to or better than infants receiving incubator care.
- Maintains baby's sleep patterns.
- Reduces stress, which results in less crying.
- Promotes higher rate of daily weight gain, increase in length and head circumference.
- Promotes better long term neurological/behavioural development and better intelligence quotient.
- Reduces re-admission rates.

### 1.4.2: Benefits to the Mother and Family

#### KMC:

- Enhances parental emotional and psychological wellbeing
- Promotes strong maternal emotional bonding with her baby.
- Increases mother's milk production and makes her more likely to exclusively breastfeed her baby.
- Enhances mother's confidence in handling her baby.
- Reduces the chances of maternal rejection and child abuse.
- Reduces length of hospital stay.
- Reduces cost of hospitalization.

- Improves family bonding as the father and other relatives can be involved in providing KMC.

### 1.4.3: Benefits to the Health System

#### KMC:

- Leads to shorter hospital stay and reduces bed occupancy rate.
- Lowers capital investment and recurrent costs.
- Involves mother and family thereby leaving staff free to provide other medical and nursing care.
- Leads to overall greater work output by the workforce.
- Provides opportunity for new mothers to be mentored by the more experienced ones.
- Generally reduces overall neonatal morbidity and mortality.

## 1.5: Types of KMC

Kangaroo Mother Care is conceptualized as a total health-care strategy, which is applied within a supportive environment where the mother of a LBW or premature newborn is supported by health care workers and family members both in the health care facility and in the community once they are at home.

KMC can take place both in hospital and at home, and is usually continued until the baby reaches at least 2,500 grams in weight (or post- conceptional gestational age of 40 weeks).

### 1. Hospital/Facility Based KMC

This type of KMC for LBW babies is usually initiated in the hospital till baby is stable for discharge and are of two main types:

#### a. Continuous KMC:

- This is when KMC is practiced constantly, day and night, for at least 20 hours in a day (and up to 24 hours if possible except for short periods when the mother is attending to personal needs (bath, toilet) or baby has a diaper change). During these times, the father, grandmother or other relatives may assist with keeping the baby warm with continued skin-to skin contact.
- It is the ideal type of KMC for LBW babies.

#### b. Intermittent KMC:

- Here the baby is put skin- to- skin contact for a few hours each day.
- When not in KMC position the baby is kept warm in an incubator or is warmly wrapped.
- Mostly used for very small and sick babies and /or for mothers who do not want, or are not yet ready or able to practice continuous KMC.
- At each episode, KMC should not last for less than 60 to 90 minutes to allow enough time for baby and mother to stabilize.



## 2. Ambulatory KMC

This refers to the **KMC** which is continued at home/community after the baby has been discharged home from the hospital/facility. These mothers give home (or **ambulatory**) **KMC** throughout the day. Many low birth weight infants need KMC for days or weeks after they are discharged home, and a regular follow-up must be ensured for optimum care.

Health workers should ensure that the mothers bring the babies to/fro the facilities for follow-up in the KMC position.

## 1.6: Status of KMC

- With the current high burden of neonatal mortality, there is a need to intensify efforts towards its reduction in Nigeria.
- Such efforts should be focused on reduction of mortality from low birth weight and preterm, hence the need for KMC.
- Findings from the recent assessment of care of small newborn in Nigeria revealed low uptake of KMC.

### 1.6.1: Key findings from the national care of the small newborns assessment (FMOH, Save the Children and USAID-MCSP 2016)

The survey concluded that:

- The teaching hospitals are the key players in the initiation of KMC in many of the centres assessed.
- Only few secondary hospitals admit and provide care for small newborn babies. Most refer the small newborns to higher level of care giving rise to missed opportunities for KMC practice.
- There was a dearth of specialized equipment in most hospitals surveyed for KMC.
- Lack of specific guidelines for KMC in most hospitals visited.
- There was no sustainability due to donor dependency.
- Poor provision of finances, space, infrastructure, and human resources for newborns. ÿ Poor documentation of records and lack of record keeping.

### 1.6.2: Key recommendations from the assessment

1. Advocacy/awareness to policy makers, health professionals and community leaders on the benefits of KMC.
2. Training and capacity building on KMC of all Health Care Workers providing newborn care services.
3. Planning for sustainability and ownership of programs by various facilities and communities.
4. Provision of guidelines, job aids, equipment, and IEC materials for KMC to various facilities and communities.

5. Continuous mentoring of smaller health facilities by bigger facilities on KMC.
6. Ensure proper record keeping.

### 1.7: Objectives of the operational guidelines

- The main objective of this guideline is to provide information for setting up KMC services at the health facilities. The document will aid to plan, introduce, expand, strengthen and monitor KMC practices in all levels of healthcare as the standard of care for all stable PTB/LBW babies in Nigeria.
- The guideline is meant for use by policy makers, planners, health care providers, trainers and health training institutions at all levels of care.

**The specific objectives are:**

- To create awareness and support for KMC.
- To provide a framework for the establishment, organization and operationalization of KMC as the standard of care for all PTB/LBW babies in all health facilities.
- Define minimum clinical standards for KMC at primary, secondary and tertiary level health facilities.
- To ensure the evaluation and monitoring of all aspects of KMC.

## CHAPTER 2

# KANGAROO MOTHER CARE (KMC) - PRACTICE GUIDE



# CHAPTER 2: KANGAROO MOTHER CARE (KMC) – PRACTICE GUIDE

- This chapter describes the standards for practicing KMC.

## 2.1: Starting KMC

### 2.1.1 Who can provide KMC?

- Mothers, Fathers, Grandparents, and other adult family members can provide KMC.
- The KMC provider should be willing, in good health, free from serious illness and should maintain basic standards of hygiene such as hand washing, daily bath, short fingernails, tied up hair and clean clothes.
- It is recommended that watches and jewellery (sacred threads/ornaments/beads) must be removed as they may be a barrier to maintain hygiene and might cause injury to the newborn.

### 2.1.2: Eligibility for KMC

#### a) Which mothers are eligible for KMC?

- Generally, all mothers can provide KMC, irrespective of age, parity, education, culture, religion, and social status.
- She must be willing to do it.
- She must be available all the time to provide the care needed.
- Her general health must be good.
- She needs a supportive family and community.

#### b) Which babies are eligible for KMC?

- All babies less than 2500g.
- The baby must be stable and able to breathe on its own.
- The baby must be free of life-threatening disease or malformations.
- No major illness present such as septicaemia, pneumonia, meningitis, respiratory distress and convulsions, and even if with these conditions, depending on individualised assessment, and baby is relatively stable, KMC can be commenced.
- Babies under phototherapy may be evaluated to receive intermittent KMC.
- KMC can also be initiated in a baby who is otherwise stable but may still be on intravenous fluids, and/ or oxygen.

***Clinical parameters of a stable newborn***

- *Respiratory rate 40-60/min*
- *Normal heart rate 100-160/min*
- *No sign of respiratory distress / chest in-drawing*
- *Pink in room air*
- *No apnoea*
- *No gross congenital/surgical problem that interferes with KMC*

**2.1.3: When to start KMC**

- As soon as the baby is stable.
- Kangaroo mother care can begin at birth, after initial assessment.
- Also pay particular attention to the condition and status of each mother/guardian.

**2.1.4: Counselling for KMC**

- Counselling for KMC is an ongoing process initiated during antenatal care, during admission, at presentation/delivery, on discharge, at home and in the community.
- It involves both discussion and demonstration of skills needed to practice KMC. Discussion includes allaying fears and anxiety of mothers.
- Counselling for KMC should be provided to mothers, fathers, grandmothers and other members that could assist.
- The mother needs to be well-prepared. Discussion and counselling of mothers and other family members should cover the following points:
  - The need for continuous skin-to-skin contact.
  - How the baby will be fed (e.g. breastfeeds, cup feeds, naso/orogastric feeds).
  - How to position and attach the baby for breastfeeding
  - How to express breast milk
  - How mother or other caregiver will care for her baby
  - What the mother/caregiver can and cannot do

## 2.2: How to put baby in KMC position

### 2.2.1: Clothing for KMC

#### a) Clothing for mother:

The factors to consider for choosing a KMC clothing include:

- safety of the baby
- easy monitoring of the baby
- mother's comfort
- It is, however, pertinent to emphasize that it is not mandatory to have any special dress, garment or binder for KMC so that initiation of KMC is not delayed/hindered.
- Mother should wear any front-open blouse or dress that is culturally acceptable, available and affordable.
- A suitable apparel made of cotton material that can retain the baby for extended periods of time can be adapted locally.
- Other options that can be utilized include using the mother's two wrappers.

#### b) Clothing for baby:

- Baby is naked and wearing only a cap, nappy/disposable diaper and socks.

### 2.2.2: Putting Baby in KMC position



Figure 2: Steps for putting baby in KMC position

**Key KMC Positioning Steps include:**

**Step 1** - Dress the baby in socks, a nappy and a cap.

**Step 2** - Place the baby between the mother's breasts.

**Step 3** - Secure the baby on to the mother's chest with a firm cloth. The top of the binder is just beneath the baby's ear

**Step 4** - Instruct the mother to put on a front opened top

**Step 5** - Instruct the mother to keep the baby upright when walking or sitting.

**Step 6**- Advise the mother/other caregivers to have the baby in continuous skin-to-skin contact at least 20 hours (or less if intermittent KMC) per day.

**Step 7** - Advise the mother to sleep in half sitting position in order to maintain vertical position of the baby.



*Figure 3: Carrying baby in KMC position*



*Figure 4: Father carrying baby in KMC position*

### 2.2.3: *Sleeping and resting in KMC*

- The mother will best sleep with the baby in kangaroo position in a reclined or semi-recumbent position, about 15 degrees from horizontal.
- This can be achieved with an adjustable bed, if available, or with several pillows on an ordinary bed. (Figure 5)
- It has been observed that this position may decrease the risk of apnoea for the baby. If the mother finds the semi-recumbent position uncomfortable, allow her to sleep as she prefers because the advantages of KMC are much greater than the risk of apnoea.



### 2.2.4: *Care of the Baby in the KMC Unit*

#### a) **Infection prevention**

- Wash hands
  - Before and after feeding the baby
  - Before and after changing the nappies
  - After using the toilet
- Clean or wipe baby daily (“head to toe”)
- Ensure the baby always wears clean nappies
- Ensure all cups and feeding utensils are clean before and after use
- Control access to non-essential personnel and visitors
- Apply all other standard infection prevention measures



**b) Cord Care during KMC**

- Cord care is important in preventing the newborn from getting infections such as tetanus and septicaemia. Cord care should include the following:
  - Apply 7.1% chlorhexidine digluconate (to deliver 4% chlorhexidine) gel to the cord immediately after cutting the cord
  - Apply 7.1% chlorhexidine digluconate (to deliver 4% chlorhexidine) gel to the cord once daily for 7 days
  - The baby should be given only sponged baths until the cord falls off and the umbilicus has healed.

**2.2.5: Monitoring of baby admitted into the KMC unit**

- Babies must remain in KMC position throughout the day except when mother is showering and performing domestic chores that require bending, going to the convenience or cooking with firewood.
- Observation of temperature, breathing pattern, heart rate and general wellbeing of the baby 3 hrly.
- Weight monitoring daily
- Record feeds and monitor daily feeds. (See KMC unit feeding and observation chart Annex 1)
- Chart treatment given if any.
- Pre-discharge readiness score sheet to be completed.
- KMC register should be kept on the ward for data collection and reporting purpose. (See KMC Register Annex 2)

**2.3: Feeding during KMC****2.3.1: Breastfeeding baby in KMC**

- The kangaroo position is ideal for breastfeeding. As soon as the baby shows signs of readiness for breastfeeding by moving the tongue and mouth or sucking fingers, help the mother to get into a breastfeeding position.
- Mother's own breast milk is specially adapted to the nutritional needs of LBW infants
- The LBW having no problem with breastfeeding should be initiated on the breast within the first 30 minutes of birth to prevent low blood sugar following the Essential Newborn Care Course (ENCC) national protocol. (FMOH: ENCC 2016)
- Most infants above 34 weeks gestation (>1800g) should be able to feed directly from the breast. However, newborns (<32-34 weeks) <1800g delivered in the primary health care centres should be referred to a higher level of care for specialized care ( FMOH: ENCC 2nd Edition ECSB 2018).
- Ensure that all babies on KMC are exclusively breastfed on demand for 6 months of life with sustained breastfeeding for two years and beyond.

- Mothers with preterms should be shown how to breastfeed (positioning and attachment of the baby to the breast) and how to maintain lactation as shown in Figure 6.



Good attachment

Poor attachment


**Figure 6: Good and poor attachment**

### 2.3.2: *Alternative feeding methods*

- The lower the birth weight of the baby, the higher the likelihood of feeding problems. Babies who are less than 34 weeks gestational age are usually unable to coordinate suckling, swallowing and breathing. Alternative feeding methods for babies who are not able to breastfeed include:
  - a) Expressing breast milk directly into the baby's mouth by the mother. (See Expression of Breast Milk Figure 7)
  - b) Cup feeding: Giving EBM with can be with a metal cup or a special soft plastic feeding cup with a small reservoir at its sprout to prevent excess milk to be poured into the baby's mouth (Nifty cup) See Figure 8.
  - c) Tube-feeding: EBM with tube is used when the baby cannot yet swallow, or coordinate swallowing and breathing, or tires too easily and does not get enough milk.
- It is preferred to insert the tube through the baby's mouth rather than the nose as small babies breathe through the nose and the tube placed in the nostrils may obstruct breathing.
- Generally babies who are less than 1500g (about less than 32 weeks gestation) should be fed through oro/naso gastric tubes.
- It is pertinent to note that tube insertion must be performed by a certified nurse/midwife or doctor, and not by any unskilled health worker, to prevent the tube going into the lungs of the baby leading to aspiration of milk and death. (Annex 3- Steps for inserting NG tube).

## EXPRESSION OF BREAST MILK

**1**  
Wash your hands well with soap and water




**2**  
Place a clean container below your breast to collect milk



**3**  
Massage the breast gently towards the nipple

Areola



**4**  
Place your thumb and index finger opposite each other just outside the areola (Areola is the dark soft circle around the nipple)

**5**  
Now press back towards your chest, then gently squeeze to express milk



**6**  
Repeat step 5 at different positions around the areola



Figure 7: Expression of breast milk



*Figure 8: Baby being fed with Nifty cup/Cup*

- While the suckling reflex is emerging, supplement these feeding methods by having the baby put to the breast for brief periods every day. Once the baby is suckling effectively and gaining weight, the baby should be exclusively breastfed.
- Ensure that supplies for feeding (NG tubes, feeding cups) are available and that infection control measures are observed at all times.
- Furthermore, when tube feeding, allow the milk to drip in by gravity by holding the milk syringe up; (See Figure 9) never inject with syringe under pressure. (Annex 4 outlines Steps for Gavage tube feeding)



*Figure 9: Gavage tube feeding*

**Interventions to improve the feeding of LBW and VLBW infants are likely to improve the immediate and longer-term health and well-being of the individual infant and have a significant impact on neonatal and infant mortality levels in the population. (WHO LBW Feeding 2016)**

### 2.3.3: *Expressing breast milk.*

- Hand expression is the best way to express breast milk. It is less likely to carry infection than a pump, and can be used by every woman at any time. Allow the mother to practice expression.
- Mothers should be taught the technique for the expression of colostrum and breast milk effectively following the guidelines for hand expression as described in the National ENCC ECSB Module Course.
- EBM can be kept in room temperature for 8 hours and in the refrigerator for 24 hours.
- A detailed description of is provided in Annex 5

### 2.3.4: *Feeding for HIV exposed babies:*

- All HIV positive mothers should be encouraged and supported to exclusively breastfeed for the first 6 months and continue breastfeeding up to 1 year with appropriate complementary feeds.
- Infants of these mothers should be provided with Nevirapine prophylaxis for up to 1 week after complete cessation of breastfeeding.
- See National HIV PMTCT Guidelines for subsequent protocols.

### 2.3.5: *Quantity and frequency of feeds*

- The ultimate aim for stable newborns is to ensure feeds every two hours (at least 12 times a day) for infants less than 1500g; and every three hours (at least 8 times a day) for infants weighing more than 1500g.
- Table 1 denotes the approximate total amount of milk (or fluid) needed by birth weight and age. Aim to get to about 150mls/ kg by the end of the first week depending on the baby's clinical condition. (WHO KMC Feeding Guidelines)
- VLBW (less than 1500g) and ELBW (less than 1000g) can be given increased fluid requirements on Day 1 up to 80mls/kg and 100mls /kg respectively especially if nursed under a radiant warmer or under phototherapy; and increasing by 20mls/kg each day.
- Table 2 shows the approximate amount of each feed volume based on the daily fluid requirements. Closely monitor the amount of feed each baby can tolerate per feed.
- VLBW babies (<1500g) and sick neonates should be nursed in specialized centres with facilities for establishing IV fluids for the first 24 hours, and starting tube feeds on Day 2 (or later) depending on the baby's clinical condition.
- Table 3 denotes an approximate amount of breast milk needed per feed by birth weight after IV fluids for newborns < 1.5kg for the secondary and tertiary levels.
- By Day 14 the baby should take 200ml/kg/day, which is the amount required for steady growth.
- For sick preterm babies requiring intravenous fluids, refer to fluid/feed chart in National Comprehensive newborn guideline.

Table 1: Approximate amount of milk (of fluid) needed per day by birth weight and age

Table 1. Amount of milk (or fluid) needed per day by birth weight and age								
Birth weight	Feed every	Day 1	Day 2	Day 3	Day 4	Day 5	Days 6-13	Day 14
1000-1499g	2 hours	60ml/kg	80ml/kg	90ml/kg	100ml/kg	110ml/kg	120-180 ml/kg	180-200 ml/kg
≥1500g	3 hours	60ml/kg	80ml/kg	90ml/kg	100ml/kg	110ml/kg	120-180 ml/kg	180-200 ml/kg

Table 2: Approximate amount of breast milk per feed by birth weight and age

Table 2. Approximate amount of breast milk needed per feed by birth weight and age.								
Birth Weight	Number of feeds	Day 1	Day 2	Day 3	Day 4	Day 5	Days 6-13	Day 14
1000g	12	5ml	7ml	8ml	9ml	10ml	11-16ml	17ml
1250g	12	6ml	8ml	9ml	11ml	12ml	14-19ml	21ml
1500g	8	12ml	15ml	17ml	19ml	21ml	23-33ml	35ml
1750g	8	14ml	18ml	20ml	22ml	24ml	26-42ml	45ml
2000g	8	15ml	20ml	23ml	25ml	28ml	30-45ml	50ml

### 2.3.6: Monitoring weight in KMC

- Ensuring adequacy of nutrition is perhaps the most important aspect of their care when a baby receives KMC.
- Most small babies lose 5-15% of the birth weight in the first week of life.
- They regain their birth weight in about 10-14 days after birth, and then start gaining weight daily.
- Monitor the growth rate by taking the daily weight of the baby.
- No weight loss is acceptable after this initial physiological loss period. Good weight gain is considered a sign of good health, and poor weight gain is a serious concern.
- Expected daily weight gain is an average rate of 15 g/kg/day of body weight after regaining the birth weight.
- If weight gain is poor, assess possible causes such as inadequate amount and frequency of feeds, inadequate skin-to-skin contact and long periods of wet nappies (causing cold stress), oral thrush, infections, anaemia and late metabolic acidosis. Address the

underlying causes.

- If there is weight loss or inadequate weight gain for 3 consecutive days (i.e. gaining an average of less than 15g/kg/day) then;
  - a)- If cup or tube feeding, assess the 24-hour volume of feeding. Is it sufficient? Could the baby take more?
  - b)-If breastfeeding directly, assess if there are problems with the breast or the technique. Also, assess the frequency and the duration of feedings for the past 24 hours.
- It is very crucial to check that night feeds are given as sometimes these are omitted.
- Wake mother and baby during the day and night to ensure regular feeding.
- Chart Daily feeds on Feeding Chart (Annex 1)
- Plot weight on a Preterm Growth Monitoring Chart every day. (Fenton Chart Annex 6)

### 2.3.7: Micronutrient supplementation in LBW infants:

- Small babies are born without sufficient stores of micronutrients, which may impact normal growth and development. (WHO LBW Micronutrient supplementation 2016)
- These micronutrients are commenced when the baby reaches full feeds ( receiving about 150mls/kg/day of feeds)
- Give Vitamin D 400IU-1000IU per day (usually obtained from multivitamin drops and from some calcium and phosphorous syrups) starting as soon as possible until 6 months of age
- VLBW fed mother's own milk should be given oral daily Calcium 120-140mg/kg/day till 40 weeks post menstrual age.
- Give Phosphorous 60-90 mg/kg/day supplementation till 40 weeks post menstrual age.
- Preterm babies, irrespective of weight, should receive iron supplementation 2-4mg/kg/per day starting at 2 weeks until 6 months of age.
- Give folic acid supplementation from the second month of life till 6 months of age.

## 2.4: Physical and Emotional Support for KMC

- For KMC to be successful, three words are basic: communication, education and support.
- Mothers, family members and staff need strong support and practical guidelines to initiate and sustain KMC.
- Individualized counseling is important during this period. This is the ideal opportunity to ensure that they are well-educated on health care practices at home, demonstrate care-giving practices and give basic health education, including danger signs.
- Health talks and informal discussion on KMC should be instituted, and mothers who are visiting their babies in the neonatal unit should be included.

### 2.4.1: Support for mother, baby and family

- A mother of a small baby needs physical and emotional support. Emotional support is provided through encouragement and reassurance so that the mother feels empowered to take care of the baby.
- In the first few weeks the mother needs physical and emotional support from family and health workers to support KMC, and for her to get enough sleep and rest.

- It is important to reassure the mother that most of the care the baby needs can be done while the baby is in skin- to-skin contact.
- The only routine reasons the baby will need to be taken out of skin-to-skin contact are or: - Clinical assessment.
  - Cord care.
  - Cleaning and nappy (diaper) change.
- Sometimes for feeding, especially for cup feeding.
- Maternal reasons include bathing, toilet, cooking with firewood, sweeping.
- The team's assessment and emotional support of the baby and mother, support and supervision of feeding and KMC position, and preparation for discharge are critical in ensuring effective KMC.

#### *2.4.2: Support for health workers*

- In order for the mothers to have adequate KMC support, all staff (including ward attendants) must be well trained and re-trained about the practice, be convinced of its effectiveness and accept it as an appropriate method for caring for small babies.
- Health staff also need skills to assist mothers to exclusively breastfeed their babies, including expression of breast milk, feeding with cups and storage of expressed breast milk.
- Proficient enthusiastic KMC staff should be designated as facility KMC champions to help motivate others.
- There is need for mentorship, observership at an established KMC unit and supportive supervision.
- The practice of ongoing family- centered care should be encouraged.

#### *2.4.3: Support for Communities*

- The KMC position might not seem usual in many societies because the need for skin-to-skin contact is often not appreciated.
- It is therefore important for health workers to be involved in community awareness activities relating to KMC for small babies.
- If the community is aware of the advantages of KMC and accepts it as the natural way, stigma will be minimized.
- Since extended family and community support is the norm in many cultures, health administration and personnel must identify community role models, KMC champions and other stakeholders involved and informed as much as possible.
- Encourage formation of support groups: Support groups for mothers with newborns undergoing KMC can greatly enhance adherence and retention to follow up.

#### *2.4.4: Male involvement in KMC*

- The males should be involved early while accompanying the partner to ANC.
- Continue to advocate to the father the need for male involvement in the care of the newborn, including carrying the baby in the KMC position.



- With his involvement in KMC, he becomes central to the caring team, supports the mother better for KMC at the hospital and at home, and improves bonding with the baby.

## 2.5: Discharge of baby from the KMC Unit.

- Certain crucial conditions will have to be met before a baby is considered for discharge from the KMC unit. These include an objective pre-discharge scoring assessment; and meeting up with criteria related to the baby, to the mother and assurance with subsequent regular follow- up.

### 2.5.1: KMC pre-discharge readiness scoring

- The KMC Daily Score Sheet assists medical and nursing staff to evaluate the progress of mother and baby regularly, and aids in their decision about a mother and baby's readiness for discharge from the KMC Unit (Healthy Newborn Network 2013)
- Babies are weighed daily and the weight gain per day is scored.
- The score includes 10 parameters each with a score of 0, 1 or 2. The parameters assessed include mother's milk production, mother's socio- economic support, mother's knowledge of KMC, acceptance and application of KMC, confidence in handling her baby, confidence in caring for baby at home, and administration of vitamin medications.
- The parameters relating to the baby include ability to suckle well at the breast, and/or cup feed and has a daily weight gain that is satisfactory.
- When mother and baby as a pair score continuously above 19 for one week using the pre-discharge readiness score sheet, baby can be discharged from the KMC unit. (Table 4: KMC pre-discharge score sheet).

KANGAROO MOTHER CARE (KMC)

Table 3: KMC Pre-discharge Readiness Score Sheet

KMC Daily Score Sheet				Date →																		
Name:		Breastfeeding:		Started 24h KMC:	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18
Reg No:		Formula:		...../...../.....																		
Evaluation	Score			Weight →																		
	0	1	2	Remarks																		
Socio-economic support	No help or support	Occasional help or support	Good support system																			
Mother's milk production	Expresses 0-10 ml breast milk	Expresses 10-20 ml breast milk	Expresses 20-30 ml breast milk	<i>Must score 2 before discharge. N/A for formula</i>																		
Positioning and latching baby onto breast	Always needs assistance	Occasionally needs assistance	No assistance needed	<i>Not applicable for formula feeding</i>																		
Baby's ability to suckle at the breast	Gets tired very quickly	Gets tired infrequently	Takes all feeds well																			
Confidence in handling baby i.e. feeding, bathing, changing	Always needs assistance	Occasionally needs assistance	No assistance needed																			
Baby's weight gain per day	0-10g	10-20g	20-30g	<i>Must score 1 or 2 for a few days before discharge</i>																		
Confidence in administering vitamin and iron drops	No confidence	Some confidence	Fully confident																			
Knowledge of KMC	No knowledge	Some knowledge	Knowledgeable																			
Acceptance & application of KMC	Does not accept or apply KMC method	Partly accepts & applies KMC method	Fully accepts and applies KMC method	<i>Applies KMC without having to be told</i>																		
Confidence in caring for baby at home	Does not feel sure or able	Feels slightly unsure & unable	Feels confident																			
<b>TOTAL SCORE per day</b>																						

### 2.5.2: *Criteria for discharge from KMC unit*

The baby is ready for discharge from the KMC unit when the following criteria have been met, otherwise, the discharge is delayed irrespective of the baby's weight.

#### **a) Criteria for the Newborns**

- Baby's overall condition is stable. There are no signs of infection, illness, breathing difficulty, temperature or other danger signs.
- Continuous weight gain of at least 15g/kg per day for 3 consecutive days
- Able to breastfeed and/or feed well by cup
- If possible baby to have a transfontanelle ultrasound scan before discharging from hospital as well as a complete ophthalmologic examination if at the higher levels of care.

#### **b) Criteria for the Mothers**

- Accepts the KMC method and observed to be confident about caring for the baby with KMC (i.e. feeding, bathing, changing)
- Able to breastfeed or express breast milk for feeding
- Willing to continue KMC at home
- Has support from the family to continue KMC including having a spouse/partner and/or close relative who is familiar with KMC.
- Mother/care-giver understands newborn danger signs and when she should return with baby immediately to the hospital.
- Whether mother will be returning to work or school ie who will actually be caring for baby following discharge.

#### **c) Criteria relating to follow- up**

- Assess the ability of the mother to return to the discharge health facility with KMC capacity
- Or the nearest local health facility with KMC facilities (according to the protocol) in line with the followup dates provided to her on discharge.
- Assess home location and distance from clinic/hospital. • Availability of transport.

## 2.6: Ambulatory follow-up visits after discharge from facility

After discharge from the KMC Unit, it is important to ensure follow-up for the mother and the baby, usually at the facility or with a skilled provider near the baby's home. When establishing KMC service in a facility, it is important to institute the structures for follow-up of the LBW babies. The babies should be put in the KMC position from home to come to the clinic. These clinics should have the following characteristics:

- The actual location should be well known preferably still near the KMC unit
- They should be managed by staff who are competent in KMC and care of the preterm baby
- Individual patient records should be available when needed, and all clinic staff familiar with the records. Registers and KMC records should be maintained in the clinic.
- KMC follow up clinic should be linked to the general newborn/paediatric out-patient clinic existing system so that the babies are routinely enrolled on attainment of a weight of 2500g.

### 2.6.1 Timing for follow-up visits

The smaller the baby is at discharge, the earlier and more frequent follow-up visits that will be needed.

Generally in most circumstances, the following guidelines will be valid:

- Two follow-up visits per week until 37 weeks corrected age.
- One follow-up visit per week after 37 weeks till 40 weeks of corrected post-menstrual age or baby achieves a weight of 2.5 kg.
- Subsequently, the baby starts attending the well baby clinic/routine child care paediatric clinic and is seen once every 2 - 4 weeks till 3 months post conceptional age.
- Later the baby should be seen at an interval of 1-2 months till the first year of life.
- The baby should gain adequate weight (15-20gm/kg/day up to 40 weeks of post-conceptional age and 10 gm/kg/ day subsequently).
- Babies with a weight gain of less than 15gms/kg/day after two consecutive visits should be re- admitted to a KMC unit.

### 2.6.2: Care during KMC follow-up visits

The contents of the follow-up visits will include:

- i. Conduct triage: Do a quick assessment of the baby to exclude danger signs.
- ii. Growth monitoring
  - Weigh the baby and check weight gain in the last period.
  - If weight gain is adequate, i.e. at least 15g/kg/day on average, praise the mother. If it is inadequate (less than 15gms/kg/day), ask and look for possible causes and solutions - these are generally related to feeding or illness.

- Plot weight, length and head circumference on a centile chart using corrected ages not chronological ages (See Fenton preterm growth chart Annex 6) (Fenton et al 2013)
- iii. History Taking - KMC
    - Obtain history from the mother/guardian to establish the duration of skin-to-skin contact, KMC positioning, clothing, body temperature, support for the mother and the baby. Ask about vitamins and haematinics.
  - iv. Breastfeeding
    - Establish if the baby is exclusively breastfed. If yes, praise the mother and encourage her to continue. Otherwise, find out the problem and provide support.
  - v. Physical examination
    - Perform a systemic physical assessment of the baby ask and look for any signs of illness.
    - Monitor for follow up eye exam for ROP, developmental, hearing, psychomotor and neurological evaluations up till one year especially in the referral facilities.
    - Check haematocrit at least once a month.
  - vi. Schedule and follow-up routine child care immunisations. Vaccines are administered at usual chronological ages.
  - vii. Mother's concerns: Ask the mother about her own health and her social support networks. Encourage her to join a KMC support group.
  - viii. Next follow-up visit: Always schedule and confirm the next visit.
  - ix. Record all findings on a standard KMC Follow up visit form (Table 5)

**KANGAROO MOTHER CARE (KMC)**

**Table 4: AMBULATORY KANGAROO MOTHER CARE FOLLOW-UP VISIT RECORD**

Name of the baby  
 .....  
 Address.....  
 Date of birth ..... Birth weight .....gms. Sex .....  
 Date KMC started .....Weight at start of KMC ...../ .....gms  
 Date of discharge .....Weight discharge ..... gms  
 Health Care Provider.....Date of review.....

Date of Visit	Method of Feeding	Weight /gm	Chief Complaints	Significant/Physical Examination Findings	Diagnosis	Treatment Summary	Comments	Date of next visit

**2.6.3: Indications for readmission/referral during KMC follow- ups**

- Readmit baby to the KMC unit or refer to a higher level of care if:
- The baby gained less than 15g/kg/day in two consecutive weekly follow up visits
  - The baby has not gained weight at all since discharge
  - The baby has lost weight
  - The baby is sick- Stops feeding, is not feeding well, or vomits, cold (<36.5) or has fever (>37.5), difficulty breathing, lethargy, convulsions, diarrhoea.
  - If there is no one to continue providing KMC and baby is less than 2000g
  - For referrals, always use a standardized referral form (Annex 7) and transfer baby in KMC position.

#### 2.6.4: *Community home-based visits*

- At the time of discharge, the infant should be taken home in KMC position by the mother or relatives, so as to encourage continued KMC at home.
- Communicate adequate information about hygiene, warm room (temperature 25-28°C), delaying giving baby full baths, protocol for follow up, and emphasis on family support at home.
- After discharge from the KMC unit, the baby attends routine follow-up at the discharging facility or the nearest health facility that offers KMC (based on the weight and the protocol) every week while on KMC until the baby reaches 2500gms.
- A community health extension worker (CHEW) should also routinely provide home based follow-up visits to ensure compliance with clinic follow-ups, support mother for KMC, ensure no danger signs, reinforce any health messages and serve as part of the routine post-natal visits.
- The CHEW should also initiate KMC, and refer all preterm/LBW babies delivered at home to a health facility for assessment.
- There is a crucial need to take this service to scale in Nigeria.

#### 2.6.5: *Discontinuation of KMC*

- KMC should be discontinued when the baby reaches term (corrected gestational age at 40 weeks) or 2500g. Usually, around this time the baby also outgrows the need for KMC.
- Baby restless and uncomfortable in the KMC position, pulls his limbs out, cries and fusses every time the mother tries to put him back skin-to-skin.
- Mothers can still provide skin-to-skin contact occasionally after giving the baby a bath and during cold nights.

#### 2.6.6: *Challenges with KMC*

Though kangaroo mother care is a low-cost lifesaving intervention, some of the mothers do have some challenges. Most of these can be addressed by giving effective counseling and appropriate support before commencing KMC, during KMC, and during the follow-up visits.

These include:

- KMC can be tiring for mothers.
- Preference of high technology over KMC may lead to some resistance by mothers.
- Cultural barriers.

Kangaroo Mother Care (KMC) Operational Guidelines

# CHAPTER 3

# KMC FACILITY IMPLEMENTATION GUIDELINES





# CHAPTER 3: KMC FACILITY IMPLEMENTATION GUIDELINES.

## 3.0: Guiding Principles

- If KMC is provided early, a significant proportion of LBW babies will be saved. It is therefore, crucial to have well-functioning facility-based KMC services across all levels of healthcare in the country.
- Setting up of KMC should involve mobilization and sensitization of policy makers at the national, state and facility levels to obtain their buy-in. The process of mobilization should be a thorough understanding of the underlying principle that KMC is crucial to saving the life of small newborns.
- Following their buy-in they should understand the need to implement the policy governing the institution of KMC at all levels of care. There should be a clear understanding of the need for proper planning, resource mobilization, site dedication and training to embrace KMC.

## 3.1: Implementation steps for facility KMC services

- Each health facility implementing KMC services should have a written policy and guidelines that are based on the national documents and adapted to its specific level of health care.
- Effective communication among policy makers, managers, supervisors, health workers and families need to be promoted and maintained.
- Implementation steps for setting up KMC services include:

### **Step 1: Conduct a facility assessment**

It is important to conduct a facility assessment before setting up a KMC service. This is in order to determine the facility's capacity to provide the service and identify any gaps for resource mobilization. A tool for facility assessment has been provided in (Annex 9)

### **Step 2: Work with policymakers and health authorities**

Conduct an orientation and stakeholder's working meeting with policymakers, health administrators, and representatives of the site(s) that will be introducing KMC training, staff, materials, and for them to understand the "what" and "why" of KMC.

### **Step 3: Plan and Implement Community Mobilization and BCC Activities on KMC:**

Understanding the prevailing beliefs, attitudes and practices around LBW/preterm babies developing appropriate sensitization and counseling messages for the relevant target audience.

**Step 4: Prepare the Facility and Staff to Implement KMC**

Preparation of the facility where KMC will be introduced is a critical step in a successful KMC program. Conduct a KMC training workshop for all staff that will directly provide KMC services. Develop an action plan.

**Step 5: Support and Supervision**

Support and supervision of the KMC program staff is a proven way of maintaining staff knowledge and skills.

**Step 6: Data for monitoring and evaluation**

Data related to KMC helps to measure the program impact. Monitoring and evaluation are central to the success of KMC evaluation and its quality.

**3.2: Establishing KMC Services**

- Prerequisites for implementing KMC largely depend on the level of care: tertiary, secondary or primary. The minimum standards for a KMC unit are highlighted below.
- This section describes the establishment and organization of services which also include provision of suitable space, essential equipment and supplies for mothers and babies, staffing and capacity building of health providers.

**3.2.1: Basic Infrastructure and dedicated space**

KMC does not require special facilities but simple arrangements can be made to make the mother's stay more comfortable.

- A sufficient dedicated space that can accommodate enough beds, side cupboards and chairs should be provided. This can be a space near the special care baby unit (SCBU)/newborn unit, or a partitioned space in the post-natal ward, which is furnished with comfortable reclining chairs, and beds with adjustable back rests and extra pillows.
- Essential facilities to go with the room include:
  - Bathrooms and toilets
  - A facility where they can wash clothing items
  - Sinks with running water and soap for effective hand washing
  - Additional support could include:
    - Kitchenette for making refreshments, with a refrigerator. Mother's meals can be supplied by the hospital or brought from home.
    - Recreational facilities to improve comfort of mothers and prevent boredom. Items needed include: handcraft materials, magazines, newspapers, radio, possibly a television. These are, however, not mandatory but recommended.
    - Where possible, a small room would be useful for individual work with mothers, discussion of private and confidential issues and for reassessing babies.
- The beds should be comfortable and adjustable with enough pillows to maintain an upright or semi-recumbent position

- Rooms should have privacy and adequate warmth (25-28°C). Curtains and screens can help to ensure privacy.

### 3.2.2: *Committed Policy makers*

- The main resource required is commitment from management, policy makers, decision makers and health workers
- Though a prerequisite for commencement, it is very significant for sustainability of KMC practice at any level of care.
- Motivation for KMC implementation most commonly comes in the form of enthusiastic health staff. This is probably best provided by visits to centers already practicing the method, preferably in well-resourced units, as well as a unit similar to the one wishing to start. These staff can be designated as 'Facility KMC Champions' to help motivate others.

### 3.2.3: *Human resources and staffing*

- Kangaroo Mother Care must not require additional staff at the health facility and it is recommended that the existing staff should have adequate training in all aspects of KMC.
- The KMC ward should be managed as part of the Newborn Unit on a 24 -hour basis.
- If a separate KMC ward is created, at least one staff nurse should be assigned to the KMC ward round the clock on duty roster.
- The basic complement of staff should include nurses, clinicians, counsellors and nutritionists.

### 3.2.4: *Capacity building requirements*

- The skills and competencies of the staff providing KMC services should be updated through training, mentorship and supervision.
- All health care providers working in the primary health care centres, secondary facilities, tertiary neonatal units at higher levels, and the private sector should be trained on KMC according to the national guidelines.
- Each health facility should have a programme of continuing education with regular review of areas such as KMC, breastfeeding and infection prevention.
- Mentorship and supportive supervision should be carried out in a standardized format.
- Nursing, allied health sciences and medical schools should include KMC in their pre-service and in-service trainings.

### 3.2.5: *Equipment and essential supplies for KMC*

- No specialized equipment is required but some recommended supplies to be duly budgeted for include neonatal weighing scales with 10g intervals, room thermometers, oro/naso-gastric feeding tubes sizes 5 and 6 F, small metal cups and nifty cups, measuring cups (to measure breast milk intake), hand washing facilities for both service providers and mothers, syringes and needles, job aids, patient record sheets and where possible, refrigerator and personalised storage facility for expressed breast milk.
- Other equipment and supplies include:
- KMC poster with written KMC policy and other educational materials
- Audio-visual communication materials and other IEC and BCC materials.

- A thermometer suitable for measuring body temperature down to 32°C (low reading thermometer);
- Basic resuscitation equipment (bag and sizes of masks 0(preterm) and 1 (term)) and oxygen in low and high flow forms (oxygen concentrators, oxygen from cylinders or piped oxygen where possible).
- Paediatric flow meters, nasal prongs, masks and pulse oximeters, phototherapy units if possible, depending on the level of care.
- Drugs for preventing and treating frequent problems of preterm newborn babies according to local protocols. Special drugs are sometimes needed.
- Registers, forms, checklists
- Easy supply of KMC wraps in the newborn and postnatal wards.

### **3.2.6: IEC and Behavioural Change Communication**

- The biggest obstacle to adopting KMC is the mistaken belief that KMC is a second-rate care that is more time-consuming than incubator care.
- The health facility should include various public enlightenment and awareness creation activities to address any misconceptions, and gain the support of all for effective provision of KMC services.
- IEC and BCC materials include pamphlets, posters, local films in native languages on the application of KMC.
- The media is very crucial to promote KMC in the press, social media, print media, on radio, and on television.

### **3.2.7: Data collection in the KMC unit**

- Appropriate data collection and collation will assist in measuring the impact of KMC. Data should be collected daily and analysed monthly.
- Important outcome measures include mortality, morbidity, somatic growth, early initiation of feeding, exclusive breastfeeding rate and compliance with program follow-up visit rates at 40 weeks of post-conceptual age and at one year of corrected age.
- To promote monitoring and evaluation of all aspects of KMC, indicators such as number of low birth weight deliveries, the number of infants given KMC, their length of stay and their health outcomes should be monitored closely at institutions in all levels of health care.

## **3.3: Specific recommendations for KMC services in the levels of care in Nigeria.**

- Preterm babies are best cared for in a health facility that provides special medical care required for managing their frequent complications.
- Thus, it should be ensured that when a premature baby is expected, the mother should be transferred to such a health facility before birth.
- If this is not possible, very small babies or small babies with problems should be transferred to a specialized facility as soon as possible.

- The national ENCC Essential Care for Small Babies (FMOH ECSB 2016) has given guidance on care of the small baby with emphasis on KMC, breastfeeding, preventing bacterial infections, and depicting birthweight cut-offs and danger signs for immediate referral. (Fig 10: ENCC ECSB Action Plan Chart)
- There should be a coherent and effective integration of KMC within pre-existing structures of the health system. Education and training, and the referral system across the levels of care should be organized to effectively guarantee the safety of all small newborns.

### 3.3.1: Primary Health Care (PHC) Centres

- Primary health care level centres do not run in-patient care services but majority of deliveries occur at this level of care.
- Thus, they should counsel mothers after delivery, initiate prolonged skin -to- skin care (SSC) and feeding, and refer baby to the next level of care.
- All newborns less than 2500g should be initiated on KMC.
- Specifically, all newborns weighing less than 1800g at birth and all unstable sick newborns with danger signs should be referred to the secondary facilities in the KMC position according to the national ENCC ESCB guidelines.
- Babies weighing between 1800g to 2500g and stable without any respiratory difficulty should be commenced on SSC and feeding from birth, and can be managed as ambulatory KMC care, with structured close monitoring, and this should include home based visits by CHEWS.
- All PHCs should be equipped with weighing scales, thermometers (provided by mothers) for each baby to prevent cross infections, KMC chairs, KMC wraps, KMC posters, ENCC ECSB action plan chart, registers for data collection, protocols on hand washing, basic infection prevention and facilities for basic newborn resuscitation (functional bag and masks and oxygen if possible).
- This service will be inter-linked to ambulatory KMC in the communities whereby mothers provide continuous KMC at home, and report to the support facilities daily, following a structured protocol.
- The comprehensive health centres in the states, who by design run in-patient admission services and have doctors on duty, should have at least 2 postnatal beds for KMC services.

### 3.3.2: Secondary health care centres

- Secondary health centres should have neonatal units, and some have the services of a paediatrician based on the particular state of the country.
- The neonatal units insert should be fully equipped to run special care baby unit admissions and neonatal emergencies.
- They should be encouraged to have separate rooms in a designated area of care in the neonatal ward dedicated to KMC.
- Newborns weighing less than 1800g and sick newborns referred from the PHCs can be commenced on KMC at this level of care, with exclusive breastfeeding.

- Unstable newborns weighing less than 1500g should be referred to the tertiary centres for neonatal intensive care pending triage.
- Each secondary facility should have about 6 beds dedicated to KMC if possible. Efforts should be made to negotiate postnatal beds for this purpose and also to have some reclining chairs, protocols for KMC follow up clinics and data collection.

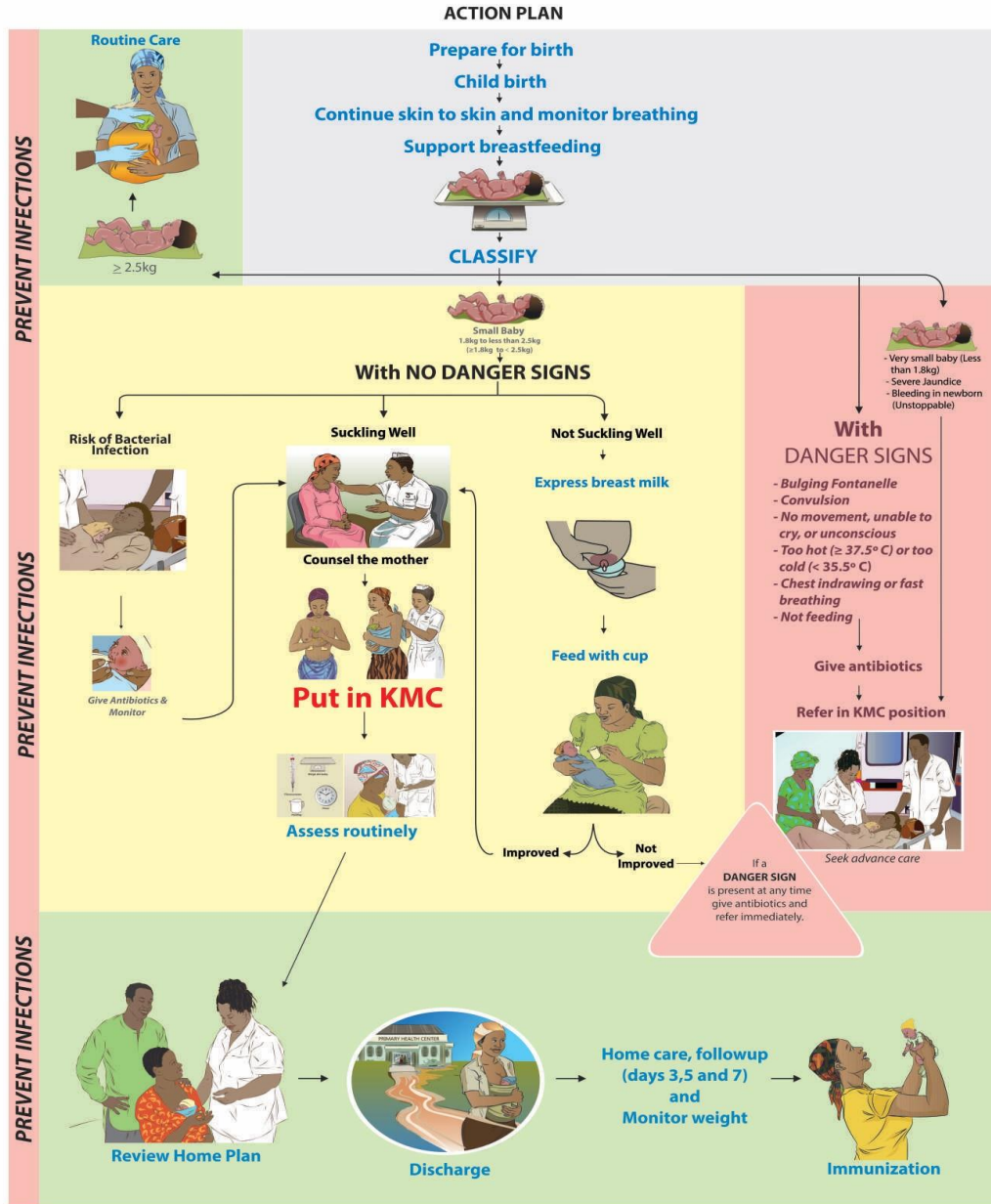
### 3.3.3: *Tertiary health care centres*

- All tertiary centres must be fully equipped for KMC implementation, research and model practice.
- Should be ready to conduct training for health care workers at all levels, both under-and post-graduate, pre-service and in-service, nurses, CHEWS, dieticians, and social workers in both the public and private health sectors.
- Curriculum for KMC trainings should emphasize the role of KMC for transfer of referred low birth weight/preterm and sick babies.
- Should be able to provide optimal care for all sick newborns and small newborns weighing less than 1500g referred from the secondary, primary and private health facilities.
- Should all aim to be fully equipped to be referral centres with specialized neonatal intensive care facilities to care for preterms <1200g who pose a major challenge.
- Efforts should be made to have dedicated KMC rooms in the inborn and outborn units for continuous and intermittent KMC with a capacity of about KMC 10 beds.
- Tertiary facilities should establish and coordinate an effective two -way referral network and linkage for the primary, secondary, and private hospitals within its network, and to have facilities for communication and emergency transportation.

# KANGAROO MOTHER CARE (KMC)



## FEDERAL MINISTRY OF HEALTH, NIGERIA *Essential Care for Small Babies*



Supported and printed by: USAID Federal and Child Survival Program Adapted from: Helping Babies Survive American Academy of Pediatrics

Figure 10: ENCC ECSB Action Plan Chart

# CHAPTER 4

# NATIONAL ACTION PLAN FOR KMC AND SCALE -UP





# CHAPTER 4: NATIONAL ACTION PLAN FOR KMC AND SCALE -UP

## 4.0: Guiding principles

- Aim is to identify and mobilize the needed human, material and financial resources for a national KMC action plan and should consider the following elements:
  - Specific roles that need to be completed and by whom.
  - To have a structured roll- out plan- Timeline of completion. - Resources allocation.
- The national plan should consider the number of facilities available in the country and data on the KMC services each level of care can provide.
- Plans at state and local government levels should follow the same pattern as the national action plan, and focused on their respective tasks.
- To incorporate a regular national review and dialogue on KMC led by the FMOH Child Health Division, MNCH Core Technical Committee, National Child Health Committee and Newborn Subcommittee.
- Development partners, Donors. Academia representatives, Professional associations (PAN, NISONM, SOGON, NANNM), Private practitioners, Civil society groups, Faith-based organizations, others, as appropriate in a participatory pattern.

## 4.1: Roles and Responsibilities for the Scale- up of KMC

- The global agenda for improved neonatal care includes the scale up of KMC services.
- To move to scale, there is a need for wider partnership and government leadership, with state level, local government level, community, development partners and health professionals buy-in, ownership and commitment.
- The specific roles will include but not limited to the following:

### 4.1.1: *Federal Ministry of Health level*

- Ensure that KMC is recognized as an essential newborn care intervention that is included with MNCH services in national health budgets and strategic plans at all levels of care.
- Identify and develop national key KMC policy and technical protocols, job aids and service guidelines needed to support and implement the operationalization of KMC.
- Disseminate the national KMC operational guidelines widely to the states and local government policy levels, and increase publicity on the importance of KMC at all levels within the health system.
- Seek support and input with the aim to create ownership of the KMC policy at national, state and local government levels.
- Project advocacy for KMC as an integral part of RMNCH services to the National Council on Health, Minister of Health, and other line Ministries and Partners;

Professional associations and academia, and intensify efforts to establish KMC as a standard of care for all small newborns in Nigeria.

- Strengthen national trainings on essential newborn care course with KMC practical sessions on KMC, emphasize on setting up of KMC services after the trainings, and mandate States to run state level step downs after the national trainings
- Design and monitor the implementation of a system of compulsory in-service training for health workers at all levels of care and to align KMC in the curriculum of pre-service training institutions.
- Develop KMC data, monitoring and evaluation (M&E), quality improvement tools including supervisory checklists to help track progress.
- Involvement of National Hospital Administration and Management Services Department to orient Heads of national tertiary health centres to implement and scale up KMC in their facilities, and to serve as role models for training, practice, mentors for the State secondary health facilities.
- Designate, equip and strengthen at least one tertiary referral training centre per zone to serve as referral centres of excellence for newborn intensive care with a dedicated standardized KMC ward. These will in turn link with identified standardized KMC centres one per State of the federation in a coordinated way if feasible.
- Engage the media at the national level to have radio jingles, television, posters in local languages, newspaper write-ups on kangaroo mother care.
- Create more awareness about newborn and preterm deaths, and advocate for the inclusion of KMC with other MNCH activities during national health programmes e.g. MNCH Week, World Prematurity day, and to advocate to the First lady to be a KMC Champion.

#### *4.1.2: State Ministry of Health level*

- Conduct state level baseline assessment of neonatal and KMC practice, and identify the gaps, and utilize data to aid in planning, tracking and scale up.
- States to link up with the National KMC implementation plans, and have budgetary allocation for cascade of state ENCC and KMC trainings, and state scale up. Aim to develop state resource pools for training.
- Plan state level orientation, trainings, workshops and ENCC implementation programmes, and link with professional associations and state tertiary centres as resource persons.
- Adopt and widely disseminate the national KMC operational guidelines in all state and private health facilities, and advocate to the State Government and Commissioners for implementation.
- Designate State centres of excellence for KMC and advocate for the establishment of KMC services in all secondary facilities utilizing national guidelines.
- Identify opportunities for financial and material support from interested stakeholders and partners, and to involve the public sector.

- Develop state level KMC information, education and communication (IEC) and behaviour change communication (BCC) materials in local languages, and to establish linkages for community newborn and community KMC care.
- Intensify awareness and integrate KMC in all state MNCH activities, and to advocate to the Wife of the Governor, Wives of Commissioners and other policy makers to adopt KMC as their pet projects.

#### **4.1.3: Local Government/Community Levels**

- Each local government to link up with the State roll -out of the KMC operational guidelines and plan for implementation in the primary health care centres and communities.
- Support PHC facilities in the LGAs with trained staff for MNCH services, and to upgrade services to up to 24-hour coverage.
- Include KMC in the community strategy structures through structured community mobilization programmes. These programs to target key opinion makers and religious leaders, and to involve the males and grandmothers.
- Communication must be supplemented by an education program and synchronised with the health services.
- Conduct orientation workshops and modified ENCC trainings (which includes KMC) for CHEWS, and emphasize their roles to conduct community newborn home- based visits.
- Support and strengthen the activities of Community resource persons (CORPS), and Village Health Workers (VHW) to create awareness and scale KMC services in the communities.
- Ensure record keeping, timely reporting and collation of data at the PHC facilities.

#### **4.1.4: Role of Professional Associations and allied Professionals.**

- Provide technical assistance for the dissemination, roll out and implementation of the KMC operational guidelines at the national and state levels.
- Conduct formative and operational research to identify the implementation gaps to aid in national KMC scale up.
- Develop training modules for capacity building, to plan and facilitate trainings on ENCC at national, regional and state levels.
- Develop a coordinated mentorship and supportive supervision mechanism to aid in post ENCC training feedback, evaluation and retention of skills; and to scale the current Voluntary Neonatal and Paediatric Service Scheme by PAN/NISONM currently being supported by USAID's MCSP, SCI\_Saving Newborn Lives (SNL) and Pathfinders in their program states.
- Use of Mass media campaign to advocate for and raise awareness on KMC especially during the national and international days (Paediatric (PANCONF), Neonatology (NISONM), Obstetricians (SOGON), National Association of Nigerian Nurses and Midwives (NANNM), National Association of Nigerian Paediatric Nurses (NANPAN)

and Midwives (ICM) Annual General and Scientific Conferences, Breastfeeding week, World Prematurity Day and MNCH Week).

- Develop Information Education Communication (IEC) materials to be displayed in health care facilities to promote KMC and to be used for educational purposes.
- Use statistics and success stories on KMC for advocacy at different levels of care.

## 4.2: National monitoring and evaluation of KMC services

a) Indicators:

- Two KMC indicators were included in the HMIS (FMOH 2013):
- Percent of newborns initiated on facility-based KMC
- Percentage of newborns initiated on facility-based KMC: a) discharged according to criteria, b) left against medical advice, c) referred out, or d) died before discharge. b) M& E tools:
- KMC indicators should be collected using the Monitoring and evaluation (M&E) tools:
- List/database of health providers trained in ENCC which incorporates KMC
- List/database of KMC facilities established
- Patient charts/forms stipulating proportion of low birth weights and preterms.
- KMC register (Ensure that all information required for key indicators is available in the register to facilitate data collection.)
- Monthly/quarterly KMC summary forms to summarize key data.

### FUTURE ACTIONS

- **Ensure harmonization of KMC indicators and inclusion of the indicators in the DHIS 2**
- **Advocate for free maternal, newborn and child health services to increase access nationally**
- **Scale up the national health insurance program to include mothers in the states and communities**
- **Establish the six zonal centers of excellence for KMC**
- **Operationalize the Newborn Health Committee (a subcommittee of the child health working group of FMOH) to support KMC scale-up. (Save the Children 2017 KMC KAP Summary sheet)**

# REFERENCES



## REFERENCES:

- Bergh AM. 2002. South African Implementation Workbook for KMC. MRC Research Unit for Maternal and Infant Health Care Strategies. University of Pretoria: South Africa.
- Blencowe, H., & Molyneux, E. (2005). Setting Kangaroo Mother Care at Queen Elizabeth Central Hospital, Blantyre-A practical Approach. *Malawi Medical Journal*, 17 (2), 9-42
- Charpak N, Ruiz-Pelaez JG, Figueroa de CZ, and Charpak Y. A randomized controlled trail of kangaroo mother care: results of follow-up at 1 year of corrected age. *Pediatrics* 108(5): 1072-9(November 2001).
- Conde-Agudelo A, Diaz-Rossello JL, Belizan JM. 2011. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane Database of Systemic Reviews* 2011, Issue 3. <http://www.thecochranelibrary.com>
- Federal Ministry of Health. (2016). Essential Newborn Care Course: A guide for essential practice. Abuja ÿ Federal Ministry of Health. (2011). Integrated Maternal Newborn and Child Health Strategy. Abuja.
- Federal Ministry of Health Nigeria. (2008). Kangaroo Mother Care Training Manual. [www.healthynewbornnetwork.org/resource/kangaroo-mother-care-trainingmanual/](http://www.healthynewbornnetwork.org/resource/kangaroo-mother-care-trainingmanual/)
- Federal Ministry of Health Nigeria, Save the Children, ACCESS. (2009). Saving newborn lives in Nigeria:
- Newborn health in the context of the Integrated Maternal, Newborn and Child Health Strategy.
- [www.healthynewbornnetwork.org/hnn-content/uploads/situation-action-plan-nigeria.pdf](http://www.healthynewbornnetwork.org/hnn-content/uploads/situation-action-plan-nigeria.pdf)
- Federal Ministry of Health Nigeria, Save the Children, Jhpiego. (2011). Saving newborn lives in Nigeria: Newborn health in the context of the Integrated Maternal, Newborn and Child Health Strategy. 2nd edition. <http://countdown2030.org/documents/countdown-news/nigeria-full-report.pdf>
- Federal Ministry of Health Nigeria. (2016). Nigeria Every Newborn Action Plan: A plan to end preventable newborn deaths in Nigeria. [www.healthynewbornnetwork.org/resource/kangaroo-mother-care-training-manual/](http://www.healthynewbornnetwork.org/resource/kangaroo-mother-care-training-manual/)
- Federal Ministry of Health: National PMTCT Guidelines 2016

- Fenton TR, Nasser R, Eliasziw M, Kim JH, Bilan D, Sauve R. Validating the weight gain of preterm infants between the reference growth curve of the fetus and the term infant. *BMC Pediatr.* 2013;13(1):92. <http://www.biomedcentral.com/1471-2431/13/92>
- GoK, 2015. *National KMC guidelines*, Nairobi.
- India operational guidelines KMC and optimal feeding of low birth weight, September 2014.
- Lawn JE et al. 'Kangaroo mother care' to prevent neonatal deaths due to pre-term birth complications. *International Journal of Epidemiology*, 2010, 39:i144-154 (doi:10.1093/ije/dyq031).
- Maternal and Child Survival Program (MCSP). (2017). Nigeria MNCH Country Summary, March 2017. [www.mcsprogram.org/wp-content/uploads/2017/04/NigeriaMNCH-Country-Summary-March-2017-1.pdf](http://www.mcsprogram.org/wp-content/uploads/2017/04/NigeriaMNCH-Country-Summary-March-2017-1.pdf)
- National Guideline on Kangaroo Mother Care (KMC) Ministry of Health & Family Welfare, Bangladesh
- Nigerian Society of Neonatal Medicine (NISONM). (2016). Newborn discharge guide help your baby survive.
- Save the Children. Care of the newborn Reference Manual 2004.
- Save the Children, Maternal and Child Survival Program (MCSP), Federal Ministry of Health Nigeria. (2017). Assessment of facility-based care of small newborns in Nigeria. Phase 1: Landscape survey.
- Save the Children, KMC Implementation in Nigeria, KAP Summary Sheet 2017.
- World Health Organization. Kangaroo mother care: a practical guide. Department of Reproductive Health and Research, WHO, Geneva.2003.
- WHO-UNICEF. 2009. Caring for the Newborn at Home, Training Manual. WHO: Geneva.
- WHO Optimal feeding of Low Birth Weight in middle and low income countries 2011.
- Zambia National KMC guidelines

Kangaroo Mother Care (KMC) Operational Guidelines

# ANNEXES





# ANNEXES:

## ANNEX 1: KMC Daily Feeding and Observation Chart

### KMC UNIT FEEDING AND OBSERVATION CHART (24HRS)

MOTHER'S NAME _____ MOTHER'S IP NO _____ MOTHER'S WARD _____	BAY'S NAME _____ DATE OF BIRTH _____ BABY'S IP NO _____ BIRTH WEIGHT _____ SEX _____
--	--

DATE \_\_\_\_\_  
 INSTRUCTIONS FOR THE DAY \_\_\_\_\_  
 ORAL FEEDS \_\_\_\_\_

TIME	INPUT			OUTPUT					OBSERVATIONS			
	TYPE OF FEED	MODE OF FEEDING	AMOUNT	URINE	STOOL	GASTRIC ASPIRATE			HEART RATE /MIN	RESP /MIN	TEMP	Medication admin
						COLOUR	AMOUNT	VOMITUS				
6AM												
9AM												
12PM												
3PM												
6PM												
9PM												
12AM												
3AM												
<b>TOTAL</b>												

GRAND TOTAL INTAKE (ORAL AMOUNT) \_\_\_\_\_

GRAND TOTAL OUTPUT (ASPIRATE) \_\_\_\_\_

KANGAROO MOTHER CARE (KMC)

ANNEX 2: KMC BASELINE DATA REGISTER

No.	Mother's Name (First, Middle and Surname)	Gravida	Parity	Age of Mother (In yrs)	Date of Delivery (dd/mm/yy)	Type of Delivery (SVD, LSCS, V E, e.t.c)	Birth Wt. (gms)	Admission Wt. (gm)	Gender	Baby Discharge Date (dd/mm/yy)	Baby's Discharge Weight (gms)	Cause of Death if Available	Complications	Antibiotics Yes/No
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														

**ANNEX 3: HOW TO INSERT AN OROGASTRIC TUBE**

- Take the baby out of the kangaroo position, wrap her in a warm cloth and place her on a warm surface;
- Insert the tube through the baby's mouth rather than the nose: small babies breathe through the nose and the tube placed in the nostrils may obstruct breathing;
- Use No. 5 to No. 8 French gauge short feeding tubes, depending on the size of the infant;
- Measure and mark the distance from the mouth to the ear to half way between the tip of the sternum and the umbilicus;
- Pass the tube through the mouth into the stomach until the felt pen mark reaches the lips; baby's breathing should be normal with the tube in place; Secure the tube to the infant's face with a tape;
- Replace the tube every 24-72 hours. Keep it closed or pinched while removing it to avoid dripping fluid into the baby's throat.

**ANNEX 4: STEPS FOR GAVAGE TUBE FEEDING****HOW TO DO GAVAGE FEEDING**

1. Remove the plunger of a 10- or 20-ml sterile syringe.
2. Connect the barrel of the syringe to the end of the gastric tube.
3. Fill the barrel of the syringe with the required volume of milk.
3. Let the milk run from the syringe through the gastric tube under gravity.
4. DO NOT force milk through the gastric tube by using the plunger of the syringe.
5. Hold the syringe 5-10 cm above the infant until the syringe is empty.
6. It should take a few minutes for the milk to flow into the infant's stomach. Changing the height of the syringe will also affect the speed of milk flow. Lowering the syringe slows the milk flow, raising the syringe makes the milk flow faster.
7. Observe the infant during the entire gastric tube feed. Do not leave the infant unattended. Stop the tube feed if the infant shows any of the following signs: breathing difficulty, color change (looks blue), becomes floppy or vomits.
8. Cap the end of the gastric tube after the milk has been instilled. There is no need to rinse the tube with water. Keep tube capped between feeds.

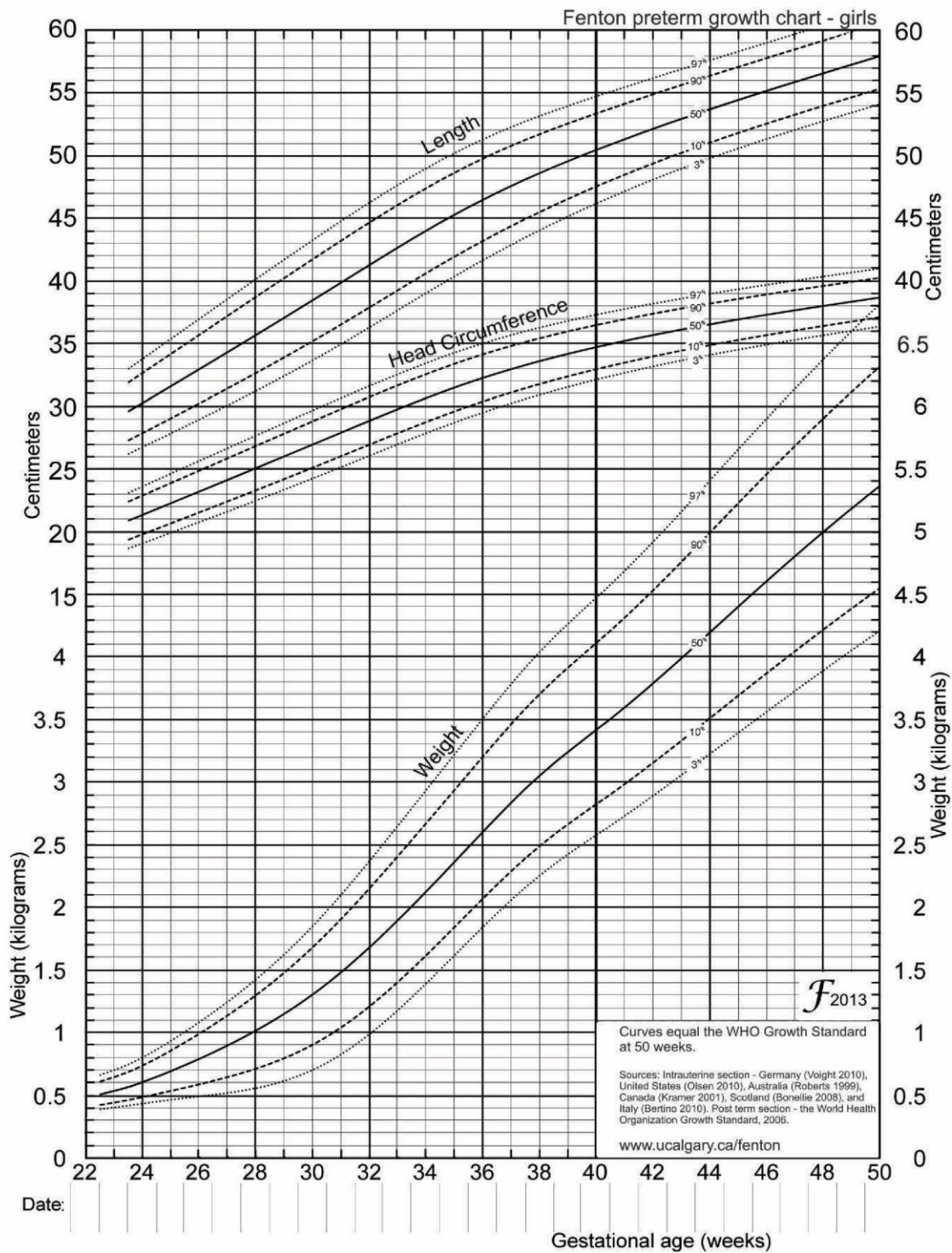
**ANNEX 5: GUIDELINE ON HOW TO EXPRESS BREAST MILK**

Note: Mothers expressing breast should be shown techniques on how to express and the breast should be emptied in order to maintain adequate supply.

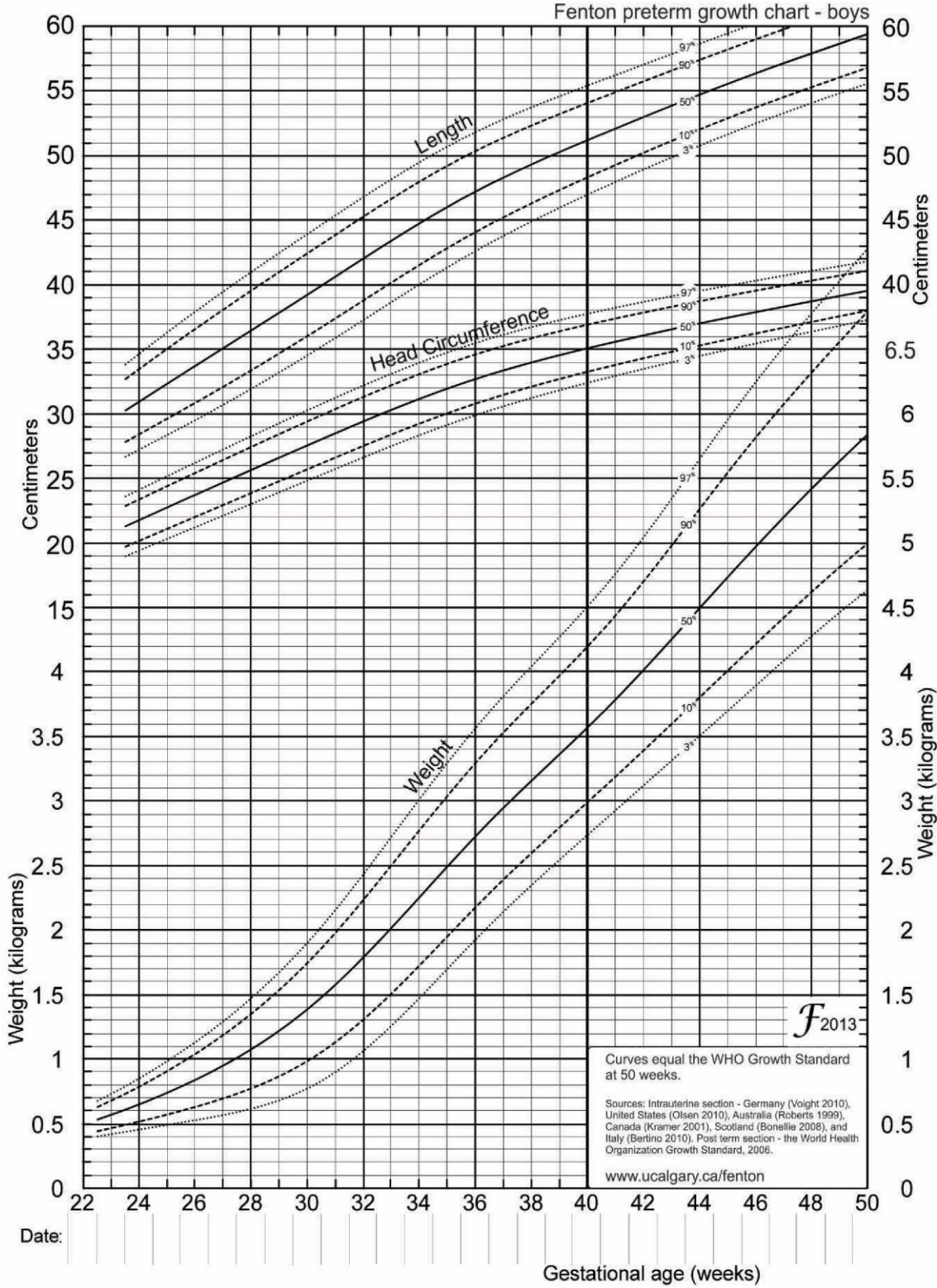
**A mother should:**

- Wash hands
- Prepare a clean container
- Gently massage breasts in a circular motion with her fingers
- Position thumb on the upper edge of the areola and the first two fingers on the underside of the breast behind the areola
- Press behind the nipple and areola between the finger and thumb
- Compress and release the breast with the fingers and the thumb a few times
- Press from all the sides to empty all segments
- If no milk is expressed, move thumb and fingers towards or further away from the nipple and try again ÿ Repeat compressing and releasing rhythmically
- Rotate the thumb and finger positions to remove milk from other parts of the breast
- Avoid squeezing the breast, pulling out the nipple and breast, and sliding the finger along the skin
- Some mothers find that pressing in towards the chest wall at the same time as compressing helps the milk to flow.
- Use the following rhythm: position, push, press; position, push, press.

# ANNEX 6A: FENTON PRETERM GROWTH MONITORING CHART GIRLS



ANNEX 6B: FENTON PRETERM GROWTH MONIT



**ANNEX 7: SAMPLE KMC REFERRAL FORM**

**Example of KMC referral letter**

**Referral Letter**  
 TO: \_\_\_\_\_ Hospital.  
 Name of Referring Health Unit \_\_\_\_\_

---

**PATIENT INFORMATION**  
 Name of Mother: \_\_\_\_\_ Sex of baby: \_\_\_\_\_  
 Date of Birth \_\_\_\_\_ Mode of Delivery \_\_\_\_\_ Birth Wt. \_\_\_\_\_  
 Place of Delivery \_\_\_\_\_  
 Address: Street/Village \_\_\_\_\_  
 Phone No. \_\_\_\_\_  
 History: \_\_\_\_\_  
 \_\_\_\_\_

Physical Assessment: \_\_\_\_\_  
 Provisional Diagnosis: \_\_\_\_\_  
 Treatment Given: \_\_\_\_\_  
 Reason for Referral: \_\_\_\_\_  
 Position of baby during referral \_\_\_\_\_

---

**REFERRING OFFICER:**  
 NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

---

**RECEIVING OFFICER:**  
 NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**ANNEX 8: FACILITY ASSESSMENT TOOL FOR KMC**

**Date Site Assessment conducted:**

**Names of Assessors:**

- Facility representative \_\_\_\_\_
- Sub county representative \_\_\_\_\_
- County representative \_\_\_\_\_
- National representative \_\_\_\_\_

Burden of disease				Comments
Number of births in the facility in the last 12 months				
Number of preterm babies born (<37 weeks)				
Number of low birth weight babies born (<2500 gm)				
>4000g				
2500 – 3999g				
2000 – 2499g				
1500 – 1999g				
1000 – 1499g				
<1000g				
Number of babies born out of the hospital (home deliveries)				
Number of neonatal deaths (0-28 days) in the facility in the last 12 months				
Number of neonatal deaths (0-28 days) due to infection (pneumonia, meningitis, omphalitis, skin infection, tetanus)				
Number of neonatal deaths (0-28 days) due to prematurity (<37 weeks gestation)				
Number of neonatal deaths (0-28 days) who were of low birth weight (<2500gms)				
>4000g				
2500 – 3999g				
2000 – 2499g				
1500 – 1999g				
1000 – 1499g				
<1000g				
Number of neonatal deaths (0-28 days) who had asphyxia (APGAR <6 at 5 minutes)				
Number of babies without APGAR score				



## KANGAROO MOTHER CARE (KMC)

Element/Item:	Yes	No	Number	Comments
Electricity				
Back up electricity system				
Availability of ideal KMC Unit				
• Availability of room for KMC				
• Appropriate beds- with head raised				
• Facilities for expressing breast milk				
• Facilities and supplies for hand washing (running water and soap)				
• Toilets and wash-room within the unit				
• Basic furniture (chairs, stools and cupboard) per bed				
• Windows with intact louvers / window panes				
• Room walls well painted preferably decorated with KMC pictures				
• Examination couch for babies				
• Post board- for placement of posters				
• Adequate light				
• Recreation area with benches				
• Recreation facilities				

KANGAROO MOTHER CARE (KMC)

Availability of Functional Equipment and Supplies	Y=years	N=number	Number	Comments
• Digital/electronic /manual baby weighing scales (10g intervals)				
• Feeding tubes -size 6				
• Feeding cups - calibrated 40 to 60 ml clear cups OR 10 ml syringes				
• Functional incubators for those on intermittent KMC				
• Pulse -oximeters /oxygen saturation monitoring				
• Low reading digital thermometers				
• Wall thermometer				
• Room heaters				
• Oxygen				
• Oxygen flow meters (paediatric)				
• Nasal prongs or masks				
• Bag -valve -mask device				
○ 500ml bag				
○ Preterm (0) mask				
○ Term (1) mask				
• Bilirubin blanket				
• Suction device				

KANGAROO MOTHER CARE (KMC)

Availability of medicines for prevention and treatment of common neonatal conditions	Yes	No	Number	Comments
<ul style="list-style-type: none"> <li>• 7.1% chlorhexidine digluconate (to deliver 4% chlorhexidine)</li> </ul>				
<ul style="list-style-type: none"> <li>• Tetracycline eye ointment</li> </ul>				
<ul style="list-style-type: none"> <li>• Vitamin K</li> </ul>				
<ul style="list-style-type: none"> <li>• Multivitamin drops</li> </ul>				
<ul style="list-style-type: none"> <li>• Iron ( name )</li> </ul>				
<ul style="list-style-type: none"> <li>• Folic acid</li> </ul>				
<ul style="list-style-type: none"> <li>• Gentamicin</li> </ul>				
<ul style="list-style-type: none"> <li>• Crystalline penicillin</li> </ul>				
<ul style="list-style-type: none"> <li>• Syringes (ml size)                             <ul style="list-style-type: none"> <li>○ 2ml</li> <li>○ 5ml</li> <li>○ 10ml</li> <li>○ 20ml</li> </ul> </li> </ul>				
<ul style="list-style-type: none"> <li>• Needles                             <ul style="list-style-type: none"> <li>○ Gauge 23</li> <li>○ Gauge 25</li> </ul> </li> </ul>				
Does the facility have a functional infection control committee (confirm using last minutes)				
Does the facility have a functional quality improvement committee				

## KANGAROO MOTHER CARE (KMC)

<b>Quality of care for preterm/LBW babies</b>				
Does the facility have guidelines and job aids for management of LBW/preterm babies Confirm by observing				
<ul style="list-style-type: none"> <li>• Admission and discharge</li> </ul>				
<ul style="list-style-type: none"> <li>• Management of hypothermia</li> </ul>				
<ul style="list-style-type: none"> <li>• Management of possible severe bacterial infection</li> </ul>				
<ul style="list-style-type: none"> <li>• Feeding</li> </ul>				
<ul style="list-style-type: none"> <li>• Infection control</li> </ul>				
<ul style="list-style-type: none"> <li>• Neonatal resuscitation</li> </ul>				
Can the documentation at the facility facilitate data collection?				
Are the data collection registers available (outpatient, paediatrics ward, maternity, nursery)?				
Do the data collection registers have the necessary columns as per the KMC register?				
Is the register completed filled?				
Does the facility keep individual patient records?				
<ul style="list-style-type: none"> <li>○ At outpatient level</li> </ul>				
<ul style="list-style-type: none"> <li>○ At in patient level</li> </ul>				
What is the quality of the documentation of the patient records (wards rounds and observations)?				
Do you have nursing staff assigned to the newborn unit (hospital)?				

## KANGAROO MOTHER CARE (KMC)

Do you have a clinician(s) (Doctor, RCO) available to conduct a daily ward round?				
Do you have a nutritionist available to conduct a daily ward round				
Have staff received any of the following trainings				
• EMONC				
• ENC C				
• KMC				
• Neonatal resuscitation				
State others				
Does the staff practice Essential Newborn Care at delivery? (observe 1 delivery)				
What are the attitudes and views of Mothers in regard to caring for their LBW/preterm babies				
How are small babies kept warm?				
How many functional incubators are available in the facility?				
Is there sharing of incubators (observe)				
Are observations monitored and charted 3 hourly? (observe charts)	Yes/No, Comments.....			
Does your facility have a system in place to support mothers to breastfeed? Describe the system in place (health talk, demonstration, support - observe and demonstrate)	Yes/No			
What role do mothers have in the care of their LBW/preterm babies (describe)				
Do they reside in the facility while the baby is admitted?	Yes/no			
Is food available for mothers?				

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