RETROSPECTIVE EVALUATION OF KANGAROO MOTHER CARE PRACTICES IN MALAWIAN HOSPITALS

July – August 2007

Report compiled by

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ACRONYMS

ACCESS	Access to Clinical and Community Maternal, Neonatal and Women's Health Services
BCC	Behavior change communication
CHAM	Christian Health Association of Malawi
DHO	District Health Officer
DNO	District Nursing Officer
EBM	Expressed breast milk
ENC	Essential newborn care
EU	European Union
HSA	Health Surveillance Assistant
IMCI	Integrated Management of Childhood Illnesses
KMC	Kangaroo mother care
LBW	Low birth weight
MoH	Ministry of Health
NGO	Non-governmental organization
NGT	Nasogastric tube
PEP	Perinatal Education Progamme
PHC	Primary health care
PPT	PowerPoint
QECH	Queen Elizabeth Central Hospital
RHU	Reproductive Health Unit
SNL	Saving Newborn Lives
SWAp	Sector-wide approach
TAK	Trotro An-Koditra (Madagascar)
TBA	Traditional birth attendant
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

ACKNOWLEDGMENTS

The team would like to thank the Ministry of Health, as well as all the district health officers and facility managers, who gave us permission to visit their institutions and interview key staff members. Without the time, enthusiasm, and cooperation of all the health care workers this evaluation would not have been possible.

Primary funding for this work was made possible by the Bill & Melinda Gates Foundation Saving Newborn Lives programme of Save the Children. In addition, the United States Agency for International Development (USAID), through the generosity of the American people, provides funding support for several Save the Children newborn health program staff, including those involved in this assessment. Finally, through the MRC Research Unit for Maternal and Infant Health Care Strategies and the University of Pretoria, South Africa, Dr Bergh and Dr van Rooyen provided their time to this project for modest honorariums that will be used to support further programme learning and expansion of KMC elsewhere in Africa.

The report contains the views of the authors and does not necessarily reflect those of the donors or the government of Malawi.

KEY MESSAGES

1. Preterm birth is the leading cause of the world's four million newborn deaths. ***Kangaroo mother care (KMC) is an evidence-based, feasible solution*** that helps keep the newborn warm, promotes breastfeeding and reduces infections, yet is still at very low coverage in Africa and could be integrated into existing maternal and child health programmes.

2. This retrospective assessment of KMC was undertaken ***in order to inform the scale-up of KMC in Malawi and more widely in Africa.*** Malawi is one of the few low-income countries in Africa with almost 60% deliveries in facilities, essential newborn care and KMC included as part of pre-service and in-service training, and a national KMC policy. Seven hospitals with a two-to-five year history of KMC implementation and support from Saving Newborn Lives/Save the Children were assessed and five were found to be implementing KMC successfully and sustainably. Other findings and also missed opportunities are described in detail in the report, and the findings of each visit are given in the appendix.

3. ***Scaling up of KMC is achievable.*** KMC could be practised in all facilities where women give birth. It does not require special beds or equipment, but it does require staff who are skilled in KMC, as well as ongoing supervision and policy support. Training for KMC can be condensed into two days for clinical and implementation skills as long as follow up on-site facilitation is provided. Clinical skills for KMC alone can be taught in half a day if the other essential newborn care skills have been acquired. If modular training materials are adapted from existing materials integration with other training courses would be possible. Community ownership and materials to help families understand and practise KMC are also important. A suggested approach to modular implementation and training materials is laid out.

4. ***A health systems approach to newborn care and KMC*** is important in order to provide quality care for the highest number of families and produce sustainable results. Either a "big bang" or a phased-in approach could be adopted. Links between the public and private sector (e.g. CHAM) and between levels of care need to be considered, as well as the human resource questions regarding who can do what and which tasks could be delegated, and how supervision and on-site facilitation can be achieved until the process is institutionalised. Ideas are outlined for scaling up within the Malawian context.

EXECUTIVE SUMMARY

Background

Globally 4 million babies die in the first month of life and 27% of these deaths are directly caused by preterm birth. In addition, preterm birth is a major risk factor for babies dying of other causes, especially infections. Most preterm babies who die are moderately preterm (33 to 36.9 weeks of gestation) and could be saved without intensive care. In Malawi preterm birth is the leading cause of newborn deaths. Keeping these babies warm, feeding them regularly and preventing infections are key elements in improved survival, in conjunction with the timely recognition and management of complications such as respiratory distress syndrome, infections and jaundice.

Kangaroo mother care (KMC) is a method of care for newborns, especially those born preterm, whereby a baby is strapped skin-to-skin to the mother's chest. It contributes to thermal regulation, the reduction of infections, better breastfeeding, and improved infant growth. This low-cost method, initiated with the support and supervision of the health care staff, empowers the mother to become her baby's primary caregiver.

> *"Kangaroo-Mother Care should be a basic right of the newborn, and should be an integral part of the management of low birth weight and full-term newborns, in all settings and at all levels of care and in all countries".*
> (Bogotá Declaration, 1998)

A challenge for KMC is the scaling up of implementation to all health care facilities providing care at the time of birth. Malawi was one of the first countries in Africa to take on this challenge. Between 2002 and 2004, Save the Children's Saving Newborn Lives program funded by the Bill & Melinda Gates Foundation, collaborated with the Malawian Ministry of Health (MoH) to develop an Essential Newborn Care (ENC) package. In addition, seven hospitals were assisted by Save the Children to complete intensive KMC training at Zomba Central Hospital (ZCH) and also received support for implementation.

Purpose

The purpose of this evaluation was to undertake a retrospective assessment of the status and quality of KMC implementation in Malawian hospitals that received support for the implementation of KMC, with a view to making recommendations based on lessons learned for sustainable scaling up to more sites including health centres. In addition, the available education and training materials on KMC were reviewed in order to develop a KMC action kit including less intensive, modular training that could be used in Malawi and other African countries wishing to take KMC to scale.

This report contains three main sections:

- Findings from the visits to the hospitals and opportunities for immediate action
- A review of existing materials used in KMC
- Ideas for the way forward in scaling-up KMC

Findings from the visits to the hospitals

Malawi has a national KMC policy that has been developed under the auspices of the Malawi Ministry of Health. There also appears to be substantial awareness of the importance of ENC and KMC principles among health workers in general and in health care facilities that were not part of the original group of hospitals earmarked for

implementation. ENC and KMC have also been included in the relevant pre-service curricula of different health worker cadres.

Six hospitals that received assistance from Save the Children were visited and a telephone conference was held with the seventh. In addition, one mission hospital, one community hospital and one health centre that did not receive Save the Children support were also visited. Of the seven hospitals supported, five have implemented KMC successfully and sustainably. The other two have KMC wards, but appear to have challenges in achieving long-term sustainability. Good use is being made of posters and counselling cards for KMC, and the KMC register provided by Save the Children is being used in at least six of the hospitals, and even in other sites although without systematic implementation. The quality of record keeping varies greatly and there is also some variance in the discharge criteria used. The fact that facilities that had not received Save the Children assistance also made attempts at implementing KMC, using existing resources, demonstrates the demand for and do-ability of KMC. The presence of a guardian to assist the mother while in hospital is one of the strengths in the Malawi health system.

Staff shortages are one of the main challenges in ensuring sufficient training in KMC and the establishment of sustainable KMC practices. As a result of these shortages there is insufficient nursing and clinical supervision in some units. Staff rotations also result in the loss of staff with skills in KMC, which becomes critical when new staff members are not orientated adequately. Despite these hardships, the dedication of staff did not go unnoticed.

Another primary challenge is the fragile follow-up system of preterm babies after discharge. There are very few means of ensuring that mothers return to the hospital or go to the nearest health centre for review. Giving incentives to mothers is not sustainable in the long run. The main reasons for mothers' failing to return to the hospital for follow-up care are transport difficulties (no transport available at night or the cost of transport) and the death of the baby. Different reporting lines between central, district and mission hospitals and health centres contribute to the weakness of the referral links between some of the facilities.

Opportunities for immediate action

Three missed opportunities were identified that could receive immediate attention without any additional costs to the health services apart from training and awareness raising:

1. *Systematic introduction of intermittent KMC* for stable babies who are still in a neonatal unit or in a heated "transit" nursery
2. *Strengthening of current feeding practices for preterm babies* by using a standardised job aid for calculating volume of feeds, by introducing proper record keeping of volumes and numbers of feeds per day for each baby, and by providing better support and guidance to mothers regarding feeding times and the volume of feeds required
3. *Transporting babies from home to facilities or between facilities in the skin-to-skin position,* which could help prevent the potentially lethal condition of hypothermia

Review of existing materials on kangaroo mother care

Malawian and South African KMC training materials, guidelines and reports were listed

and reviewed, target audiences for KMC orientation and training were identified, and a draft training programme for core and comprehensive skills training was created. Proposals were developed for a KMC action kit that would contain the different training materials needed for scale-up.

There are many relevant materials with similar principles that can be adapted and combined into a modular approach to local settings. With regard to family and health worker visual materials, the poster developed in Malawi is widely used and displayed, in addition to the set of counselling cards. Some of the posters used in South Africa were also observed in Malawi KMC units and postnatal wards. With regard to training and implementation materials, the Malawi KMC training manual and ENC materials, as well as the South African KMC implementation workbook, contain sections that could form the basis of revised training and implementation guidelines. Other useful materials are the World Health Organization (WHO) ENC training course and the Integrated Management of Childhood Illnesses (IMCI) algorithms used in Malawi. Furthermore, there are multiple protocols and job aids available for many aspects of newborn care, including ENC, KMC and the care of small and ill newborns.

The main recommendations are that materials and training should include principles for implementation as well as clinical care, that training in KMC should be shortened to two days off-site training for key role-players only, and that on-site facilitation of the implementation process should be an ongoing activity for two to three years.

Feasibility of scale up of KMC

All the facilities visited were positive about KMC and the potential for scaling up in Malawi. It appears that scaling up is feasible and sustainable within current health system constraints, if crucial conditions such as the following are addressed appropriately during the planning and implementation phases:

- Active support and involvement by management at all levels
- A trained and experienced person to drive the process under the auspices of the Ministry of Health
- Good communication and consultative participation at all levels
- Selecting the right people for training and providing ongoing support after training
- Strengthening current lines of communication between different levels of care
- Sensitisation of community structures like health surveillance assistants (HSAs) and local leaders to promote good communication and support, especially after the babies' discharge
- The integration of KMC services into the general system of a facility right from the beginning, thus avoiding KMC implementation being viewed as a project
- Establishment of a community follow-up system that is integrated into the maternal and child health program

The following are a number of shifts in thinking about the planning and execution of a scale-up process that have proved to be effective in other countries:

- The process should be integrated into the health care system and other programmes and packages and should not be driven vertically.
- Leadership should be by the Ministry of Health and local officials and not by NGOs, expatriates and outside consultants.
- Implementation should be according to a locally adapted and owned model, starting with whatever resources are available.

- Babies should not be discharged directly from tertiary care to home, but should move through a continuum of care. KMC starts with messages in antenatal care. It is practised in obstetric care with skin-to-skin contact and breastfeeding immediately after birth and continued in neonatal care with intermittent and continuous KMC, ultimately linking to postnatal care for referral and follow-up.
- Off-site training that takes health workers out of the system for five or more days at a time is not practical, but short, off-site training for selected leaders followed by on-site facilitations by a central trainer who devolves responsibility to local supervisors may be more effective.
- Continuous monitoring of quality through on-site facilitation, supervision and moral support is essential.

Ideas for KMC scaling up within a health systems context

The first decision that confronts any Ministry of Health wishing to scale up any innovation is the choice between two main approaches: the “big bang” approach (scaling up to all facilities at the same time) or the “staggered” approach (scaling up in a phased manner over a period of a few years). A detailed three-year timeline for initial implementation, using the “big bang” approach, is proposed. This includes three to nine months for awareness and sensitisation (advocacy), three to six months for initial training of key role-players, six to nine months for multiple facilitation visits to the individual health care facilities targeted for implementation, six to nine months for progress monitoring, three months for the summative evaluation, ending with a 12-month period of sustainability support. Responsibilities to be taken up at national, district and facility levels are also elaborated.

A model for monitoring progress with the implementation of KMC is proposed, with three phases (pre-implementation, implementation and institutionalisation) and six steps (creating awareness, commitment to implement, preparation to implement, evidence of practice, integration into routine practice, and sustainable practice). Some important principles for KMC implementation include the identification of drivers of the process who should be held accountable for progress, KMC as a fixed point on the agenda at meetings during the implementation process, continuous support for implementation until KMC has been institutionalised, inclusion of KMC responsibilities in the job descriptions of health workers, multidisciplinary team work (with strong involvement of medical and clinical officers), flexible adaptation of existing structures, and a belief that people can do it.

In conclusion, KMC could be implemented in a sustainable manner in Malawi health care facilities without many additional resources. Supervisory measures should, however, be strengthened for mothers and babies to receive adequate quality care.

1 INTRODUCTION

1.1 Background

1.1.1 Saving newborn lives through kangaroo mother care

Globally 4 million babies die in the first month of life and 27% of these deaths are directly caused by low birth weight (LBW) and/or preterm birth.[1] In addition, preterm birth is a major risk factor for babies dying of other causes, especially infections.[2] Most preterm babies who die are moderately preterm (33 to 36.9 weeks of gestation) and could be saved without intensive care. Keeping these babies warm, feeding them regularly and preventing infections are key elements in improved survival, in conjunction with the timely recognition and management of complications such as respiratory distress syndrome, infections and jaundice.[3]

Kangaroo mother care (KMC) is a well-known method of caring for babies, especially those that are preterm. It is a low-cost and feasible method of caring for LBW and preterm babies at all levels of care and in all settings.[4] The baby is strapped to the mother's chest, skin-to-skin, to provide warmth and promote regular breastfeeding. Infections are reduced, as the baby is colonised by the mother's skin commensals instead of pathogenic bacteria and is protected by the antibodies in breast milk.[5-6] KMC has also been shown to increase breastfeeding rates and duration, and weight gain.[7-9] While practising KMC, and with the support of the health care staff, the mother is empowered to become her baby's primary caregiver, which increases the baby's chances of survival at home.[10] A number of studies have shown a significant reduction of in-hospital mortality with KMC, including mortality in low-resource settings.[7,11-15] The implementation of KMC in low-resource settings is also feasible and acceptable.[16]

The Bogotá Declaration of 1998 contains the following statement on KMC: *"Kangaroo-Mother Care should be a basic right of the newborn, and should be an integral part of the management of low birth weight and full-term newborns, in all settings and at all levels of care and in all countries."*[17] This is an important message for any country that is in the process of scaling up care to save newborn lives and achieve the United Nations' Millennium Development Goal (MDG) 4, which is to reduce child mortality.[18] The implementation of KMC should be considered a basic right and also a key strategy in saving lives at low cost.

1.1.2 Scaling up experiences in kangaroo mother care elsewhere in Africa

The feasibility of the extensive implementation of KMC has been demonstrated in at least four provinces in South Africa. The South African Medical Research Council's Unit for Maternal and Infant Health Care Strategies (MRC Unit) – in collaboration with the University of Pretoria and Kalafong Hospital – has a long-term research programme on the implementation of KMC and the use of different outreach strategies in scaling-up processes. Quality and sustainability improved through the use of on-site facilitation.[19] The Unit also developed an implementation kit for use in scaling up, as well as a scale for assessing implementation.[19-21]

In Madagascar KMC or Trotro An-Koditra (TAK) was implemented in the Befelatanana Hospital in Antananarivo in 2003. The TAK programme was expanded nation-wide to include health workers from central and district hospitals and health centres. It also included the training of traditional birth attendants. A curriculum and training and information materials were developed and adapted for the training.[22-23] In Nigeria three KMC training workshops were held between 2004 and 2005. Senior paediatricians and neonatal nurses from public tertiary and secondary hospitals

were involved in a KMC training workshop in 2004. Another two workshops were conducted subsequently where doctors and nurses practicing in secondary and primary health facilities in the southern part of Nigeria were trained. The outcomes of this initiative are unknown.[24] In other African countries there are individual hospitals, mostly tertiary institutions, that have a KMC programme, but there seems to be no other evidence of the large-scale implementation of KMC in any other country.

1.1.3 Essential newborn care and kangaroo mother care in Malawi

Between 2002 and 2004, Save the Children was working with the Malawian Ministry of Health (MoH) to develop an Essential Newborn Care (ENC) course, which included a brief introduction to KMC. The ENC course was widely implemented in Malawi and incorporated into pre-service training at the College of Nursing. At the same time KMC was introduced and implemented in seven hospitals in Malawi. KMC training was offered separately at Zomba Central Hospital (ZCH), taking the form of a five-day workshop. In 2005 the Government of Malawi developed a national policy for KMC (see Appendix III).[25]

Malawi has made remarkable progress in reducing mortality in infants under the age of five, but during the same period there has been very little reduction in neonatal deaths. Addressing maternal and neonatal deaths is a key MoH priority. In terms of the Road Map for Maternal and Newborn Health[26] and linked to the national Essential Health Package, the MoH is now aiming to scale up the implementation of KMC and ENC to district level. A number of partners and donors are working with the Government of Malawi to advance this aim. At the same time the MoH and partners are acutely aware of the heavy burden of training, which at times exacerbates the human resource crisis in the country by withdrawing available workers so that they can attend multiple in-service training courses. Training courses on maternal, newborn and child health are currently being reviewed and the goal is to harmonise all these courses into one modular package.

2 PURPOSE OF THE EVALUATION

Many other African countries are also ready to introduce and scale up KMC and ENC and the partners will be working with some of these countries, using Malawi and South Africa as learning resource countries. In order to be able to inform both moving to scale at district level in Malawi and the same process in other countries, it was necessary to first assess carefully what had worked in Malawi and what had not. Different materials have been developed and utilised for the training of health care workers in Malawi and South Africa. It was necessary to revise the existing KMC training materials to ensure the inclusion of adequate clinical and operational guidelines, as well as guidelines for adaptation to various settings and countries.

Two consultants from the South African Medical Research Council's Unit for Maternal and Infant Health Care Strategies (MRC Unit) and the University of Pretoria with experience in provincial-wide implementation of KMC in South Africa, Dr Anne-Marie Bergh and Dr Elise van Rooyen, were requested to assist with this review, which took place over the period 23 July to 4 August 2007. They were joined by Dr Joy Lawn, Senior Policy and Research Adviser for Save the Children's Saving Newborn Lives program, and the following Save the Children Malawi Field Office Newborn Health Program staff members: Ms Evelyn Zimba, Program Manager; Mr Edward Chigwedere, Research and Evaluation Manager; Mr George Chiundu, Monitoring and Evaluation Officer and Mr Reuben Ligowe, Program Officer. The Reproductive Health Unit at the MoH was involved in the planning of the assessment and hosted the debriefing session, in which UNICEF also participated.

The review activities included the following:

Scope of work	Purpose / Objective
1. A retrospective assessment of the state of KMC in Malawian hospitals that had received support for the implementation of KMC	• To identify (a) achievements, strengths and challenges experienced during the implementation of KMC (b) potential barriers to quality implementation and sustainability in preparation for effective integration and scale-up to district level in Malawi • To make recommendations for an efficient and effective approach to scale-up of KMC in Malawi within the context of a resource-constrained environment with widespread shortages of health workers and with attention to physical infrastructure and supply requirements (fixed and recurrent costs)
2. Review of education and training materials and processes used in Malawi and South Africa	• To make recommendations for sustainable training approaches/packages to be integrated with other maternal and newborn care training • To develop an overview for a KMC action kit containing education and modular training materials that could also be adapted for use in Malawi, as well as other African countries wishing to scale up KMC

3 VISITS TO HEALTH CARE FACILITIES

3.1 Methodology

A variety of hospitals and one health care centre were visited to gain first-hand insight into the running of facilities in Malawi and to identify opportunities and challenges for scaling up KMC into a continuum of care in and referrals between hospitals, health centres, communities and homes. Six hospitals that had received assistance from Save the Children from 2002 to 2004 were visited, as well as a mission hospital, a community hospital and a health centre that had not been part of the assistance. One hospital was too distant to visit and a telephone conference was held to obtain more information. Table 1 lists the facilities visited and the people who were involved. Appendices I.1 to 1.10 contain detailed summaries of the discussions held at individual hospitals.

A qualitative approach was followed during all the visits and the interactions were approached in a narrative format instead of taking the form of a series of specific questions. Nurseries, KMC facilities and postnatal wards were also visited to observe practices. Specifics probed during conversations and observations included the "story" of how KMC was implemented, important role-players, staffing, staff rotation policies, staff training and on-the-job orientation of new staff, record keeping, KMC admission criteria, feeding, discharge criteria, follow-up, general strengths, challenges and special initiatives, and lessons that other facilities could learn from the experience of the hospitals visited. Many of these aspects are included in the KMC progress-monitoring checklist used in South Africa and the possibility of adapting this tool for Malawi was investigated (see also section 5).[27] Some of the points probed during the visit are summarised in table 2.

Table 1. Facilities visited

#	Hospital / Health Centre	Level	Date visited	Date KMC implemented	People involved
1	Zomba Central Hospital*	Tertiary Government	26 July 2007	Nov 1999	Anne-Marie Bergh, George Chiundu, Reuben Ligowe
2	Ekwendeni Mission Hospital*	Secondary CHAM	3 Aug 2007 (Tel call)	Sept 2003	Anne-Marie Bergh, Elise van Rooyen, Reuben Ligowe
3	Queen Elizabeth Central Hospital*	Tertiary Government	24 July 2007	Oct 2003	Anne-Marie Bergh, George Chiundu, Reuben Ligowe
4	Bwaila Central Hospital*	Tertiary Government	28 July 2007	Feb 2004	Anne-Marie Bergh, Elise van Rooyen, Joy Lawn, Evelyn Zimba, Edward Chigwedere
7	St Luke's Mission Hospital*	Secondary CHAM	26 July 2007	Feb 2004	Anne-Marie Bergh, George Chiundu, Reuben Ligowe
5	Mangochi District Hospital*	Secondary Government	27 July 2007	May 2004	Anne-Marie Bergh, George Chiundu, Reuben Ligowe
6	Mulanje Mission Hospital*	Secondary CHAM	25 July 2007	March 2005	Anne-Marie Bergh, George Chiundu, Reuben Ligowe
8	Mitundu Community Hospital	Primary Government	30 July 2007	Training in 2004	Anne-Marie Bergh, Elise van Rooyen, Joy Lawn, Evelyn Zimba
9	Nkhoma Mission Hospital	Secondary CHAM	30 July 2007	2006	Anne-Marie Bergh, Elise van Rooyen, Joy Lawn, Evelyn Zimba
10	Lirangwe Health Centre	Primary Government	24 July 2007	N/A	Anne-Marie Bergh, George Chiundu, Reuben Ligowe

* Hospitals supported by Save the Children in the past.

Table 2. Summary of KMC practices in health care facilities visited

#	Hospital / Health Centre	When start-ed	KMC ward	No of KMC beds	Total no of staff for KMC	No of staff / shift for KMC	Staff rota-tions	No of KMC dyads present	Type of KMC[@]	Follow-up	Type of beds[#]	KMC posters displayed	Records seen[$]
1	Zomba Central Hospital*	1999	YES	12	Not probed	Not probed	YES	12	Cont	At hospital	Special	SNL Ukugona	KMC register Discharge sheet
2	Ekwendeni Mission Hospital*[(1)]	2003	YES	10	2 nurses (12 maternity)	1 nurse	SOME	6	Cont Intermitt	At hospital	Special	SNL Zomba	N/A
3	Queen Elizabeth Central Hospital*	2003	YES	9 (12 in new unit)	Not probed	Not probed	YES	9	Cont	At hospital	Special	SNL	Not probed
4	Bwaila Central Hospital*	2004	YES	8	Not probed	1 doctor (part-time) 2 nurses 1 pt att	YES	6	Cont	At hospital	Special	SNL Ukugona	KMC register Patient notes
5	St Luke's Mission Hospital*	2004	YES	3	Not probed	Not probed	Not probed	0	Cont	At hospital	Special	SNL	KMC register
6	Mangochi District Hospital*	2004	YES	4 (formerly 10)	Not probed	Not probed	YES	4	Cont	At hospital	Special	SNL Zomba	KMC register Patient notes
7	Mulanje Mission Hospital*	2005	YES	7	Not probed	Not probed	YES	1	Cont	At hospital	Special	SNL Own paintings	KMC register Patient notes
8	Mitundu Community Hospital	Train-ed 2004	In nursery	1	Not probed	Not probed	YES	0	Not probed	At hospital	Special	SNL	Not probed
9	Nkhoma Mission Hospital	2006	Corner in postnatal ward	Flexible, according to need	Not probed	Not probed	YES	0	Not probed	At hospital	Normal	Groote Schuur	Not probed
10	Lirangwe Health Centre	N/A	Postnatal ward available	Could be available, depending on need	Not probed	Not probed	N/A	N/A	N/A	N/A	Normal	N/A	Admissions book

* Hospitals supported by Save the Children in the past

[@] Practised systematically – some hospitals have the occasional baby receiving intermittent KMC as well

[#] Special surgical beds with a reclining head end

[$] Records not probed in a systematic way – varying quality of records

[(1)] Telephone conference

3.2 General findings

3.2.1 State of implementation and training

Of the seven hospitals supported in one way or another by Save the Children in the past, one hospital (Zomba Central Hospital-ZCH) had implemented KMC before the start of the project and had been developed as a training centre for the other hospitals as part of the Saving Newborn Lives program. Staff members from the other six hospitals received training at ZCH. Five of the hospitals managed to implement KMC successfully and sustainably. Three of these are central hospitals and two are mission hospitals. The other two hospitals have KMC wards, but appear to have many problems achieving long-term sustainability. In all but one of the hospitals, expatriates were instrumental in assisting with institutionalising KMC. One hospital with an impressive KMC programme and evidence of ownership (Queen Elizabeth Central Hospital-QECH) was not originally targeted, but later requested and received training support from the program. With the severe shortages of nursing and medical staff in Malawi, the long training period of the program was an obstacle for the hospitals that were scheduled to implement KMC. It was not always feasible for them to send the staff required for KMC for the necessary training.

Three hospitals, namely ZCH, QECH and Ekwendeni Mission Hospital, have trained people from other hospitals. Such training has also taken place as an outreach activity at a particular facility. The length of training has varied between one and two weeks. One hospital emphasised the importance of the hands-on, more practical part of the training and felt that two to three weeks of on-the-job training would be ideal.

Two hospitals and one health centre that did not receive Save the Children support were visited in order to become familiar with conditions in what were presumably ”non-KMC” facilities. In both hospitals some form of KMC was being practised, in one after ENC training and in the other as a result of a quality improvement project by two students from the Netherlands. There appears to be substantial awareness of the importance of KMC in other health care facilities that were not part of the original group of hospitals earmarked for implementation. This general awareness, also through training in ENC, is an important development for considering alternative, more cost-efficient training and facilitation models to assist with an accelerated scaling up of KMC. As a practice, KMC also seems to be acceptable to mothers and guardians, although in some places community members may find the sight of babies being carried in front in the skin-to-skin position strange and unfamiliar. A few informants also related instances of mothers refusing to do KMC after a baby had died while in the KMC position.

Several people indicated that they had received training in KMC as part of the ENC outreach. Although there is a trickle-down effect of this training, as was evident from the greater awareness that was observed, it is not clear to what extent messages are further shared on the ground – as a result people may have “some idea” of KMC but may not have enough information to practise it safely and efficiently.

3.2.2 The practice of newborn and kangaroo mother care

3.2.2.1 Initial care

Incubators (even new ones) are seldom used in the facilities visited, with the exception of some of the central hospitals. At a number of the hospitals a shortage of equipment and regular supplies, for example antibiotics and gloves, was a problem. All hospitals followed a practice of keeping babies in a warm “transit” room in the nursery for a few days before being transferred to a KMC room for continuous KMC. Sometimes babies are kept in this transit room for a longer period if the KMC ward is full. Intermittent KMC (also called “interrupted KMC” in Malawi) is not normally practised while the baby is in an incubator or during the waiting time in the “transit” room (except at one hospital). No intermittent KMC was observed in any of the nurseries visited, either

due to fear of infection (noted by one or two hospitals) or lack of motivation (noted by one hospital). Others noted that mothers had not yet been counselled on whether they would be willing to practise KMC. Babies on nasogastric or orogastric tube feeding are also not put into continuous, 24-hour KMC (also called "exclusive KMC" in Malawi). The ideal would be for intermittent and continuous KMC to be the norm for all stable preterm babies, and for those mothers choosing not to do this to be required to sign a form indicating such.

The way in which the "transit" rooms in the nursery are organised varies. At some hospitals all babies are placed in the same room. At other hospitals babies born before arrival are put in a separate room. Others even have a separate isolation room for those with infections. Regimes for the use of antibiotics in preterm newborns also vary. At one hospital every premature baby received a five-day course of antibiotics, whereas at others only babies with possible infection received treatment. The availability of drug supplies in some facilities is unreliable.

3.2.2.2 Care in the KMC unit

In the facilities visited there was a fairly rigid approach to kangaroo mother care – KMC is only practised in a separate ward in a heated environment with surgical beds that allow the mothers to sleep at a 45º angle. The *chitenje* is used in most places to tie the baby to the mother, either as the only method or as a wrap over a triangular cloth that ties the baby, with a special blouse covering the mother and baby. The high hospital beds do not encourage movement and in some of the facilities mothers do not appear to walk around much, an important activity conducive to the vestibular development of babies.[28-29] All hospitals that had received Save the Children support in the past used the standard KMC register. The quality of records and recordkeeping varies. Two hospitals produce summaries of monthly statistics. At one hospital the recording sheets for the daily monitoring of the baby contained no notes on the baby's condition or feeding, except the occasional weight every few days. (section 4.1 on missed opportunities discusses feeding further).

3.2.2.3 Discharge

Although most hospitals listed more or less the same general discharge criteria (e.g. regaining birth weight, gaining 10g per day for three days, ability to feed, readiness of mother to go home), there were variations in terms of the discharge weight of the baby, which ranges between 1.3 and 2 kg. The decision of whether a baby is ready for discharge may rest with different people – in some cases it is the medical or clinical officer who decides, in other facilities it is the nurse, and in others there is a consultation between the two before the final decision is made. In order to ensure sound decision making, a differential guideline could be put in place, namely that the decision whether to discharge smaller babies (e.g. <1.5 kg) who have not been in a unit for very long should be a joint one. The National Guidelines for KMC[25] should be brought to the attention of professionals working in KMC.

3.2.2.4 Follow-up

In most countries, the follow-up of premature babies after discharge presents many challenges. In Malawi, too, the follow-up system is fragile. In most cases follow-up is passive, with few or no means of ensuring that mothers return to the hospital or go to the nearest health centre for review. The main reasons for mothers failing to return to the hospital for follow-up are transport difficulties (no transport available at night or the cost of transport) and the death of the baby. At two or three of the hospitals mothers were offered incentives to return for review, in the form of either remuneration for transport or a small gift. These measures were usually linked to a specific outside project and funding and were thus not sustainable.

The health system and referral routes make follow-up difficult in some districts. The different

reporting lines between central hospitals and health centres contribute to the weakness of the link between the two types of facilities. A central hospital may not make a direct referral to a health centre – the request has to be processed through the district health office. Therefore hospitals send their discharged patients straight home instead of via the health centre. This practice does not allow health surveillance assistants (HSAs) to check on how babies who have been discharged from the hospital. In some cases referrals between CHAM hospitals and government health centres also appear to be difficult. The use of referral letters passed on from the hospital via the mother or guardian to the local health centre or community volunteer seems to be working well for groups of patients in other types of programmes.

3.2.3 Staffing

The staffing arrangements in the KMC units visited varied greatly. In some units only nurses were allocated, in others only patient attendants supervised by clinical or medical officers and in yet others there was a mix of patient attendants, nurses and clinicians. Sometimes KMC services are paralysed as a result of staff shortages or the lack of appropriate planning for appropriate coverage of KMC care, for example at one hospital a cleaner looks after the KMC ward when the nurse is on leave. Many of the health workers interviewed said that their perception was that newborn care was not a priority in the health system and that staff allocations for newborn care were not taken seriously. Despite the difficult conditions under which members of staff have to perform their duties, the commitment of some of these members has to be commended – in the words of one nurse, “We do what we can in response to the crisis.” However, it is crucial that all hospitals have a system of care that includes sufficient nursing and clinical supervision of babies in KMC at all times.

The practice of regular staff rotation is not conducive to the provision of quality care, as staff trained in KMC are replaced by staff with very little or no experience. In-service training and on-the-job orientation are done thoroughly in some of the units, whereas in others there is an impression that insufficient knowledge and skills are passed on to newcomers to the KMC ward. For the implementation of KMC it is essential that key people and drivers of the process at all levels should be kept in the same position for the duration of the implementation or until KMC has become fully institutionalised.

Appendix II gives a summary of the total staffing in the maternity and paediatric sections of the health care facilities visited. It was unfortunately not possible to obtain a breakdown of the number of staff members who are available for KMC on each shift.

4 EVALUATION OF THE CURRENT SITUATION

Table 3 summarises the achievements, strengths and challenges of hospitals that have implemented KMC with the support of Save the Children's Saving Newborn Lives program.

Table 3. Achievements, strengths and challenges in KMC

ACHIEVEMENTS AND STRENGTHS	CHALLENGES
Nationally:	***Human resources – management and perceptions:***
• Malawi has a national KMC policy. • There is a high degree of awareness of ENC and KMC in the facilities visited and they are both included in the national pre-service training for nurses.	• Perception of health care workers that newborn care is not a priority in the health system. • Insufficient nursing and clinical supervision in some units • Staff shortages • Staff rotations resulting in loss of staff with skills in KMC • Long off-site training, and limited on-site follow-up, especially if started in "project mode" • Limited orientation of new health care staff
In the facilities visited:	***Implementation and follow-up:***
• All hospitals supported have a KMC unit. • Some other sites where KMC was not started with Save the Children support also have KMC units, showing a demand for KMC and its application. • Dedication of staff despite hardships. • Presence of guardian to assist the mother. • Good use of visual materials (posters and cards). • KMC register is available and being used in at least 6 of the sites.	• Perceived need of special unit, special beds and heaters • Lack of simple job aids to work out volumes for giving expressed breast milk, or for recording that milk has been given • Variation in quality of records – lack of proper documentation on feeds and other important information • Variation in discharge criteria • Lack of appropriate follow-up systems • Transportation of babies to and between health facilities in the KMC position
General:	
• Awareness of KMC in other health facilities	

4.1 Missed opportunities for immediate attention

Three missed opportunities were identified that could receive immediate attention without any additional costs to the health services apart from training and awareness raising:
• Practising intermittent KMC
• Optimising feeding practices
• Transporting babies from home or between facilities in the KMC position

4.1.1 Practising intermittent KMC

During the visits to the different health facilities it was observed that intermittent KMC (interrupted KMC) was very seldom practised in the nursery. Babies who are stable but have not yet been moved to the KMC unit lie in cots and are handled only for feeding. The Malawi National

Guidelines for KMC stipulate that babies who have problems at birth may start KMC as soon as they are stable. Intermittent care should be practised until the babies are fully stable.[25]

According to World Health Organization (WHO) literature, intermittent KMC can be started while a baby is still recovering from an illness and when a baby still requires medical treatment (IV fluids, low concentration of additional oxygen, antibiotics and even phototherapy). As long as the baby does not have severe respiratory distress (respiratory rate > 60/minute with in-drawing and nasal flaring) while on oxygen therapy and does not have any other danger signs, the mother can hold her baby skin-to-skin for short periods of time (1-3 hours at a time), and then progress to full-time KMC.[30-31]

Research has shown that infants who are not stable enough to receive continuous KMC but are able to receive intermittent care will gain many of the benefits of KMC while being cared for in nurseries or incubators.[32] These benefits include cardio-respiratory stabilisation with a reduction in apnoea,[33-34] efficient thermal regulation with prevention and treatment of hypothermia,[35] exclusive breastfeeding resulting in improved function of the gastro-intestinal tract with less vomiting caused by gastro-oesophageal reflux,[6] and consistent weight gain even in very low birth weight infants.[7,36] KMC is known to reduce stress in infants, which results in earlier suckling, organised brain activity and sleep cycles that are mature in nature.[37-38] Infections are reduced, as the baby is colonised by the mother's skin commensals instead of pathogenic bacteria and is protected by the antibodies in breast milk.[5-6]

Intermittent KMC can be implemented immediately in a facility without having to identify a special space or equipment. The only requirement is that there should be a chair or bench in the nursery where the mother can sit with her baby in the KMC position. The most convenient time to practise intermittent KMC is when the mother comes to feed her baby. It is not absolutely necessary for the baby to be tied in the skin-to-skin position, because the mother will not be moving around with her baby. If the mother will be doing intermittent KMC for a long period of time it may be more comfortable for her to have her baby tied in the KMC position.

It may be helpful if the Malawi National Guidelines for KMC[25] were revised to describe the practice of intermittent KMC in more detail, along with the criteria for determining when intermittent KMC is safe and beneficial to the baby. One way to address mothers' resistance to intermittent KMC would be to educate all women attending ANC clinics about KMC, how it is practised and how beneficial it is for small babies to receive this care.

4.1.2 Optimising feeding practices

During the assessment visits it was found that the feeding of infants in the nurseries and KMC units varied very much between facilities. There was a lack of proper documentation of the volume and number of feeds. Some units did not have any feeding charts. In some of the nurseries there were no scheduled times when mothers should come and feed their babies. Some of the nursing staff understood that babies should be fed on demand and not according to a time schedule. In some units the mothers received little support and guidance from the staff in the nursery regarding feeding times and the required volume of feeds. Some members of the nursing staff seem to confuse the term "exclusive breast feeding" with the term "feeding on demand" and they used the terms interchangeably. Further, some did not understand that feeding infants expressed breast milk is included in the definition of exclusive breastfeeding.

Feeding of neonates and especially LBW and/or preterm babies is very important because these babies do not have reserves of energy to fall back on. They need regular feeds to prevent low blood sugar and allow them to have a satisfactory growth rate. Premature infants may have a

poor sucking reflex, make little attempt to suck and become fatigued easily, which is why they need small, scheduled feeds at regular intervals.[31]

Nursing staff need to understand that feeding on demand is only feasible in healthy newborn infants who room in with their mothers. Babies who are kept in a nursery where the mother is not constantly present need to be fed on a specific schedule in order to provide optimum nutrition and prevent episodes of hypoglycaemia from occurring. This is even more important when caring for preterm infants.

The 2005 Malawi National Guidelines on KMC contain no clear outline of how preterm and ill neonates should be fed.[25] The guidelines advise that infants in KMC should be fed on demand. How to calculate feeds and the approximate amount of food needed per feed by birth weight and age are included in the guidelines as an appendix, but the function of this job aid is not clearly explained. It is recommended that this section of the National Guidelines be reviewed. The KMC training manual also requires additional information on feeding preterm infants. While the manual explains how to feed infants with a cup and a nasogastric tube, it also needs to emphasise that preterm and ill babies should be fed at set periods.

4.1.3 Transporting babies from home or between facilities in the KMC position

All the health facilities practising KMC were asked how newborn babies were transported to the hospital. Very few recognised that the skin-to-skin position should be standard practice. Newborn infants and especially LBW and preterm babies are very prone to hypothermia. Transporting babies in the KMC position can help avoid this potentially lethal condition and more infants would arrive warm and alive at the health facility.[39-40] Communities and health care workers working in the community need to be educated about transporting all newborn infants in the KMC position. Although this is not addressed in the Malawi National Guidelines for KMC, the KMC training manual states: “Every LBW and preterm baby or sick newborn referred to the hospital should be transported in the KMC position; transporting in this position can avoid hypothermia of the baby.”[41]

4.2 Potential for scaling up KMC

All the facilities visited were positive about KMC and saw possibilities for scaling it up. Staff members at both ZCH and QECH indicated that they were keen to be part of any scaling-up process. Both Lirangwe Health Centre and Mangochi District Hospital were positive that a referral system for mothers in KMC could work in their context, with a mother and baby being referred back to the health centre before being discharged home.

It appears as if scaling up could be feasible and sustainable within current health system constraints. A number of factors are crucial to the sustainability of scaling up:

- The active support and involvement of management at all levels
- A trained and experienced person to drive the process under the auspices of the Ministry of Health (This is essential for integrating KMC into the health system.)
- Good communication and consultative participation at all levels
- Selecting the right people for training and providing ongoing support after training
- Strengthening of current lines of communication between levels of care
- Sensitisation of community structures like HSAs and local leaders to promote good communication and support, especially after the babies’ discharge
- The integration of KMC services in the facility system right from the beginning (It is important to avoid looking at KMC as a project.)
- The need to establish a community follow-up system that is integrated into the maternal and child health care programme

If KMC is to be taken to scale some shifts in approach may be needed in order to devise a cost-efficient programme that would enable KMC to become an integral part of the continuum of neonatal care and not be treated as a vertical project that ends when external funding ends. The shift in approaches is summarised in the next section.

4.3 Possible shifts to accelerate the scaling up of kangaroo mother care

To promote the effective scaling up of KMC at a district level and counteract potential threats, a number of shifts in the planning and execution of a scale-up process have been conceptualised. These shifts, which have proved to be effective in other countries, are summarised in table 4.

Table 4. Shifts to accelerate the scaling up of kangaroo mother care

	WHERE WE WERE	WHERE WE WANT TO BE
HEALTH SYSTEM PLANNING AND IMPLEMENTATION	**Who drives the process?**	
	Project Vertical (silo) Leadership by NGOs and expatriates, outside consultants Waiting for funding	Integrated in health system Integrated with other programmes and training packages Leadership by Ministry of Health and local officials, locally adapted and owned Starting with what is available
	Where in the health system?	
	Care in tertiary hospital and discharged to home Need special newborn care before KMC can be started	Household to hospital continuum of care with approach tailored to health system level Continuum of care approach: *Antenatal* messages to families, *Obstetric care* with immediate skin-to-skin contact and breastfeeding, KMC at each level of care linking to *postnatal* care for referral and follow-up
	Training and tracking	
	Off-site training – long course (e.g. 5 days) as once-off End-of project assessment	Short off-site training for selected leaders followed by on-site facilitation by a central trainer who then devolves responsibility to the local supervisors Continuous monitoring of quality through on-site facilitation, supervision and moral support
HEALTH CARE DELIVERY	**How?**	
	Rigid recipes, same everywhere	Flexible guidelines adapted to local context and existing protocols, use of job aids, modular training with implementation content as well as clinical care
	Who "owns" the baby?	
	KMC as medical/nursing intervention	KMC as a vehicle to empower mothers All the staff have a role to play and with the human resource crisis, delegation is key (e.g. to patient attendants)
	Who gets KMC?	
	Preterm babies of certain weights without any problems	All babies benefit from being skin to skin at least for the first few days. All preterm babies benefit from KMC unless they are medically unstable (e.g. breathing difficulties) Babies, including term babies, who are ill and are being transported to a referral centre can travel on mother's or guardian's/father's chest
	Where?	
	Need a special KMC room, surgical beds with 45^0 angle and heating	Can start with ordinary beds in the corner of the postnatal ward, or the mothers can provide intermittent KMC in the sick baby unit. In the absence of a reliable heat supply, KMC is the best method of keeping the baby warm
	When?	
	Only to be done if a full 24 hours a day can be achieved (continuous KMC)	KMC can be intermittent (e.g. babies who are still unwell but are stable can be held in the KMC position for a few hours at a time)
	What is KMC?	
	Focus all on KMC position and warmth	Importance of feeding often and enough and recording this while the baby is still an in-patient

5 REVIEW OF RELEVANT MATERIALS AND TRAINING

The brief with regard to KMC training materials was to:

- review visual materials for promoting KMC and ENC for families and health care workers (posters, leaflets, flipcharts)
- review and help revise the current KMC manual used to train health care staff in Malawi in order to:
    - optimise the clinical content of the materials, including necessary simplifications for a shorter training period and for simpler implementation at district level
    - add suitable content with regard to the implementation process, the audit and the enabling of sustainable scale-up of KMC

- adapt the material in such a way that it would also be useful in other African countries and settings

5.1 The process

The following process was used to review the materials:

- Listing and appraisal of the Malawian training materials, guidelines and reports on the process of implementation
- Listing and appraisal of the South African materials used in the scaling up of KMC in several provinces
- Identification of the different target groups that would need training or orientation in KMC
- List of training materials needed for different target groups
- Creating draft training programmes for core skills and comprehensive skills training (Appendix IV contains a proposal of what a training programme could include.)
- Tabulating the selected training materials under the following headings: description of each item; target audience for which it would be useful; why it should be included in the training; options for input; what needs to be done and who would be responsible for what.
- Developing proposals for a KMC action kit that will contain the different training materials for scale up:
    - poster, cards, information leaflets
    - a KMC manual in modular form that includes information on KMC, benefits, practice and implementation aspects
    - a CD-Rom with a collection of reference materials, PowerPoint talks, examples of guidelines, protocols and job aids (An outline of possible training materials to include in a scale-up KMC action kit is set out in Table 5)

5.2 Relevant existing materials

5.2.1 Family and health-worker visual materials

A very popular poster which had been developed in Malawi was widely displayed in facilities. The flash cards for ENC and KMC were also on display on the walls of several units or were being used as flipcharts for health talks. A number of posters are used in South Africa, and some of these were also to be seen in Malawi KMC units. The Malawi materials are now out of stock and the MoH and partners, including Save the Children, plan to review and reprint. Overall, only minimal changes seem to be necessary.

5.2.2 Relevant training and implementation materials

5.2.2.1 The Malawi KMC training manual

This manual[41] was developed in 2005 and used to train health care workers. The training took place at Zomba Central Hospital over a period of five days. The 195-page manual includes clinical care, discharge and follow-up but less material on the implementation of KMC, scale up and tracking. There is a chapter with very detailed information on the identification, characteristics and problems of LBW and/or preterm infants plus a chapter on hypothermia, its causes and how it should be treated. There is a short section on cup and nasogastric tube (NGT) feeding for LBW babies. The manual also contains several useful job aids, including referral letters.

5.2.2.2 The South African implementation workbook for KMC

This manual was published in 2002 under the auspices of the MRC Unit for Maternal and Infant Health Care Strategies.[42] It focuses on the adaptation of the health systems, local ownership and a sustainable KMC implementation process. The manual was part of the training materials provided to health workers attending two-day KMC training workshops in South Africa. The training materials were placed in a box that included the workbook, a reader (a collection of research articles on the practice and implementation of KMC as well as units from a training manual of the Perinatal Education Programme), a KMC poster, two KMC videos, a wrap for tying babies and examples of protocols, guidelines and job aids. Depending on the size of the facility, each facility planning to scale up KMC had to select two to five people to attend the two-day training course. After the training in both implementation and clinical practice, participants went back with a plan of action they had developed themselves and then received two to three follow-up support visits before the progress made with implementation was formally assessed.[20,27]

5.2.2.3 Malawi ENC materials

With funding from the Bill & Melinda Gates Foundation, Save the Children, in collaboration with the Ministry of Health, developed an ENC course and manual that was widely implemented and incorporated into pre-service training at the College of Nursing. ENC/KMC materials were also developed for use by partners who were supported to implement ENC and establish KMC units with the agreement that the Ministry of Health would later reproduce these materials for national use. The posters were used in health facilities to sensitise the community on ENC/KMC and management of newborn danger signs while the brochures were distributed to mothers during motivational talks either at antenatal care or in the postnatal ward or KMC unit. Counselling cards were developed for community health workers (i.e. HSAs, community health nurses) to counsel women on essential newborn care, identification and management of danger signs and KMC.

5.2.2.4 WHO ENC training course

The WHO ENC course is a stand-alone, five-day workshop with training in the principles of ENC (warmth, breastfeeding, cleanliness), as well as neonatal resuscitation. It includes good grounding in skin-to-skin care and two hours on the clinical practice of KMC. Breastfeeding counselling is covered, but limited time is spent on special feeding support for preterm babies.[30]

5.2.2.5 Care of ill newborns

The Integrated Management of Childhood Illnesses (IMCI) algorithms used in Malawi have been adapted to include the WHO Young Infant algorithm, so it now screens for illness in the neonatal period. Any baby who is very small or who has any one of eight danger signs listed is considered to fall into the category of “Very severe disease” and should be taken to referral level for treatment. Other IMCI conditions (malaria, pneumonia and diarrhoea) can be treated at primary care level. The two guides for the care of ill babies at hospital level that are both from the WHO, but do not seem to be well known or used even in the teaching hospital are *Managing Newborn Problems*[31] and *The Pocket Book of Hospital Care for Sick Children*.[43]

5.2.3 Multiple protocols and job aids for ENC, KMC and care of ill newborns

There are multiple protocols and job aids for many aspects of newborn care including ENC, KMC and care of small and sick newborns. These can be adapted to the local setting but the principles such as discharge criteria or feeding volumes by birth weight and age are similar. It is proposed to collect useful examples and provide these on a CD-Rom in an editable text format, for easy adaptation, printing and display or use in the records.

5.3 Recommendations with regard to materials

All the above materials have strengths and limitations. For local ownership and sustainability and based on the experiences of scale-up in South Africa, the materials and training should include principles for implementation as well as a clinical care component. Ongoing facilitation is essential. Selected aspects could be added from the South African manual to reinforce this.

In order to move to district level it is clear that the five-day, stand-alone off-site training for KMC alone will not be feasible for wide-scale implementation. It is recommended that training in KMC be shortened to two days of off-site training, to include a clinical and practical component, as well as guidelines on implementation. Appendix IV contains a proposed outline for this two-day training schedule. As this is modular it would be possible for the half day of competency training in KMC to be used as a modular add-in to the WHO ENC course to ensure that everyone trained in ENC to this level is also competent in KMC.

An outline of possible training materials to include in a scale-up KMC action kit is set out in table 5. The intention is to have a draft ready for review by the end of October.

Table 5: Overview of proposed action kit for integration and scale-up of KMC

SECTION	WHAT	WHO FOR?	OPTIONS FOR INPUT/STATUS
A	Supporting behaviour change communication (BCC) and visual materials: - Posters - Cards - Leaflets	Mothers, families and aids for health care providers	Good materials exist in Malawi and South Africa
B	Modular manual in file with sections derived from Malawi KMC manual and South African KMC implementation workbook on: 1. Introduction – Why KMC? What is KMC? "How to" principles 2. Planning and implementing scale-up 3. Practising KMC (split by core and comprehensive) 4. Progress tracking Annex: Diagrams to adapt for section 1 Curricula for core skills and comprehensive Copies of job aids and ward records for adaptation/use Possible list of contents for KMC action kit	Different sections for different audiences	Planning/implementation: - the South African workbook has good inputs that can be adapted - Need proposed scale-up plan over 2 yars Practising KMC - Malawi manual - PEP manual - Protocols from Kalafong Hospital - Curriculum for 2-day training
C	CD-ROM with the manual, job aids and more information, including other background reading and Powerpoints (PPTs) for advocacy and training	Planners/implementers and healthcare providers who require more information PPTs: One or more per section of the manual	A lot of materials exist
D	KMC action kit - possible items to be discussed but could include modular manual, job aids, BCC materials and poster, DVD of KMC for training, examples of KMC wraps etc	Action box and may differ according to levels – e.g. health centre more simple, central hospitals and national coordinator more comprehensive	

6 PROCESS FOR SCALING UP KANGAROO MOTHER CARE – LESSONS FROM ELSEWHERE

6.1 Approaches to scaling up design

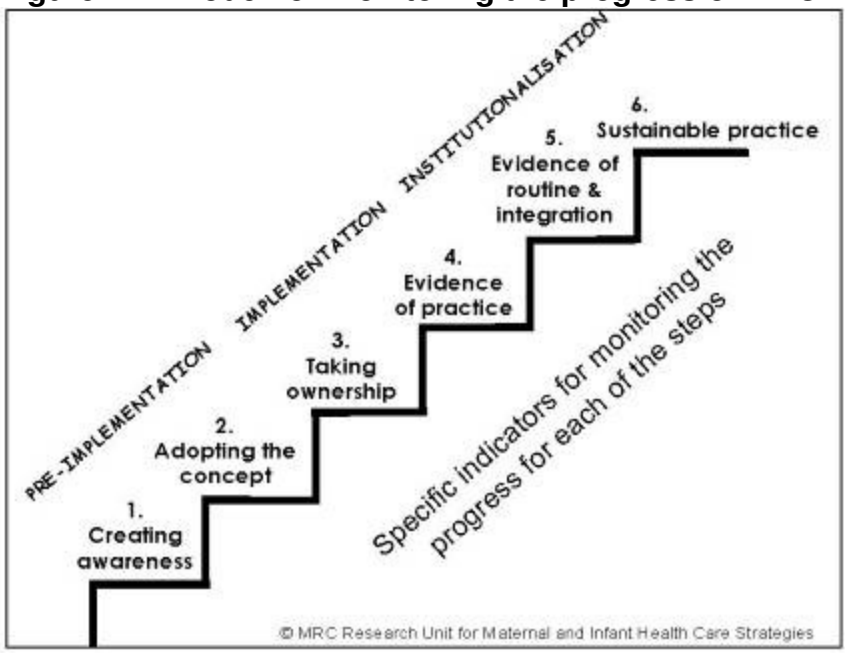
The first decision that needs to be taken by any MoH that wants to scale up KMC is the approach: a ”big bang” approach, which involves scaling up to all facilities at the same time, or a ”staggered” approach, which involves scaling up in a phased manner over a period of a few years. A comparison of the advantages and disadvantages of each is summarized in table 6. The decision will be influenced by funding and human resources. For an endeavour like this to succeed careful consideration and planning are very important in the initial stages. There should be political commitment by the MoH to implement KMC within the existing constraints and the will among health workers to take it on as part of their normal duties, without expecting additional incentives. Participatory management, transparency in decision making and good communication strategies are needed from the start to ensure a climate that facilitates commitment and ownership of the implementation process.

Table 6. Approaches to scaling up – advantages and disadvantages

	“BIG BANG” APPROACH	“STAGGERED” APPROACH
ADVANTAGES	• Higher level policy makers and politicians often like immediate results. • Intensity of the messages that go out can help with sustainability. • The role-players who have to implement are more aware of the initiative due to public awareness and publicity. • Mothers and babies will benefit sooner because all facilities will implement the intervention at the same time.	• Momentum and demand can build as people see success at other sites and learn from their implementation experiences – as time goes by more people become sensitised to the process and implementation becomes easier. • Lessons from early experience can improve subsequent implementation. • Costs are spread out over a longer period. • Hospitals can benchmark at facilities that have implemented KMC successfully. • Integration of KMC into newborn services will occur in those hospitals that have implemented first and will spread to others.
DISADVANTAGES	• The initiative ends sooner than with a ”staggered” approach and long-term sustainability may be compromised if there is not sufficient ownership. • More difficult to sustain momentum during implementation ”dips”. • More difficult to integrate KMC into newborn services. • Immediate cost is high. • More qualified and experienced trainers needed, which could increase the cost. • Quality of training in areas may suffer if experienced trainers are not available.	• Could unravel if there is a change in driver or trainer in the middle of the process. • It takes longer for the intervention to be implemented and longer for mothers and babies to benefit from the intervention.

The South African MRC Unit developed a model for monitoring progress with the implementation of KMC, which is depicted in figure 1.[19] It is based on three phases: pre-implementation, implementation and institutionalisation. For each phase there are two "steps" that need to be monitored very carefully. Together, the six steps are summarised as creating awareness, commitment to implementation, preparing to implement, implementation, integration into routine practice and sustaining of new practices. It the initial pre-implementation steps are omitted and logistics planning is not done in very much detail, the rest of the scaling-up process may be in jeopardy and the sustainability of the KMC programme could be compromised.

Figure 1. A model for monitoring the progress of KMC implementation



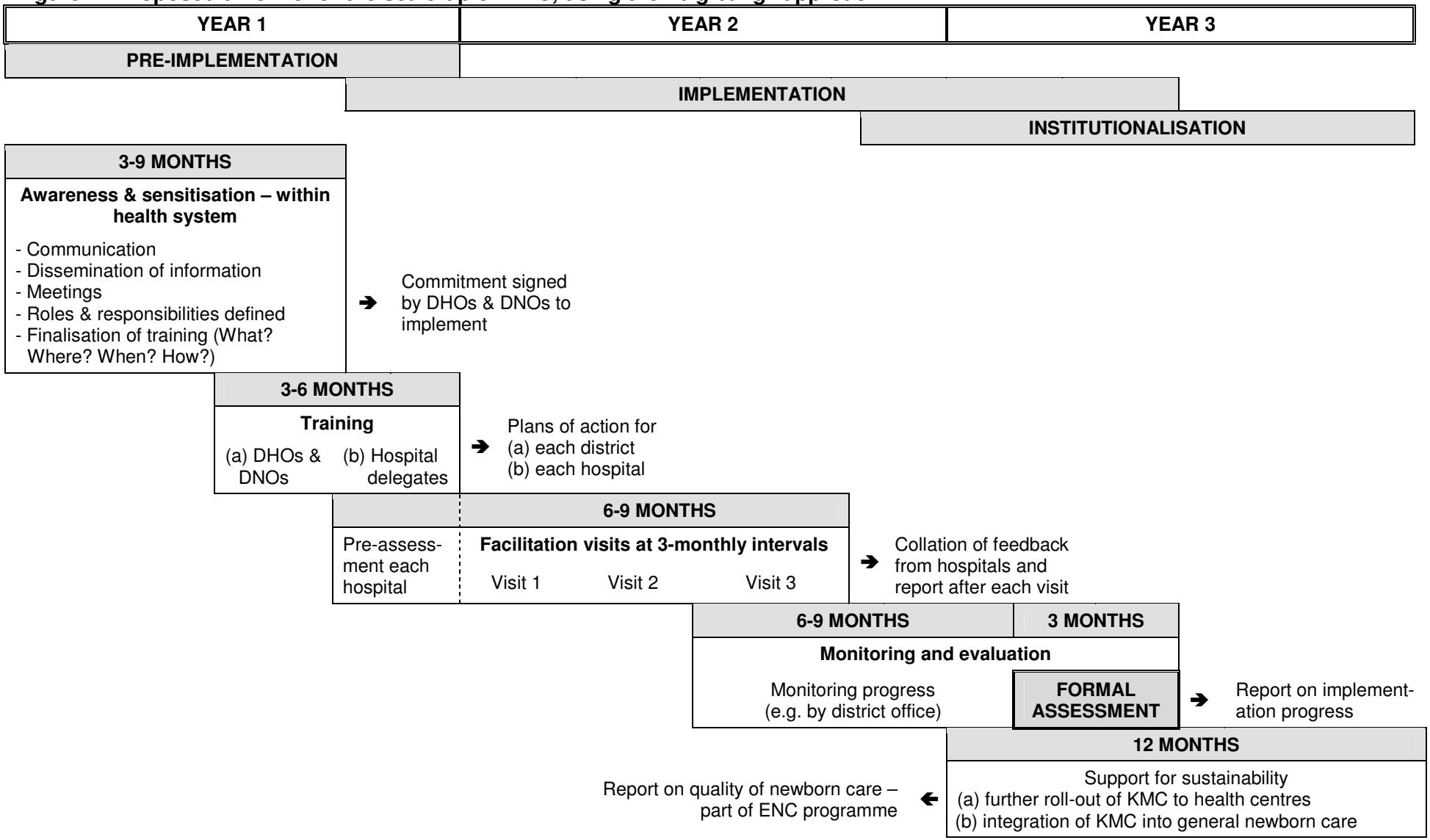
The following example described in sections 6.2 to 6.6 was derived from experience in South Africa in the scaling up of KMC in three provinces.[19-21] Figure 2 gives a graphic representation of a possible timeline for scaling up, using the "big bang" approach.

6.2 Principles

- A driver of the process in the Ministry of Health and a driver in each district office (e.g. national and district coordinators) are essential for successful implementation.
- "If it's not on the agenda it is not there" – for the period of implementation KMC is placed as a fixed point on the agenda (for progress reports) at as many different meetings on as many different levels of the health care system as possible.
- Continuous support for implementation until KMC has been institutionalised is essential. In such a context a training model that places the emphasis on continuous on-site facilitation instead of detailed clinical training may be more practical and sustainable. It is essential initially to have an experienced national trainer(s) in KMC until KMC has been integrated into the continuum of newborn care. This usually takes about two to three years.
- The implementation and practice of KMC become part of the normal job description of all health care workers and each one is accountable for fulfilling the responsibilities and executing the tasks allocated to her/him.
- Implementation of KMC at all levels is a team effort and not the project of one individual. The strong involvement of medical and clinical officers seems to make a difference in getting KMC implemented. "Multidisciplinary team work is one of the cornerstones of a successful KMC programme."[42]

- No special equipment or structural facilities are needed for implementing KMC. Flexible adaptation of existing structures is preferable until upgrading can take place. If heating is unavailable or the supply is unreliable, keeping the baby warm in the KMC position is the ideal option. Intermittent KMC could also be practised, while babies are in cribs in heated nurseries. A district hospital with a properly functioning KMC programme might well benefit from investing in a digital scale.

Figure 2. Proposed timeline for the scale-up of KMC, using the "big bang" approach



6.3 Awareness and sensitisation period (advocacy)

- A publicity campaign lasting at least three to six months is required to inform and negotiate with all stakeholders and local leaders – use existing statistics on neonatal deaths and prematurity figures to ”sell” the concept of KMC.
- Use existing meeting structures to make short presentations to obtain “buy-in”.
- Work on provisional roles and responsibilities at various levels of the health system – if necessary get a few people together for an intensive brainstorming session.
- Define basic requirements for staffing. These should not be additional posts funded from outside project funds, but staff on the normal payroll of the Ministry of Health. It seems that a minimum of one clinician, one nurse and one patient attendant (who could also have other duties in other wards) – all working full time – would be needed for the appropriate daily supervision of babies in KMC. Too many staff rotations may jeopardise the long-term quality of care.
- Devising a proper record-keeping system is essential. Preferably, existing records should be used or adapted. In the case of bigger hospitals with a separate KMC unit, a KMC admissions book like the one currently used in Malawi could be very useful.
- Some form of media campaign to ”sell” the concept of carrying babies in front, in the skin-to-skin position, could help persuade mothers and guardians to accept and practise KMC.
- Do a survey on the various pre-service curricula of the different health cadres to determine where the curricula are presented and what they include. Work on inclusion and expansion in cases where there is no or insufficient instruction in KMC could be done by the national coordinator/ trainer.

6.4 Preparation for implementation

Figure 3 gives an overview of the potential referral routes for babies in KMC. The darkest lines indicate the routes and facilities that would be most affected by a scale-up to district level.

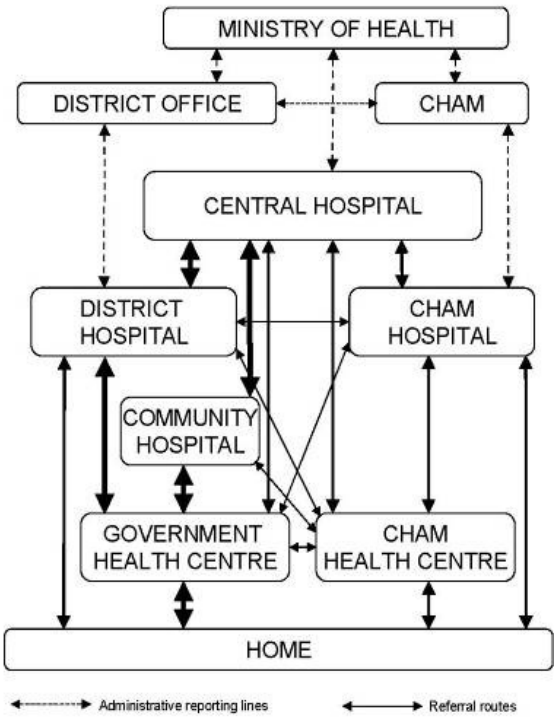


Figure 3. Potential KMC referral routes

6.4.1 District level

• One-day workshops with district officials (e.g. district health officers [DHOs] and district nursing officers [DNOs]) to work out how the scale-up will take place in each district – this could be done by zones or regions or they could piggy-back with existing meeting schedules.
• Clarification of roles and responsibilities of different officials (e.g. DHO will take charge of the hospital implementation and the DNO of health centres).
• Each district works out its own plan of action – this should include at least the following:

- information on the consultation process that will be followed within health structures and with community stakeholders (e.g. chiefs, churches, volunteers, etc)
- information on the existing meeting structures that could be used to facilitate the process and for regular report back sessions
- timelines and responsibilities
- appropriate referral and follow-up systems that will ensure that a baby will get the continuum of care needed until it is discharged home

• The persons who will be responsible for assisting the health centres (e.g. DNOs) collaborate with the trainer on a programme of sensitisation and basic on-site training.

6.4.2 Facility level

• A pre-assessment visit by the national trainer or coordinator to each district hospital to familiarise herself or himself with conditions on the ground and to feed

useful information into the planning of training.

• Initial two-day workshop for two staff members from each district hospital who will be intimately involved in the implementation process (preferably a clinician and a nurse – nomination of delegates by DHO could be done in consultation with the chief medical/clinical officer).

• The DHO of each district would have communicated with the two members nominated for training on what had been planned at district level.

• Each hospital to work out a plan of action with timelines and names allocated to each identified task.

6.5 Implementation

6.5.1 District hospitals

• The DHO and the two trained members (and possibly the chief medical/clinical officer) form a core group to take the implementation forward – they meet as needed or according to a specific schedule to discuss progress and problems.

• Each facility starts implementing according to its own plan of action.

• The national trainer does regular on-site facilitation visits (e.g. three times, once every three months) to monitor progress and assist in solving problems.

• Meetings between the DHO and health centre managers have KMC as a fixed point on the agenda for at least two to three years.

• Benchmark at hospitals with existing KMC units or spaces.

• All ambulance drivers and HSAs get a basic orientation in the transport of all referred babies in the KMC position.

6.5.2 Health centres

• The national trainer and the person responsible for rolling out KMC at health centres (e.g. the DNO) liaise on the following:

o visiting one or two health centres where she or he models the principles and process of on-site facilitation (at the same time as the first facilitation visit to the district hospital)

o the DNO continues at other health centres as part of regular visits – with a deadline for having visited all health centres at least once

o means of communication should the roll-out person (e.g. the DNO) require assistance with any problems that may arise

6.6 Monitoring and evaluation

When planning for the tracking, monitoring and evaluation of the implementation of KMC there are two foci to attend to, an immediate focus and a long-term focus. The immediate focus is the question whether (and how) KMC has been implemented. The long-term focus concerns the question whether KMC practices, in the context of ENC, are being maintained and sustained. Figure 4 graphically depicts the different foci in terms of implementation and sustainability.

The following are a number of aspects that any Ministry of Health needs to take into account when planning their follow-up of the implementation of a new intervention:

• At the end of a specified period a walk-through visit is done at each district hospital by the national trainer and, if possible, by an independent assessor as well, using a progress-monitoring tool to check the progress of implementation and the potential

for sustainability.

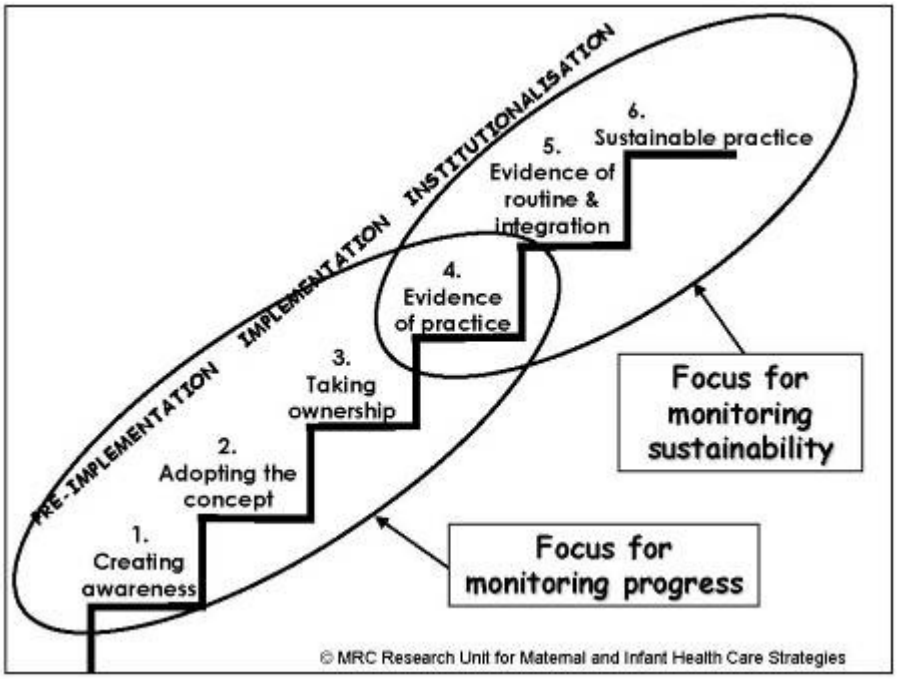
- A sample of health centres should be visited to qualitatively assess the uptake of KMC at health centre level and to check some records.

- There should be some form of certification for hospitals and health centres that have successfully implemented KMC and shown evidence of sustainability.
- A plan should be developed at health systems level to include KMC as part of other tracking and assessment mechanisms of the quality of newborn care (e.g. it should be included in SWAp).

7 CONCLUSION

Kangaroo mother care has already been shown to work in Malawi and could be scaled up further in a sustainable manner in the Malawi health system with moderate additional resources and linking to the Essential Health Package. Available space in, say, the postnatal ward could be earmarked for mothers practising continuous KMC. Special beds and special wraps are not prerequisites for KMC. Measures should, however, be devised to allow KMC babies and their mothers to receive adequate care by ensuring that the care and supervision of these patients are included in the tasks of all health care workers working in maternity and neonatal units. Ward rounds by clinicians should also include these babies. In order to be feasible, training for health workers should take place mainly on site, initially with appropriate support from the Ministry of Health through the provision of a national KMC trainer/coordinator, district coordinators and short workshops for key role-players in each facility.

Figure 4. Monitoring of implementation and sustainability of KMC practices



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APPENDIX I

SUMMARIES OF FEEDBACK FROM INDIVIDUAL HOSPITALS

I.1 ZOMBA CENTRAL HOSPITAL – SUMMARY OF DIRECT FEEDBACK

In a meeting with the Head of Paediatrics, Dr Charlotte Adamcsick, she expressed her satisfaction with the status of the health facility and referred to the experienced and dedicated staff, especially the quality of the nurses in comparison with those at other health care facilities in Malawi. There is nevertheless a shortage of nurses. Although there are more incubators and two resuscitators have recently been received, more are required. The hospital has received funding for buildings and now has facilities for KMC, and for training. Nursing staff receive continuous training in KMC application as part of ongoing improvement. There is also a good statistical system with the aid of which a monthly report is compiled. The latest KMC statistics were also shared with the team: From January to June 2007 there were 129 admissions to the KMC unit. Of these, 116 (90%) were discharged alive (there were no proper records for 10% of the admissions). Seventy four (64%) came for the first review and 52 (45%) for the second review.

The KMC centre was officially opened in Zomba in November 1999 in response to the high number of neonatal deaths due to hypothermia. The paediatrician was invited to an international KMC conference in Bogotá, Colombia, at that time and realised that the same problems existed, namely inadequate incubators, maintenance problems, more than one baby in one incubator, cross infections and difficulty in regulating temperatures for different ages and weights. Infrastructure and staff development were investigated. Funding was received from the European Union (EU) to reconstruct the nursery. Staff development was needed to get the new mindset of low-cost care accepted. A delegation of 4 people (2 nurses, 1 clinician and 1 patient attendant) was sent to Zimbabwe for a 2-week orientation. Then one nurse and one clinician were sent to Bogotá for one month's training. This increased the confidence of the staff in KMC. Some of the nurses who were originally trained still work at the centre.

Since then things have been going very well. The KMC unit is a 12-bed unit in the neonatal ward. It is staffed by five nurses and three patient attendants, all of them trained in KMC. Nurses take the leading role in KMC and do both KMC and general nursing, as KMC has been made an integral part of neonatal care. Through the years there has been a turnover of staff, as a result of rotations and redeployment of staff, but also because members of staff have moved away from Zomba. New patient attendants have had to be taken in, although on the nursing side there has been more continuity, with the retention of some of the experienced nurses. Patient attendants play a very important role in looking after the social and emotional well-being of the mothers.

In 2002 the KMC unit became a training centre with the assistance of Save the Children through Saving Newborn Lives. A KMC coordinator and trainer were appointed to train the members of staff who did not go to Harare and Bogotá. Training material was developed and trainees' training fees and accommodation costs were covered.[1] Theoretical training was done at the Zomba School of Nursing and practicals were done in the KMC Unit. Save the Children supported the training centre by donating equipment (e.g. computers) and educational materials (e.g. videos from other countries to show clients that KMC was also being practised elsewhere).[2]

[1] The training manual is available from the Save the Children Office in Malawi.

[2] Zomba Central Hospital was the first hospital to have videos for patients in the whole of Malawi.

[3] Blencowe H, Molyneux EM. Setting up kangaroo mother care at Queen Elizabeth Central Hospital, Blantyre - a practical approach. *Malawi Medical Journal* August 2005; 17(2): 39-42.

Follow-up visits were another challenge. To ensure attendance, mothers were reimbursed for transportation. This was not sustainable in the long run. A central hospital does not have control over the health centres. This was perceived as an obstacle with regard to referral back from the hospital to the health centres. Another referral dilemma from health centre to hospital is perceived to be the policy of only treating maternal emergencies as ambulance emergencies and not those of newborns in distress. As a result, many of the infants are hypothermic when they arrive at the hospital. In talks between the hospital and the district head office one of the proposals was to have one nurse trained in KMC at each health facility to assist with follow up. Traditional birth attendants also favoured the practice of putting babies who had to go to Zomba on the chest.

The nursery and the labour ward are separated from each other. Babies are not brought from the labour ward to the nursery in the skin-to-skin position, as they are often brought without their mothers, who are still recovering from the birth. (Mothers are given one hour's resting time.) Although there is no policy preventing the baby from being carried in a skin-to-skin position, there does not seem to be adequate motivation. All babies are started on an incubator for about 2 days or until they have been stabilised. Mothers express breast milk or else the baby is taken to the mother. Babies are not given formula to prevent hypoglycaemia. Not all babies are on antibiotics. Intermittent KMC is not routinely practised while the babies are in the incubator, although it has occasionally been prescribed. The mother's ability to do KMC is seen as being related to her level of literacy. Routine intermittent KMC would be possible if things were more organised. After two days, when the mother has recovered, she is sent to the nursery with the baby. The baby is admitted to a transit room until the child is stable and the mother is doing well. There pre-counselling takes place. The mother should be willing and child well before KMC is started. Health education is given to mothers and guardians. They are taught how to position their babies, how to position the mother on the bed, how to express milk and feed it by nasogastric tube and cup, how to recognise danger signs in newborns and how to resuscitate them. Mothers are also urged to take good care of their babies, so that they can gain weight faster and be ready for discharge earlier.

Babies are discharged if they have attained at least birth weight, have gained a minimum of 10g per day for three days, are taking their feeds well (cup feeding or feeding directly from the breast) and when their general condition is stable. There is a weight demarcation of a minimum of 1500 g (previously it was 1300 g but this was changed, as the smaller infants were not doing so well at home). The clinician, in consultation with the nurses, makes the final decision on when to discharge. A discharge scoring sheet such as the one used in Colombia is not used.

On discharge guardians should have ensured that certain things have been done at home, for example covering open windows, preparing a pillow or bag of sand for the mother to rest against, and redoing the mud floor to minimise infection. Babies discharged at <1.8 kg are reviewed every week and those at >1.8 kg every two weeks. It has not been established how long mothers continue to practise continuous KMC when at home or how many deaths occur while the baby is still in continuous KMC. This is evident from the fact that not all babies arrive in the KMC position for the first and second review. A mother's resumption of household chores such as collecting firewood can also influence the "weaning" from KMC. The involvement of the husband in caring for a baby in KMC

seems to be minimal. The husbands do not seem to take a turn at carrying the baby.

The staff members present at the discussion felt that the training period for KMC should be two to three weeks full time. Currently KMC training at Zomba takes five to six days -- two days for theory and then the rest for practical experience in the ward. The theory is also integrated with the practical work. Although this shorter training period is not perceived to be ideal, it is done as a compromise, as it is not possible to take too many staff away from their work for long periods. Being in the ward for a number of days gives the trainees confidence as they see babies growing and being discharged during their stay.

One of the challenges of implementing KMC at other health facilities mentioned by participants was a lack of interest or support from facility management side, as in the case of one big hospital that had sent people for training at Zomba. A problem at central hospitals is the weak link between the hospital and the district health office and the potential resistance at health centre level. With regard to the introduction of KMC at district hospitals and health centres, with the inclusion of HSAs for follow-up, the opinion was expressed that "anything is possible", as district hospitals have a good channel of command and that it would be easier to integrate it into existing programmes. A threat to the sustainability of donor-funded projects or programmes is the termination of the contracts of additional staff funded by the programme. On the other hand it is difficult to organise training without donor funding.

With regard to the scaling up of KMC, a strategic plan should be in place before scale-up can begin. People who are interested and want to implement KMC should be sent for training, as some people have too many programmes to coordinate on the ground at the same time. The possibility of having a training centre in each of the five zones or in each of the three regions was also mentioned. Programme officers would be important people to involve. Furthermore KMC should not cause further digression on staffing and at least one nurse trained in KMC should be available. Participants at Zomba Central Hospital declared themselves available to assist with any scaling up process.

I.2 EKWENDENI MISSION HOSPITAL – SUMMARY OF DIRECT FEEDBACK

Owing to the time and distance constraints, the team was not able to visit Ekwendeni Mission Hospital. A telephone conference was held in order to get some insight into KMC practices at Ekwendeni Hospital.

The implementation of KMC at Ekwendeni Hospital was accompanied by a community outreach that included drama groups and the training of grandparents (*agogos*). Acceptance in the villages was initially slow, but as a result of the project all babies are referred to the hospital in the skin-to-skin position, except those born outside the Ekwendeni catchment area, where there is not the same awareness of the importance of KMC.

A team of health workers were initially trained at Zomba, after which they did further internal training at Ekwendeni. Nurses of Karonga District Hospital also received 5 days'

training at Ekwendeni. A 10-bed KMC unit was established adjacent to the maternity and nursery structures with the aid of Save the Children and Saving Newborn Lives. All the managers of the hospital were supportive of the intervention. There are 12 nurses working in maternity. Two of these are specifically tasked with KMC. Only one nurse at a time takes care of the babies in the nursery and the KMC ward. There is no patient attendant. A clinician, who rotates monthly, is allocated to the KMC unit and the nursery and is called in when a baby has a problem. Not all the nurses rotate frequently and this assists with continuity.

There is a nursery for stable babies, where they stay for a day or two before being transferred to the KMC ward. The average stay of a baby in hospital is 3 weeks. Babies born before arrival are first placed in an isolation room before being transferred to the nursery with the other babies. About 16 to 20 premature babies are treated in the KMC unit each month. The hospital has its own *chitenjes* that women use to tie their babies while in hospital.

Babies are fed by orogastric tube according to a fixed feeding schedule. Mothers are called for feeding – for babies <1600g every two hours and for babies >1600g every three hours. Vomiting is recorded and possibly volume of expressed breast milk and time of feeding. Intermittent KMC is also practised on babies, even if they are very small but stable.

Discharge criteria include a 10g weight gain for 3 consecutive days, the regaining of birth weight and a baby and mother who are well and a mother who is willing to do KMC.

A KMC register is kept and follow-up also takes place at the unit. There is no follow-up for mothers who live far outside the catchment area, as these mothers cannot go for follow-up in a government health centre.

Posters from the Saving Newborn Lives program and Zomba Central Hospital are displayed on the walls. There are no job aids. Basic requirements for the introduction of KMC were given as the following: 2 nurses who have been trained, adequate number of premature babies, washroom and toilet, a well ventilated room, heaters, feeding cups, plastic buckets, and a register.

I.3 QUEEN ELIZABETH CENTRAL HOSPITAL, BLANTYRE – SUMMARY OF DIRECT FEEDBACK

QECH has 250 maternity beds and approximately 40 deliveries per day. It also serves as a referral hospital for the areas around Blantyre, as there is no district hospital. Only 45% of midwifery posts are currently filled. As it is a teaching hospital, nursing, medical, clinical officer and medical assistant students are also deployed there for training, making further demands on staff. Personnel from QECH are also involved in training in ENC.

The general paediatric and maternity sections are physically far from each other, which creates its own challenges. There were difficulties in allocating space for a KMC ward but KMC was introduced in 2003 and an article in the *Malawi Medical Journal* was published on practical issues related to KMC.3 The nine-bed KMC ward is structurally situated in the maternity building within the postnatal ward. The personnel who run the KMC ward are from the paediatric neonatal department. The bed occupancy in the ward is 99%. A new 17-bed unit is under construction and will be directly linked to the nursery. The

hospital provides three meals per day to patients and the family supplements this with their own food. Mothers in the KMC ward are encouraged to knit a hat for their baby while they are in the ward.

About 1 200 babies per year are eligible for KMC. In the KMC ward mothers and their guardians practice continuous KMC 24 hours per day. Intermittent KMC is not systematically practised in the rest of the nursery. Mothers come to the neonatal nursery every 2-3 hours to feed their babies. The schedule is designed by the nurses to fit in with breaks and visiting times, so that there are 10 fixed feeding times per day. No KMC is practised in the general paediatrics ward where sick infants are admitted from home. The nurses there have not been trained in KMC. These infants, often several weeks of age, are not admitted to the special care baby unit attached to the maternity ward.

There is a protocol with discharge criteria for babies in KMC. They must be free from danger signs and on cup or direct breastfeeding. A baby of >1.6 kg that has gained weight for two days is allowed to go home. Babies of 1.3 kg must have regained birth weight and must have gained at least 10 g per day for three consecutive days. Mothers are taught the danger signs and are discharged directly home, not via a health centre. Babies are followed up in the KMC ward every three weeks until they weigh 2.5 kg. The follow-up rate is 50%. Factors inhibiting mothers from keeping follow-up appointments include transport difficulties (unavailability and cost of transport) and/or death of the baby at home. Mothers are instructed to come for follow-up with the baby in the KMC position. Not all of them return in the skin-to-skin position, but merely with the baby tied in front.

Eight nurses were trained in KMC in Zomba for five days. One clinical officer and the two doctors attended one of the 5 days at Zomba. On-the-job training for patient attendants was done with regular half-hour talks and day-to-day supervision by a doctor for three months.

It is hospital policy to rotate all nurses through the hospital. There are no special arrangements for orientating new nurses on KMC. The sister-in-charge is instructed in KMC first, followed by the rest of the nurses a month later. New nurses get on-the-job orientation. Continuity is provided by the fact that the patient attendants have not been rotated. Additional nurses are employed in the paediatrics department with the aid of external funds, which allows for some staff continuity. With the patient attendants available for KMC, nurses and medical personnel have additional time to look after sick infants. Over time a collegial relationship has developed between the nurses and the patient attendants, with the insights of patient attendants being respected.

Crucial issues are discussed at meetings. No general in-service training for KMC has been done in the hospital since January 2007. Personnel expect special time off for training, with lunch allowances or daily allowances.

Specific points for consideration that were discussed were the importance of introducing KMC as part of antenatal health education, as well as a structured programme for practising intermittent KMC in the neonatal unit. Getting KMC on the agenda of the regular perinatal mortality meetings and on the monthly meeting between the hospital and the community health centres was also discussed.

With regard to the scaling up of KMC in the country, participants from QECH expressed their willingness to be involved in the rollout in the southern region. District

hospitals had been sending people from time to time to learn KMC on site. Implementation of KMC would require some supervision and some moral support, as well as space. Human resources and financial support may also be needed.

23rd July, 2007

FROM : CHATINKHA ADMINISTRATION / KANGAROO WARD

SUMMARY REPORT :

The Kangaroo ward was as a result of scaling up from the Zomba Kangaroo ward which was commenced in 2002 and 2003 respectively.

In 2003 all nurses and patient attendants were trained by the Kangaroo Staff in the Zomba Central Hospital.

Coordinated by Dr. Hanna Queen Elizabeth Central Hospital
Matron Matola : Queen Elizabeth Central Hospital
Matron Nyirenda : Zomba Central Hospital
Mr. Chavula : Zomba Central Hospital

The tools that were in place can be found in the file in ward 2. Patient attendants were placed in the ward to work under the supervision of the Nursery and Post-Natal ward, i.e Mrs. Chabwela and Mrs. Levi.

The policy stated that a neonate of a weight of 1.2 kg to 1.5 kg with a stable condition, i.e. pink in colour, no apnoeic attacks, temperature 36°C, swelling well was to be the criteria for admission.

SUCCESSES

1. Improved quality of life of the Neonate and parents and families.

2. Reduced infection because of use of Kangaroo Care versus incubators whereby babies used to share.

3. Reduced number of neonates in nursery, hence quality of nursing and midwifery care improved due to improvement of midwife – neonate ratio.

4. We are able to teach students of all cadres – midwives, clinical officers, doctors – in the concept of Kangaroo Care since we are a training institution.

5. We are able to use diversional therapy on our mothers/guardians, e.g. radio, playing cards and knitting of babies' warm clothes is done by the patient attendants.

   This is part of leisure for the family/mothers while patiently caring for the neonate in hospital.

CHALLENGES

1. It was a new method in our country to culturally put neonates on the chest than on the back and hence resistance from the users but now it has become acceptable.

2. The mothers felt that the neonate was compressed on the chest, hence difficulties to breathe but now they are used to it and are even requesting to be moved from nursery to Kangaroo.

3. Traditionally mothers believed that they should not express milk because that may cause death of the baby – but now the mothers have adopted to the new culture of expressed breast milk.

4. The current Kangaroo ward is far from the neonatal nursery and causes a delay if a neonate needs to be resuscitated, e.g. apnoeic attacks, but this will no longer be there in the new structure.

5. Traffic control is critical in the current Kangaroo, a lot of guardians want to go in since there was no demarcation to allow them space when they visit but the new structure takes care of this need.

RECOMMENDATIONS

1. Need for a follow up programme whereby there would be resources needed

   1.1 A vehicle for follow up

   1.2 Personnel – Capactiy building to ensure we reach most mothers

   1.3 Warm clothes re-supply to the discharged

   1.4 Need for research on how many we have cared for

   How many have survived and so many others issues so as to plan new interventions.

2. Need to scale up to Ndirande or Limbe Health Centre – after needs assessment. To discuss with DHO/DNO

3. Scale up on I.E.C. on Kangaroo i.e.

   Drama Groups -

   Radio/TVM -

   Newsprint Media -

Compiled by Matron: Matron I Matola

After a stakeholders meeting present:-

Sister Mwenifumbo
Ms. Mlambe
Mrs Masiya

I.4 BWAILA CENTRAL HOSPITAL– SUMMARY OF DIRECT FEEDBACK

Bwaila Central Hospital has about 1 000 deliveries per month, with three midwives per shift. The seven-bed KMC ward was previously a postnatal ward for nursery mothers. After nurses have been trained in KMC, the ward has been renovated for a KMC admission ward. All midwives have been trained in KMC, except one, who has recently joined the unit. There is one patient attendant who is not replaced when she is on leave.

The neonatal nursery consists of two cubicles, one for isolation and the other for all term and preterm neonates. The six incubators are not in use, but in one corner there are two overhead warmers. At the time of the visit there were six infants on these warmers – some receiving oxygen. Two infants were receiving phototherapy. According to the staff, premature babies who have stayed in the main nursery for a long time without picking up weight are put on intermittent KMC. Two of the babies in the KMC unit at the time of the visit, had been ill for a long time and had been on intermittent KMC. Motivational and health talks on KMC are given by nurses, patient attendants and doctors. They take place on a continuous basis while the babies are receiving care, for example when the babies are examined or weighed or when temperatures are checked.

Nurses decide which babies are ready for KMC, as a doctor is not available every day. The criteria for transfer to the KMC unit are that babies have to be stable, with no sign of infection or jaundice. They should be feeding well and gaining weight. The mother should also be well, fit and willing to do KMC. KMC is only started once the process has been thoroughly explained to both the mother and the guardian and they have consented. As an incentive mothers are provided with wool and needles when materials are available and they receive MK 40 for every cap knitted. Mothers also listen to the radio and watch television. At the moment there is also a teaching schedule for informing the mothers on health promotion. Very few men are involved with KMC. Protocols and guidelines are kept in a file. There is a register for all prematures and a special file number is allocated for babies in KMC

Some babies start on feeding by nasogastric tube or cup. Utensils such feeding cups are washed and cared for by the nurses, patient attendants and ward attendants. Mothers are told how many millilitres to give per day. The doctor revises the instructions three times a week. However, there appears to be little supervision over the instructions given to mothers with regard to the volume of breast milk to express. The slogan on the walls in the nursery is: "No documentation, no patient care". None of the babies in the nursery and only some in the KMC ward had feeding charts. A feeding guide had recently been drawn up to guide nurses on the frequency and volume of milk feeds an infant should receive, depending on the infant's age in days and its weight. It has not been established to what extent this guide is acceptable to all staff. The doctor is of the view that without patient attendants it will not be possible to improve on the filling in of feeding charts and on certain other aspects of care.

There is no system for guiding the mothers on when to come and feed their infants. In the past, mothers had to feed infants according to a strictly three-hourly time schedule. The nurses would ring a bell or call mothers at feeding times. At some point the message of exclusive breastfeeding was given to the nurses and they were told that feeding should

be on demand and not according to a strict time schedule. Since then the mothers have also been instructed to feed on demand and they cannot understand why they have to feed the baby if it is not crying. Babies are fed at night "if the mother comes".

Follow-up of KMC babies has been done since 2004. The follow-up clinic takes place in the neonatal unit in a room adjacent to the KMC ward. Babies are weighed on the same scale that was used during their stay in the ward. Each review visit is documented on a special follow-up sheet, which is stored in a box. Mothers are given a date for come for follow-up, depending on the weight of the baby. Follow-up takes place weekly for babies between 1.8 and 2 kg and every two weeks for babies between 2 and 2.5 kg, after which they are discharged to their nearest health centre. Mothers who live very far from the hospital are encouraged come back at least once, otherwise follow-up is done at the nearest health centre until the baby weighs 2.5 kg. Communication with health centres is a problem, as there is no feedback from these centres on the babies they are supposed to follow up. Home-based follow-up is not done because of the lack of transport. Transport is also an obstacle that prevents some mothers from returning for follow-up at the hospital. Small incentives such as a watch or blanket are sometimes given to mothers to encourage them to return to the hospital for follow-up. Among those who live close by, the turnout for follow-up is good. However, it is uncertain what percentage of discharged babies comes back for review.

Attempts are being made to organise more regular perinatal mortality meetings and neonatal death audits will be done from September 2007. Nurses are sometimes invited and an attempt is being made to organise discussions of common problems. The doctor at the neonatal unit is of the view that, in order to improve the quality of care, more people need to be employed, salaries need to be raised, more use should be made of patient attendants and a project manager should be appointed to the unit.

Specific points regarding care that were discussed during the visit included the following:

• **A more systematic programme of practising intermittent KMC.** There were many babies in the nursery who could have benefited from intermittent KMC. If more mothers were expected to do intermittent KMC for several hours a day, the infants might gain weight better and mothers might also be eager to be transferred to the KMC unit, which is more comfortable than doing KMC intermittently.
• **A rigid feeding schedule is needed for premature infants** and even term infants in wards where there is no rooming in, otherwise babies may become hypoglycaemic and/or will not have satisfactory weight gain. It is also important to give mothers guidance as to the amount of milk that should be expressed with each feed if the infant is still receiving cup feeds. A chart showing different weights, age of patient in days and volume of feeds is a very helpful tool which saves a lot of time in units where there is a shortage of staff.
• **Proposal that resuscitation should take place in the room adjacent to the KMC room.** Babies who suddenly change condition are taken back to the main nursery for resuscitation. (Some mothers also delay in reporting a sudden change in their baby's condition, which may result in a neonatal death in the KMC ward.) Mothers in the nursery may get discouraged when resuscitation is necessary and sometimes refuse to go to the KMC unit out of fear. **Mothers could be taught to tick off feeding charts** (e.g. when the baby received a feed), if the staff does not have the time to complete them.

• **Placing babies nearer to the phototherapy lamps** to avoid dilution of effectiveness.

I.5 ST LUKE'S MISSION HOSPITAL– SUMMARY OF DIRECT FEEDBACK

The visit to this hospital was not part of the planned schedule, but as it was on the way a courtesy visit was paid to familiarise the team with conditions at the hospital. There is a four-bed KMC ward in the maternity wing. Heating is a problem and there is a shortage of staff and equipment (even gloves). Patients are not provided with food.

Patient attendants were trained at Zomba in 2002 and the presiding medical officer had endeavoured to see that all the nurses were trained before he returned to the Netherlands. After birth preterm babies that are not referred are kept in a nursery for two days before being eligible for KMC. Babies are discharged earlier if the baby is thriving and the "mum is brilliant enough".

The sister in charge of maternity was of the view that the rolling out of KMC to health centres was feasible and indicated that the chiefs and the community should participate, as "the patient is part of them and us".

I.6 MANGOCHI DISTRICT HOSPITAL– SUMMARY OF DIRECT FEEDBACK

The process of setting up KMC in Mangochi District Hospital started with Save the Children's Saving Newborn Lives program, with two groups being trained for two weeks at Zomba Central Hospital in 2003. The first group that was trained did not understand KMC well and was not sure what to do. After the second group had been trained there was a better understanding. Of the people trained initially, only two nurses are left. Nurses rotate every year between maternity, paediatrics, and the male and female wards. They have all received training in ENC, which included two days of KMC, one day of theory and one day of practice. There appear to have been interruptions in the practice of KMC with no babies having been in KMC for some months, for example in March 2007. After training KMC was resumed and the situation improved.

After birth babies are put in a cot in a heated nursery to be stabilised. Mothers are instructed to feed by cup if the baby is not able to suck. There are two new incubators in the nursery but no one knows how to operate them. No intermittent KMC is done here and no guardians are allowed. Babies on antibiotics are kept in the same nursery as the other prematures.

Babies are then transferred to a KMC ward, which is situated in the postnatal ward. It currently has four beds only – which were all occupied during the visit – but it is supposed to have 10 beds. The others were apparently taken away because they could not be raised at the head end. Babies therefore have to wait in the nursery until a bed becomes available in the KMC ward. One guardian per patient is allowed in the KMC ward. Heaters do not last long as a result of rust. This problem was brought to the attention of the DHO and new heaters will be bought in September. The problem with the beds will also be attended to, since mattresses are available at the hospital.

One of the main challenges in sustaining KMC is staffing. There is one cleaner/patient attendant located in the KMC ward, but no clinical officer to assist with the monitoring and care of the babies. No ward rounds are currently done, but the DHO is to discuss the inclusion of the KMC ward in ward rounds with the clinician in the maternity ward. This would require a job orientation in KMC. No specific nurse had been allocated to KMC until recently and postnatal staff were not willing to work in the KMC ward. In the discussion it was mentioned that there should be at least two nurses allocated for KMC so that when one is off duty the other one could continue to provide KMC services. However, if nurses allocated to the KMC ward are off duty or attending to other duties somewhere, patient records remain blank at that particular time since the patient attendant only records weight, temperature and amount of feeds. The patient records observed in the ward at the time of the visit were not filled in, apart from birth weight and weight after four days. (The scale in the ward only measures in 50 g increments.) The space for the clinician's and nurses' notes was blank. Third-year students from other hospitals who come for clinical experience are not orientated in KMC, as they have not yet done high-risk newborn care.

Nurses discharge babies from the hospital, as there is no clinical officer allocated to the KMC ward at present. Discharge depends on the admission weight but is usually between 1,8 and 2 kg. The baby should have regained birth weight and should gain weight for three consecutive days. There should be no problems with feeding and the mother should be willing to continue with KMC.

Mothers are told to come back to the hospital for follow-up after two weeks. There is a problem, however, as there are sometimes only two nurses on duty. Some are told to go to their nearest health centre, although staff at the health centres may need refresher training. Distances and transport remain a problem for follow-up visits. If a mother defaults on follow-up her physical address is given to the HSA.

A suggestion was made by the team with regard to sharing the need for clinical supervision in the KMC ward at one of the clinical meetings, but it appears that this may fall outside the scope of these meetings.

I.7 MULANJE MISSION HOSPITAL– SUMMARY OF DIRECT FEEDBACK

Mulanje Mission Hospital serves 72 villages with a population of 66 000. It is a 192-bed hospital with 8 delivery beds. Most low birth weight babies born in the villages are referred here, as well as all LBW babies from the district hospital under the government-CHAM service agreement. No referred babies are transported in the KMC position, the reason being that mothers have not yet given consent for doing KMC. The hospital is a fee-paying hospital but the fees are not as high as at some other hospitals. It depends on donations to cover 50% of its expenses (e.g. linen, the cost of training on hospital equipment, drugs, running costs). Some drugs, such as antiretrovirals, contraceptives, TB drugs and cotrimoxazole are provided by the government. There is an obstetrician and gynaecologist working at the hospital and he also visits the district hospital. There are three traditional birth attendants in the area who have been trained in safe motherhood. Other extensive community sensitisation programmes in the catchment area, such as the practice of exclusive breastfeeding and free maternity services, have proved to be effective. The hospital has a regular newsletter in which an article on KMC was recently

published (see below).

KMC was started in March 2005 on the initiative of a Dutch doctor who had observed the practice in Zambia. Safe Motherhood provided a 7-bed KMC ward in the maternity wing, which is run by a clinical officer, nurses and a patient attendant. Seven nurses and one clinical officer were trained in Zomba. They then became the local trainers for the hospital. More nurses were trained, but owing to a lack of funds the remainder have not yet been trained. There is a vision of training all members of staff, including the gatekeeper and administrative personnel, as they play an important advocacy role in the community and could help to get the practice of KMC for small babies accepted, as people sometimes laugh at mothers carrying their babies skin-to-skin in front. There are many programmes in the community, with about 700 volunteers, and they have seen the benefits of KMC. In a discussion on the nature of training for different target audiences, the view was expressed that not all cadres need full training in KMC. HSAs should know the importance of putting the baby on the chest (skin o kin) and should know how to do it, how to recognise which babies need to be referred and that exclusive breastfeeding should be practised. Administrative staff should know why KMC is important and should encourage women who do KMC and not show surprise. KMC is included in antenatal health education. There is a waiting home for pregnant women. They have contact with the mothers in the KMC ward.

KMC was started with 15 babies, all gaining weight, and no neonatal death occurred in the first month. Previously babies stayed in the nursery for almost three months. Now mothers stay for one to two weeks. The baby spends the first day in a crib in a heated nursery for observation of vital signs. No intermittent KMC is practised. Many of the nurses are not keen to put a baby in KMC, especially when the baby is sick, because they lack intensive training. The mother gives EBM or direct breastfeeding and is counselled on KMC. According to the clinical officer all premature babies receive antibiotics for 5 days.

The number of babies in the KMC ward depends on the season. Sometimes the ward is full, sometimes not. At the time of the visit there was only one baby in the ward; the other baby found there had already been discharged and had come for review There are written admission criteria for starting with KMC, which include a stable baby that does not have a nasogastric tube and the mother's willingness to have the baby in the KMC position night and day. Previously some mothers used to leave their babies in the nursery and forget about them. Some babies would die because they were not fed frequently enough. With KMC the baby is with the mother all the time and she is allowed to accompany her husband or go to the market. If the baby is an orphan the guardian will do KMC after discharge. Guardians are sent to the orphan care training centre where they are taught how to take care of the baby. There was one father who cared for his baby by means of KMC after the mother had died. The daily routine in the KMC ward includes health education about exclusive breastfeeding, the danger/warning signs in the baby, and personal hygiene. There is also a TV and *bao* game set as part of the recreational activities.

Babies are discharged if they are able to suck, have regained birth weight and have gained 10 g per day for at least three consecutive days. The guardian also has to ensure that a 50-kg bag of sand is prepared for the mother to rest against when she returns home.

Follow-up is done in the KMC ward until a baby weighs 2.5 kg. Babies who are not

gaining weight are readmitted. Mothers are given a date for coming back for review. Babies weighing 1.5 kg come back after one week for review. Babies of > 1.5 kg (e.g. admitted at 1.3 kg with no problems) come back after two weeks. It is not clear to what extent mothers continue to carry their babies in the KMC position while at home. There is no systematic means of following up mothers who do not come for review. This was discussed with the PHC department which is already working with the community and will be doing the follow-up visit in the villages. There are also mobile clinics where follow up could take place. Government HSAs are used for follow-up as they have also been trained in KMC.

Other challenges include the integration of different vertical programmes with different sources of funding and separate managers. The same staff on the ground are involved in many of them. Better cooperation in transport arrangements, for example, is under discussion. Some resistance is being encountered.

Records are kept that provide data for the Health Information Management System, for example the number of admissions and the number of deaths. KMC babies are recorded in the general admissions registers. There is also a special register for babies in the KMC ward, as well as a set of record sheets for every baby, in which daily weight, drug administration feeding and temperature charts and other vital information are recorded by the nurse and the clinical officer.

In the discussions the participants indicated that a step-down system of discharging mothers and babies not quite ready to go home to a government health centre nearer to their home would be feasible. This would be helpful when a mother wanted to go home and when she lived too far away to come for follow-up at the hospital.

Volume 8 Issue 2

2nd Quarter 2007

Mulanje Mission Hospital Newsletter

Kangaroo Mother Care Initiative

By Thoko Lipato - Principal Nursing Officer

Kangaroo Mother Care is the care given to underweight babies more especially who are born too small. Through this care the baby is kept in skin to skin contact with the mother day and night. This natural method has been proven to be effective in reducing the neonatal deaths in a poor resource area like ours. This is so because it has shown to be the best way to protect the baby from getting cold, promotes breast feeding, promotes mother - baby bonding and mother confidence in caring for the small baby. Mothers can leave the hospital much sooner than if the babies are kept in an incubator in a nursery where they are more restrictions.

MMH adopted this method of caring for underweight babies in March 2005 after seeing that it was having high number of neonatal deaths. Before this method the death rate was above 25% of all the admission in our nursery. This was so because babies were just kept in nursery and mothers were allowed to enter on scheduled time like every 2hrs for feeding with one nurse on duty to look after 40-50 patients plus 15 babies in a nursery in a day, the care was inadequate and this contributed to the increased number of neonatal deaths within the hospital. Upon seeing this MMH organized a training for a few members off staff 7 nurses and 1 clinical officer to initiate the new care concept. The first trainings proved fruitful, KMC started well and in March 2005 no deaths occurred to mothers who agreed to take care of there underweight babies through kangaroo method.

MMH staff members undergoing KMC Training

This good initiative reached out to many in the district, that we saw a great increase in the number of admission of premature babies to our KMC ward as the whole district started referring the underweight babies to us. This increased workload on the few nurses who were trained and also as a newly introduced concepts of care it raised some eyebrows.

In view of this trainings were conducted in February this year for a large number of staff members to promote support to mothers who practices KMC with funds from the Joint Capacity Building Programme under CHAM.

With the trainings we have had ,there has been tremendous improvements. In the last year we had 144 admissions, with a death rate of only 8%.

But we are also facing a lot of challenges which includes,

1. Lack of linen--We are in need of more flannel blankets for babies and mother blankets.

2. Lack of funds for organizing community sensitization campaign on the KMC methods.

3. Follow up visits are not done regularly due to inadequate staff members

Finally we thank all the staff members and our partners involved for the great support they give and we are looking forward to having a good cooperation as we strive to create a conducive environment for the underweight baby.

I.8 MITUNDU COMMUNITY HOSPITAL– SUMMARY OF DIRECT FEEDBACK

Mitundu Community Hospital opened in 2004. There are an average of 200 deliveries per month, with 10 caesarean sections. All infants weighing < 1500 g are transferred to Bwaila Central Hospital.

One nurse and one clinical officer were trained in KMC in 2004. The clinician has since left and the nurse trained in KMC is currently working in a general ward. There are hospital attendants to help nurses when they are too busy. However, all cadres of staff also rotate to different wards, which causes a problem with continuity.

There is a small neonatal room with one bed in which KMC could be done. This ward also has an incubator which has been donated but is not used, as nobody has been trained to use it. There is a problem with heating in this room and more than one baby may be in need of KMC. Staff do not think it would be possible to practise KMC in the

16-bed postnatal ward, as there are not enough beds.

Premature babies are discharged at a weight of 2 to 2.1 kg and are followed up weekly at the ward until they reach 2.5 kg. Most of the babies come back for follow up. Some babies who were sent to Bwaila Hospital are also followed up at Mitundu Hospital, although they sometimes go back to Bwaila for follow-up.

I.9 NKHOMA MISSION HOSPITAL– SUMMARY OF DIRECT FEEDBACK

Nkhoma Mission Hospital has 100 to 140 deliveries per month. There are four doctors and eight clinical officers. KMC was introduced in 2006 as part of a neonatal project by two Dutch nursing students. Two of the doctors also have previous experience of KMC in Namibia.

At the moment there is no nursery because renovations are being carried out. While the present nursery is being used as a sonar room, any baby with respiratory problems is cared for in the labour room on the resuscitation warmer. There is no separate KMC unit, but a few ordinary hospital beds in the postnatal ward are screened off, where mothers can practise continuous KMC. Babies are secured in a wrap and shirt, which mothers are allowed to take home. There were no babies in KMC at the time of the visit and documents pertaining to KMC were locked in the sonar room. The team did not specifically ask about infant feeding schedules for premature babies.

Babies are followed up at one week after discharge and premature babies are followed up until they reach a weight of 2.5 kg. About 50% of babies are brought back for review. Some babies are followed up at the surrounding health centres.

According to comments received afterwards it was felt that the physical structures were not ideal for KMC. However, enthusiasm was displayed about caring for premature babies with the aid of KMC. The advantages of KMC were acknowledged, as it has been observed that KMC babies grow well.

I.10 LIRANGWE HEALTH CENTRE– SUMMARY OF DIRECT FEEDBACK

(No confirmation has yet been received from the health centre on the accuracy of this report.)

Lirangwe Health Centre was included in the survey to get a better picture of how health centre infrastructure would fit in with the scale-up of KMC. Lirangwe is one of the proposed sites for scale-up in the Blantyre District Plan. The staff component consists of 1 medical assistant, 4 nurses (until recently only 2) and 4 patient attendants. Eight HSAs are also based in the catchment area, which has a population of 22 611. No staff members have been trained in KMC or ENC. The number of outpatients seen per month is about 3 000, with more in the rainy season. Deliveries are 60-65 per month. Babies of < 2.2/ 2.3 kg are referred to QECH and those > 2.5 kg if there are problems. Babies discharged from QECH come through the health centre. Babies born at home come to the health centre and are then referred.

If problems arise during labour the mother is referred. Babies are wrapped and not

transported in the skin-to-skin position. The nurses indicated that neonatal resuscitation equipment was available, although the team did not confirm this by observation. Mother and baby are kept in the postnatal ward for one day before being assessed for discharge. They have to come back after one week and then again at 6 weeks. Antibiotics are not always available.

All the nurses at the health centre were involved in the discussions and the commitment they showed in attending even when off duty was highly appreciated. All the participants in the discussion also confirmed the commitment of the health centre to participating in the programmes involving the scaling up of KMC. They indicated that KMC would be culturally acceptable to their clients and that it could work at their centre. The District Nursing Officer was also supportive of the initiative.

Other points that were discussed while walking through the facility were the conversion of one corner of the postnatal ward into KMC beds and the use of the current admissions record book to record whether a baby is on KMC. It was also mentioned that special beds with raised head ends were unnecessary and that mothers should be encouraged to walk around with their babies in the KMC position.

APPENDIX II

HEALTH FACILITY		Total number of staff									
		Maternity ward					Paediatric ward				
		Nurses	Aux. Nurses[1]	Clinicians[2]	Pt. Att.	Nurses / shift	Nurses	Aux. Nurses[1]	Clinicians[2]	Pt. Att.	Nurses / shift
GOVERNMENT FACILITIES	Queen Elizabeth Central Hospital	30	3	2	6	6-8	39	2	3	37	varies
	Zomba Central Hospital	12	2	4	5	5	11	4	3	5	2
	Bwaila Central Hospital[3]	20	5	2	6	8	-	-	-	-	-
	Mangochi District Hospital	9	3	1	2	1	6	2	1	2	2
	Mitundu Community Hospital	7	-	3	5	1	5	-	3	5	1
	Lirangwe Health Centre	4	-	1[4]	4	1	-	-	1	-	-
CHAM HOSPITALS	St Luke's Mission Hospital	6	-	1	5	1-2	4	-	1	4	1
	Ekwendeni Mission Hospital	12	-	1	10	1	8	-	1	4	2
	Mulanje Mission Hosp	15	-	2	5	2	6	-	1	4	2
	Nkhoma Mission Hospital	5	-	2	3	1	5	-	2	2	1

1 Auxiliary nurses are not allocated to mission hospitals, community hospitals and health centres

2 Clinicians in most health facilities are not allocated to one department but attend to more than one department each day and / or rotate between departments on a regular basis

3 Bwaila Hospital has no paediatric ward apart from the nursery; the main paediatric ward is at Kamuzu Central Hospital

4 Lirangwe is a health centre and one clinician (medical assistant) is in charge of the facility. The four nurses cover all the services at the health centre..

MALAWI NATIONAL GUIDELINES FOR KANGAROO MOTHER CARE

February 2005

Ministry of Health

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ACKNOWLEDGEMENTS

The Ministry of Health extends sincere thanks and appreciation to the following individuals who contributed time and effort to the development of the National Guidelines for Kangaroo Mother Care. Appreciation is also shown to all those who took time to further review the draft document and made input for the final version:

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The development of these guidelines was made possible through support from Save the Children (USA) - Saving Newborn Lives Program, with funding from Bill and Melinda Gates Foundation.

ABBREVIATIONS

DHS	Demographic and Health Survey
EBM	Expressed Breast Milk
HIV	Human Immunodeficiency Virus
IMR	Infant Mortality Rate
KCN	Kamuzu College of Nursing
KMC	Kangaroo Mother Care
LBW	Low Birth Weight
KCH	Kamuzu Central Hospital
MOH	Ministry of Health
PHC	Primary Health Care
PMTCT	Prevention of Mother to Child Transmission
RH	Reproductive Health
SCUS	Save the Children (USA)
SNL	Saving Newborn Lives
UNICEF	United Nations Children's Fund
WHO	World Health Organization

DEFINITIONS

Morbidity: The state or condition of being afflicted with disease or the proportion of sick people in a particular community. The relative incidence of a disease.

Mortality: The state of being subject to death.

Mortality Rate: The ratio of deaths in an area, expressed per 1000 per year or the rate of death per unit of population.

Neonatal death: The death of an infant within 28 days (0-27) of birth who after delivery, breathed or showed any other evidence of life such as a heartbeat.

Infant death: The death of a baby before its first birthday.

IMR: Infant Mortality Rate – is the death rate in a calendar year of children during their first year of life; it is usually expressed per 1000 live births in the same calendar year.

Infant: A baby aged less than one year (birth to 1 year)

Low birth weight: Birth weight of less than 2500g regardless of gestational age

Very low birth weight: Birth weight of less than 1500g regardless of gestational age

Extremely low birth weight: Birth weight of less than 1000g regardless of gestational age

Stable Baby: A baby whose vital functions (breathing and circulation) do not require continuous medical support and monitoring

1 INTRODUCTION

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 (LBW) is the most important contributing factor to neonatal morbidity and mortality. Between 40 and 80 percent of all neonatal deaths occur among low birthweight babies. Compared to babies with normal birth weight, low birth weight babies have a much greater risk of dying.

In Malawi, 42 percent of all infant deaths occur during the neonatal period. Approximately, 20 percent of babies born are of low birth weight and these babies, being more vulnerable, contribute significantly to the high neonatal and infant mortality rates (IMR 103.8 per 1,000 live births – Malawi DHS 2000).

Care of LBW babies requires special attention, particularly with regard to warmth, feeding, hygiene practices, and prompt identification and treatment of infections. Kangaroo Mother Care (KMC) has been found to be an effective method of care for stable low birth weight babies.

To facilitate the establishment and expansion of KMC as a method of care for stable low birthweight babies in Malawi, KMC guidelines have been developed for health workers.

Training in KMC shall be conducted by qualified trainers who will have undergone an appropriate training course.

2 AIM

To facilitate the use of Kangaroo Mother Care (KMC) for stable low birth weight infants.

3 OBJECTIVE

To provide a guide that will assist providers to establish Kangaroo Mother Care (KMC) as a safe and effective method for low birth weight babies (LBW) at all levels of care.

4 KANGAROO MOTHER CARE (KMC)

Kangaroo mother care (KMC) is an effective way to meet baby's needs for warmth, breastfeeding, protection from infection, stimulation, safety and love. It is care of low birth weight infants carried skin-to-skin with the mother/substitute and is a powerful, easy-to-use method to promote the health and wellbeing of infants born preterm as well as full term. Its key features are:

- Early, continuous and prolonged skin-to-skin contact between the mother and the baby;
- Exclusive breastfeeding;
- It is initiated in hospital and can be continued at home;
- It is gentle, effective method that avoids the agitation routinely experienced in a busy ward with low birth weight infants.

5 BENEFITS OF KMC

- Helps maintain an appropriate body temperature for the newborn
- Promotes breastfeeding, resulting in a higher rate and longer duration of breastfeeding
- Babies gain weight and grow faster as KMC promotes feeding on demand and reduces the need for high caloric expenditure from the baby to maintain body temperature
- Reduces vomiting caused by gastro-esophageal reflex
- Decreases mortality of low birthweight babies as it reduces the occurrence of apnoeic attacks, irregular breathing and hypothermia
- Associated with less infections and when they occur, they are less severe
- Increases mother's confidence in handling her small newborn and improves bonding
- Reduces hospital stay for mother and baby (early discharge)
- Reduces costs for the health facility and the mother/guardian as minimal equipment is required and is less expensive than incubator care
- Enables fewer nursing staff to care for larger numbers of low birthweight newborns

6 HOW TO PRACTICE KMC

6.1 When to start KMC

It is recommended that all babies less than 2500g could be started on KMC:

- As soon as the baby is stable
- Also pay particular attention to the condition and status of each mother/guardian

Note: At least all babies below 2000g should be Kangarooed

6.2 Eligibility Criteria for KMC

- Willingness of mother to do KMC
- Baby should have stable condition:
    - No major illness present such as septicemia, pneumonia, meningitis, respiratory distress and convulsions
    - Babies who have been started on antibiotics for suspected infection can start KMC as soon as they are stable
    - Intermittent KMC until fully stable
- Babies under photopherapy may be evaluated to receive intermittent KMC

Refer all LBW babies with a weight below 2000g to the nearest health facility with KMC services or to a higher level of care

6.3 KMC Position

Key KMC Positioning Steps:

Step 1 - Dress the baby in socks, a nappy and a cap (chipewa).
Step 2 - Place the baby between the mother's breasts.
Step 3 - Secure the baby on to the mother's chest with a chitenje cloth.
Step 4 - Put a blanket or a shawl on top for additional warmth.
Step 5 - Instruct the mother to put on a front opened top
Step 6 - Instruct the mother to keep the baby upright when walking or sitting.
Step 7 - Advise the mother to have the baby in continuous skin-to-skin contact 24 hours (or less if intermittent KMC) per day.
Step 8 - Advise the mother to sleep in half sitting position in order to maintain vertical position of the baby.

6.4 KMC Nutrition

Breast-feeding

- Breast milk is the food of choice for all babies
- Have all babies on KMC immediately and exclusively breastfed on demand
- Feed babies who are not able to suck frequently with expressed breast milk (EBM), initially by cup or in certain circumstances by nasogastric tube
- While the sucking reflex is emerging, supplement these feeding methods by having the baby put to the breast for brief periods
- Once the baby is suckling well, the baby should be exclusively breastfed

Alternative feeding options

- For mothers who are HIV positive, counsel them on alternative feeding options for the baby, according to the Infant and Young Child Nutrition Policy and Guidelines

The calculation of feeds should be done using a guideline for volume of feeds required per day based on the age (in days) and weight of the baby. (See Appendix)

6.5 Care of the baby during KMC

Infection prevention

- Wash hands
  - ✓ Before and after feeding baby
  - ✓ Before and after changing nappies
  - ✓ After using the toilet
- Clean or wipe baby daily ("head to toe")
- Ensure baby always wears clean nappies
- Ensure all cups and feeding utensils are clean before and after use
- Apply all other standard infection prevention measures

Monitoring

- Monitor vital signs twice a day, and more frequently when required
- Record feeds given as per schedule used
- Monitor growth by taking daily weight of the baby - at least 10g/day must be gained by the baby. If poor weight gain, assess possible causes such as inadequate amount and frequency of feeds and infection.

Immunization

- Immunize baby according to the national immunization schedule

7 PHYSICAL AND EMOTIONAL SUPPORT

For KMC to be successful, mothers, family members and staff have to be convinced about using this method. A mother/guardian who is using KMC needs the following support: -

7.1 Support from Health Staff (facility and community based)

- Explain the concept of KMC to the mother and demonstrate how it is done
- Explain the benefits of KMC
- Integrate family members like father, grandmother, aunts, or other person, depending on the cultural set up
- Help the mothers with any problems related to positioning, feeding and care of the newborn
- Discuss daily with the mothers about any problems they may have and consistently encourage them to continue KMC
- Encourage mothers and family members to express concerns and ask questions
- Provide health education messages, and raise awareness to sensitize families and communities about KMC, to promote behaviour change and create demand for KMC as a norm for LBW babies
- Facilitate the identification of role models (modeling) of KMC in the community to minimize ridicule and stigma
- Provide consistent physical and emotional support

7.2 Support from Family Members

Encourage family members to do the following:

- Provide support both at home and whilst in the KMC Unit
- Take the baby from time to time in Kangaroo Position to allow the mother to relax
- Support the mother to continue KMC at home
- Provide consistent physical and emotional support

8 CRITERIA FOR DISCHARGE FROM KMC UNIT

Consider discharge from facility if:

- Continuous weight gain established – 10g/daily in 3 consecutive days
- Baby has at least regained birth weight and has a minimum weight of 1500g.
- Both baby and mother tolerate Kangaroo position
- Baby's condition is stable
- Baby's temperature is stable
- Baby has no other existing illnesses
- Mother is capable of breast feeding and expressing breast milk

- Mother accepts the method, is willing to continue with KMC at home, and has support from the family

9 GUIDELINES FOR FOLLOW UP AFTER DISCHARGE FROM KMC UNIT

Follow up schedule:

- A baby, whose weight is less than 1800g, is followed up at the nearest health facility/KMC Unit every week until the baby reaches 1800g
- Once 1800g is attained, subsequent follow-up is done at the nearest health facility/KMC Unit every 2 weeks until the baby is 2500g

Care during a follow up visit

- Weigh the baby
- Obtain history from mother/guardian to establish
  - ✓ If she is continuing KMC at home
  - ✓ Duration of skin-to-skin contact
  - ✓ How she is positioning the baby (KMC position)
  - ✓ If any fever or low temperatures and how she managed it
  - ✓ How the baby is feeding
  - ✓ Whether the baby is showing signs of intolerance (baby too active and uncomfortable in KMC position)
  - ✓ Whether there are any neonatal danger signs
- Perform a physical assessment of the baby
- Continue educating the mother on neonatal danger signs
- Discuss the experiences and the problems the mother has concerning continuing KMC and give support
- Encourage mother and family to continue KMC as much as possible
- Schedule the next visit
- Thank mother/guardian for coming

10 CRITERIA FOR RE-ADMISSION

Readmit baby to hospital if

- Gained less than 10g/day at two consecutive follow up visits
- Lost weight
- Sick – have danger signs
- Mother is not continuing KMC as required and baby is less than 1800g

11 CRITERIA FOR DISCONTINUING KMC

Discontinue baby from KMC when:

- Baby reaches weight of 2500g
- Mother has no desire to continue KMC

- Mother is sick or unable to provide KMC
- Baby is sick
- Baby does not tolerate KMC (becomes very active and is uncomfortable in KMC position)

APPENDIX

Table 1: Amount of milk (or fluid) needed per Kg/day and age (days)

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							

Table 2 : Approximate amount of breastmilk needed per feed by birth weight and age (days)

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

Source: ***Kangaroo Mother Care – A Practical Guide, WHO***

Note:

For mothers who are HIV positive, provide feeding options according to the Infant and Young Child Nutrition Policy and Guidelines

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Appendix IV

SUGGESTED TWO-DAY TRAINING CURRICULUM FOR KANGAROO MOTHER CARE
Target audience: Clinical staff from hospitals and health centres

DAY 1

TIME / MIN	THEME	OUTCOMES (What participants should demonstrate)	CONTENT	TEACHING METHODS / ACTIVITIES	MATERIALS NEEDED	LESSON MATERIAL
10	Introduction		• Welcome • Housekeeping rules			
20	KMC pre test	• Knowledge of KMC before training	• Test • Participants each get a number	• Anonymous completion of test	• Pre test questionnaires OR • Powerpoint slides	Example of tests in • Malawi KMC Training Manual • PEP manual
60	What is KMC?	• Understanding the concept of KMC • Knowledge of the components of KMC • Knowledge and understanding of the benefits of KMC	• Introduction • History of KMC • Definition of KMC • Why call it KMC • Components of KMC • Benefits of KMC (to baby, mother and facility)	• Powerpoint slides (history) • Brainstorm and discussion of definition, components and benefits	• Poster • Slides • Flipchart	• Malawi KMC Training Manual • PEP manual • WHO KMC practical guide
15	**BREAK**					

TIME / MIN	THEME	OUTCOMES (What participants should demonstrate)	CONTENT	TEACHING METHODS / ACTIVITIES	MATERIALS NEEDED	LESSON MATERIAL
60	Basics of KMC	• Understanding how to practice the kangaroo mother care method • Understanding the importance of different support structures • Producing criteria for intermittent and continuous KMC • Demonstrating how to secure a baby in the KMC position	Practical aspects of KMC: • Different types of KMC • Physical, emotional & educational support needed from hospital staff • Support of family members & health workers during & after discharge • Secure the baby in the KMC position	• Video • Demonstration (securing baby) • Brainstorm (criteria for intermittent & continuous KMC)	• Video • Slides • Wraps (chitenjes & tharis) • Handouts	• Malawi KMC Training Manual
40	Feeding practices	• Understanding correct feeding practices in KMC • Identifying wrong feeding practices • Knowledge of how to support mothers with the feeding of their babies	• Practical aspects of feeding premature infants: - Expressing breast milk - Feeding techniques (nasogastric tube, cup, direct breastfeeding) • Growth monitoring of LBW babies	• Brainstorm • Discussion • Demonstration (correct and wrong feeding practices)	• Slides • Handouts	• Malawi KMC Training Manual • WHO KMC practical guide • WHO managing newborn problems guide
30	KMC practice in Malawi	• Being familiar with KMC in Malawi	• Reports by workers in existing KMC units OR • Visit to a KMC unit if training venue is near to such a unit	• Reporting • Demonstration	• Slides • Video • Posters	•
60	**LUNCH**					

TIME / MIN	THEME	OUTCOMES (What participants should demonstrate)	CONTENT	TEACHING METHODS / ACTIVITIES	MATERIALS NEEDED	LESSON MATERIAL
40	Danger signs, discharge criteria and follow-up	• Knowledge of danger signs • Understanding the practice of KMC as part of the continuum of neonatal care • Understanding discharge criteria • Design of a sustainable follow-up programme	• LBW aspects to consider • Hypothermia prevention Danger signs • Review of criteria for Intermittent and continuous KMC • Discharge criteria • Follow up • Transportation	• Brainstorm • Small group discussion	• Flipcharts • Handouts • Slides	• Malawi KMC Training Manual • WHO KMC practical guide • WHO guide: managing newborn problems • WHO guide: Thermal protection of the newborn • KMC National guidelines of Malawi
30	Introduction to the KMC action kit	• Being familiar with the content of the KMC action kit • Knowledge of the purpose of the different items in the action kit	• Get acquainted with the action kit • Explain the content of the box and what preparation is necessary for the following day	• Hands-on handling of the materials in the action kit • Explanation	• One KMC action kit for each health facility	•
15	**BREAK**					
50	Designing educational programmes	• Designing tailor-made educational programmes for different cadres of health care workers for individual health care facilities	• Production of an educational programme for each health care facility • Peer review of programmes	• Brainstorming in small groups per health care facility • Comments and discussion (peer review)	• Flipcharts • Post-it notes	• KMC workbook
5	Closure		• Housekeeping • Reminder of evening preparation for next day			KMC workbook
TOTAL TIME: 435 minutes						
Evening		• Reading	• Basics of KMC	• Reading	• Specific materials in the action kit	• KMC guidelines • Documents (records) • Job aids

DAY 2

TIME / MIN	THEME	OUTCOMES (What participants should demonstrate)	CONTENT	TEACHING METHODS / ACTIVITIES	MATERIALS NEEDED	LESSON MATERIAL
5	Introduction		Housekeeping			
30	KMC post test	• Knowledge of KMC after training	• Post test • Discussion of the correct answers • Participants use the same number as before • A comparison of the pre and post test results used as part of evaluation of training	• Anonymous completion of test	• Post test questionnaire	Example of tests in • Malawi KMC Training Manual • PEP manual
60	Documentation in KMC	• Demonstrating ability to complete and use different types of documentation	• Documentation • Job aids • Protocols and Guidelines • KMC Register	• Case study examples • Brainstorm and omplete documentation • Use job aids	• Case study handouts, documentation, • Roll play – drawing up of guidelines, job aids	• Examples provided on CD • Examples in: • Malawi KMC Training Manual • WHO KMC practical guide • WHO guide: managing newborn problems
15	**BREAK**					
60	Where do I fit in?	• Understanding the roles the different cadres of health workers should play in the implementation of KMC • Written role descriptions for each cadre of health worker	• Roles of different cadres of health care workers in KMC, from antenatal care to follow-up	• Brainstorm • Small group discussion • Sharing of outcomes • Case studies	• Diagram on role-players • Flipcharts	• KMC workbook

TIME / MIN	THEME	OUTCOMES (What participants should demonstrate)	CONTENT	TEACHING METHODS / ACTIVITIES	MATERIALS NEEDED	LESSON MATERIAL
60	Plans of action	• SWOT analyses for individual facilities • Written plan of action for each facility	• Each facility develops a plan of action for KMC implementation	• Brainstorm • Small group discussion	• Diagram KMC models • SWOT analysis template • Plan of action template • Flipcharts or transparencies	•
45	**LUNCH**					
30	Presentation of plans of action	• Sharing of plans • Identifying potential pitfalls	• Presentation of plans of action	• Reporting	• Flipcharts or transparencies	•
60	Evaluation and closure	• Identifying the strengths and weaknesses of the training • Identifying issues to address as part of the way forward	• Evaluation form • Verbal feedback from participants • Outstanding issues and general aspects related to the way forward	• Completion of evaluation forms • Discussion	• Anonymous evaluation form	•
TOTAL TIME: 365 minutes						