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MINISTRY OF HEALTH

EVALUATION OF KANGAROO MOTHER CARE SERVICES IN RWANDA

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TABLE OF CONTENTS

Executive summary	iii
Assessors	v
Reviewers	vi
Acknowledgements	vi
Acronyms	vi
1. GENERAL BACKGROUND	1
2. BACKGROUND TO RWANDA AND ITS HEALTH SERVICES	1
3. KANGAROO MOTHER CARE IN RWANDA	2
4. METHODOLOGY	4
4.1 Scope and objectives of current evaluation	4
4.2 Evaluation approach	5
4.3 Conceptualisation of kangaroo mother care	5
4.5 Sampling	9
4.6 Preparation for evaluation	9
4.7 Format of an evaluation visit	10
4.8 Limitations of the study	10
5. MAIN FINDINGS	11
5.1 Scaling up of KMC services by facility numbers	11
5.2 Progress with KMC implementation	11
5.3 Resources for implementation	12
5.4 KMC services, facilities and practices	14
5.4.1 Newborn services provided by facilities	15
5.4.2 History of KMC implementation	15
5.4.3 KMC facilities	15
5.4.4 KMC practice	16
5.4.5 KMC position (skin-to-skin care)	17
5.4.6 KMC nutrition and weight monitoring	18
5.4.7 KMC documentation and recordkeeping	18
5.4.8 KMC staff	20
5.4.9 Discharge and follow-up	21
5.4.10 Community sensitisation and involvement	22
6. MAIN CONCLUSIONS	25
6.1 KMC implementation	25
6.2 KMC practice	26
6.3 Documentation, record keeping, data management and reporting mechanisms	27
7. KEY RECOMMENDATIONS	27
7.1 From central to district level	27
7.2 Continue with and strengthen training efforts	28
7.3 Newborn programs and partners	29
7.4 Hospital level	29
7.5 KMC practice	30
7.6 Advocacy for KMC	30
References	30

List of tables

Table 1. Overview of KMC implementation activities, 2007-2012	3
Table 2. Scoring of facilities	8
Table 3. Refinement of the breakdown of progress scores	8
Table 4. Facility scores and interpretation of the scores	11
Table 5. Overview of partners and types of support	12
Table 6. Training received in hospitals visited	20
Table 7. Summary of implementation progress per progress marker	22

List of figures

Figure 1. The components of kangaroo mother care	6
Figure 2. Stages of progress in implementation	7
Figure 3. Map with distribution of facilities visited	9
Figure 4. Plotting of hospitals according to score	12

Appendices

The following appendices are available on request:

- Appendix A Permission letter of Rwanda Ministry of Health
- Appendix B Johns Hopkins IRB letter
- Appendix C Written consent signed by the head of facility
- Appendix D Verbal consent from key informant(s)
- Appendix E Consent from mothers for taking photographs of them and their babies
- Appendix F Feedback report form
- Appendix G Reporting guidelines for preparation for facility visits
- Appendix H Presentation prepared for feedback to stakeholders at the end of the monitoring process
- Appendix I Progress-monitoring tool

EXECUTIVE SUMMARY

Introduction

Rwanda has experience with the implementation of kangaroo mother care (KMC) since 2007. A major thrust was the inclusion of KMC in the upgrading of neonatal services and training in neonatology in 2010 to 2011 that included all district hospitals. KMC was also included in the emergency obstetric and newborn care program. In 2011 a number of important publications also saw the light, amongst others the National KMC Guidelines, the Essential Newborn Care Reference Manual, and Neonatal Protocols. In 2012 Rwanda was one of four countries selected for an in-depth evaluation, using standard measurement tools, to systematically measure the scope and institutionalisation of KMC services and describe the barriers and facilitators to sustainable implementation.

Methodology

A convenience sample of 7 district hospitals known to implement KMC was selected. The facilities were visited by a team of locally trained assessors under the guidance of a consultant. The team interviewed key informants and KMC focal persons and observed the KMC services.

Results were interpreted by means of a model with six stages of change and facilities received a score out of 30. Facilities scoring above 10 out of 30 demonstrate implementation of KMC or evidence of KMC practice; those scoring above 17 out of 30 demonstrate the integration of KMC into routine practice; and those with more than 24 out of 30 show sustainable KMC practice.

Results

All 7 hospitals visited scored more than 10 out of 30, with an average score of 18.14. Four hospitals reached the level of integration of KMC into routine practice, with scores between 18 and 24 out of 30. One of these hospitals was on the way to sustainable practice.

KMC facilities. None of the hospitals visited had been officially designated as “Baby-Friendly”. All hospitals had a separate KMC unit or ward that formed part of neonatology in 5 of the hospitals. In the other 2 hospitals neonatology and maternity services were combined in one service sharing the same staff component. The space provided for KMC varied from pleasant to cramped. The number of KMC beds per hospital varied from 0 and 8 (mostly 4-5 beds). In the one hospital only reclining chairs were available in the KMC room. Public hospitals do not provide food for mothers. No hospital had posters with KMC and other health messages displayed in its KMC unit and no hospital was aware of KMC being included in health education in antenatal care.

Types of KMC practised. There still appears to be many missed opportunities where both intermittent and continuous KMC are not practised optimally. According to self-reports by hospital staff, 3 hospitals practised intermittent KMC, but none could provide any records to verify it. All facilities claimed to practise continuous KMC (18-24 hours), but this could not be verified. Decisions regarding babies’ readiness for KMC were made by doctors in 6 hospitals (2 in consultation with nurses) and by nurses in one hospital. Babies were observed in the KMC

position in all 7 hospitals. Local cloth was mostly used for tying the baby. Many babies were however observed without hats and mothers did not appear to be aware of the potential heat loss. Health workers were not aware that a mother or caregiver could have twins in the KMC position together at the same time. Two hospitals allowed a guardian or companion (*garde malade*) to be with the mother any time of the day, while the rest restricted visits to certain times. Companions assisted the mother in carrying the baby in the case of twins and they played an important role in supporting the mother psychologically and assisting with daily chores, such as washing clothes and preparing meals.

Record keeping and documentation. A written feeding policy and a job aid for calculating volumes of feeds have been incorporated in the official neonatal protocols. Four hospitals recorded each tube feed of expressed breast milk. All hospitals indicated that they weighed the babies regularly once per day. Most hospitals used the observation/treatment sheet in the baby's file for recording the weight and in one hospital there was also a special daily weight register. According to the assessors, 2 hospitals could provide good quality data, whereas the data in the remaining 5 were considered to be average in quality. All the necessary guidelines for KMC practice are included in the Rwanda KMC National Guidelines and Neonatal Norms and Care Protocols documents. Whereas all hospitals could show the monitors the final or draft copies of newborn protocols or the reference manual that included KMC protocols, none had the separate publication on KMC guidelines at hand. It appears as if reporting on low birth weight (LBW) statistics is done, but that there is no official requirement for reporting on the number of LBW babies receiving KMC separately. Because KMC was included in the general upgrading of services and training in neonatology, individual hospitals could not provide evidence of the survival rates before and after the introduction of KMC and the effect of the introduction of KMC on neonatal mortality could not be assessed.

Discharge and follow-up. In all 7 hospitals doctors decided when a baby was ready for discharge, with some input from nurses in one. Discharge criteria were included in the neonatal protocols. Most babies were initially followed up at the hospital where they had been born or had received KMC services. Five hospitals had evidence of a good follow-up system and could provide records of the follow-up of LBW babies. Two hospitals had a partial system with no evidence of follow-up records. Records used for follow-up included the baby's file retrieved from the administration section, a special follow-up form and a follow-up register. Special follow-up ended mostly when the baby reached a weight of 2,000 to 2,500 g or after having returned for 4 review visits. None of the hospitals did home visits. The linkages in the follow-up system between district hospitals and health centres are not clear and there does not seem to be a 'seamless' transition of care.

Staffing issues. According to available information a total of 59 trainers and 442 providers in Rwanda have been trained in KMC – some received their training as part of general neonatology and some as stand-alone KMC training. Although 6 hospitals indicated they had a long-term plan for KMC training, none could provide written evidence of the plan. Annual rotations of nursing staff took place in only one hospital, which ensured some continuity of care in at least 6 of the hospitals. Although doctors did rotate in most hospitals, those trained in neonatology often kept

their duties in maternity and/or neonatology.

Community involvement. As the assessment visits focused on facility-based KMC, the team did not have the opportunity to evaluate community sensitisation and involvement in depth.

Recommendations

KMC has been generally accepted as an important component to be integrated into strategies for improving newborn survival, and the implementation of KMC has taken root and has a good chance of becoming or remaining sustainable at some district hospitals. This achievement can, amongst others, be ascribed to good coordination between the Ministry of Health and partners and the existence of champions driving the process at different levels. The following are few of the major recommendations:

- Continue the good coordination of partners’ activities and include KMC in budgets and strategic plans at all levels
- Continue to improve capacity building, behaviour change, sensitisation and awareness in newborn care programs and continue with and strengthen training efforts
- Include the regular supervision of KMC in any coordinated newborn care supervisory system
- Collate evidence of the coverage of KMC services and the quality of care in order to identify remaining gaps
- Attend to the reasons for the slow take-up of KMC by some health care facilities and re-introduce KMC where it has been stopped
- Extend the practice of KMC beyond hospital level
- Encourage the more systematic practice of intermittent KMC, wherever possible
- Increase advocacy and publicity on the importance of KMC at all levels within the health system and in the community

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ACRONYMS

ACCESS	Access to Clinical and Community Maternal, Neonatal and Women's Health Services
ASM	<i>Agents de santé maternelle</i> (Maternal health worker)
BFHI	Baby-friendly Hospital Initiative
C-IMCI	Community Integrated Management of Childhood Illnesses
CB-MNC	Community-Based Maternal and Neonatal Care
CS	<i>Centre de Santé</i> (Health Centre)
EBM	Expressed breastmilk
EGPAF	Elizabeth Glaser Pediatric Aids Foundation
EmONC	Emergency Obstetric and Newborn Care
ENC	Essential Newborn Health
HIMS	Health Information Management System
HSSP	Health Sector Strategic Plan
IMNC	Integrated Maternal and Newborn Care
Jhpiego	A non-profit organisation that works in developing countries to train health professionals in reproductive health care (formerly Johns Hopkins Program for International Education in Gynecology and Obstetrics)

KHI	Kigali Health Institute
KMC	Kangaroo mother care
LBW	Low birthweight
Lux-Dev	Luxembourg-Development
M&E	Monitoring and evaluation
MCH	Maternal and child health
MCHIP	Maternal and Child Health Integrated Program
MDG	Millennium Development Goal
MINISANTE	<i>Ministère de Santé</i> (Ministry of Health)
MNCH	Maternal, newborn and child health
MoH	Ministry of Health
NIDCAP	Newborn Individualized Developmental Care and Assessment Program
NISR	National Institute of Statistics of Rwanda
NUR	National University of Rwanda
RDHS	Rwanda Demographic and Health Survey
SNL	Saving Newborn Lives
SONU	<i>Soins Obstétriques et Neonatals d'Urgences</i>
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization





1. GENERAL BACKGROUND

Preterm birth is estimated to be a risk factor in at least 50% of all neonatal deaths in the world (Lawn et al, 2010) and preterm birth complications is the leading direct cause of 35% of the world's 3.1 million neonatal deaths each year (March of Dimes et al, 2012). Neonatal infection is the dominant risk factor for babies born preterm (Lawn et al, 2005), whereas preterm birth complications (10%) is also the third most common cause of under-5 deaths in Africa after malaria (15%) and pneumonia (14%) (Liu et al, 2012).

Many of these deaths are preventable – some studies have found that KMC can prevent up to half of all deaths in babies weighing <2000g (Lawn *et al*, 2010; see also Conde-Agudelo *et al*, 2011). KMC has also been promoted as one of the methods for improving infant survival necessary for achieving Millennium Development Goal (MDG) 4 (Kinney *et al*, 2009). Compared with incubator care, KMC has furthermore been found to reduce severe infection/sepsis, nosocomial infections, hypothermia, severe illness, lower respiratory tract disease, and length of hospital stay. Babies cared for in KMC also show improved weight and length, head circumference, breastfeeding, and mother-infant bonding compared to babies in incubator care (Conde-Agudelo *et al*, 2011; Ludington-Hoe *et al*, 2008; Ruiz *et al*, 2007). KMC is currently viewed as the highest impact intervention in preterm care together with antenatal corticosteroids and is considered to be highly feasible to scale up in low-resources settings (March of Dimes *et al*, 2012).

A key component of program activities within the Saving Newborn Lives (SNL) program (Save the Children) and the Maternal and Child Health Integrated Program (MCHIP) was the collaboration with governments, development partners and health professionals to systematically introduce and promote scale up of facility-based kangaroo mother care. SNL and MCHIP have engaged government and development partners to initiate KMC services in at least 134 facilities with over 1300 health workers trained across 20 countries (Save the Children, 2011). KMC appears to be a successful example of catalytic program inputs from SNL and MCHIP resulting in wide-scale behaviour change and implementation.

This report forms part of an evaluation of the implementation of KMC as method of newborn care and the provision of KMC services in four countries in Africa, namely Malawi, Mali, Rwanda and Uganda. It is envisaged that the results of this evaluation will help with advocacy for improved service delivery and management, the improvement of monitoring and evaluation of KMC activities, influencing policy change, increased scale-up efforts, and adding to the global evidence and knowledge base for KMC.

2. BACKGROUND TO RWANDA AND ITS HEALTH SERVICES

Rwanda is a land-locked country of 26,338 square kilometres a few degrees south of the equator in Central/Eastern Africa, bordered by Uganda (to the north), Tanzania (to the east), Burundi (to the south) and the Democratic Republic of the Congo (to the west). Its population was projected to comprise 10,412,820 inhabitants in 2010 (NISR *et al*, 2012) and is currently estimated at 11.7 million (Wikipedia, 2012). Rwanda's population density was 395 inhabitants per square kilometre in 2010 (NISR, 2012) and is currently estimated at 408 inhabitants per square kilometre. This is

amongst the highest in Africa (Wikipedia, 2012). The country is located at an average altitude of 1,700 meters above sea level, with the mountainous western and northern parts, the rolling hills in the central parts of the country and savannah on the eastern plateau. More than 80% of inhabitants are employed in the agricultural sector, although the service sector is now contributing a larger part to the country's economy (NISR, 2012).

Administratively the country is divided into five provinces (*intara*) – North, South, East, West, and the City of Kigali (the capital). The provinces are further subdivided into 30 districts (*uturere*), 416 sectors (*imirenge*), 2,148 cells (*utugari*), and 14,837 villages (*imidugudu*) (NISR *et al* 2012; Wikipedia, 2012). The decentralised health system is also modelled along these divisions, with districts (the peripheral level) as the basic operational unit responsible for coordinating public service delivery, which includes the delivery of health services in the district hospitals and health centres. Each sector is supposed to have a health centre, and according to distances from to the health centre, the sector, in discussion with the health centre, can decide if health posts are needed. Each village has three community health workers. One of these three is called *agent de santé maternelle* (ASM) and is the specialised health worker who follows the mother during pregnancy and postpartum and the newborn after its birth. She must, amongst other criteria, be a literate, female village resident between 20 and 50 years of age with enough time available (DoH, 2009c). At the central level the Ministry of Health (MoH) takes charge of policies, strategies and programs, oversee monitoring and evaluation and regulates, organises and coordinates the intermediary (provincial) and peripheral (district) levels and provides administrative, technical and logistical support (NISR *et al*, 2012).

According to Logie *et al* (2008), there have also been three important innovations in the health system aimed at improving barriers to health care. Firstly, in order to support the national poverty reduction plans, the government has ownership of all development plans. All donor funds are integrated into one fiscal framework, also known as a compact agreement. The aim of this arrangement is to ensure sustainability of interventions on the medium and long term. All donor funding for newborn care (including KMC) is coordinated in the Ministry of Health. The second innovation is the *Mutuelle de Santé*, a community-based health insurance scheme that aims at improving coverage of health care. The success of this scheme should also contribute to improved newborn care and enable more babies to receive KMC. The third initiative is the introduction of a performance-based pay system in an attempt to improve staff motivation for adhering to guidelines and safe practice and demonstrating positive attitudes towards patients. KMC is a health care practice that could benefit from motivated staff providing care for low birth weight (LBW) babies.

3. KANGAROO MOTHER CARE IN RWANDA

Kangaroo mother care was introduced in Rwanda as part of the sustained efforts to comprehensively address maternal, newborn and child health (MNCH) issues. One of the three strategic objectives in the 2009-2012 Rwanda MoH Health Sector Strategic Plan (HSSP II) relates to the improvement of the accessibility to, quality of and demand for maternal and child health (MCH) services. This was part of the commitment to the further reduction of, amongst others, the under-five, infant and neonatal mortality rates, a goal to be furthered with the support from

development and implementing partners (MoH, 2009a). According to the 2010 Rwanda Demographic and Health Survey (RDHS), the latest available figure for neonatal deaths is 27 deaths per 1,000 live births, with the infant mortality rate at 50 per 1,000 live births and the under five mortality at 76 per 1,000 live births (NISR *et al*, 2012). The LBW rate is about 9% (MoH, 2011c) and figures for neonatal deaths due to prematurity range between 21%, according to the Butare Teaching Hospital statistics (MoH, 2011c), and 49% according to the 2010 information from the Health Information Management System (HIMS) (Author unknown, 2011). In 2007, before the introduction of KMC, 70% of newborns admitted to Muhima District Hospital were hypothermic on admission (MoH 2011c). The fact that 42.3% of the Rwandan population is under the age of 15 is important for all matters related to reproductive and maternal, newborn and child health (NISR *et al*, 2012).

In addition to the known physiological and behavioural benefits of KMC, introducing KMC at all hospitals was also important for Rwanda as a result of its policy of promoting facility-based births and newborn care (MoH, 2003 & 2011c). KMC was considered to be a cost-effective strategy to reduce neonatal mortality and contribute to achieve the MDG 4 (Author unknown, 2011). The limitations with regard to the offering of conventional neonatal services and the associated resource constraints in Rwanda were further prompting factors. These challenges include functionality and maintenance of incubators, electricity outages, overcrowded newborn health units and insufficient staff to manage the monitoring and observation of newborns (MoH, 2011c). KMC has therefore become one of the focus areas included in the activities of the MoH technical working group for safe motherhood and newborn health and was included in the National Child Health Policy in April 2009 (MoH, 2009b).

After the initial introduction of KMC by Jhpiego/ACCESS in 2007, the MoH has subsequently included KMC as a life saving intervention in programs such as the following:

- Upgrading of neonatology by means of guidelines and a training and supervision program (supported by Luxembourg-Development’s Projet RWA023 and other partners)
- Revision of the training in Emergency Obstetric and Newborn Care (EmONC/SONU) (in collaboration with by USAID’s MCHIP and other partners)
- The addition of KMC to the training of community health workers (ASMs) and as part of the Community Integrated Management of Childhood Illnesses (C-IMCI) program

Table 1 gives an overview of developments related to the provision of KMC services since 2007.

Table 1. Overview of KMC implementation activities, 2007-2012

Year	Activity
2007	<ul style="list-style-type: none"> • Situation analysis • Training, monitoring and evaluation (M&E) and formative supervision tools developed • Draft KMC national guidelines • Training of 12 providers from Muhima Hospital • Muhima Hospital established as centre of excellence (August)

Year	Activity
2008	<ul style="list-style-type: none"> • 24 Providers from 9 district hospitals trained (Jhpiego/ACCESS) • Basic EmONC reference manual developed with integration of KMC • Development of maternal community health worker (ASM) training package with integration of KMC
2009	<ul style="list-style-type: none"> • Guidelines presented at stakeholders' meeting • KMC included in the National Child Health Policy (April) • Basic EmONC reference manual with integration of KMC, signed by Minister
2010	<ul style="list-style-type: none"> • Training: 119 providers for all district hospitals (neonatology course) (Lux-Dev) • Ongoing provision of equipment up to 2012 (MCHIP, EGPAF, etc)
2011	<ul style="list-style-type: none"> • Training: <ul style="list-style-type: none"> - 20 providers from 6 district hospitals (EGPAF) - 28 providers from 10 district hospitals (MCHIP) - 221 providers from 6 districts trained in EmONC with integration of KMC (MCHIP) • Publications: <ul style="list-style-type: none"> - National KMC guidelines (November) - Essential newborn care reference manual (November) - Neonatal protocols (November) - Validation by Safe Motherhood of the EmONC training reference manual with integration of KMC • On-going supervision of hospitals that had received neonatology training in 2010
2012	<ul style="list-style-type: none"> • KMC evaluation visit (May) • Training of 78 health care providers in four districts in EmONC with integration of KMC (MCHIP) • Formative supervision of the providers trained in EmONC including KMC (MCHIP)

(Adapted from: Author unknown, 2011; Personal communications)

4. METHODOLOGY

4.1 Scope and objectives of current evaluation

The overall objective of the 2012 evaluation in Rwanda was to evaluate and document the process towards the introduction and expansion of KMC services in the country. Some of the specific objectives included:

1. A systematic measurement of the scope and institutionalisation of KMC services
2. A description of barriers and facilitators to sustainable scale-up
3. Description of outstanding implementation research questions and gaps
4. Review of KMC materials
5. Description of the process of initiating KMC services and the 'models' used for KMC training and scale-up

In order to realise the above objectives, approval for doing the evaluation was obtained from the Rwanda Ministry of Health (Appendix A). A study proposal was submitted to the Institutional Review Board of the Johns Hopkins School of Public Health for approval (Appendix B). Three

consent documents were developed: written consent signed by the head of facility or a service (Appendix C); verbal consent by the key informant(s) (Appendix D); and consent from mothers for taking pictures of their babies (Appendix E). One of the limitations of this study is that the views of mothers doing KMC were not solicited on their acceptance of KMC practice and the treatment they received from the services. This omission was for pragmatic reasons, as the time line did not allow for the development and translation of informed consent documents in all the local languages.

4.2 Evaluation approach

The evaluation approach included two distinct groups of role-players:

- Stakeholders and partners operating more at national level (and sometimes regional or district level) were interviewed with a view to solicit their views and perceptions of KMC and their expectations of the evaluation. A feedback meeting was held with the Maternal and Child Health Department of the MoH at the end of the visit. The PowerPoint presentation that the monitors had prepared for this purpose is attached as Appendix H).
- Health care providers working in district hospitals targeted for a personal visit during the evaluation provided the necessary ‘grass roots’ information needed for measuring progress in KMC implementation.

A team of local assessors or monitors were identified to be trained by the external consultant in the use of the evaluation tools. Their terms of reference included that they should be able to demonstrate the following after the initial training:

- Familiarity with the evaluation approach (progress monitoring) to be used during the evaluation exercise
- Clear understanding of the content of the progress-monitoring tool
- Ability to conduct all the activities that are part of a facility visit
- A clear understanding of their roles and responsibilities with regard to the facility visits and the subsequent feedback activities

The notion built into the district-level visits was that any evaluation exercise should rather be seen as an opportunity to monitor KMC implementation progress of a hospital rather than doing an end-of-project summative evaluation and to use the contact visit as a capacity building and a learning experience for providers. For this purpose a written feedback report form (Appendix F), including the main aspects of KMC implementation as well as qualitative feedback on impressions and recommendations for consideration, was completed and left with the hospital at the end of the visit, after giving verbal feedback to the key informants and other important role-players.

4.3 Conceptualisation of kangaroo mother care

Kangaroo mother care is conceptualised as a “total health-care strategy” (Nyqvist *et al*, 20120b), which is applied within a supportive environment where the mother of the LBW or premature infant is supported by health care workers in the health care facility and by members of the family

and the community at home. KMC is often conceptualised around three components, which is graphically depicted in Figure 1:

- *Skin-to-skin position*: The baby is secured upright in a skin-to-skin position against the mother's chest.
- *Nutrition*: Exclusive breastfeeding (which includes the feeding of expressed breast milk) is the preferred choice of feeding whenever possible.
- *Discharge and follow-up*: The baby is discharged home in the skin-to-skin position as soon as breastfeeding has been established, the infant gains weight and the mother is competent in the handling of her baby and receives ambulatory care with regular follow-up/review visits to a health care facility (Charpak & Ruiz, 2006; Charpak *et al*, 2005; Nyqvist *et al*, 2010a&b; Ruiz *et al*, 2007).

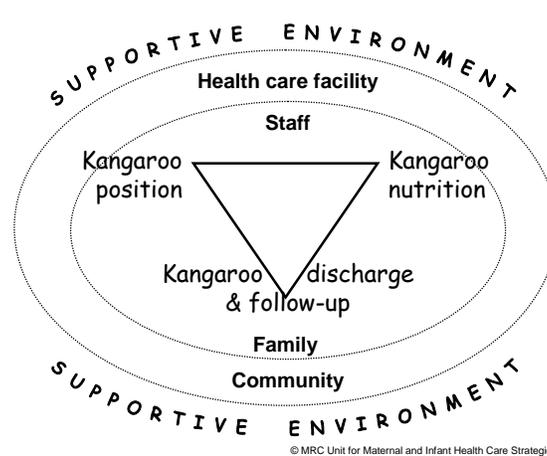


Figure 1. The components of kangaroo mother care (Bergh, 2002)

There are two main modalities of KMC practice – intermittent and continuous. The practice of skin-to-skin care for 24 hours per day is known as continuous KMC and is recommended as the preferred method where possible. When skin-to-skin care is practised for a few hours per day it is called intermittent KMC (Nyqvist *et al*, 20120a; Charpak & Ruiz, 2006; Charpak *et al*, 2005).

Systems of KMC provision are sometimes divided between facility-based KMC, ambulatory KMC as an extension of facility-based KMC after discharge and community KMC, where the newborn services are provided by community health workers (either to LBW babies born at home or after discharge from ambulatory care).

4.4 A stages-of-change model

The model used for measuring change or measuring progress in the implementation of KMC had been developed, tested and used before in other countries (Bergh *et al*, 2005; Pattinson *et al*, 2005; Bergh *et al*, 2007; Bergh *et al*, 2008; Bergh *et al*, 2012). Figure 2 depicts the latest version of this model (Bélizán *et al*, 2011). The model provides for three phases: pre-implementation, implementation and institutionalisation. Each phase has two stages or ‘steps’, starting with creation of awareness and commitment to implementation (pre-implementation phase), followed

by preparation to implementation and initial implementation (implementation phase) and ending with integration into routine practice and sustaining practice (institutionalisation phase).

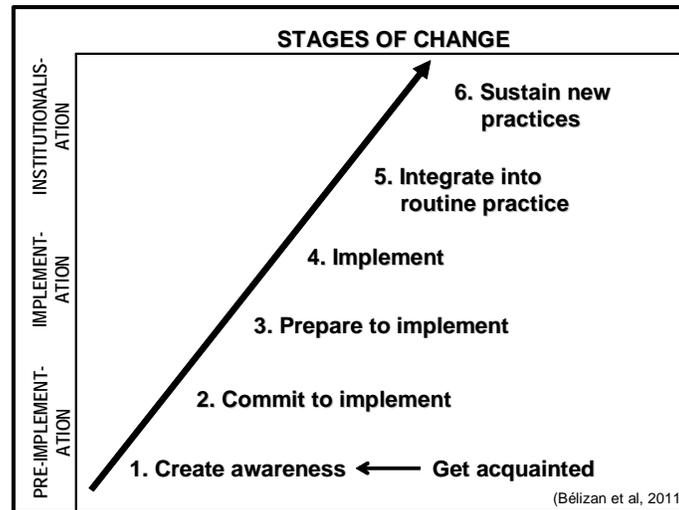


Figure 2. Stages of progress in implementation
(Bélizán *et al*, 2011)

The existing evaluation or progress-monitoring tool that accompanies the model described above was used for the evaluation, except for the section pertaining to mother’ experiences of KMC (Appendix I). The tool is divided into 17 different topics covering the following aspect of KMC implementation:

- | | |
|--|---|
| 1 Health care facility | 10 Records in use for KMC information |
| 2 Neonatal and kangaroo mother care | 11 KMC education |
| 3 Skin-to-skin practices | 12 Documents |
| 4 History of KMC implementation | 13 Referrals, discharge and follow-up |
| 5 Involvement of role-players | 14 Staff orientation and training |
| 6 Resources | 15 Staff rotations |
| 7 Kangaroo mother care space: continuous KMC | 16 Strengths and challenges |
| 8 Neonatal unit or nursery: intermittent KMC | 17 General observations and impressions |
| 9 Feeding and weight monitoring | |

Both quantitative and qualitative information is collected with the progress-monitoring tool. Some of the quantitative items contribute to the implementation score of a facility; the rest is used for generating descriptive statistics. The qualitative feedback assists with the understanding of the performance of a particular health facility and also provides an overview of the trends in KMC implementation and strengths and challenges that are widespread.

The scoring of health care facilities is done out of 30 points, with a cumulative score for each of the six stages depicted in the progress-monitoring model (Table 2).

Table 2. Scoring of facilities

Stages and phases	Points per stage	Cumulative points
Pre-implementation phase		
Stage 1 Create awareness	2	2
Stage 2 Commit to implement	2	4
Implementation phase		
Stage 3 Prepare to implement	6	10
Stage 4 Implement	7	17
Institutionalisation phase		
Stage 5 Integrate into routine practice	7	24
Stage 6 Sustain practice	6	30
TOTAL	30 points	

(Adapted from Bergh *et al*, 2005)

The above scoring can also be divided into a more refined breakdown that reflects more accurately the point at which a health care facility finds itself (Bergh *et al*, 2005). This is depicted in Table 3.

Table 3. Refinement of the breakdown of progress scores

Score	Interpretation
0	No implementation of KMC
1-2	Awareness of KMC
3-4	'Political will' to implement KMC
5-9	In the process of taking ownership of the concept of KMC
10	Some ownership of the concept of KMC
11-14	On the road to KMC practice
15-17	Evidence of KMC practice
18-19	On the road to institutionalised KMC practice
20-23	Evidence of institutionalised practice
24	Institutionalised KMC practice
25-27	On the road to sustainable KMC practice
28-30	Sustainable KMC practice

(Adapted from Bergh *et al*, 2005)

4.5 Sampling

Because of the large number of hospitals embarking on the implementation of KMC it was not possible to visit all facilities reported to have KMC services by 2011. A ‘snapshot’ was of KMC activities on the ground by visiting a convenience sample of district hospitals that were known to provide KMC services and had a separate KMC unit. Seven (7) facilities were visited, which covered four of the five provinces. The map in Figure 3 gives an indication of the distribution of the hospitals visited.

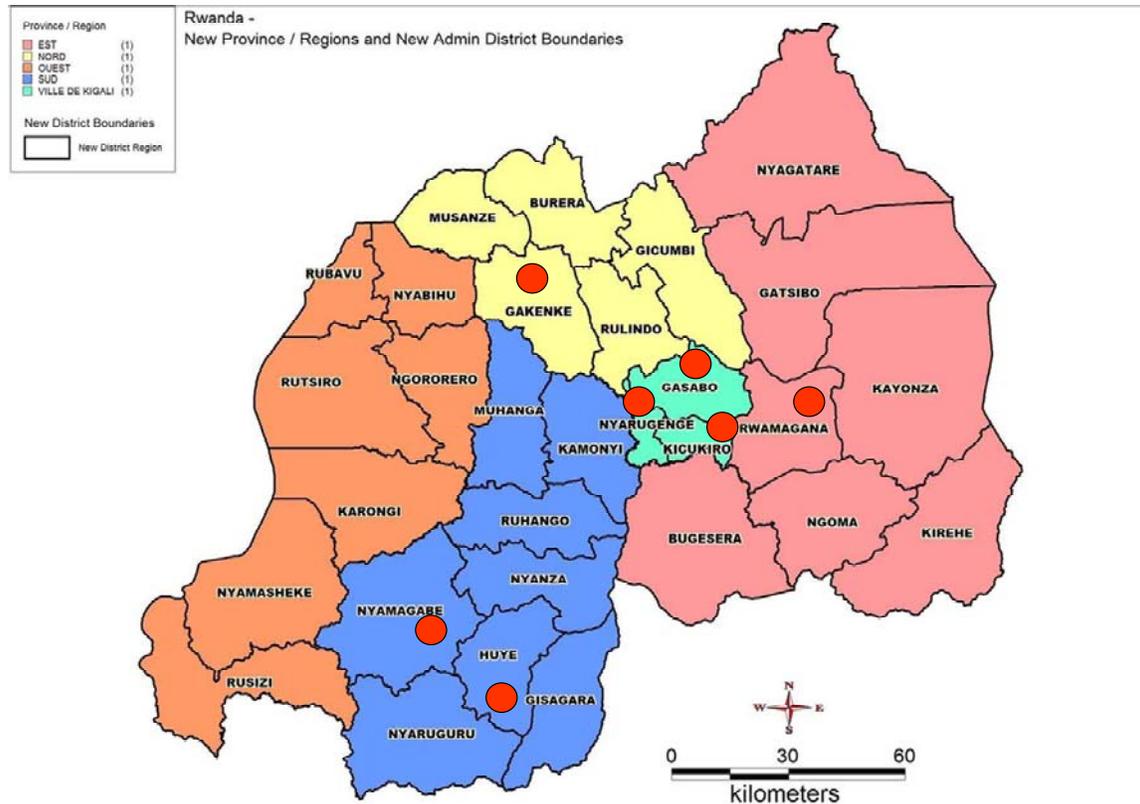


Figure 3. Map with distribution of facilities visited
 (Map adapted from: http://www.usaid.gov/rw/our_work/district/districts_main.html)

4.6 Preparation for evaluation

A specific process was followed for the preparation of the facility visits. Hospitals identified for a visit were contacted about the date of the visit and were provided with guidelines (Appendix G). All the necessary documents were duplicated for training and use in the field work.

The monitors were trained in the application of the evaluation tool. This entailed a theoretical training in the approach to the evaluation or progress monitoring and the items contained in the progress-monitoring tool. Small editorial adaptations were also made to the tool at this stage to reflect the situation in Rwanda. The theoretical training was followed by practical training in two of the local hospitals.

4.7 Format of an evaluation visit

Most of the evaluation visits followed a particular format and sequence. After the introduction by the MCHIP representative accompanying the monitors and obtaining the necessary consent from the hospital director or in-charge of a service, key informants were provided the opportunity to present the information that was requested in the communication prior to the visit (Appendix G). Very few facilities prepared this document, as the informants mostly received it at a very late stage. After the introduction, the neonatology unit (with its KMC unit) was visited and observations were made and pictures taken of documents and other relevant artefacts. Thereafter the monitors conducted an interview with the doctor/paediatrician and/or nurse in charge of neonatology. Consent was also sought from mothers with their babies in the KMC position for taking pictures. After these activities the monitoring team requested a private space for compiling their report for the facility. The visit ended with verbal feedback to the facility representative(s) and the written report was left behind.

The image shows a survey form titled "Soins Mère Kangourou Suivi de Progrès, 2012 Rapport de l'établissement". The form is in French and contains several sections with checkboxes and text input fields. Key sections include:

- NOM DE L'ETABLISSEMENT:** [Redacted] **DISTRICT:** [Redacted]
- TYPES DE SOINS MERES KANGOUROU PRATIQUES:** Radio buttons for "Pas de SMK pratiqué", "SMK Intermittents", "SMK Continuels", "SMK Sporadiques", and "Autres".
- HISTOIRE DE LA MISE EN ŒUVRE DES SMK:** "Les SMK ont démarré le..." with handwritten "Oct 2011".
- RESSOURCES:** Radio buttons for "Allocations budgétaires..." and "Autres sponsors".
- L'ESPACE SOINS MERES KANGOUROU :** Includes "CONTINUELS" and "Unité ou espace spécial..." with handwritten "4" for "Nombre de mères avec leurs bébés en position de SMK observées".
- Equipement ou matériels disponibles dans l'espace SMK:** Radio buttons for "Lits bas", "Appare-tille ou des crochets", and "Chaises confortables".

4.8 Limitations of the study

The 7 hospitals visited could be considered as some of the more successful facilities with regard to KMC implementation, as they already had a KMC unit or room. This study merely aimed at providing some information on what was happening in terms of KMC at these hospitals on the day of the visit. No claims are therefore made with regard to the generalisability of the findings, especially because no hospital struggling to find space for a KMC room was visited. The visits furthermore focused only on the provision of KMC at the hospital and provision was not made for also assessing how KMC has been taken up in communities, at health centres (CSs) and among ASMs.

Some of the information collected was based on the self-report by the informants interviewed at each hospital and the feedback they provided could have to some extent depended on who was available to interview at the particular day of the visit. Some of the views expressed may not necessarily reflect those of other health care staff.

The views of mothers on KMC and their acceptance of the practice were also not a primary assessment outcome of the research proposal. Views of mothers were largely as they were reported by the health care workers interviewed and by some informal observations in KMC wards/rooms/units that did have KMC mothers and babies at the time of the visit.

5. MAIN FINDINGS

The main findings are divided into two main parts. The first three sections (5.1 to 5.3) give a more general overview of the progress with KMC implementation, whereas the fourth section (5.4 and sub-sections) provides a detailed description on KMC services, facilities and practices in the 7 hospitals that were visited.

5.1 Scaling up of KMC services by facility numbers

As KMC is one of the initiatives that are constantly getting attention in the health services it is difficult to provide exact figures on the KMC facilities and equipment available in the district hospitals and it is expected that the current number will increase further. According to information provided by Dr Assumpta Mwali of Luxembourg-Development (Lux-Dev), 30 of the 40 district hospitals had some KMC services or activities by the end of 2011 (75%), with 5 KMC units being well equipped. Thirty-two (32) of the hospitals had neonatology (newborn) services. Seven (7) of these 32 neonatology units did not provide KMC units (22%), whereas 4 hospitals without neonatal services did however provide KMC services. Four (4) hospitals had no neonatal services and no KMC services.

5.2 Progress with KMC implementation

The facilities visited scored between 13.19 and 24.05 out of the possible 30 points of the scoring system that was applied. The mean score of the total of facilities was 18.14 and the median score 18.36. If the interpretation of Table 3 is applied to the Rwanda hospital scores, two facilities were on the road to KMC practice (scores of 13.19 and 14.22), one facility showed evidence of KMC practice (score 17.07). Two facilities were on the road to institutionalised practice (scores of 18.36 and 19.14), one showed evidence of institutionalised practice (score 20.95), and in one KMC was institutionalised (score 24.05). (See Table 4.) Hospitals that had started KMC prior to 2011 tended to score higher than the ones that started in 2011. Figure 4 gives a graphic depiction of the position of each hospital on the progress-monitoring scale.

Table 4. Facility scores and interpretation of the scores

Score	Interpretation	Year of KMC initiation
13.19	On the road to KMC practice	2011*
14.22		2011
17.07	Evidence of KMC practice	2008
18.36	On the road to institutionalised KMC practice	2011
19.14		2008 ⁺
20.95	Evidence of institutionalised KMC practice	2009
24.05	Institutionalised KMC practice	2007

* Took over the neonatal services of a hospital that started KMC in 2009

+ KMC services ran between 2008 and 2010, when it was stopped and then restarted in 2011

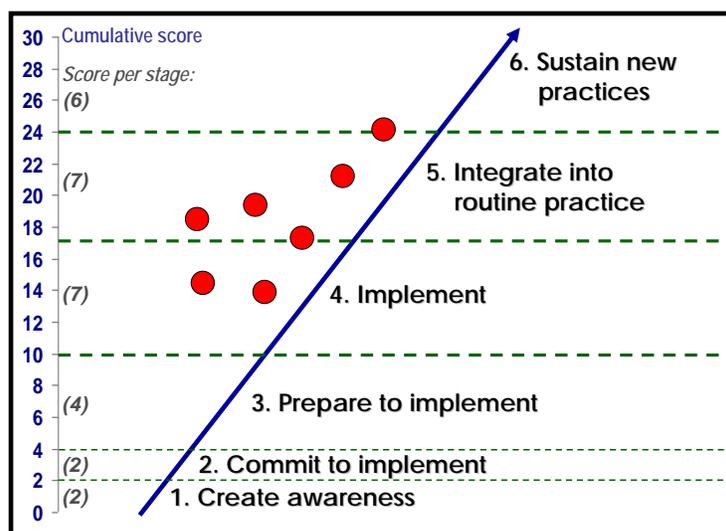


Figure 4. Plotting of hospitals according to score

5.3 Resources for implementation

As part of the scale-up process resources were provided to most of the hospitals. These resources were in the form of training, formative supervision after training and equipment and materials. Table 5 gives an overview of partners and the number of hospitals they supported.

Table 5. Overview of partners and types of support

TYPE OF SUPPORT:	Training	Formative supervision	Equipment and materials	
	No. of hospitals	No. of hospitals	No. of hospitals	Types of equipment and materials
Jhpiego/ACCESS	7*	7	7	<ul style="list-style-type: none"> • Newborn care equipment: resuscitation equipment, humidifiers, baby scales, graded feeding cups, feeding tubes • Furniture: night tables, beds and mattresses, comfortable chairs • Other equipment: refrigerator, television and DVD player, LDC projector, laptop and accessories, sewing machine • Supportive resources: linen, blankets, pillows, booties and caps for babies, wraps, blouse for mother, local dolls

TYPE OF SUPPORT:	Training	Formative supervision	Equipment and materials	
PARTNER:	No. of hospitals	No. of hospitals	No. of hospitals	Types of equipment and materials
MCHIP/Jhpiego	7 ⁺	-	6	<ul style="list-style-type: none"> • Newborn care equipment: digital baby scales (with batteries, chargers and adaptors), infant thermometers, graded feeding cups, feeding tubes • Infection control equipment: water containers with a tap, plastic bowls, soap dispensers • Furniture: comfortable chairs • Other equipment: television and DVD player • Supportive resources: bed-sheets, blankets, booties and caps for babies • Stationary: registers
Lux-Dev	40 [@]	40	-	-
EGPAF	6 ^{\$}	-	1	<ul style="list-style-type: none"> • Furniture: beds and mattresses, comfortable chairs, shelves, side tables • Other equipment: television, DVD players • Supportive resources: bed-sheets, blankets
Projet IMPORE	1	-	1	<ul style="list-style-type: none"> • Newborn care equipment: oxygen and suction equipment, incubators • Furniture: beds and mattresses
FHI	3 [#]	-	-	-

* 36 providers

+ 39 trainers and 219 providers (Jhpiego, 2012)

@ 20 trainers and 119 providers (training in neonatology that included KMC)

\$ 20 providers (training in neonatology that included KMC)

84 providers (training in neonatology that included KMC)

All the hospitals visited were able to identify a space that could be converted into a KMC unit and most were fairly well equipped. One hospital had a KMC room, but no beds in it. The result was that mothers had to sit in reclining chairs day and night. Another hospital had two cubicles for 5 KMC beds, but in the one cubicle with 3 beds the space was inadequate and mothers had no place to put their belongings and even had to take the food on their beds. Most beds had sheets provided by the hospital and in most hospitals mosquito nets were also part of the basic equipment.

There were some variations in the self-reports of the hospitals regarding the support they had received for the implementation of KMC. Five (5) of the 7 hospitals reported to have received an allocation from the hospital or district budget, whereas the informant at another hospital was

unsure. The allocations were mainly for the space for the unit and providing staff to cover the KMC services.



Different forms of encouragement and material support in the implementation of KMC were also received from different role-players in the hospital. According to the impressions of the monitors, there was a lot of involvement of senior management in the implementation of KMC in the case of 6 hospitals, with some involvement in the remaining hospitals. Hospital directors, in collaboration with medical directors and head nurses were reported to be supportive in giving permission to start KMC services and making a room available. One hospital referred to the instrumental role of these role-players in separating the staff component of neonatology from that of maternity in an attempt to improve the quality and continuity of care. For 2 hospitals reference was also made to the special role and efforts of the combination of the paediatrician and nurse in charge of the neonatology unit. In 2 hospitals the social services were reported to play an important role, whereas another hospital referred to their multidisciplinary approach that also included maternity, the social workers and the community health workers in activities related to KMC services.

Six (6) hospitals had received support from external sponsors. The role of Lux-Dev was mentioned by 4 hospitals with regard to training, follow-up supervision and the provision of materials and equipment. Two (2) hospitals referred to similar support they had received from MCHIP and another two through the previous ACCESS program. One hospital also had support from an NGO that provided beds, sheets, scales, materials and equipment, and even incubators.

5.4 KMC services, facilities and practices

In this section a summary of the overall results for the hospitals visited is given. Table 7 at the end of this section contains a detailed breakdown of KMC services, facilities and practices.

5.4.1 *Newborn services provided by facilities*

All the hospitals visited provided basic neonatology services with incubators in unheated rooms. One hospital had a neonatal intensive neonatal care unit and its rooms (also the KMC unit) were heated. All hospitals had incubators in use – of the total of 42 incubators in the 7 hospitals, 37 (were in use 88%). Those not in use all had a technical problem.

Food was not provided by the hospitals, which posed difficulties for some mother where the family lived far and could not always bring food regularly. In one of the hospitals visited two mothers were hungry and dehydrated by 11.30 in the morning, as their food for the day had not arrived. Two other hospitals referred to the involvement of social services in providing food support for needy mothers.

5.4.2 *History of KMC implementation*

Table 4 above lists the years in which KMC was started in the facilities visited. In 2 hospitals the informants had not been present when KMC was initiated. In only in one of the hospitals the informant could recall that the decision to introduce KMC was taken at a specific meeting. None of the facilities could recall whether the decision was in the form of written minutes of meetings or some kind of written report or agreement. Two (2) hospitals reported that a baseline survey had been done before KMC started, but no evidence of the results of such a survey was available. The monitors were of the view that informants in 5 facilities could provide a good history of the implementation of KMC.

Only 3 of the hospitals indicated that they reported on KMC regularly through official channels. It appears as if these reports may not necessarily include any numbers on babies receiving KMC per month/trimester, but merely the number of LBW babies in different weight categories. In one hospital the “official channel” was the weekly review meetings of doctors and nurses and in another Lux-Dev was reported to come and collect data every month. Only in one hospital was the information fed to the data manager and the nursing service manager of the hospital once per trimester.

5.4.3 *KMC facilities*

None of the hospitals visited had any vision or mission statements prominently displayed and no neonatology unit had its own vision and mission statement, which should ideally also include a statement on KMC.

All hospitals had a separate KMC unit or ward or side room, which formed part of neonatology in 5 of the hospitals. In the other 2 hospitals neonatology and maternity services were still combined in one service sharing the same staffing component, which posed challenges for providing adequate services when there was a staff shortage.

The space provided for KMC varied from pleasant to cramped. The number of KMC beds varied from 0 and 8 per facility, with most hospitals having 4 or 5 beds. In the one hospital only

reclining chairs were available in the KMC room. With the aid of partners the environment was made more comfortable for mothers and babies – 6 hospitals had beds with some form of back rest or pillows and 6 had comfortable chairs, some with accompanying footrests. Five (5) hospitals also provided some storage room for mothers for their belongings (e.g. locker, tables, shelves). Other equipment to create a more homely atmosphere included a TV and DVD player (n=5), although in some facilities the DVD equipment was not functional and in others no educational materials on KMC *per se* were available for use. Other topics for which DVDs were available included breastfeeding, HIV and malaria. None of the KMC spaces had cribs – this assists in preventing women to believe that KMC babies should be in cribs for some of the time.

None of the hospitals had attractive posters with KMC or other health messages displayed in their KMC rooms. One hospital had some photocopies on the wall, including copies of the KMC position taken from the ACCESS training manual.

5.4.4 KMC practice

Six (6) hospitals reported that it was the doctors who decided on when a baby was ready for KMC, with 2 of these hospitals referring to it as a joint decision with the nurses. The remaining hospital indicated that the nurses decided on the initiation of KMC. The informant of one hospital mentioned that mothers sometimes also demanded to start with KMC. All hospitals' informants also indicated that they provided verbal education to mothers on KMC, mostly during transfer to KMC, although this was not possible to verify. No hospital indicated that KMC was included in health education in antenatal care.

Informants in 3 of the hospitals reported that they were sometimes practising intermittent KMC when there was no space in the KMC room or when the mother did not have a guardian (*garde malade*) to help her in carrying the baby 24 hours per day. This was however not done in a systematic way and nowhere was anything (e.g. time and length of intermittent KMC sessions) recorded.

All 7 hospitals were doing continuous KMC. Informants from all hospitals estimated the number of hours for the baby in KMC to be between 18 and 23 hours per day. This could not be verified, as one informant aptly remarked: *"I can't say"*. On the question on when babies were not in the KMC position the most common response was when the mother goes to the toilet or bath/shower, does her washing or has to prepare a meal (no meals are provided in hospitals). Teenage mothers were also reported to be less keen to provide skin-so-skin care for 24 hours per day, especially when they did not have support. At 2 hospitals informants expressed the opinion that babies were not in the KMC position sometimes at night and one hospital also mentioned that the baby may not be in KMC if the mother is tired.

Some facilities had not been practising KMC long enough to be able to give accurate information on whether babies were transported in the skin-to-skin position to and from the facility. With regard to transport *to* their hospital in the skin-so-skin position informants responded as follows: always (n=1), sometimes (n=4), seldom (n=1) and never (n=1). With regard to transport *from*

their hospital in the skin-so-skin position the response was as follows: always (n=2), sometimes (n=3), seldom (n=1) and no experience (n=1).

5.4.5 KMC position (skin-to-skin care)

During the progress-monitoring visits babies were observed in the KMC position in all 7 hospitals. No babies receiving intermittent KMC were observed. No facility claiming to practise intermittent KMC kept any records of when and/or for how long babies were kept in KMC per day or for the period of the hospital stay or before continuing with continuous KMC. None had some form of schedule for practising intermittent KMC nor any written guidelines for new staff or for mothers on what an intermittent KMC program looked like or how it should be practised.

According to the monitors' impressions, mothers in 6 hospitals were diligent in practising KMC and in 1 hospital there was little evidence of any KMC. Putting twins together in the skin-to-skin position does not appear to be practised in Rwanda and sometimes one of the twins may not be in the KMC position when there is no guardian to assist the mother. Mothers provided their own materials to tie the baby in the KMC position, which were mostly in the form of the local *ikigoma* and *igitenge*. One hospital also provided special blouses to cover the mother and baby. Many babies were however observed without caps (hats) and mothers did not appear to be aware of the potential heat loss when there is no cap for the baby's head.

On the question on where the mother may move around with her baby in the KMC position, most informants indicated that mothers were allowed to walk around in the KMC unit and that they may go out but not far from the unit. One hospital also had a veranda attached to the unit and another allowed the mother to move around in the hospital premises up to Reception if the husband was with her. Some hospitals indicated that the mothers had to bring their babies back to the incubators when going out, however all incubators were already overfull. As only one of the nurseries was heated, the question remains whether all babies are kept warm enough when not in the skin-to-skin position.



All 7 hospitals allowed mothers to have a *garde malade* (guardian or companion). Their tasks were to assist the mother with daily chores, such as washing clothes for the mother and cooking food. Assisting with the carrying of the baby, especially in the case of twins or when the mother had a skin infection, was also mentioned. Two hospitals allowed the guardian to be with the mother any time of the day, with no restriction 24 hours per day. Others allowed the guardian when the mother had a need of her (e.g. to be a substitute carrier when the mother was ill, for example) or at meal times. The informant at one hospital also mentioned allowing the husband “*but not for a long time*”. Husbands were observed in the KMC units at at least two other hospitals, although

they were not prepared to carry the baby in the KMC position. Where mothers lived far from the hospital where the baby was being cared for there were difficulties with sufficient support from guardians.

5.4.6 KMC nutrition and weight monitoring

None of the hospitals visited had been officially designated as baby-friendly. According to UNICEF representatives interviewed, 5 hospitals in Rwanda had been assisted to become baby-friendly. One of the hospitals visited indicated that all the preparations for assessment for baby-friendliness had been made, but that they were still awaiting assessment. A written feeding policy has been incorporated in the official neonatal protocols (MoH 2011a&b; MINISANTE 2011) that have been distributed to all hospitals providing neonatal care, but may need some further adaptation in preparation for assessment for baby-friendliness (see UNICEF/WHO, 2009: 7, 27-28). One hospital also kept the World Health Organization (WHO) LBW feeding guidelines in its KMC unit (WHO, 2011).

In all 7 facilities mothers were enabled to breastfeed their babies day and night by being with or near their baby or babies while they were still in the incubators. If there was space in the KMC unit, 2 hospitals allowed the mother to sleep there. In 2 hospitals a room adjacent to the unit was available and for the rest, mothers slept in the postpartum ward in maternity. Informants from 2 hospitals referred to overcrowded postpartum wards where two mothers were sometimes sharing a bed and where mothers sometimes had to find some other space on the floor or sleep outside.

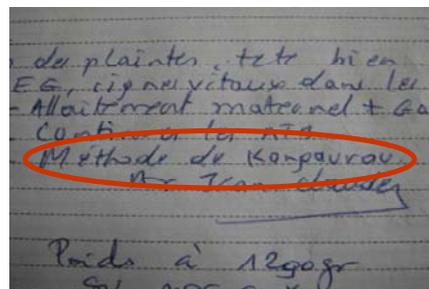
Exclusive breastfeeding was promoted at all facilities and, where necessary, mothers used expressed breastmilk (EBM) that was fed by cup or nasogastric tube. Job aids regarding feeding volumes for EBM according to a baby's weight and age were available in the newborn care protocols filed at the nurses' station, but it was only displayed on the wall in 3 hospitals. It could not be established to what extent the job aid was really used, as only 4 hospitals had records of tube feeding (*fiche de gavage*) for each feed for each baby and these were not filled in diligently in all of the hospitals.

All hospitals indicated that they weighed the babies regularly once per day. All had mechanical or electronic scales that measured in increments of no more than 5 or 10 grams. In one of the 6 hospitals with electronic scales the informant claimed that the hospital had not received batteries and a charger at the time of donation. Regular weights and/or admission or discharge weights were reported to be recorded on a variety of documents, some of which could not be verified. Most hospitals used the observation/treatment sheet in the baby's file for recording the weight and in one hospital there was also a special daily weight register.

5.4.7 KMC documentation and recordkeeping

The absence of records for intermittent KMC and partial the use of the *fiche de gavage* as feeding record have already been mentioned. Record keeping for follow-up will be discussed in section 5.4.9. According to the monitors' impression 2 facilities had good quality data in their records, whereas it was average for the remaining 5 hospitals.

One (1) hospital used the official register of the MoH to record all babies receiving care in the neonatal unit (not distinguishing between KMC and non-KMC babies). Five (5) of the 7 hospitals had a special register or collective record for babies receiving KMC. In 4 hospitals evidence was found of doctors' daily notes, which included a prescription for the commencement of continuous KMC. As has already been mentioned, 6 hospitals also used an observation or treatment sheet kept in the baby's file for recording important aspects, also for KMC babies.



Only 4 hospitals could provide figures of the number of babies receiving KMC, of which none made a breakdown between intermittent and continuous KMC. The neonatology unit of only one hospital was required to provide statistics on KMC to the hospital's data and nursing services managers. It appears as if reporting on LBW statistics is done, but that there is no official requirement for reporting on the number of LBW babies receiving KMC separately. A few hospitals had neonatology statistics on the walls, but none had a special category for KMC babies.

Some of the documentation that could contribute to the potential of sustainable KMC practice was absent in most facilities, possibly because it was not part of the interventions and trainings in Rwanda. When probed on whether a checklist on orientation procedures to go through when a mother and baby were admitted to the KMC ward or whether a special discharge scoring sheet was used as part of the discharge decision making none of the informants were aware of something like that. All the necessary guidelines for KMC practice are included in the Rwanda KMC National Guidelines and Neonatal Norms and Care Protocols documents (MoH 2011a-c; MINISANTE 2011). Whereas all hospitals could show the monitors the final or draft copies of newborn protocols or the reference manual, none had the KMC guidelines at hand. One hospital has a copy of the WHO KMC guide (WHO 2003).



5.4.8 KMC staff

In all the hospitals visited there were staff that had been trained in KMC, either as a stand-alone or as part of essential newborn care (ENC), neonatology or EmONC/SONU training. Table 6 gives an overview of the distribution of external and internal training, plus the number of staff still working in KMC. Staff of 3 hospitals did not continue training more staff after receiving their own training.

Table 6. Training received in hospitals visited

Hospital	A	B	C	D	E	F	G	Total
External training	4	3	3	7	8	6	7	38
Training inside hospital	10	0	5	4	0	0	3	22
TOTAL TRAINED	14	3	8	11	8	6	10	60
Number still working in KMC/neonatology	10	3	5	11	5	6	3	44

According to the information in Table 5, a total of 59 trainers and 442 providers in Rwanda have been trained in KMC, often as part of training in general neonatology.

Six (6) hospitals indicated that they did have a long-term plan to get all health workers trained but none could provide any written evidence. Three (3) hospitals referred the monitors to current partners (e.g. MCHIP, Lux-Dev or Projet IMPORE) that could possibly provide such a plan.

Supervision of KMC babies in KMC was part of the duties of the doctors and nurses working in neonatology. In the 2 hospitals where neonatology and maternity were combined in one service there were some concerns about adequate supervision, especially at night or when the section became busy. Annual rotations of nursing staff took place in only one hospital, which ensured some continuity of care in at least 6 of the hospitals. Although doctors did rotate in most hospitals, those trained in neonatology often kept their duties in maternity and/or neonatology.

Six (6) hospitals indicated that they had a special orientation program for new staff coming to work in the section where KMC was located (maternity or neonatology). Orientation was mostly done in the form of verbal messages and practical demonstration.

Hospitals were also probed about their role in the practical training of health workers and the involvement of the students in KMC. Five (5) hospitals received medical, nursery and midwifery students from a variety of schools and colleges, including the Faculty of Medicine of the National University of Rwanda (NUR), the Kigali Health Institute (KHI), the Rwamagana and Gitwe Schools of Nursing and Midwifery, as well as other nursing and midwifery science institutions. The general impression of the informants at 4 hospitals was that some students (especially those in midwifery) had an idea of KMC or had heard about KMC; 1 hospital indicated that the students had no knowledge.

According to information provided in an interview with one of the partners, not all hospitals with KMC-trained staff have implemented the program. This informant was of the view that some providers did not pass information on to others after training. Some others had a different attitude towards training by not being interested to learn from the training that others had received or were only being willing to go for training if a *per diem* was provided. Because of the limited number of hospitals visited it was not possible to probe the extent of these approaches and attitudes.

5.4.9 Discharge and follow-up

All 7 hospitals reported that it was the doctors who decided on when a baby was ready for discharge from the facility, with one indicating that it was a joint decision also involving the nurses.

Most babies were initially followed up at the hospital where they had been born or had received KMC services. Five (5) hospitals had evidence of a good follow-up system and could provide records of the follow-up of LBW babies. Two (2) hospitals had a partial system with no evidence of follow-up records for the baby. Records used for follow-up included the baby's file retrieved from the administration section (2), a special follow-up form (1) and a follow-up register (3).

In 2 hospitals babies were followed up at the paediatric outpatients clinic, in 3 hospitals in the neonatology unit and in 2 in the KMC unit. Where follow-up took place in the neonatology or KMC unit, nurses were involved in weighing the babies and where there was a problem referring the baby to the doctor. Two of the hospitals in the City of Kigali received many patients from other areas and these mothers were sometimes referred back to their nearest district hospital for follow-up. In one rural district hospital the mother was requested to come for follow-up at the hospital on one day in the first week after discharge and on another day to the nearest health centre. This ensured that the baby could be seen often enough, taking distances to the hospital into account. Procedures for follow-up varied between hospitals. In one of the Kigali hospitals mothers were requested to come twice in the first week after discharge to see if the baby was continuously gaining weight and thereafter the follow-up was referred to the nearest health centre if she lived far away. Another hospital requested mothers to come back one month after discharge for only one visit due to distances from the hospital. At 2 hospitals mothers were requested to come for 4 follow-up visits. One hospital reviewed babies until 2,000 g and the rest until 2,500 g.

Estimates by informants on the percentage of babies returning for follow-up varied between less than 50% in one hospital and 100% in 3 hospitals for babies living nearby. For one hospital the estimate was 80% for first visits and 60% for the rest of the visits. Another hospital estimated their follow-up rate at about 60%. The informant at the hospital with the lowest estimate of follow-up commented that *"Most of them don't come, even if you write an appointment"*, often because of the distances. The main measure informants described to be in place for encouraging mothers to bring their babies back for follow-up was education of mothers – an in-depth explanation to the mother on the consequences of LBW babies not being followed up and the reinforcement and

repetition of the same messages by nurses, doctors, social workers and others. Two hospitals referred to future plans to involve a referral to the ASM in the mother’s village.

None of the hospitals did home visits. There also appeared to be very little communication between the hospital and the health centres in the district regarding babies requiring further follow-up. Four (4) hospitals had no contact with the health centres. In one hospital the informants indicated that they sometimes phoned a health centre and in 2 other hospitals some kind of referral form was used.

5.4.10 Community sensitisation and involvement

As the assessment visits focused on hospitals providing KMC, the team did not have the opportunity to evaluate community sensitisation and involvement in depth. Each facility received questions in this regard beforehand with a request to reply on them during the visit, but none was able to provide any information.

Table 7. Summary of implementation progress per progress marker

PROGRESS MARKER	Number	Total number of facilities ¹
#Baby-friendly status	0	7
Planning to become baby-friendly	1	7
Neonatal care available:		
(a) Intensive care (NICU)	1	7
(b) Incubators (used and unused)	7	7
Incubators available in use:		
(i) Number of incubators available	Total: 42	
(ii) Number of incubators in use	Total: 37	
(c) Radiant heater	4	7
(d) Warm cribs	1	7
(e) Ordinary cribs in a heated room	1	7
(f) Ordinary cribs in a non-heated room	6	7
#Decision to implement KMC taken at a specific meeting	1	7
#Written record (minutes or reports) of this meeting	0	1
#Sponsors:		
(a) Allocations or implementing KMC from hospital/district budget	5	7
(b) Other sponsors for implementing KMC	6	7
#Impressions on management involvement in the implementation of KMC:		
(a) Strong involvement	6	7
(b) Some involvement	1	7
KMC practised:		
#(a) Intermittent KMC (district hospital and higher levels)	3	7
(b) Continuous KMC	7	7

PROGRESS MARKER	Number	Total number of facilities ¹
#Special ward allocated for KMC:	7	7
Babies admitted to KMC at time of visit:		
(a) Intermittent KMC (Total: 2 babies)	1	3
(b) Continuous KMC (Total: 28 babies)	7	7
#Babies observed in KMC position at time of visit:		
(a) Intermittent KMC (Total: 0 babies)	0	3
(b) Continuous KMC (Total: 26 ² babies)	7	7
#Records for babies in KMC could be provided:		
(a) Intermittent KMC	0	3
(b) Continuous KMC		7
#Records with evidence of KMC practice:		
(a) Intermittent KMC	0	7
(b) Continuous KMC	7	7
#Impression of mothers' compliance in doing KMC:		
(a) Diligent	6	7
(b) Very little KMC	1	7
Methods of tying babies in the KMC position:		
(a) Local cloth (e.g. <i>ikigoma</i> & <i>igitenge</i>)	7	7
(b) Special piece of material with bands (<i>Kalafong thari</i>)	1	7
(c) Blouse to cover mother and baby	1	7
#Equipment available in KMC space:		
(a) Low beds	6	7
(b) Head rests or pillows for mothers to lean against	6	7
(c) Comfortable chairs	6	7
(d) Bed sheets	6	6
(e) Blankets	4	7
#Mothers able to provide breastfeeding 24 hours per day	7	7
Feeding and weight monitoring:		
#(a) Written feeding policy/protocol ³	7	7
#(b) Job aids for feeding (feeding chart for EBM) ³	7	7
#(c) Feeding records for each feed for each baby	4	7
(d) All babies weighed regularly	7	7
#Records in use for KMC information:		
(a) Official register of MoH	1	7
(a) Special KMC register or collective record	5	7
(c) Daily doctor's notes	4	7
(d) Other special form (e.g. treatment sheet in baby file)	6	7
#Figures for a period of time can be provided for babies who received KMC:		
(a) Intermittent KMC	0	7
(b) Continuous KMC	4	7

PROGRESS MARKER	Number	Total number of facilities ¹
#Impressions on quality of data:		
(a) Excellent	2	7
(b) Average	5	7
#Official channels used to report on KMC ⁴	3	7
#Written checklist for procedures on admission to KMC space	0	7
#Written and audiovisual information on KMC available for mother (posters, brochures, leaflets, counselling cards, DVDs on KMC)	1	7
Regular educational or recreational program for mothers	4	7
#KMC vision and/or mission statements	0	7
#Written policies, guidelines or protocols for KMC ³	7	7
Follow-up of majority of KMC babies:		
#(a) At facility where baby has been born or at facility where baby received KMC initially	7	7
(b) At hospital nearest to mother's home	1	7
(c) At nearest community centre / clinic	1	7
#Records are kept for follow-up visits	5	7
#Impressions on follow-up system:		
(a) Well developed	5	7
(b) Partially developed	2	7
Babies transported from facility in KMC position:		
(a) Always	2	7
(b) Sometimes	3	7
(c) Seldom, never, no experience	2	7
#Babies transported to facility in KMC position:		
(a) Always	1	7
(b) Sometimes	4	7
(c) Seldom, never, no experience	2	7
#Long-term plan in hospital or district to get all health workers trained	6	7
(a) Written plan	0	6
#Staff members (nurses) involved in KMC regularly rotated to other wards and units	1	7

Items contributing to the progress score

¹ Total number of facilities: 7. Health centres and the rural hospital are excluded for some of the indicators, leaving a total of 11 remaining facilities (district, mission and central hospitals). Other totals refer to a total in a previous row and are a further qualifier for a practice not found in all relevant facilities.

² Although in 1 hospital 3 babies were put in for cosmetic purposes

³ Official newborn care protocols

⁴ Most reports possibly do not contain information on KMC but only on the number of LBW babies according to a quarterly pro forma

6. MAIN CONCLUSIONS

In Rwanda KMC has been generally accepted as an important component to be integrated into strategies for improving newborn survival at the national level. There is high commitment by all partners, with the MoH facilitating the coordination of implementation. Many partners have been involved in providing equipment, training and formative supervision (e.g. MCHIP/Jhpiego, Lux-Dev, EGPAF, UNICEF, etc). Champions are driving the process at different levels of the health system (MoH, partners and key role-players at health care facilities). The collaboration between partners has enabled the publication of national KMC guidelines (MoH, 2011c) and newborn protocols (MoH, 2011A&b; MINISANTE 2011). KMC has also been included in various training packages (e.g. neonatology, EmONC/SONU, C-MNH), assisted by training materials that have been developed and by the availability of national trainers. An important approach that is included is the notion of capacity building through training *and* follow-up supervision of implementation. The current plan of the MoH to have about 15 paediatricians to supervise the district hospitals also has the potential of strengthening KMC practice.

6.1 KMC implementation

The implementation of KMC has therefore taken root and has a good chance of becoming or remaining sustainable at district hospitals. The concept of KMC has been adopted at the sites visited and most of the staff had been trained in KMC. Different partners played a concerted role in training, formative supervision and the provision of basic equipment and materials, which varied in kind between the different hospitals visited. It appears as if most health care providers are very involved and willing to promote KMC and where doctors and nurses work as a team, KMC has been more successfully implemented. KMC appears to be well accepted by most mothers and families if the rationale for the method has been explained to them adequately, although this could not be probed in depth during the visits.

On the other hand, the challenges associated with scaling up a new intervention and the time it takes to embed new practices may explain the view of some of the partner informants that the scaling up of KMC was not moving as fast as it could. Two specific reasons for the difficulties of scaling up that were put forward by these informants relate to hospital management and neonatal care providers. In some district hospitals leadership for KMC is not strong, inter alia because senior management appears not to understand the importance of KMC and is therefore not actively involved in providing the necessary support (e.g. with equipment or space). Therefore, not all hospitals have a KMC unit or the necessary equipment yet. In some hospitals neonatal care providers also do not have a good understanding of KMC and what it entails (especially continuous KMC) and do not practice KMC with the necessary rigour following the criteria provided in the protocols and guidelines. Furthermore, ambulatory care after discharge from hospital and systematic links between hospitals and health centres in providing a continuum of care for LBW babies are not developed strongly enough, especially where mothers have been referred from far. The well-established system of community health workers and the more recently introduced ASMs are potential strengths in terms of providing support for the mother and her newborn.

The short time of the visit to each hospital (about 3 hours) did not allow for probing sufficiently the total extent and quality of KMC practice. There were anecdotal reports on the cost-efficiency of KMC, the reduction of hypothermia in LBW babies and increased neonatal survival as a result of the introduction to KMC, but because none of the hospitals could provide evidence of the survival rates before and after the introduction of KMC, the effect of the introduction of KMC on neonatal mortality could not be assessed. One hospital referred to statistics collected by Lux-Dev from the registers, but the informant did not have any feedback of what the statistics were used for. KMC was also part of a broader initiative to improve obstetric and newborn care practices, which also makes it impossible to measure the exact influence of KMC *per se* on reduced neonatal mortality figures.

6.2 KMC practice

There still appears to be missed opportunities where KMC is not practised optimally, continuously and intermittently. Intermittent KMC is not practised systematically with babies eligible for this type of care, e.g. while the baby is still in the incubator or where there is no bed for mother and baby in a KMC unit due to overcrowding. It is acknowledged that the space in some neonatology units is very small and it may require innovative thinking to implement intermittent KMC. The practice of positioning twins skin to skin together when a *garde malade* is not available seems to be unknown in Rwanda.

Exclusive breastfeeding is promoted. As records are mostly kept for tube feeding only, it was not possible to adequately probe whether mothers do come for all feeds every 2 or 3 hours right through the night when the baby is still in the nursery or whether mothers are reminded of night feeds when the babies are cared for in continuous KMC. According to the national KMC guidelines, “Babies should be breastfed on demand. However, for babies who have to be cup fed, the calculation of feeds should be done using a guideline for volume of feeds required per day based on the age and weight of the baby.” (MoH, 2011c: np). This recommendation should be practised with great care, as some small babies, who may be suckling adequately at the breast, may not demand their feeds as often as they should.

Although KMC has now been included in the community-based maternal and newborn care (CB-MNC) training manual for community health workers (ASMs), this project has not been rolled out in all districts yet. According to information available by May 2012, MCHIP had provided training to 268 ASM trainers in 2 districts, whereas all ASMs (11,000) in 23 of the 30 districts had been trained (personal communication; Jhpiego, 2012) and those identified in the other districts were in the process of being trained. Guardians also play an important role in the care of mothers and their LBW babies and their relationship with the ASMs in terms of who is responsible for what while mother and baby are in hospital was not probed sufficiently in this study. Monitoring the continuum of care of KMC babies once discharged from hospital remains one of the main challenges. Not all mothers have adequate access to follow-up review at the district hospital (or even a health centre) because of the far distances they have to travel, whereas others may not see the need for follow-up visits if the baby appears to be well. Furthermore, the linkages in the follow-up system between district hospitals and health centres are not clear and there does not seem to be a ‘seamless’ transition of care.

6.3 Documentation, record keeping, data management and reporting mechanisms

All hospitals had neonatal protocols that included KMC. These were mostly kept at the nurses' desk. Other neonatal protocols, especially the laminated ones supplied by Lux-Dev, were displayed on the walls, but these did not include KMC. In other countries it has been found that "visibility" of KMC guidelines and job aids in big print on walls and translations in local languages assisted clients in understanding the processes and requirements regarding KMC. They also served as checklists for existing staff and were used for the orientation of new staff and students, where information was available easily, compared to more difficult accessibility in a file or book.

Although all hospitals had some form of records for LBW babies, not all records were optimally kept. Some hospitals also did not distinguish in their registers between LBW babies in the neonatology unit and those receiving KMC. No intermittent KMC was recorded either. At present KMC figures are not reported in a standardised way as part of the data management system of district hospitals. Records from which data are not collected for reporting purposes are not always maintained if no one is interested in them. If data are collected during the supervision phase of a project, it may not be sustained after the project has ended. Monitoring KMC practice is also challenging as it is a complex process involving the behaviour of a collection of role-players and it is not, according to one of the partners interviewed, like an injection or drip.

7. KEY RECOMMENDATIONS

Rwanda has come a far way in the implementation of KMC and scaling it up to district hospitals. There are many achievements and strengths, but challenges are also acknowledged. The following recommendations that are made should be considered within the context and constraints of the country.

7.1 From central to district level

- Continue to ensure that KMC is advocated as an essential newborn care intervention that is included (by name and special indicators) in budgets and strategic plans at all levels
- Continue training at different levels and in different programs (see below)
- Include the regular supervision of KMC (practice, M&E, etc) in any coordinated newborn care supervisory system designed by the MoH and partners
 - Central hospitals to supervise district hospitals
 - District hospitals to supervise health centres
 - Health centres to supervise the community (ASMs)
 - Reports of each visit to hospital management and the MoH should include a report on KMC
 - Include nurses and midwives (and obstetricians?) in the supervision team, where possible
- Strengthen follow-up care of LBW babies in the community

- Clarify the roles and responsibilities of role-players at different levels for the future continuation of activities that should include KMC – continue the good coordination of partners’ activities
- Generate evidence of the coverage of KMC services and the quality of care provided to use for advocacy purposes to generate more resources to address the remaining gaps – include relevant KMC indicators in other rapid surveys that are done
- Investigate the reasons for the slow take-up of KMC by some health care facilities
- Devise strategies to re-introduce KMC where it has been stopped
- Ensure that every district hospital has adequate space for practising KMC, preferably a unit/room on its own, and where possible provide the basic equipment (e.g. beds)
- Extend the practice of KMC beyond hospital level:
 - Include health centres in future KMC capacity building and M&E activities to ensure a continuum of care for mothers with LBW babies
 - Consider a pilot project to use health centres as ‘step-down’ facilities for healthy, stable LBW infants to be cared for in continuous KMC there instead of at the district hospital – this may be able to assist with alleviating the overcrowding in some hospitals and will also bring the mother nearer to her community, making it easier for the family to support her with food and other basic needs
 - Devise innovative strategies to facilitate the practice of KMC for the mother at home (e.g. ASM provided with a comfortable chair that is lent to the mother while the baby is in KMC)
 - Systematic inclusion of KMC in antenatal care health promotion and educational activities

7.2 Continue with and strengthen training efforts

- Ensure that all training is of a high quality and is combined with a program of formative supervision
- Give special attention to the training and formative supervision of providers in health centres and the ASMs in essential newborn care, including all components of KMC (from antenatal to postnatal care) – this should ideally be done by the district hospital
- Reinforce the training at district hospitals, *inter alia* by means of regular refreshers
- Select committed people for training
- Create a few centres of KMC excellence (similar to Muhima Hospital) and facilitate visits for providers from hospitals that struggle with KMC implementation to benchmark on good practice
- Identify other programs where KMC can be included (training and advocacy)
- Work with the training institutions to map out how KMC is included in various curricula and to ensure that it is included and indeed taught in all newborn care programs for all cadres of health care workers
- Ensure that KMC is adequately covered in the curriculum of the new neonatal nursing course to be instituted by the Kigali Health Institute (KHI)
- Engage in a more concerted and systematic way with professional associations and other bodies to include KMC in their continuous professional development (CPD) programs

7.3 Newborn programs and partners

- Continue to improve capacity building, behaviour change, sensitisation and awareness
- Leadership is important: identify more people (at different levels in the health system) to become future champions for KMC
- Use partners to mobilise resources to procure equipment and assist with infrastructure improvements that will benefit the provision of KMC services
- Continue to monitor the practice of KMC in community newborn care projects
- Baby Friendly Hospital Initiative (BFHI):
 - Use BFHI and other initiatives to further promote KMC (also providing support groups for new KMC mothers by previous KMC mothers)
 - Link BFHI with KMC – use the experience of implementing KMC and newborn care at facility level to assist facilities to become certified as baby friendly
- Advocate for health authorities and/or partners to provide an additional nutritional meal to mothers while in a KMC unit to support their ability to breastfeed exclusively – this will complement and support UNICEF’s nutrition campaign for pregnant women

7.4 Hospital level

- More involvement of hospital administration and management in the provision of KMC services and awareness-making activities on the importance of KMC beyond the maternity and neonatology sections
- Include the provision of KMC services in key role-players’ performance agreements
- Design and monitor the implementation of a system of compulsory in-service training for staff that is recorded and signed and which will include
 - Proper feedback and peer teaching by providers who have gone for training elsewhere
 - Regular refreshers on KMC and other important newborn topics
- Liaise more widely to provide more outreach from hospitals to health centres to provide and supervise the continuum of care, starting with antenatal care where pregnant women are introduced to KMC and ending up to the returning of the baby for follow-up care in the community
- Implement a proper M&E system with specific KMC indicators that requires statistics on KMC practice:
 - Segregate indicators for KMC babies from those for all LBW babies, e.g.
 - How many of LBW babies profited from KMC?
 - How many babies eligible for KMC did not get KMC for the maximum time (*inter alia* as a result of infrastructural or other problems)?
 - What is the impact of KMC on neonatal survival?
 - Report on a regular basis to ensure continuous problem identification and real-time monitoring
 - At clinical and review meetings
 - To management

- At other appropriate occasions
- Use results in advocacy activities

7.5 KMC practice

- Encourage the more systematic practice of intermittent KMC, wherever possible:
 - Where no KMC unit/room is currently available
 - As a complementary practice to continuous KMC where a KMC unit/room is available and the structure and space in the neonatal unit allows it
- Continue to advocate for male involvement in the care of newborns, including carrying the baby in the KMC position
- Include the appropriate handling of LBW babies in all newborn care training, according to the latest evidence on best practice (e.g. developmental care principles/NIDCAP)

7.6 Advocacy for KMC

- Distribute the national KMC guidelines widely (also to health centres)
- Increase advocacy and publicity on the importance of KMC at all levels within the health system and in the community
- Use statistics and success stories on KMC for advocacy at different levels
- Consider a mass media campaign to advocate for keeping babies warm (especially LBW babies) (e.g. skin-to-skin care and babies in KMC should wear a cap)
- Use international health days and weeks to promote KMC (e.g. breastfeeding week, premature baby day, international day of the midwife)
- Develop IEC materials to be displayed in health care facilities to promote KMC and to be used for educational purposes (e.g. big posters that can also be used as a bedside teaching chart in A4 format)

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