

# Development of a conceptual tool for the implementation of kangaroo mother care

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**Aim:** To develop a conceptual tool to assist healthcare workers and management in the implementation of a kangaroo mother care programme. **Methods:** A qualitative research approach was followed and methods included on-site observations and informal conversational interviews, as well as unstructured, in-depth interviews with senior managers, doctors and nurses at two large training hospitals in the north of South Africa. A consultative process was used to refine the tool. **Results:** The patterns that emerged from the data were captured in a diagram, entitled: “Main issues in the establishment of kangaroo mother care”. In addition, a set of core questions was developed to assist in decision-making at institutional level.

**Conclusion:** The diagram and questions contain concepts that could be adapted and used by a healthcare facility’s multidisciplinary team in planning the implementation of kangaroo mother care and in reviewing the progress made in the implementation and the quality of the kangaroo mother care provided.

**Key words:** Healthcare interventions, implementation, kangaroo mother care, South Africa

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Kangaroo mother care (KMC) is an alternative to the conventional incubator and bassinet care of certain stable low-birthweight infants (LBWIs). KMC was first introduced in the San Juan de Dios hospital in Bogotá, Colombia, in 1979 as a response to overcrowding and the poor prognosis of LBWIs (1). Since then, KMC has been adopted in various forms by other hospitals and clinics in Europe, North America, Africa and other continents (2–5). Although the literature and meta-analyses indicate the need for more research (6, 7), also on aspects that include the long-term outcome of infants cared for in KMC (8), most researchers agree that KMC in stabilized LBWIs is at least as effective and safe as conventional methods of care and does not pose an additional risk of death (3, 5, 9–10). In low-income countries with high perinatal mortality and morbidity rates, the primary purpose of KMC is to improve the survival chances of LBWIs (11).

It is against this background that large training hospitals in South Africa—which is considered a “developing” country with many resource-poor health-care facilities—took the lead in establishing KMC programmes in their facilities in the last five years of the 20th century (4, 12). In the first half of 1999, two large public training hospitals associated with the School of Medicine of the University of Pretoria created separate KMC wards (with 20 and 6 beds, respectively) where mothers of LBWIs could practise continuous

KMC 24 h a day. In one hospital intermittent KMC is also practised in the intensive care unit of the neonatal ward. In the other hospital this unit is too overcrowded to allow this practice, but stable infants are “promoted” to 24-h KMC much sooner than they would traditionally be discharged from the incubator. The process of creating these wards and implementing a KMC programme was traced from its beginning by means of an action research programme under the auspices of the Medical Research Council’s Research Unit for Maternal and Infant Health Care Strategies. In this paper we report on one of the outcomes of the research, namely the development of a conceptual tool for educational purposes.

## Aim

Originally the aim of the research was to identify important management issues in the process of taking decisions on whether and how to introduce KMC in special units or traditional neonatal wards or nurseries. We intended to develop a checklist or guidelines for hospitals to work through when establishing a KMC programme or to use as part of a quality assurance process for periodic self-evaluation. As the research progressed and understanding was increased, the original idea was transformed into the development of

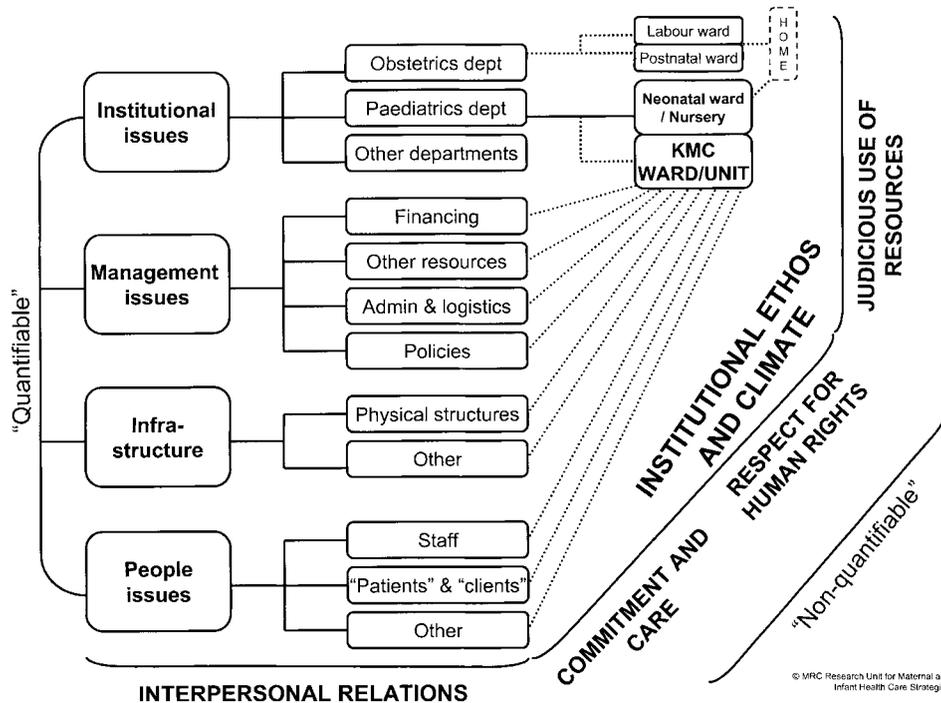


Fig. 1. Main issues in the establishment of kangaroo mother care.

a workbook and a multimedia implementation package. As part of this work, five conceptual tools were developed to help management and staff to make informed choices and to use these in reflective reviews of the implementation and maintenance process and the quality of the KMC provided. The focus in this paper will be on the first tool, which captures the essence of important management issues in the implementation of KMC at an institutional level.

### Methodology

Action research is an evolutionary process that can include various research strategies associated with both the quantitative and the qualitative research traditions. As there is no one “ideal” institutional model of a KMC programme, the first phase of the research followed a qualitative approach aimed at mapping different processes and various alternatives in the practice of KMC.

Data were collected by an outside researcher (A-MB) who was not employed in the healthcare facilities but who was familiar with the two facilities and who assisted with the conceptualization and the process of creating awareness. One method of data collection consisted in carrying out on-site observations, holding informal conversational interviews and making field notes over a period of 2 mo. The other main method involved holding in-depth interviews lasting from 1 to 2 h with nine people considered to be key informants

able to provide a great deal of specialized information. These interviews were conducted with the aid of an interview guide “to ensure that some basic lines of enquiry are pursued with each person interviewed” (13). The key informants were selected for their knowledge and experience in the enquiry setting and because they had access to observations unavailable to the researchers (13, 14). In this study the informants included 2 hospital administrators in senior management positions, 4 paediatricians, 1 medical officer and 2 professional nurses in charge of the KMC ward.

The interviews were audio-taped, transcribed and inductively analysed together with the field notes—segments were identified, which were then clustered into categories so that patterns eventually emerged (13, 14). As a first step in qualitative analysis, these patterns are normally reported by means of “thick” descriptions (13). In this study these patterns were subsequently constructed at a higher order of analysis in the form of five conceptual management “maps” or topologies (14). This approach enabled us to cover ground that is not always possible with the application of the traditional experimental and other descriptive and analytical research methodologies.

Initially, one diagram (Fig. 1) was developed to plot institutional issues that had to be dealt with. Subsequently, two parts of this diagram were elaborated further to produce tools for identifying the role players in KMC and different institutional implementation models of KMC. After writing up the initial findings

Table 1. Questions on institutional issues regarding the establishment of a kangaroo mother care programme.

Workbook heading	Subheadings	Questions for discussion related to
1. The nature of the health care facility	1.1 <i>What is our institution?</i>	<ul style="list-style-type: none"> <li>—Broader health context and the community</li> <li>—Provincial structures and policies</li> <li>—History of the health care facility</li> <li>—Status and size of hospital</li> <li>—Institutional arrangements (e.g. hierarchies) and “stability” of the institution</li> <li>—Other relevant hospital policies and possible changes needed</li> <li>—Data and other information needed for needs and situation analysis</li> <li>—Setting up of task groups or committees</li> </ul>
	1.2 <i>Who are the role players?</i>	<ul style="list-style-type: none"> <li>—Role players’ professions and their roles and functions with regard to KMC</li> <li>—Strengths and weaknesses of communication channels</li> <li>—Impact of potential personal issues and power relations or struggles</li> <li>—Getting staff on board</li> <li>—Use of individuals as agents of change</li> <li>—Dealing with resistance</li> <li>—Key appointments</li> </ul>
	1.3 <i>Which KMC model should we choose?</i>	<ul style="list-style-type: none"> <li>—Level of care provided</li> <li>—Influence of level of care on the provision of intermittent and/or continuous KMC</li> <li>—Space available and alterations and adaptations needed</li> <li>—Staffing and management principles</li> <li>—Other arrangements</li> <li>—Broad eligibility criteria for admission to intermittent and continuous KMC</li> </ul>
2. Needs and changes	2.1 <i>What resources do we need?</i>	<ul style="list-style-type: none"> <li>—Capital expenditure <ul style="list-style-type: none"> <li>* Space (ward, outside recreational area)</li> <li>* Heating</li> <li>* Staff expenses</li> <li>* Lodging for mothers doing intermittent KMC</li> </ul> </li> <li>—Equipment <ul style="list-style-type: none"> <li>* Furniture (chairs, beds, tables)</li> <li>* Refrigeration</li> </ul> </li> <li>—Household items (needed for continuous KMC) <ul style="list-style-type: none"> <li>* KMC wrappers</li> <li>* Special bedding (e.g. attractive bedspreads)</li> <li>* Curtains</li> </ul> </li> <li>—Household equipment (e.g. crockery and cutlery, kettle, washing machine, microwave oven)</li> <li>—Recreational equipment and material (e.g. TV, reading material)</li> </ul>
	2.2 <i>How will the KMC programme be financed?</i>	<ul style="list-style-type: none"> <li>—Essential costs</li> <li>—Costs to be carried by the normal budget</li> <li>—Additional fund-raising needs</li> </ul>
	2.3 <i>What physical and structural changes are essential?</i>	<ul style="list-style-type: none"> <li>—Conversion of a separate ward</li> <li>—Essential structural changes</li> <li>—Maintenance needed</li> <li>—Safety and security of mothers</li> </ul>
	2.4 <i>What administrative changes do we need to make?</i>	<ul style="list-style-type: none"> <li>—New record keeping system and/or adapting existing record and filing system</li> <li>—Additional forms</li> <li>—Division of new administrative work (if needed)</li> </ul>
	2.5 <i>What staffing arrangements should we make?</i>	<ul style="list-style-type: none"> <li>—Level of nursing care needed—appointments, ranks, experience</li> <li>—Staffing continuity</li> <li>—Staff rotations</li> <li>—Leadership roles and functions</li> <li>—Job descriptions</li> </ul>
	2.6 <i>What are the training and development needs of the future KMC staff?</i>	<ul style="list-style-type: none"> <li>—Identifying training needs</li> <li>—Nature of initial training</li> <li>—Training schedule</li> <li>—On-going development and support</li> <li>—In-service training and continuous professional development</li> <li>—Use of own staff for development and support</li> <li>—Orientation of new staff</li> <li>—Funding of different types of training and development</li> <li>—Availability and sustainability of adequate training opportunities</li> </ul>

Table 1. Continued.

Workbook heading	Subheadings	Questions for discussion related to
3. Sustaining and improving the KMC programme	3.1 <i>What support structures should we build into the KMC programme?</i>	<ul style="list-style-type: none"> <li>—Different types of support structures available and to be developed</li> <li>—Responsibilities for maintaining old structures and initiating new ones</li> <li>—Multidisciplinary support team</li> <li>—Support and counselling for individual staff members</li> <li>—Research projects</li> </ul>
	3.2 <i>How will we monitor the implementation process and what kinds of ongoing evaluation and research should we pursue?</i>	<ul style="list-style-type: none"> <li>—Aspects of KMC to be monitored at               <ul style="list-style-type: none"> <li>* Institutional level</li> <li>* Ward level</li> </ul> </li> <li>—Slotting in with existing quality assurance and control measures</li> <li>—What to audit, how often and at what level</li> <li>—Report of monitoring and audit results</li> <li>—Nursing evaluations</li> <li>—Development of mechanisms for self-evaluations</li> <li>—Continuous monitoring and evaluation</li> <li>—Administration of evaluation</li> <li>—Role players in evaluation</li> <li>—Writing up the history of the process</li> </ul>
	3.3 <i>How are we going to organize liaison and communication matters?</i>	<ul style="list-style-type: none"> <li>—Liaison and communication with the outside world               <ul style="list-style-type: none"> <li>* Initial</li> <li>* Long-term</li> </ul> </li> <li>—Division of responsibilities</li> <li>—Launching of KMC</li> <li>—Continuous “marketing” of KMC</li> <li>—Partnerships</li> <li>—Publicity and educational materials</li> <li>—Internal communication mechanisms</li> </ul>

and developing the first visual conceptualizations, the diagrams were presented and discussed at an international perinatal conference, as well as in a workshop with national and provincial officials and members of a number of healthcare facilities. Other experts in the field of KMC also gave verbal and written feedback.

The revised diagrams were then used nine times in KMC training workshops as a point of departure for a discussion on institutional change. The underlying principle was that participants had to find their own solutions, which had to be appropriate for the setting in which they were working. In the evaluation of the training, almost all participants rated this discussion as either useful or very useful. Their open-ended responses further informed the development of guiding questions to accompany the diagrams (see Table 1). The diagrams and questions were then included in a draft implementation workbook that was further tested in four hospitals before the workbook (15) was finalized.

## Results and discussion

The focus of this report is on the implementation of KMC at the institutional level and the managerial and administrative issues associated with the process. In any implementation process various other decisions regarding the healthcare management of individual mother–infant dyads situated in the neonatal or KMC ward would also have to be taken into account (6). These

would include all the aspects related to the components of KMC that have been well described in the literature (8, 11, 16).

In the course of the research it became clear that it was useful to start with the healthcare facility as a totality and to ask questions about how the organization and running of the institution as a whole would impact on the introduction of the new intervention. In Fig. 1 we summarize some of the emerging issues people may have to grapple with at an institutional level before getting down to the detailed planning of the KMC programme in the neonatal ward or in a separate KMC unit or ward. An overview of the types of questions included in the workbook to cover these issues is presented in Table 1. Addressing these issues should be an essential part of the initial situation and therefore needs analysis. This goes beyond matters relating to KMC or neonatal care. It touches the “heart” of an institution and what is sometimes called the “internal politics”.

In the diagram the issues are organized around the concepts of “institutional structure”, “management issues”, “infrastructure”, and “people issues”. The visible or possibly not so visible dynamics may have a major bearing on the degree of success with the implementation of KMC. There are matters that need attention, which are very visible and even quantifiable (for example, how much should the budget be or how many beds are needed). These matters also have equally important unquantifiable dimensions that can have a

major impact on the quality of care, which is captured in the concept of “institutional climate and ethos” (for example, interpersonal relations, communication and professionalism).

The facets of the institutional climate and ethos that are specifically highlighted are human relations, a culture of care and commitment, a respect for human rights, and the judicious use of resources. In a sense a neonatal ward or KMC unit would be like a mirror of what is going on in the rest of the healthcare facility. It would therefore be important to identify the weak points and build improvements into the planning for KMC. Some proactive thinking has to be done to ensure that some of the general institutional problems are diminished or not repeated in a KMC unit. The dimensions of Fig. 1 may vary somewhat between contexts and healthcare facilities in different countries may find different solutions to the questions that accompany the diagram.

The diagram is currently used as a starting-point for discussions on the implementation of KMC in training workshops for healthcare workers, mainly from institutions that have not yet started implementation. The diagram was also used along with the accompanying questions in facilitation sessions that were part of the Ukugona Outreach, a system-wide KMC implementation programme launched in the province of KwaZulu-Natal in South Africa in 2002.

As a first step, participants make their own list of issues that have to be dealt with before KMC can be implemented. These issues are then classified by means of a SWOT analysis as the Strengths, Weaknesses, Opportunities and Threats at their institutions and these are discussed in relation to the diagram. All the workbook questions (see Table 1) are normally not discussed in detail, but participants use them in further workshops in their own institutions.

## Conclusion

When an individual or a group of people embark on the institution of a new intervention in a healthcare facility, they normally “shop around” in the literature and/or visit some other healthcare facilities that have already instituted that intervention. What others describe to them verbally is often an ideal or the official policy of the facility, which does not always match the more complex reality of what is observed in practice. Regarding KMC, for example, one may hear a statement like “We practise intermittent KMC in our hospital”, but when one visits unannounced, virtually no one is ever found to be practising it, often because of real or convenient “staff shortages”, or because the individual interested in KMC is not on duty. In a case like this, KMC is not yet part of the institutional culture. The tool described in this paper is a means of assisting healthcare facilities in the institutionalization process.

Introducing a new healthcare intervention like KMC in a facility may require a major paradigm shift from key role players and management. Healthcare workers are no longer in “control”, as the primary care of the infant is given back to the mother, who is provided with a supportive environment by the health professionals. It is not “our” baby any more, but the mother’s baby. One of the challenges is therefore to find appropriate strategies to assist healthcare workers to make this transition and to overcome resistance. Used as part of awareness-making presentations, especially at an institutional level, the diagram and questions may provide healthcare workers and management with a useful overview of alternatives and create some stimulus towards solving practical and logistical obstacles.

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## References

- Martinez GH, Rey SE, Marquette CM. The mother kangaroo programme. *Int Child Health* 1992; 3: 55–67
- Anderson GC. Skin-to-skin: kangaroo care in western Europe. *Am J Nurs* 1989; 89: 662–6
- Bergman NJ, Jürisoo LA. The “kangaroo-method” for treating low birthweight babies in a developing country. *Trop Doct* 1994; 24: 57–60
- Hann M, Malan A, Kronson M, Bergman N, Huskisson J. Kangaroo mother care. *S Afr Med J* 1999; 89: 37–9
- Lincetto O, Nazir AI, Cattaneo A. Kangaroo mother care with limited resources. *J Trop Pediatr* 2000; 46: 293–5
- Cattaneo A, Davanzo R, Uxa F, Tamburlini G for the International Network on Kangaroo Mother Care. Recommendations for the implementation of kangaroo mother care for low-birthweight infants. *Acta Pædiatr* 1998; 87: 440–5
- Conde-Agudelo A, Diaz-Rossello JL, Belizan JM. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants (Cochrane Review). In: *The Cochrane Library* 2002; Issue 2. Oxford: Update Software
- Kirsten GF, Bergman NJ, Hann FM. Kangaroo mother care in the nursery. *Pediatr Clin North Am* 2001; 48: 443–52
- Cattaneo A, Davanzo R, Worku B, Surjono A, Echeverria M, Bedri A, et al. Kangaroo mother care for low-birthweight infants: a randomized controlled trial in different settings. *Acta Pædiatr* 1998; 87: 976–85
- Chapak N, Ruiz-Pelaez JG, Figueroa de Calume Z, Chapak Y. A randomized controlled trial on kangaroo mother care: results of follow-up at one year of corrected age. *Pediatrics* 2001; 8: 1072–9
- Bergman N. Introducing kangaroo mother care. *PEDMED* 1998; Sept/Oct: 9–10
- Van Rooyen E, Pullen AE, Pattinson RC, Delpont SD. The value of the kangaroo mother care unit at Kalafong Hospital. *Geneeskunde. Medicine J* 2002; April: 6–10
- Patton MQ. *Qualitative research and evaluation methods*. 3rd ed. Thousand Oaks: Sage Publications; 2002: 262342346437–40
- McMillan JH, Schumacher S. *Research in education: a con-*

- ceptual introduction. 3rd edition. New York: Harper Collins College Publishers; 1993: 426–7, 480–501, 508
15. Bergh A-M. Implementation workbook for kangaroo mother care. Pretoria: MRC Research Unit for Maternal and Infant Health Care Strategies; 2002
16. Charpak N, Ruiz-Peláez JG, Figuero de Calume Z. Current knowledge of kangaroo mother intervention. *Curr Opin Pediatr* 1996; 8: 108–12
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