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Kangaroo Mother Care in KwaZulu Natal, South Africa

This article provides an insight into the need for and commencement of Kangaroo Mother Care (KMC) in the neonatal intensive care unit at a tertiary hospital in KwaZulu Natal, South Africa. The initial resistance to the programme, subsequent implementation and ongoing development of KMC units in the region are described.

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Keywords

Kangaroo Mother Care; breast feeding; nutrition; maternal support; early discharge

Key points

Davidge R. Kangaroo Mother Care in KwaZulu Natal, South Africa. *Infant* 2009; 5(2): 48-51.

1. Support for and development of a Kangaroo Mother Care (KMC) programme depends on staff understanding the objectives, such as improved outcomes.
2. A dedicated member of staff is required to lead the programme and provide teaching and support.
3. Successful implementation of KMC requires adequate facilities, supervision and education of the mothers and an appropriate attachment method (pouch or jacket).
4. KMC reduces morbidity and mortality, particularly in developing countries.

> "KMC is a basic right of the newborn and should be an integral part of the management of low birthweight and full term neonates in all settings at all levels of care in all neonates" *Bogata Declaration 1998*[1]

Kangaroo Mother Care (KMC) for newborn and low birthweight infants originated in Bogata, Columbia, out of a desperate need to reduce overcrowding, decrease nosocomial infection rates and reduce mortality[2]. It consists of four key elements:

1. Positioning the baby skin-to-skin on the mother's chest
2. Providing adequate nutrition (preferably breast milk)
3. Supporting the mother
4. Assessing readiness for discharge

I first heard about KMC in about 1995 when one of the registered nurses in our unit reported back about a KMC course she had attended. Unfortunately the registered nurse was not a great salesperson and she didn't present the concept very positively. I was horrified that any one in their right mind could propose that we remove sick babies from perfectly good incubators and put them on their mother's chest. These were sick infants that needed intensive care and monitoring – how could this be done on a mother's chest? We ran a top class unit – surely there was no place for KMC here? It seemed archaic and impractical with no apparent benefits and I resolved that I certainly would not be advocating or implementing it in my care.

Over the ensuing years the KMC programme called "Ukugona" kept resurfacing and the unit was informed that we must implement it. It was extremely structured with a huge emphasis on monitoring the implementation of the programme. There were many forms to be filled, audit tools and an external inspection. It felt proscriptive and I, along with my colleagues, resented the extra work and made little effort to comply. Consequently we failed to be accredited, mainly due to failures in our documenting

FIGURES 1a and b Simple KMC jacket – one size fits all.

system, and thereafter KMC seemed to drop from the horizon and things went back to normal.

Since those early days I have done a complete 360° turn and am now an advocate for KMC and am actively involved in setting up KMC units in our province. So what caused the change? I think it purely rests on understanding. There have been so many articles written in journals explaining the origins of KMC and the research that has been done into its benefits[3-7]. They have been hard to ignore. I also attended a developmental care conference here in South Africa and had the good fortune to be able to attend the last three International Neonatal Nurse Conferences. KMC was discussed and presented at all of these and it was reassuring that leading international nurses were advocating it. Finally I understood the objectives – decreased infection, more successful breastfeeding, maternal involvement and bonding, improved homeostasis and decreased hospital stays[8]. These were things for which I could advocate. It made sense.

According to the national statistics for 2003-2005, South Africa has a neonatal death rate of 21/1000 live births and a low birthweight rate of 15%[9]. There are approximately 1 million live births annually. This is worse than Brazil (13/1000 and 8%) – a country with a similar economy to South Africa and close to Columbia where KMC originated[9]. The main causes of these deaths in South Africa are prematurity, infection and hypoxia. KwaZulu Natal (KZN) has approximately 60,000 live births annually. We have six state hospitals in the province equipped to ventilate neonates. In western KZN there are 13 ventilated beds available in state hospitals. The need for KMC with all its benefits is obvious.

However implementing KMC was easier said then done. Our unit – a tertiary referral centre – was very busy and short staffed. There wasn't much space between beds and we had no KMC jackets. I now regretted not having the opportunity of attending a KMC course and I missed the resources of the old programme which was no longer running. I needed new posters and brochures to try and educate the staff and parents, but couldn't get any. We had to use towels or sheets to tie the babies onto their mothers which meant a large uncomfortable knot at the back. Still we persisted. I drew up a developmental care guideline including KMC and started teaching and encouraging staff to implement it. Due to the limitations of our unit we were unable to implement 24-hour KMC but we tried to practise intermittent KMC as much as possible. Even 30 minutes of KMC per day has been shown to improve outcomes. We are fortunate to be able to offer lodging facilities for our mothers and therefore had access to them throughout the day. We purchased comfortable folding chairs that could be used at the bedside and included KMC in our recording of general care in our charts.

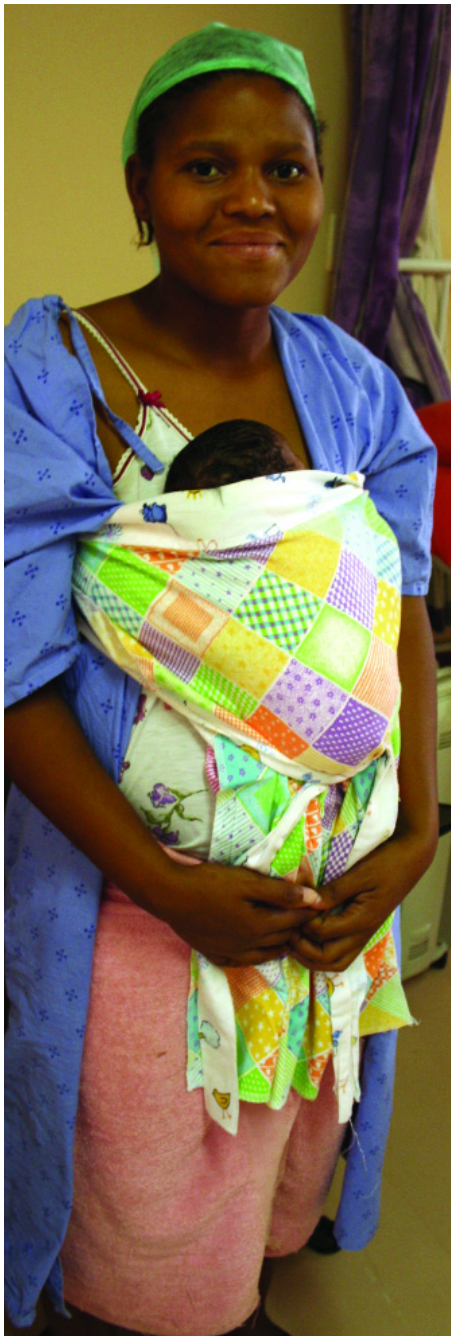

FIGURE 2 A mother practising 24-hour KMC.

Mothers with babies in special care were encouraged to KMC for most of the day as they weren't on IV fluid or continuous monitoring. For the babies in high care we aimed for a minimum of once per day, usually in the afternoon once the busyness of the morning was over. Babies in ICU were a little more problematic as due to our staffing shortages finding two staff to be able to assist with moving the baby from the incubator to mother's chest with the minimum of stress was frequently impossible. The time it took to move baby, stabilise and support the mother and then repeat the exercise again in reverse 30 minutes or so later was just not feasible very often, but we did it as often as we could. Babies who were stable enough for 24-hour KMC were transferred to lower level units that offered this service. There are two other hospitals in Pietermaritzburg that practise 24-hour KMC units – one with four beds and one with 16.

I am no longer in charge of the unit and am now responsible for upgrading the standard of neonatal care in the state hospitals in the western half of our province – this includes implementing KMC and establishing 24-hour KMC units. Unfortunately my old unit is now leaderless as they have not appointed anyone in my place. There is a huge turnover of staff and no one is really promoting and teaching KMC. It is still practised sporadically but is not a focus of care.

Fortunately we are establishing more and more 24-hour KMC units and have drawn up provincial guidelines stipulating a minimum of two KMC beds in each hospital. The guidelines stipulate the space required for each bed (7.5m^2) and the need to provide a day room with a TV and dining area so the mothers are not confined to their beds. We have obtained funding in order to provide these hospitals with colourful bedlinen, mirrors, TVs and folding chairs and are currently getting simple KMC holders (jackets) made for distribution around the province (**FIGURES 1a and b**). As our mothers are usually rather large (but like everywhere – come in all shapes and sizes) we needed to design a 'jacket' that was one size fits all and was easy and inexpensive to make. We came up with a flannel rectangle, 60cm by 60cm with a 3m strap along the top. This crosses at the back and ties under the baby at the front. Now we just have to convince our mothers, who traditionally carry their babies on their backs, to move them to the front (**FIGURE 2**)!

Name:..... Folder No:.....

KMC Daily Score Sheet

Date of birth: KMC start date:

Feeding choice: Breast/formula		PMTCT: yes/no		Date							
				Day							
Score	0	1	2	Weight							
				Intermittent (I) or Continuous (C)							
Breast fed	*Score here for exclusive breast feeding*										
Mother's milk production	None	Not enough	Enough	**Must score 2 before discharge**							
Positioning at breast	Needs help	Some help needed	No help needed								
Baby's ability to suckle at breast	Tube fed	Breast AND cup or tube	Mainly breast								
Formula fed	*Score here for formula feeding*										
Knowledge of formula preparation & cleaning	No knowledge	Some knowledge	Good knowledge	**Must score 2 before discharge**							
Positioning for feed	Depends on nurse	Needs some help	No help needed	**Must score 2 before discharge**							
Baby's ability to cup/bottle feed	Tube fed	Cup and tube	Takes all feeds well by cup/bottle								
Score here for all babies											
Socio-economic support	No family help or support	Occasional help/support	Good support system	**Name support person:**							
Confidence in handling baby (changing/bathing)	Always needs assistance	Occasionally needs assistance	No help needed								
Baby's weight gain/day	0-10 g/day	10-20 g/day	20-30 g/day	**Must score 1 or 2 for a few days**							
Confidence in giving vitamin and iron drops	No confidence	Some confidence	Fully confident								
Mother's knowledge of KMC	Little knowledge	Some knowledge	Knowledgeable								
Acceptance & application of KMC	Does not accept/apply	Partially accepts or applies	Fully accepts or applies	**Applies KMC on own initiative**							
Confidence in caring for baby at home	Does not feel sure/able	Feels slightly sure/able	Feels confident								
Ready for discharge when the score is 19 or more				**Total**							

TABLE 1 Chart assessing baby's nutrition, maternal confidence in caring for her baby, support systems in place, and compliance with 24-hour KMC. Adapted from Groote Schuur Hospital and Katafong KMC.

Currently we do not have the facilities for individual care spaces where mother and her intensive care baby can stay together (**FIGURE 3**). We are hoping that when a new NICU is built at Greys it will include a unit for 24-hour KMC equipped with air and oxygen to facilitate babies on nasal CPAP receiving continuous KMC. The KMC units in the province consist of rooms or cubicles with two to six mothers staying together with their babies. They have their own ablution room and day room. Babies are generally placed in KMC units once they are stable on full feeds, off oxygen and gaining weight. Due to the limited supervision in the KMC units we tend to limit the weight to a minimum of 1,300g, but we are aiming to drop this as long as the babies are consistently gaining weight. Supervision and monitoring are provided either by staff from the neonatal nursery or by dedicated staff in the unit. Usually the day-to-day care is provided by nursing axillaries with a nurse available for consultation or the administration of medications. Readiness for discharge is assessed using a daily chart assessing baby's weight gain and feeding ability, maternal confidence in caring for her baby at home, her support systems and compliance with 24-hour KMC (see **TABLE 1**). Babies are discharged when these criteria are met and the babies are around 1600g. Since most of our mothers are from rural communities with poor public transport and consequently little access to medical support following discharge, we therefore have to be sure both mother and baby are fully ready for discharge.

I was fortunate last year to travel to a workshop in Blantyre in Malawi and was taken to see their newly developed KMC unit. It has been developed in desperation as the facilities in their referral unit are terribly limited – no piped air or oxygen, limited power and running water and almost no equipment. They had an extremely high mortality rate and almost no nursing or medical staff. The unit is run by a British doctor who is scientifically monitoring KMC implementation and outcomes. They enrol babies into KMC as little as 900g and discharge around 1,300g. Most of the mothers are from the surrounding community and are good about returning to the clinic for regular checkups and home visits are also conducted. Since the implementation of the programme the mortality rate has dropped dramatically.

Conclusion

Asphyxia, prematurity and infection are the prime causes of neonatal deaths in Africa and simple programmes like neonatal resuscitation and KMC are forming the backbone of national efforts to achieve millennium goal 4 – to reduce

child deaths by two thirds[10]. We are fortunate in South Africa that over 90% of our mothers deliver in hospital, however access to advanced neonatal care is not guaranteed for all our population. Many of our private hospitals do not see the need to promote KMC and babies consequently stay in these hospitals much longer than is necessary. By developing KMC units and encouraging its implementation in all our units we can improve the outcomes for all our precious little ones.

FIGURE 3 The busy NICU at Greys Hospital.

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Irish Perinatal Society Annual Meeting

Date: Friday 20th and Saturday 21st March 2009

Venue: Carton House, Maynooth, Co Kildare

Speakers:
- Dr Martin White
- Professor Patricia Crowley
- Dr Stan Craig
- Professor Dierdre Murphy
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- Professor Per Olofsson

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