WHO recommendation on provision of continuous Kangaroo mother care for preterm newborns

17 November 2015

Recommendation

Kangaroo mother care is recommended for the routine care of newborns weighing 2000 g or less at birth, and should be initiated in healthcare facilities as soon as the newborns are clinically stable.

(Strong recommendation based on moderate-quality evidence)

Publication history

First published: November 2015

Updated: No update planned

Assessed as up-to-date: November 2015

Remarks

- The definition of Kangaroo mother care (KMC) is care of preterm infants carried skin-to-skin with the mother. Its key features include early, continuous and prolonged skin-to-skin contact between the mother and the baby, and exclusive breastfeeding (ideally) or feeding with breastmilk.
- Evidence for this recommendation was based on facility-based studies, mainly from low-and middle-income countries.
- There is insufficient evidence to make a recommendation to provide KMC to unstable neonates.
- Health system issues relating to KMC – such as health system requirements, human resources and their competencies, criteria for discharge and follow-up – should be included in the manual or guidance for implementation.
- Given that there is currently no evidence suggesting the need for any change in the recommendation, the existing criteria for discharge should continue to be applied.

Background

Preterm birth, defined as birth before 37 weeks of gestation, is the single most important determinant of adverse infant outcomes, in terms of survival and quality of life. (1) Globally, it is the leading cause of
perinatal and neonatal mortality and morbidity. (2) Preterm infants are particularly vulnerable to complications due to impaired respiration, difficulty in feeding, poor body temperature regulation and high risk of infection. (3-5) With the increasing contribution of neonatal deaths to overall child mortality, it is critical to address the determinants of poor outcomes related to preterm birth to achieve further reductions in child mortality. (6-8)

Infant mortality and morbidity from preterm birth can be reduced through interventions delivered to the mother before or during pregnancy, and to the preterm infant after birth. (9) Interventions can be directed at all women for primary prevention and reduction of the risk of preterm birth (e.g. smoking cessation programme) or aimed at minimizing the risk in women with known risk factors (e.g. progestational agents, cervical cerclage). (10) However, the most beneficial set of maternal interventions are those that are aimed at improving outcomes for preterm infants when preterm birth is inevitable (e.g. antenatal corticosteroids, magnesium sulfate and antibiotic prophylaxis). (9) Special care of the preterm newborn to prevent and treat complications of prematurity is also critical to newborn survival. In high-income countries, reductions in mortality rates in infants that were born preterm have been driven largely by improved care and, more importantly, by appropriate policy changes.

Methods

The recommendations were developed using standard operating procedures in accordance with the process described in the WHO handbook for guideline development (11). Briefly, these included (i) identification of priority questions and critical outcomes, (ii) retrieval of the evidence, (iii) assessment and synthesis of evidence, (iv) formulation of recommendations, and (v) planning for the dissemination, implementation, impact evaluation and updating of the guideline.

The scientific evidence underpinning the recommendations was synthesized using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach (12). Up-to-date systematic reviews were used to prepare evidence profiles for the priority questions. WHO then convened a Technical Consultation in May 2014 where an international group of experts – the Guideline Development Group (GDG) – formulated and approved the recommendations based on the evidence profiles.

In November 2014, an online consultation of the GDG was conducted to review and revise the recommendations in the light of the findings of a large implementation trial of antenatal corticosteroids in low-resource countries.

Further information on procedures for developing this recommendation are available here.

Recommendation question

For this recommendation, we aimed to answer the following question:

- Among preterm babies who require thermal care (P), is practicing Kangaroo mother care (I) compared with conventional care (C), effective in reducing adverse newborn outcomes (O)? If so:
  - How effective is continuous Kangaroo mother care (KMC) in the thermal care of preterm babies?
  - Is KMC equally effective when administered intermittently rather than continuously, with or without alternative conventional methods of care during the intervention periods?
  - In which subgroup of preterm newborns is KMC effective? (considering babies weighing <2000 g; sick and unstable babies, with respiratory distress, feed intolerance, etc.)
Evidence summary

Kangaroo mother care (KMC) versus conventional care for routine care of stable newborns:

Evidence on the effectiveness of KMC was extracted from an updated Cochrane review (13-15). The review included 18 trials that evaluated the effects of KMC versus conventional care on neonatal mortality and morbidity outcomes. Thirteen of these trials were conducted in low- and middle-income countries (LMICs) while five were conducted in high-income countries (HICs). Five studies included babies born following multiple pregnancies (in addition to singletons) while six trials provided KMC only to babies weighing <1500 g at birth. The review examined the effects of KMC practiced either intermittently or continuously with a view to answering specific questions: whether KMC can be started early before stabilization of the baby; for what minimum duration per day KMC should be practiced; at what level of care and what resources are needed for effective KMC; what criteria have been used for discharge of babies initiated on KMC in the facility; and what is the optimum frequency of follow-up contact after discharge.

Neonatal death: Compared with conventional care, KMC was associated with a 40% lower risk of mortality at discharge or 40–41 weeks postmenstrual age (RR 0.60, 95% CI 0.39–0.92; 8 studies, 1736 babies). A comparable result was obtained when analysis was limited to the seven trials conducted in LMICs. In these seven trials, KMC was associated with a 43% reduction in mortality at discharge or 40–41 weeks postmenstrual age, compared to conventional care (RR 0.57, 95% CI 0.37–0.89). The only study from HICs that evaluated this outcome found no protective effect for KMC compared with conventional care. KMC, as compared with conventional care, was also associated with a 33% lower risk of all-cause mortality for infants at the latest follow-up (RR 0.67; 95% CI 0.48–0.95; 11 studies, 2167 babies). Nine studies conducted in LMICs showed that KMC resulted in a 35% reduction in the risk of mortality at the latest follow-up (RR 0.65, 95% CI 0.45–0.93; 2036 babies). In the two trials from HICs (with 131 preterm newborns), the evidence of an effect on mortality was inconclusive, with confidence intervals consistent with a possible 71% reduction as well as over five-fold higher risk of mortality at the latest follow-up (RR 1.25, 95% CI 0.29–5.42).

Severe neonatal morbidity: Compared with conventional care, KMC was associated with a 44% reduction in the risk of severe infection at the latest follow-up (RR 0.56, 95% CI 0.40–0.78; 7 studies, 1343 babies). The intervention was also associated with a 55% lower risk of nosocomial infection at the time of discharge or at 40–41 weeks postmenstrual age (RR 0.45, 95% CI 0.27–0.76; 3 studies, 913 babies). All the studies that reported on the risk of hypo- and hyperthermia implemented intermittent rather than continuous KMC. Six studies (with 698 babies) showed that KMC was associated with a 66% lower risk of hypothermia at the time of discharge or at 40–41 weeks postmenstrual age (RR 0.34, 95% CI 0.17–0.67). There was inconclusive evidence on the risk of hyperthermia at the time of discharge or at 40–41 weeks postmenstrual age. The point estimate of data from two studies also suggested a possible reduction in the risk of readmission at the latest follow-up for babies that were provided with KMC (RR 0.60, 95% CI 0.34–1.06).

Further information and considerations related to this recommendation can be found in the WHO guidelines, available at:

http://apps.who.int/iris/bitstream/handle/10665/183037/9789241508988_eng.pdf?sequence=1

http://apps.who.int/iris/bitstream/handle/10665/183038/WHO_RHR_15.17_eng.pdf?sequence=1
Implementation considerations

- The successful introduction of this recommendation into national programmes and health-care services depends on well-planned and participatory consensus-driven processes of adaptation and implementation. The adaptation and implementation processes may include the development or revision of existing national guidelines or protocols based on this recommendation.
- The recommendation should be adapted into a locally appropriate document that can meet the specific needs of each country and health service. Any changes should be made in an explicit and transparent manner.
- A set of interventions should be established to ensure that an enabling environment is created for the use of the recommendations, and that the behaviour of the healthcare practitioner changes towards the use of this evidence-based practice.
- In this process, the role of local professional societies is important and an all-inclusive and participatory process should be encouraged.

Research implications

The GDG identified that further research on the following high-priority questions is needed:

- What is the optimal frequency of follow-up for mothers providing KMC after discharge from the health-care facility?
- What is the minimum threshold of KMC exposure needed to achieve an impact on neonatal mortality and other important outcomes?
- Can KMC be effectively initiated in the community setting in LMICs?

Related links


Supporting systematic reviews:

Conde-Agudelo A, Diaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. Cochrane Database of Systematic Reviews 2014, Issue 4

Other links of interest

Managing Complications in Pregnancy and Childbirth: A guide for midwives and doctors

Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice

WHO Programmes: Sexual and Reproductive health

Maternal Health

Infant, Newborn Health
References


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