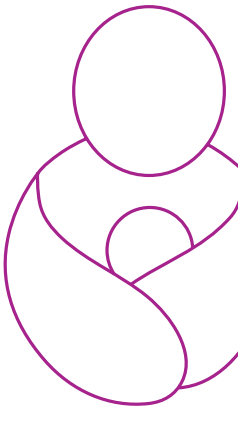
Global position paper

Kangaroo mother care

A transformative innovation in health care

World Health Organization

75 HEALTH FOR ALL



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Kangaroo mother care: a transformative innovation in health care. Global position paper

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Health workers in a training session at a hospital in Mongolia.

Abbreviations

24/7	24 hours a day, seven days a week
CI	confidence interval
ENAP	Every Newborn Action Plan
iKMC	immediate KMC
KMC	kangaroo mother care
LBW	low birth weight
MNCAH&N	maternal, newborn, child and adolescent health and nutrition
STAGE	WHO Strategic and Technical Advisory Group of Experts
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Glossary

Every Newborn Action Plan (ENAP)	*Every Newborn Action Plan* (ENAP) is a global framework to end preventable maternal and newborn deaths and stillbirths. The plan sets an action and measurement agenda for integration within national newborn health plans based on the latest epidemiology, evidence, global and country learning. Led by WHO and UNICEF, its preparation was guided by the advice of experts, partners, and the outcome of several multistakeholder consultations. The final plan was endorsed by 194 Member States at the 67th session of the World Health Assembly in May 2014, who committed to put the recommended actions in practice. The WHO Director-General has been requested to monitor progress towards the achievement of the global targets and report periodically to the World Health Assembly until 2030 *(1)*.
Health management information system	A health management information system is the system of routine data collection, processing, reporting, analysis and use in health-care facilities and in the community. It provides essential information for national policy-makers, district health managers, facility administrators and health workers across health-system levels, serving as the backbone of national health service delivery programmes *(2)*.
Kangaroo mother care (KMC)	The care of preterm or low-birth-weight infants in continuous and prolonged (i.e. 8–24 hours per day, for as many hours as possible) skin-to-skin contact initiated immediately after birth unless the newborn is critically sick, with support for exclusive breastfeeding or breast-milk feeding *(3)*. An additional feature of KMC, when initiated in health-care facilities, is timely discharge from the neonatal intensive or special care unit to a lower level of care within the facility or at home, with continued skin-to-skin contact and close monitoring *(4)*.
Low-birth-weight infant	An infant who weighs less than 2500 g at birth, irrespective of gestational age.
Newborn mortality	Death of a newborn in the first 28 days after birth. Reported as neonatal mortality rate (i.e. newborn deaths in the first 28 days after birth per 1000 live births).
Preterm infant	An infant who is born before 37 completed weeks of gestation.
Sick newborn	A newborn who requires medical care.
Small and/or sick newborn care	The package of facility-based, inpatient care for small and/or sick newborns comprising interventions to deal with complications arising from preterm birth and/or low birth weight, and neonatal infections (sepsis, meningitis, pneumonia and those causing diarrhoea) *(5)*.

Small and/or sick newborn care (continued)

Level	Type of care provided	Standards of care and evidence-based interventions
Primary	**Essential newborn care**	Immediate newborn care (thorough drying, skin-to-skin contact of the newborn with the mother, delayed cord clamping, hygienic cord care); neonatal resuscitation (for those who need it); early initiation and support for exclusive breastfeeding; routine care (Vitamin K, eye care and vaccinations, weighing and clinical examinations); prevention of mother-to-child transmission of HIV; assessment, management and referral of bacterial infections, jaundice and diarrhoea, feeding problems, birth defects and other problems; pre-discharge advice on mother and baby care and follow-up.
Secondary	**Special newborn care**	Thermal care; comfort and pain management; kangaroo mother care; assisted feeding for optimal nutrition (cup feeding and nasogastric feeding); safe administration of oxygen; prevention of apnoea; detection and management of neonatal infection; detection and management of hypoglycaemia, jaundice, anaemia and neonatal encephalopathy; seizure management; safe administration of intravenous fluids; detection and referral management of birth defects. Transition to intensive care: continuous positive airway pressure; exchange transfusion; detection and management of necrotizing enterocolitis (NEC); specialized follow-up of infants at high risk (including preterm).
Tertiary	**Intensive newborn care**	Advanced feeding support (e.g. parenteral nutrition); mechanical/assisted ventilation, including intubation; screening and treatment for retinopathy of prematurity; surfactant treatment; investigation and management of birth defects; paediatric surgery; genetic services.

Small for gestational age

Infant below the 10th percentile of birth weight for gestational age. A small for gestational age newborn may be preterm or full-term and can have low birth weight or normal birth weight *(1)*.

WHO Strategic and Technical Advisory Group of Experts (STAGE) for Maternal, Newborn, Child and Adolescent Health and Nutrition (MNCAH&N)

An external advisory group of technical experts that provides strategic and technical advice to WHO on matters relating to maternal, newborn, child and adolescent health and nutrition. Its scope includes global priorities and emerging issues for which policies, strategies, recommendations and intervention packages should be developed or updated to help Member States in reaching relevant Sustainable Development Goal targets. The group reports directly to the Director-General of WHO *(6)*.

References for glossary

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Carrying two babies in the kangaroo position is hard work, but Ruth does it with courage, she already loves her two sons Gilles and Joseph intensely. Hospital La Quintinie, Douala, Cameroon.

1

1. Introduction

Newborn mortality continues to be the leading contributor to deaths of children aged under 5 years (under-fives) globally; it was responsible for almost half (46%) of all under-five deaths in 2019 *(1)*. Preterm birth complications caused approximately 36% of these newborn deaths *(1)*. Countries and settings that have overcome high rates of newborn mortality have done so through investment in a holistic package of clinical services and health-system functions required for essential care of all newborns and special care for small and/or sick newborns, their mothers and families. The provision of these services is necessary but not sufficient to achieve the highest attainable standard of health and well-being for all mothers and newborns. Especially in low- and middle-income countries, but even in high-resource settings, there is often an unacceptable level of newborn mortality, suggesting that the broader determinants of avoidable mortality remain unaddressed *(2,3)*. Gender inequalities are endemic in most settings and are often reflected, reinforced and perpetuated in the ways in which health systems are structured and health services are delivered. In the name of improving efficiency, safety and overt health outcomes, most health systems are designed for the convenience of health-system actors and not for the women themselves. There is a growing realization that many health systems and service delivery mechanisms, despite well intentioned designs, have marginalized and disempowered women from participating more actively in their own and their infant's care *(4)*.

Kangaroo mother care (KMC) is an intervention that allows the mother to take a central role in her own and her newborn's care, thereby reversing the shift of power between the mother and the health-care providers or health systems. It humanizes maternal and newborn care by empowering and involving those who care most for the infant, rather than focusing predominantly on technological solutions. Thus, KMC can serve as a starting point for broader health-system redesign and service delivery transformation for maternal and newborn care, and a model of what can be accomplished when relevant stakeholders are empowered to play the roles naturally entrusted to them in the care of their newborns. The concept of KMC is aligned with the primary health care approach for health and well-being that empowers individuals, families and communities to take charge of their own health, and should be a critical component of universal health coverage, wherein everyone – including newborns – have access to the health services they need without facing financial hardship. Operationalizing this concept can serve as a strong foundation of highly efficient health systems that are rooted in the communities they serve and focus not only on preventing and treating illness but also on improving well-being and quality of life.

In this global position paper, we present a new vision where mothers, newborns and families form an inseparable centre around which the entire maternal–newborn service delivery is organized, and KMC for all preterm or low-birth-weight (LBW) infants forms the foundation of small and/or sick newborn care. Reversing the long-standing inequities in health care will require prolonged efforts; the scale-up of KMC as an essential service for all mothers and their preterm or LBW infants as a critical component of universal health coverage can serve as the key starting point.

Kangaroo mother care (KMC) is an intervention that enables the mother to take a central role in her own and her newborn's care, thereby ensuring the power stays with the mother, and health workers support and respond to the mother's and newborn's needs.

1.1 What is kangaroo mother care (KMC)?

KMC is the care of preterm or LBW infants in continuous and prolonged (8–24 hours per day, for as many hours as possible) skin-to-skin contact recommended to be initiated immediately after birth,[a] with support for exclusive breastfeeding or breast-milk feeding *(5)*. An additional feature of KMC, when initiated in health-care facilities, is timely discharge from the neonatal intensive or special care unit to a lower level of care within the facility or at home, with continued skin-to-skin contact and close monitoring *(6)*. Placement of the infant in skin-to-skin contact is usually initiated before breastfeeding and is one of the most effective approaches to prepare the mother and the newborn to initiate and continue breastfeeding *(7)*. The provision of formula milk should be considered only in exceptional circumstances. Mothers should provide KMC whenever possible and should be empowered to do so while respecting their choice. Additionally, fathers or partners and other family members can also provide KMC and serve as change agents in the care and health of their preterm or LBW infants by ensuring that they receive KMC for as close to 24 hours per day as possible. The involvement of the father or partner and family members is especially important when the mother is medically unstable or recovering from surgery.

KMC should not be confused with routine skin-to-skin contact at birth, which is recommended for all newborns during the first hour after birth to ensure warmth and early initiation of breastfeeding *(8)*. On the other hand, KMC involves providing long-duration, sustained skin-to-skin contact for preterm or LBW newborns, along with support for exclusive breast-milk feeding (breastfeeding or feeding expressed breast-milk through a feeding tube, spoon or cup) *(5)*.

KMC is different from the routine skin-to-skin contact recommended for all newborns in the first hour after birth.
KMC refers to skin-to-skin contact that is:

- **for preterm or LBW infants, both well and sick**
- **continuous and prolonged (at least 8 hours per day)**
- **accompanied by support for exclusive breastfeeding or breast-milk feeding**
- **closely monitored if the baby is sent home in KMC.**

Girl born 8.5 weeks preterm, placed in immediate KMC, Lund-Malmö NIDCAP Center, Stockholm.

a After initial care at birth for facility births, unless the infant is unable to breathe spontaneously even after resuscitation, is in shock or requires mechanical ventilation; and immediately after birth for home births, unless the infant has any danger signs or requires medical care being below the country cut-off for gestational age or birth weight for admission to a newborn care unit.

1.2 Rationale for a global position paper on KMC

1.2.1 Potential impact

KMC for preterm or LBW newborns is a high-impact intervention that significantly reduces the risk of neonatal mortality and morbidity. A 2016 Cochrane review estimated that KMC reduces mortality among LBW infants by 40% at discharge or at 40–41 weeks postmenstrual age *(9)*. Modelling suggests that if facility-based KMC for stable newborns ≤ 2 kg were to be implemented universally,[b] it could save 125 680 newborn lives per year *(10)*. Implemented universally as part of small and/or sick newborn care,[c] KMC was estimated to save 747 000 newborn lives per year *(11)*. New evidence is now available on the effectiveness of KMC in reducing newborn mortality. Starting KMC at home (community-initiated KMC) within 72 hours of birth for LBW infants weighing at least 1.5 kg and without danger signs, irrespective of the place of birth (i.e. home or health-care facility if KMC was not already initiated in the facility), decreases the risk of newborn mortality by 30% *(12)*, and can help increase the coverage of KMC. Additionally, immediate KMC (i.e. starting KMC as soon as possible after birth) for infants with a birth weight between 1.0 and 1.799 kg (i.e. meeting criteria for admission in newborn care unit) irrespective of clinical stability, decreases infant mortality by 25% *(13)*. Since more than half of all infant deaths occur within the first three days after birth *(14)*, starting KMC immediately after birth, irrespective of whether the preterm or LBW infants have achieved clinical stability or not, provides a critical window of opportunity to save these lives. Updated WHO guidelines incorporating this new evidence have thus expanded the scope of KMC. It is now recommended for all preterm or LBW newborns, can be initiated either in the facility or at home, and should be started immediately after birth unless the newborn is critically sick, that is, unable to breathe spontaneously after resuscitation, is in shock or needs mechanical ventilation *(5)*. This increase in the scope of KMC is likely to substantially increase the number of newborn lives saved.

1.2.2 Need for translating evidence into practice

The translation of new evidence into policy and practice requires a paradigm shift in the so-called classical newborn care model, which separates the mother and newborn if the infant is small and/or sick and requires admission to the newborn care unit. Entry to the newborn care unit is often restricted, and mothers are only allowed inside intermittently, like any other visitor, to provide breast-milk or to breastfeed, for example. If the mother is well, she is often discharged irrespective of her infant's continued need for medical care, and if she requires medical care, she is cared for in a separate ward, with intermittent contact with the infant. The new model requires that all barriers are removed to enable the mother and newborn to remain together from birth, unless either is critically sick. Coordination between maternal and newborn service providers ensures that both mother and infant receive all the care they may need together as a unit in one place. This new model calls for a profound change in the current organization of maternal and newborn service delivery, including infrastructure to keep the mother with her preterm or LBW infant in the newborn care unit, when required. Therefore, it is important to develop guidance and consensuses so that governments, programme managers, and maternal and newborn health-care providers understand what is required or what needs to be done and are ready to implement the changes required to implement KMC in a harmonized way, for maximum global impact.

b 99% coverage across 127 low- and middle-income countries; LiST analysis over 12 months with a baseline of 2019.

c 95% coverage of SSNC level 2 plus continuous positive airway pressure and KMC across 81 Countdown to 2030 countries; LiST analysis with baseline year 2016, endline year 2030.

Keeping mothers and newborns together is essential. They should remain together after birth unless there are exceptional circumstances. This will ensure optimal and respectful care and outcomes for both the mother and the infant.

1.2.3 Availability of solutions to overcome implementation barriers

Achieving high coverage of KMC in programmatic settings has been a persistent challenge, despite a strong, long-standing evidence base for its positive impact on maternal and newborn health outcomes, existing WHO guidelines and multiple organizations promoting KMC. Various implementation bottlenecks have been identified *(15–17)* and only a few countries have successfully implemented KMC in programmatic settings *(18–20)*. However, new evidence from large-scale implementation research is now available. This provides insights into the effective strategies that may help to scale up KMC *(21)*.

1.3 Purpose of the global position paper on KMC

The purpose of this document is to put forward the joint position and vision of an expert, global, multistakeholder working group on implementing KMC for all preterm or LBW infants as the foundation for small and/or sick newborn care within maternal, newborn and child health programmes, and spur collaborative global action. The specific objectives of this paper are to:

- state the position of the global working group on KMC;
- summarize the background information, evidence and rationale for making KMC available to every preterm or LBW newborn;
- present the joint vision of the global working group on implementing KMC for all preterm or LBW infants as the foundation of small and/or sick newborn care within maternal, newborn and child health programmes;
- galvanize the international maternal, newborn and child health community, and the families of preterm infants to come together to support implementation of KMC for all preterm or LBW infants to improve the health and well-being of all these infants, their mothers and families.

1.4 Audience for the global position paper

This position paper is intended to be used by policy-makers (i.e. those responsible for national policy, guideline development and budget allocation), development partners, programme managers, health workforce leadership, practising clinicians, civil society leadership (e.g. parent and professional organizations) and researchers/research organizations involved in KMC implementation research.

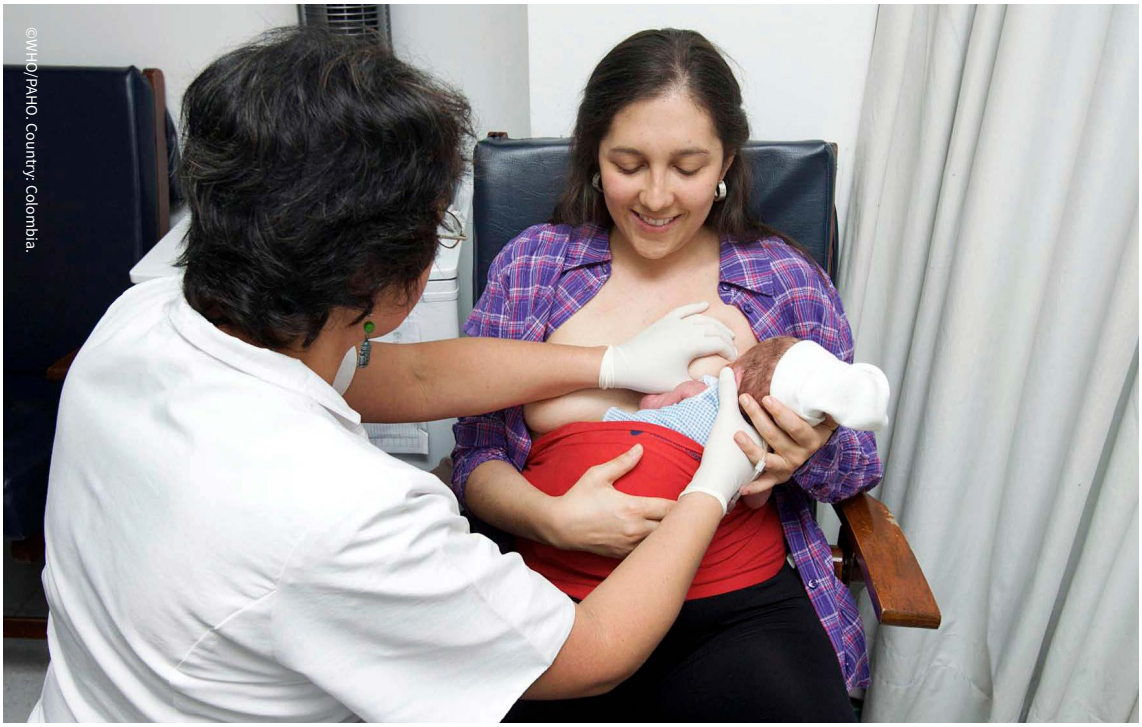
1.5 Process of development of the global position paper

This position paper was prepared by WHO in collaboration with a designated KMC working group, convened by the WHO Strategic and Technical Advisory Group of Experts (STAGE) for Maternal, Newborn, Child and Adolescent Health and Nutrition (MNCAH&N). (See Acknowledgements for details of working group composition.)

In accordance with WHO procedures for declarations of interests (DOIs), all external experts acting in their individual capacities were asked to declare in writing any competing interests (whether academic, financial or other) using the standard WHO DOI form. The WHO Secretariat reviewed all DOI forms to determine whether any conflicts of interest existed. For this work, none of the experts had any conflicts of interest that could pose any risk to the document development process or to reduce its credibility.

Independent, renowned global experts were appointed as chairs and WHO served as the Secretariat for the Working Group. Brainstorming sessions and online consultations were organized with all members to develop the first draft, using the existing evidence syntheses available from the systematic reviews commissioned for the WHO Guidelines for the care of preterm or LBW infants *(5)*. New systematic reviews were commissioned where required. The chairs and all Working Group members reviewed and provided their feedback on the outline and content of the draft document. Any differences in opinion were discussed among the Working Group members in regular online meetings. Additional meetings were organized with individual members and the Working Group chairs to address specific concerns when required. The aim of the meetings was to reach consensus on the content, including terminology and position statement. The Secretariat collated feedback from all members and finalized the content of the document. Organizational nominees discussed the document within their organizations to provide their organization's views and endorsement. The final adoption of the content of the document was done by consensus, defined as full agreement among all Working Group members.

The position paper was endorsed by all participating organizations and approved by the WHO STAGE for MNCAH&N, which reports directly to the WHO Director-General.



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Baby girl Samuelsson, born nine weeks preterm by caesarean section, in immediate skin-to-skin contact with her father, in which she spent the first two hours of her life, Lund-Malmö NIDCAP Center, Stockholm.

2. Background

2.1 Burden and consequences of preterm birth or low birth weight

LBW infants include some who are born preterm (before 37 completed weeks of gestation) and some who are small for gestational age (< 10th percentile of weight for gestational age). Globally, 20.5 million LBW (14.6% of all births) and 14.8 million preterm births (10.6% of all births) occur each year, with limited reductions in the past 20 years *(22,23)*. More than 90% of LBW births are concentrated in low- and middle-income countries, mainly in South Asia (48%) and sub-Saharan Africa (24%), where the majority of neonatal deaths also occur *(1,22)*. Over 80% of global neonatal deaths are among LBW newborns, of which two thirds are preterm and one third are small for gestational age *(22)*. Preterm infants are seven times more likely to die in the newborn period compared with term infants; small for gestational age infants are two times more likely to die in the newborn period compared with appropriate for gestational age infants, and those born preterm and small for gestational age are 15 times more likely to die in the newborn period compared with those born at term and appropriate for gestational age *(24)*. Additionally, LBW infants are at greater risk of infections and other acute morbidities, growth failure (i.e. stunting, wasting and underweight), short- and long-term neurodevelopmental delays, poor academic performance, and behavioural problems in later life *(25–28)*. Importantly, birth outcomes related to prematurity and small size at birth have major implications for later life-course impairments that, in turn, contribute substantially to the burden of noncommunicable diseases and the loss of human capital *(29,30)*.

2.2 Care of preterm or low-birth-weight infants to improve outcomes

Numerous evidence-based interventions exist to improve the survival of preterm or LBW infants. Recently, WHO published updated recommendations for improving the care of preterm or LBW infants *(5)*. The guideline includes updated recommendations on KMC, with KMC now recommended for routine care of all preterm or LBW newborns in health-care facilities as well as at home, to be initiated immediately after birth irrespective of clinical stability, unless the infant is critically sick. The guideline strongly recommends family involvement in routine care of preterm or LBW infants in health-care facilities, feeding with mother's own milk, initiation of enteral feeding as early as possible from the first day after birth, exclusive breastfeeding up to six months of age, continuous positive airway pressure for preterm infants with clinical signs of respiratory distress syndrome, and caffeine for treatment of apnoea in preterm infants. Additionally, WHO has updated the recommendation on use of antenatal corticosteroids for women with a high likelihood of preterm birth from 24 weeks to 34 weeks of gestation *(31)*, and use of tocolytics (nifedipine) for acute and maintenance tocolytic therapy for women with a high likelihood of preterm birth *(32)*. All these essential interventions should be part of routine care for preterm or LBW newborns along with KMC.

2.3 History of the KMC intervention

KMC evidence, policy and implementation have evolved over almost 40 years. KMC was first introduced in the Instituto Materno-Infantil in Santa Fe de Bogotà, Colombia, in 1978, to address the scarcity of incubators, high rates of newborn infections, and parents abandoning infants at the hospital *(33)*. In 1993, the Kangaroo Foundation was established in Colombia to generate evidence for and spread this new practice. The Foundation has since trained more than 80 teams from over 35 low- and middle-income countries in KMC practice *(34)*. KMC was formally introduced at an international conference in 1995, which spurred its implementation by individual champions in selected tertiary health-care facilities *(35)*. In 2003, WHO published a KMC practical guide for health workers *(36)*, which is now being revised to incorporate the new evidence. In 2012, KMC was highlighted as a critical life-saving intervention for preterm infants in the United Nations-led Born too soon report and became a global agenda item with major media attention and policy uptake *(37)*. Subsequently, in 2013, a convening of KMC stakeholders from government, nongovernmental organizations and United Nations organizations released a call to action to accelerate the uptake of KMC and established the KMC Acceleration Partnership. The call to action set an ambitious target of 50% coverage of KMC among preterm newborns by 2020 *(20)*. In 2014, WHO and partners included KMC as a high-impact, cost-effective intervention to improve newborn health and survival in the Every Newborn Action Plan (ENAP) *(38)*. In 2020, the WHO Guideline Development Group recognized KMC as a key recommendation requiring update as part of the new WHO guidelines for the care of preterm or LBW infants. In 2021, WHO STAGE for MNCAH&N recommended the convening of a global working group, bringing together all the key stakeholders to facilitate consensus and buy-in on implementation strategies, so that all governments and partners can act in a harmonized way to maximize the impact of KMC *(39)*. Following this, the KMC Working Group that developed this paper was constituted.

Mother starting iKMC shortly after birth with grandmother looking on. Queen Elizabeth Central Hospital, Malawi.

2.4 Global status of KMC implementation

2.4.1 Global targets

In 2014, ENAP specified an interim KMC coverage target of over 50% by 2020 and over 75% by 2025 for eligible newborns, as a step towards achieving the goal of universal coverage by 2030 *(38)*. This relates to the recent (2020) ENAP coverage target for small and/or sick newborn care, which stipulates that 80% of districts should have at least one secondary (level-2) inpatient newborn care unit with respiratory support and KMC for preterm or LBW infants by 2025 *(40)*. Additionally, a process indicator was proposed to assess the number of facilities with space for KMC and where at least one health worker had been trained in KMC within the previous two years *(41)*. However, little progress has been made to achieve these targets over the past eight years due to the lack of investment, poor alignment on the specifics of the practice and the denominator of interest, and the constraints in identification of preterm and LBW infants. A recent study, the Every Newborn-Birth Indicators Research Tracking in Hospitals (EN-BIRTH), provides some insights on measuring KMC coverage in routine health information systems. The EN-BIRTH study compared data from routine facility registers and women's survey reports with direct clinical observation as the gold standard to validate facility-based coverage and quality of care *(42)*. For KMC, ward registers and surveys accurately captured admission to care (a service contact measure), yet there were gaps identified in the quality of care, especially related to the duration of and support for infant feeding *(43)*. This shows that register data for infants admitted to KMC wards have the potential for aggregation in routine health information systems to track coverage. Work is currently in progress to define a KMC coverage indicator that can be included and measured as part of routine health information systems to track progress *(42)*. However, more work is required to assess data flow and quality at different levels of health management information systems and measure the quality of KMC provision and experience of care.

By 2025, at least 80% of districts (or equivalent subnational unit) in a country should have at least one level-2 inpatient unit to care for small and/or sick newborns, with respiratory support, including provision of continuous positive airway pressure and KMC.

2.4.2 Country policies

At the national level, having an updated KMC policy or guideline is the main indicator for the ENAP quality-of-care milestone *(18)*. In 2014, the Countdown to 2015 Millennium Development Goals Report *(44)* documented that 33 of 75 countdown countries (which together accounted for more than 95% of the global burden of maternal, newborn and child deaths) had a national policy recommending KMC for LBW newborns. Since 2014, there has been steady progress in adopting policies for KMC, yet in 2018, only 28 of the 90 ENAP-reporting countries had an updated policy or guideline on KMC *(45)*. While only 12 of the 34 highest-burden countries have a KMC policy in place, 6 of the 10 countries experiencing the greatest reductions in neonatal mortality have put KMC policies in place *(45)*. In countries for which sufficient information was available on large-scale KMC implementation efforts (e.g. Bangladesh, Brazil, Colombia, India, Malawi, the Philippines and South Africa), key policy-related drivers included a positive policy environment, including the adoption of KMC in national or subnational policy and guidelines *(19)*.

2.4.3 Implementation status: coverage and quality

Despite an improvement in the number of countries adopting KMC as part of their national policies, the availability of KMC services is limited to a small number of central or teaching hospitals in all but a handful of countries. In 2015, an analysis of 12 of the 33 Countdown to 2015 countries that reported a national policy/guideline on KMC found that 10 of these 12 countries lacked adequate financing and service delivery strategies to implement and scale up KMC *(17)*. Tracking coverage and quality of KMC has been impeded by the lack of an agreed-upon global indicator, and availability of national data from routine health management information systems. This is a top priority for improving implementation and ensuring equity. Meanwhile, approximate estimates of current coverage and quality of KMC are based on country reporting of policy and roll-out in the ENAP tracking tool now used by more than 90 countries. In 2017, eighteen of the 25 ENAP countries in Asia, Africa and the Middle East that had received support from UNICEF had initiated the implementation of KMC, though little is known about the details of practice *(18)*. By 2018, implementation had progressed, and one fifth of countries (18 of 90; 20%) had an indicator included in their health management information system to monitor the number of newborns who received KMC *(44)*. UNICEF has supported countries with advocacy, generic and KMC-specific training and guidance, and support for establishing KMC services including infrastructure upgrades, supplies and equipment *(18)*. Nonetheless, KMC implementation has been more common at higher-level or referral hospitals than at secondary care level (e.g. district level) or primary care level (e.g. health centre). Hence, data on the coverage of KMC are limited and not comparable across countries *(18,45)*. Many countries that have shown progress in the programmatic implementation of KMC have a KMC indicator included in their health management information systems. However, not all these countries (English- and non-English-speaking alike) have a data dashboard, KMC service monitoring, or reporting as part of small and/or sick newborn care in their health management information systems tracking *(39,44,45)*.

What gets measured, gets done. Countries must include globally agreed indicators for KMC in routine health information systems and track them regularly to improve coverage and quality.

Mother in the KMC ward after the baby has stabilised. Queen Elizabeth Central Hospital, Malawi.

Adebowale Seun, 32, providing skin-to-skin care to her preterm baby in the combined maternal–newborn care unit, Obafemi Awolowo University Teaching Hospital, Ile-ife, Nigeria.

Persson Pettersen, at one week old, tube feeding. Persson was born nine weeks preterm, had immediate and continuous KMC for 7 consecutive days without interruption, parents taking turns and doing all the care with support from staff, Lund-Malmö NIDCAP Center, Stockholm.

3

3. Kangaroo mother care: evidence to date

3.1 Effectiveness of KMC in improving preterm or low-birth-weight infant outcomes

3.1.1 KMC compared with conventional care

The Cochrane systematic review in 2016 showed that KMC initiated in health-care facilities after clinical stabilization of LBW infants compared with conventional care reduces newborn mortality by 40% at discharge or 40 weeks postmenstrual age, and by 33% at the latest follow-up *(9)*. A recent systematic review that includes preterm or LBW infants, and both facility- and community-based studies, suggests that compared with conventional newborn care, KMC is associated with a 32% reduction in mortality by discharge or 40 weeks postmenstrual age, or 28 days of age, and a 25% reduction in mortality by six months of age *(46)*. The magnitude of mortality reduction was similar for infants born ≤ 34 weeks of gestation and those born > 34 to 36 weeks of gestation; infants with weight ≤ 2 kg and infants with weight > 2 kg but < 2.5 kg at birth or enrolment, and for a daily duration of KMC of 8–16 hours/day and > 16 hours/day (46). KMC was also associated with a 15% reduction in the risk of severe infection/sepsis up to the latest follow-up, a 68% reduction in the risk of hypothermia at discharge or by 28 days after birth, and a 48% increase in exclusive breastfeeding at discharge or 40 weeks postmenstrual age *(46)*.

In low- and middle-income countries, where there is a greater burden of LBW births and neonatal deaths, and where resources are scarce, the impact of KMC on newborn health has been particularly significant *(9,46)*. It has been suggested that the duration of KMC has a direct impact on infant growth, whereby longer duration promotes greater gains in growth *(47)*, but there are not enough data on this. Evidence suggests that the duration of KMC should be dictated by the infant and stopped when the infant is no longer wanting to stay in the same position (i.e. when an infant is restless, crying, sweating or agitated) *(36,48)*.

Left: Chunchun, 22 years old, provides skin-to-skin care to her preterm baby at a KMC unit at Safdarjung Hospital in New Delhi, India. Right: Melissa, 25 years old, carries her baby in the NICU at the San Ignacio Teaching Hospital, Bogotá, Colombia. Her baby girl, Catalina, weighs 900 g and was born at 30 weeks gestational age, she is ventilated, and Melissa carries her all day. Dad Julian comes in the evening a few hours after work. Catalina is stable and will be weaned from the ventilator today, Melissa is happy.

KMC reduces the risk of mortality by 40 weeks' postmenstrual age or 28 days of age by 32%. The magnitude of mortality reduction is similar for different gestational ages (≤ 34 weeks and > 34 to 36 weeks) and birth-weight categories (≤ 2000 g and > 2000 to < 2500 g) of LBW infants, for facility and community settings and for daily duration of KMC of at least 8 hours per day.

3.1.2 Immediate KMC

The evidence of the effect of initiating KMC as soon as possible after birth without waiting for infants to become stable was unavailable until recently. For example, the Cochrane systematic review in 2016 identified and included only one study that compared early-onset KMC (as soon as possible within the first 24 hours after birth) with late-onset KMC (i.e. KMC started after complete stabilization, generally at least 24 hours after birth) in relatively stable infants *(9)*. This research gap was addressed by a multicounty, randomized controlled trial coordinated by WHO, the Immediate KMC (iKMC) study *(13)*. This trial was conducted in five hospitals in Ghana, India, Malawi, Nigeria and the United Republic of Tanzania, and showed that newborns whose birth weight was between 1.0 and 1.799 kg, regardless of gestational age (all requiring admission to the newborn care unit), who received immediate KMC had 25% lower mortality at 28 days of age, 35% lower incidence of hypothermia up to discharge, and 18% less suspected sepsis. This is in comparison with infants who received KMC later (i.e. KMC initiated after 24 hours of age once the neonate had recovered from preterm birth complications). This means that one newborn death can be prevented by providing immediate KMC to only 27 preterm or LBW infants. The risk of mortality in the first three days after birth was 23% lower among infants receiving immediate KMC, though this was not statistically significant.

The implementation of immediate KMC in this trial was done by ensuring that the mothers and infants were kept together starting immediately after birth and provided with care together as a unit. This was made possible by redesigning the newborn care unit to include a bed for the mother, to enable her to stay with her newborn on a 24/7 basis. Close collaboration was established between obstetrics and newborn care providers to take care of the medical needs of the mother and the infant simultaneously. Additionally, adequate provisions for bathing, using the toilet, clean drinking water and food were made to ensure respectful care for mothers. In this new design of the newborn care unit, preterm or LBW newborns can be cared for 24/7 with their mothers in all facilities with level-2 newborn care and above, while ensuring adequate postnatal care for mothers. In such a unit, the mother is not a mere visitor, rather she has her bed inside the newborn special or intensive care unit and becomes an active caregiver involved in the continuum of child care *(49)*. Design innovations are required to adapt existing newborn units and set up new newborn care units to accommodate the mothers, and many designs and adaptations are possible in different settings. For example, maternal waiting rooms adjacent to the newborn units could be combined into one large room with maternal beds placed beside the radiant warmers/incubators with a central nursing station and attached toilet, bathroom, area for storing expressed breast-milk and sterilizing assisted-feeding equipment (e.g. paladai, cup and spoon), and maternal examination area. Once operationalized, keeping mothers and infants together inside the newborn care unit when infants require special or intensive care may simplify infrastructure and service delivery for the combined care of mothers and newborns, as well as promoting immediate KMC.

A recent systematic review comparing early initiation (within 24 hours of birth) to later initiation of KMC (after 24 hours of age), including the iKMC and three other studies, suggests that immediate KMC is associated with a 23% decrease in neonatal mortality, a 15% decrease in nosocomial sepsis, a 26% decrease in hypothermia at discharge, and a 12% increase in exclusive breastfeeding at discharge *(46)*.

KMC should be started immediately after birth for all preterm or LBW infants, unless critically ill. Mothers, parents and families should be supported to participate actively in the routine care of their infants while in the facility *(5)*.

3.2 Effectiveness of KMC in improving longer-term outcomes (infancy and beyond) of preterm or LBW infants

KMC is associated with improved cognitive and motor development and functioning, particularly among infants at increased risk of neurological deficits soon after birth, and enhanced longer-term social and behavioural outcomes *(50–52)*. Charpak and colleagues followed up LBW infants (< 1.8 kg), who were enrolled in a randomized controlled trial in Colombia 20 years later, and found that those who received KMC had less severe abnormal neurologic results, improved academic performance, a calmer and more rational demeanour, less of a tendency to be antisocial, and reduced school drop out than those who did not *(50,51)*. Most recently, the same team found that preterm infants who received KMC after birth had improved brain maturation (e.g. intelligence, attention, memory and coordination) compared with those who received incubator care; a longer duration of KMC strengthened this association *(52)*.

3.3 Benefits for mothers

In addition to its short- and long-term health benefits for preterm or LBW infants, KMC's unique value is that it also has physical and mental health benefits for mothers. KMC facilitates respectful maternity care and empowers new mothers as primary care providers *(53,54)*. KMC is instrumental in building mothers' confidence and comfort in caring for their infants, and enhances mothers' satisfaction with the method of infant care and strengthens maternal–newborn attachment *(9)*. Mothers practising KMC have a 24% lower risk of moderate to severe depressive symptoms, likely driven by their empowerment as a central caregiver and the physiological properties of increased maternal–newborn attachment/bonding *(55)*.

Furthermore, skin-to-skin contact immediately after birth has documented benefits for reducing the duration of the third stage of labour *(56)* and postpartum haemorrhage *(57,58)*. Postpartum maternal mental health is a contributor to the global burden of disease and has negative consequences on the mother herself, her infant and her family *(59)*. KMC, delivered as part of essential postnatal care for every small newborn, has the potential to improve the mental and physical health of the mother.

3.4 Benefits for fathers or partners and families

The involvement of fathers or partners and families is important to support mothers in providing KMC while in the facility and at home after discharge. Father and family involvement is especially important when the mother is medically unstable or recovering from surgery.

Fathers and partners want to be encouraged and supported in providing routine care of their infant, including KMC *(60)*. Fathers, partners and other family members who take on an active role in the care of preterm or LBW infants draw numerous benefits from KMC. KMC empowers caregivers to be directly involved in protecting and nurturing their infant; this has a long-term impact on family structure and the home environment in which the child is raised *(9,61)*. In addition, fathers or partners and other family members who provide KMC experience increased bonding and attachment with their infant, empathy for the newborn, increased confidence as a caregiver, and enhanced mental health and well-being *(61,62)*. KMC has also been found to reduce paternal depression and relationship problems, and improve father/partner–infant interactions *(55,61,62)*.

3.5 Parental perspectives and experiences

A recent systematic review found that parents want to be actively involved in the care of their infants, and view KMC as both an opportunity to deliver care and as an opportunity for parenting *(60)*. However, while KMC is a restorative experience for parents within a supportive environment, it is an exhausting one if the environment was an obstacle, for example, due to lack of privacy *(63)*. Important drivers of family perceptions, practices, attitudes and values surrounding KMC include caregiver knowledge of its benefits; support available from health workers, families and communities; competing responsibilities at home or work; fear of impacting the infant's health; and the mother's medical condition *(64,65)*. Parent or family counselling, support from health workers, family and society; unrestricted parental visitation hours at health-care facilities; the existence of a private, quiet space to provide KMC; improved maternity leave policies and accommodation in hospital with adequate care will all facilitate KMC provision by parents and other caregivers *(64–66)*.

Mother giving KMC to one of her newborn twins shortly after their birth. Ilfe-Ife, Nigeria.

3.6 Benefits of KMC to the infant and the underlying scientific mechanisms

Several scientific mechanisms explain the myriad benefits seen with KMC. Immediate, continuous and prolonged skin-to-skin contact and breastfeeding stimulate oxytocin secretion, leading to increased breast-milk production and exclusive breastfeeding, which reduces hypoglycaemia and improves growth. KMC enhances infant immune function through the transfer of protective microbiota from the mother's skin and the immunoregulatory effects of oxytocin release (e.g. development of T-cells and suppression of inflammatory cytokines). Skin-to-skin contact immediately after birth achieves stress regulation through decreased cortisol levels and oxytocin release. It also promotes heart rate stabilization, arousal regulation, and higher and more rapid weight gain mediated through increased vagal tone that modulates heart rate and the gut–brain axis. Oxytocin release also enhances maternal–newborn interactions and strengthens bonds, which could augment the development of social behaviour and secure attachment. KMC may also aid somatosensory system maturation and functional connectivity, leading to improved sensory processing and cognitive function. Early skin-to-skin contact also activates mesocorticolimbic dopamine and endogenous opioid systems that promote the development of neural circuits involved in social cognitive processes *(67,68)*.

Besides the neuroendocrine mechanisms, KMC decreases infant handling by multiple health workers thus reducing the risk of infections and results in overall better quality of care for the infant under close supervision of the mother and health workers.

3.7 Health-system interventions to achieve high population-based coverage of KMC

Bergman and colleagues synthesized evidence on health-system interventions, strategies and approaches for KMC implementation that achieve high KMC coverage in preterm or LBW infants *(69)*. They found that studies that implemented high-intensity interventions across multiple health-system building blocks achieved greater increases in KMC coverage. The types of interventions implemented by studies that achieved a large increase in KMC coverage were as follows.

- Leadership and governance/policy
  - High-level leadership engagement (national/provincial/district policy-makers and programme managers and facility leadership including paediatric/neonatal and obstetric staff).
  - KMC supportive policies (remove systemic barriers for mothers to be with their infants, licensing standards for health-care facilities, pre-service education of doctors and nurses, additional days of parental leave from work and additional financial payments for preterm birth).
- Health workforce
  - Adequate nursing staff with strengthened competency and motivation to support KMC.
  - Engagement of professional organizations, KMC champions and maternal–neonatal staff collaboration.
- Health financing
  - Including costs of establishing maternal–newborn care units and KMC wards, human resources, and running costs in national plans and budgets.
  - Expanded health insurance for small infants.
- Service delivery
  - Maternal–newborn care units and KMC wards with a conducive environment (infrastructure, support and counselling; culturally appropriate food and drinks; and toilet/bathing facilities), with support for immediate KMC in the labour rooms and operation theatres.
  - Support for continued KMC at home after discharge, including monitoring of the infant through home visits.
  - Community engagement to promote KMC.
  - Early identification and facilitated referral of LBW infants.
- Health management information systems
  - Recording KMC (clinical registers) using KMC-specific indicators in routine data systems.
- Supplies
  - KMC beds, chairs and garments.

It was also noted that addressing the health workforce and service delivery building blocks alone was not sufficient to reach high coverage. Addressing the domains of leadership and governance, health financing and information systems is critical for scaling up.

High-intensity interventions across multiple health-system building blocks are required for equitably scaling up KMC with skin-to-skin contact for at least 8 hours per day integrated into small and/or sick newborn care.

3.8 Cost–effectiveness and incremental costs of scaling up KMC

KMC is more effective than conventional care in improving newborn outcomes, and the cost of providing KMC in a health-care facility is lower than the cost of conventional newborn care. Hence, KMC is more cost-effective than conventional newborn care. Cost estimates for facility-based KMC are available from countries including Brazil, Colombia, India, the Islamic Republic of Iran and Nicaragua. While these are variable owing to different methodologies, all the studies consistently report lower costs with KMC compared with conventional care *(70–75)*. The incremental cost–utility ratio of facility-based KMC including follow up till one year of age has been estimated to be US$ 1546 lower per extra quality-adjusted life year gained, which means that KMC is less costly and more effective compared with conventional care *(70)*.

However, from the perspective of global scale-up, it is important to know the costs of scaling up KMC to achieve high population or district-level coverage to allow countries to plan for programmatic implementation. The WHO KMC Scale-Up Study Group *(76)* estimated the incremental cost of scaling up KMC (i.e. cost of KMC over and above the other components of small and/or sick newborn care) for every live newborn who was eligible for KMC in the study population. The total incremental costs of scaling up KMC were US$ 59 in Ethiopian sites and US$ 72 in Indian sites per eligible newborn in the population. Most of these costs were recurrent; the annualized start-up costs per eligible newborn were 12–25% of total costs in Ethiopia and 9–16% in India. The major cost driver was human resources, followed by initial and recurrent training, supplies and communication costs. Incremental infrastructure costs accounted for only 2–6% of total costs in both countries *(76)*.

While these costs may be considered affordable to the health system, governments must budget these costs in maternal, newborn and child health programmes to support successful scale-up of KMC. Additionally, the estimates will need to be reassessed in the context of mother–newborn service delivery redesign required to enable the mother and infant to remain together starting from birth. This will include infrastructure costs to accommodate the mother inside the newborn care unit if needed, with provision of appropriate and respectful care for both mother and infant, together as a unit. Though initial investments may be required to operationalize such models of combined and respectful maternal–newborn care, the resulting efficiencies in care, and better quality and outcomes with reduced dependency on high-tech and high-resource systems are likely to be highly cost-effective from the programmatic perspective in the longer run. In settings where neonatal units are being established for the first time, this new design concept should be established from the start.

The costs for successful scale-up of KMC are affordable. Additional costs are required for service delivery redesign to enable combined and respectful maternal–newborn care and immediate KMC. Governments must include these costs in maternal, newborn and child health programme budgets.

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Johnson Tolulope, 41, a surrogate KMC-mother providing KMC to her sister's preterm baby in the combined maternal–newborn care unit, Obafemi Awolowo University Teaching Hospital, Ile-ife, Nigeria.

4. WHO recommendations on KMC (updated 2022)

Recommendation A1a: Any KMC *(5)*

KMC is recommended as routine care for all preterm or LBW infants. KMC can be initiated in the health-care facility or at home and should be given for 8–24 hours per day (as many hours as possible).

(Strong recommendation based on high-certainty evidence of a reduction in mortality, moderate-certainty evidence of a reduction in infections and hypothermia, and low-certainty evidence of improvement in weight gain.)

Remarks

- KMC can be given at home or at the health-care facility.
- Infants who receive KMC should be secured firmly to the mother's chest with a binder that ensures a patent airway.
- Whenever possible, the mother should provide KMC. If the mother is not available, fathers or partners and other family members can also provide KMC.
- Infants who need intensive care should be managed in special units, where mothers, fathers, partners and other family members can be with their preterm or LBW infants 24 hours a day.

Recommendation A.1b: Immediate KMC *(5)*

KMC for preterm or low-birth-weight infants should be started as soon as possible after birth.

(Strong recommendation based on high-certainty evidence of a reduction in mortality and hypothermia, and low-certainty evidence of a reduction in infections and improvement in weight gain.)

Remarks

- At home, immediate KMC should be given to infants who have no danger signs.
- At health-care facilities, immediate KMC can be initiated before the infant is clinically stable unless the infant is unable to breathe spontaneously after resuscitation, is in shock, or requires mechanical ventilation. The infant's clinical condition (including heart rate, breathing, colour, temperature and oxygen saturation, where possible) must be monitored.

In addition to the publication of the revised WHO KMC recommendations that advocate for the earlier and expanded provision of KMC, the new WHO recommendations on family-centred care (e.g. family involvement and family support in preterm or LBW infant care) *(5)* now provide a fundamental platform for introducing KMC and a starting point to drive and enhance its implementation. KMC scale-up will not be possible without redesigning service delivery to focus on care for mothers and newborns together as a unit in one place with support from fathers or partners and families.

All nations should explore how to convert or adapt, where possible, the existing newborn units to allow the mother to stay with her infant on a 24/7 basis even when her infant is sick and needs care inside the newborn care unit. Countries establishing new newborn care units should plan for combined and respectful medical and supportive care for all mothers and their preterm or LBW infants from the start.

A Colombian couple from the Pacific region. Pedro works as a night watchman in a building where they live, which allows him to help his wife Valentina permanently by carrying his babies in KMC. Hospital la Quintinie, Douala, Cameroon.

Persson Pettersen, born eight weeks preterm, was kept in KMC for his first week of life, Lund-Malmö NIDCAP Center, Stockholm.

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Mothers and LBW babies in the KMC ward, Dr Jose Fabella Memorial Hospital. Manila, the Philippines.

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5. A vision for KMC as the foundation of small and/or sick newborn care and a call for action

5.1 Vision

The vision for the care of small and/or sick newborns and their mothers is that they are kept and cared for together from birth, and barriers preventing their proximity are removed at all levels of care in health-care facilities and in communities. Immediate KMC after birth will be the standard of care, along with other life-saving interventions, for all mothers and their preterm or LBW infants in low-, middle- and high-income settings alike, so all mothers and their infants across all countries can survive and thrive.

The new vision for maternal–newborn care envisages a service delivery model where mothers, newborns, parents and families form an inseparable centre around which the entire maternal–newborn service delivery is organized, with close collaboration between health-care providers.

A father provides kangaroo care for his premature baby at Setthathirath Hospital, Vientiane, Lao People's Democratic Republic.

5.2 Call for action

This position paper calls on the following actors to take the indicated steps to achieve the vision outlined above.

5.2.1 National governments/ministries of health and finance

- Recognize and commit to scaling up KMC as the standard of care for all mothers and their preterm or LBW infants at all levels of facility care and in communities.
- Include KMC as part of national policies, guidelines and budgets for small and/or sick newborn care within broader maternal, newborn and child health programming. The costs of implementing KMC as the foundation of small and/or sick newborn care, should be integrated into national plans for universal health coverage.
- Prioritize small and/or sick newborn care with KMC as the foundation through regulatory and legislative reforms (e.g. policies on zero fees for services and extended parental leave and entitlements for preterm or LBW infants), financing (e.g. expanded health insurance for preterm or LBW infants), and promotion of private sector engagement in the scale-up effort.
- Establish a small and/or sick newborn care unit in every district with a conducive environment for family-centred care and KMC at its core by redesigning or adapting the health-care facility infrastructure to enable mother and newborn to remain together from birth and receive the care they need together as a unit in one place.
- Include KMC indicators in routine health management information systems, Demographic Health Surveillance and/or Multiple Indicator Cluster Surveys to monitor coverage and quality on an ongoing basis to inform corrective actions.

5.2.2 Professional associations

- Lead by example through demonstration of change in practice.
- Accept, endorse and implement a policy whereby all barriers are removed and mothers and newborns are enabled to remain together from birth, even when newborns are small and/or sick, and they are cared for together as a unit. Provide KMC as the standard of care for all preterm or LBW newborns and their mothers in both public and private sectors.

Solomon, 32, and his wife Agere, 28, each provide skin-to-skin care to their preterm twins at a KMC unit at Felege Hiwot Hospital in Bahir Dar, Ethiopia.

- Establish and sustain close inter-disciplinary collaboration between maternal and newborn or paediatric care organizations. Develop joint guidance and protocols for combined maternal–newborn care, organize joint learning and training sessions for health workers, and engage in regular knowledge-sharing, cross-learning and advocacy efforts.
- Develop the capacity and sustain the motivation and momentum of the health workforce through evidence sharing, continuous medical education, training and advocacy.
- Encourage health workers to follow all preterm or LBW infants for at least the first year after birth and ensure adequate follow-up care for improved growth and development, and reduced infant mortality and morbidity.

5.2.3 Parents, parent organizations and civil society

- Educate families and communities to recognize and value KMC as a basic patient right, and to demand that mother and infant are enabled to remain together from birth and receive the care they need together in one place at all times.
- Encourage fathers or partners and families to empower and support mothers in providing KMC inside the health-care facility and at home after discharge.
- Actively engage with the various health system actors to emphasize the importance of family involvement and support in the routine care of preterm or LBW infants in health-care facilities, and provide constructive feedback for quality improvement.
- Help abolish cultural myths and misconceptions around preterm birth and KMC.

5.2.4 Multilateral and bilateral development partners

- Partner with national governments in their efforts to implement and scale up KMC as the foundation of small and/or sick newborn care by providing technical and financial assistance (e.g. loans, grants or credits) and promoting foreign and private sector investments.

5.2.5 Donor organizations

- Provide funding for implementation research to develop context-specific models wherein mothers and newborns can remain together starting from birth and can receive the care they need together as a unit in one place.
- Support integrated maternal–newborn care at the national level and the establishment of new or enhanced special or intensive care units for combined maternal–newborn care.

5.2.6 Academicians

- Promote continued learning through research and documentation of experiences with KMC implementation.
- Evaluate economic and societal perspectives and reinforce that mothers and their newborns remain together after birth and receive combined care in one place with KMC as a standard of care in health worker training (i.e. pre-service and in-service training for maternal, peripartum and newborn care) and provision of small and/or sick newborn care.

5.2.7 Private sector

- Acknowledge and practice keeping the mother and newborn together after birth with combined care in one place, and KMC as the standard of care.
- Create awareness of the benefits of KMC among parents and families to help them see it as an integral aspect of the provision of high-quality newborn care.

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Elisabeth, 25, provides skin-to-skin care to her LBW baby at a KMC unit at Felege Hiwot Hospital, Bahir Dar, Ethiopia.

6. Realizing this vision in maternal and newborn health programmes

6.1 Achieving global KMC implementation at scale

Achieving global KMC implementation at scale requires a commitment from high-level political and programme leadership to keep mothers and their newborns together after birth and provide them with combined care as a unit in one place using KMC as the foundation of small and/or sick newborn care. It requires a paradigm shift in maternal and newborn care, with policy change at national and subnational levels, ensuring a dedicated budget for implementing KMC as part of small and/or sick newborn care scale-up, redesigning maternal–newborn service delivery systems, monitoring the practice of keeping and caring for the the mother and newborn together after birth in one place and including KMC coverage and quality indicators in routine health information systems.

United Nations organizations and other key stakeholders in MNCAH should start a global advocacy movement targeting national political and programmatic leadership. It should include written appeals to Heads of States and Governments, presenting a strong, data-informed investment case, followed by committed engagement with the ministries of health and finance by the regional and country offices to encourage the governments to scale up KMC as the foundation of small and/or sick newborn care. Resources can be mobilized through the creation of memoranda of understanding between national governments, partners and donors; advocating for the inclusion of a costed plan for reorganization of maternal–newborn service delivery with special focus on level 2 small and/or sick newborn care with continuous positive airway pressure and KMC in national health budgets; and combining global and private sector investments to support local implementation efforts. The mutual benefits of KMC for mothers and infants should be emphasized to bring together the maternal and newborn health communities to foster capacity-building, implementation and advocacy. High-burden settings, particularly those with disrupted or weak health systems, including those with humanitarian crises, may require increased investments to accelerate progress on learning and best practices for implementing KMC, as known challenges and barriers may be exacerbated in these settings, and new issues may emerge or apply. While partners operating in these settings have rightly identified KMC as a high-impact practice, further prioritization is needed to strengthen operationalization and reach the most underserved.

Finally, a monitoring and evaluation framework should be developed outlining indicators for inputs, coverage, quality and impact for routine monitoring. The indicators should then be tested and refined to measure and evaluate KMC implementation and quality at subnational, national and international levels. Countries should incorporate these indicators into routine health management information systems, or Demographic Health Surveys or Multiple Indicator Cluster Surveys. Data on coverage and quality of KMC should be collated as part of small and/or sick newborn care and ENAP target tracking, and used to improve reach and equity, to optimize impact.

KMC should be implemented in national maternal, newborn and child health programmes as the foundation of small and/or sick newborn care alongside all essential evidence-based interventions for preterm or low-birth-weight infants.

6.2 Developing an implementation strategy to achieve global KMC implementation at scale

Keeping the mother and infant together is a recommendation for health-system actors, with the aim of changing the norms of care from separation of infants from parents, to one where health-care delivery systems are reorganized so that mothers' and their infants' needs are addressed together. This recommendation is based on the evidence of what is best for these infants, and also respects the rights of women and their newborns. As part of this, health workers need to listen to and engage with mothers and families, and develop a plan that enables continuous KMC while always respecting the autonomy of women and recognizing that care must always be customized to the needs of an individual patient. KMC should be implemented as an integral component of small and/or sick newborn care rather than as a stand-alone programme. This is important to ensure that preterm or LBW infants receive all the essential interventions alongside KMC as part of a holistic package of care to improve their survival and well-being.

However, there is variability among different stakeholders in their understanding of the KMC intervention and how to implement it. The mechanisms through which KMC has been introduced and scaled up in different country settings have also varied, and governments have used different programmatic approaches to KMC implementation. There is variability in service packages and delivery mechanisms, practices, quality of care, and monitoring at different levels of care across countries *(77)*. Therefore, it is important to develop a common understanding and consensus on the implementation strategy to bring the entire MNCAH community onto the same page and help align the implementation efforts towards achieving universal coverage of KMC as the foundation of high-quality small and/or sick newborn care.

The KMC Working Group has developed the global implementation strategy to guide the operationalization of KMC at different levels of facility care and at home, both at national and subnational levels, which is adaptable to diverse country contexts *(77)*. WHO is also updating the KMC practice guide, which was first developed in 2003 to guide health workers in practising KMC *(36)*.

Access to high-quality health care without financial hardship is a human right. KMC, especially immediate KMC, can serve as a strong foundation of highly efficient maternal–newborn service delivery that requires investment but will accelerate progress towards equitable coverage of life-saving care.

Twin boys Norvik, born four weeks preterm, had many hours per day in KMC. Here shown at one week of age tubefeeding and breastfeeding, Lund-Malmö NIDCAP Center, Stockholm.

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Stephen Blessing, 29, with her baby in KMC position in the combined maternal–newborn care unit, Obafemi Awolowo University Teaching Hospital, Ile-ife, Nigeria.

7

7. Conclusion

Being able to participate in their own health care and that of their infants is a fundamental human right for all mothers, fathers or partners and families. KMC improves survival, health and development outcomes for preterm or LBW infants, empowers parents to become powerful change agents in the care of their infants, and promotes satisfaction with their own and their infant's care. It requires redesigning and reorganizing maternal–newborn care to keep the mother and newborn together after birth, irrespective of any illness, and to provide them combined care as a unit in one place.

Strong evidence now supports KMC for routine care of all preterm or LBW newborns both in health-care facilities and at home, immediately after birth, and guides how high population coverage of KMC can be achieved in routine health systems. KMC should be implemented in national maternal, newborn and child health programmes as the foundation of small and/or sick newborn care, including all essential evidence-based interventions for the survival and well-being of these infants. With less than eight years left to achieve the 2030 Sustainable Development Goals, urgent dedicated efforts must be undertaken to scale up this life-saving and well-being-promoting intervention, which will contribute significantly to the achievement of this goal.

This position paper calls on the global maternal, newborn and child health community, countries' political and programmatic leadership, and families to support KMC as the foundation of small and/or sick newborn care in all settings.

Grandmother takes her turn with the baby. (This is the same grandmother and baby as on page 8). Queen Elizabeth Central Hospital, Malawi.

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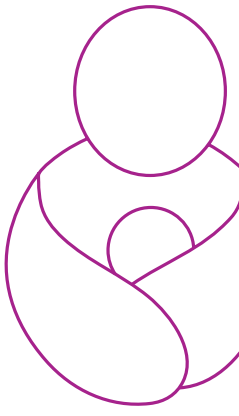

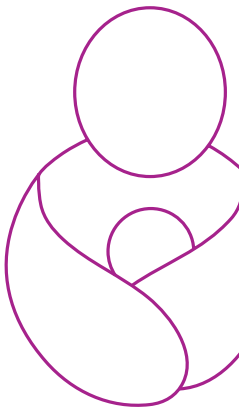

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