



Immediate KMC

Aiming for Zero Separation

Dr Joy Fredericks

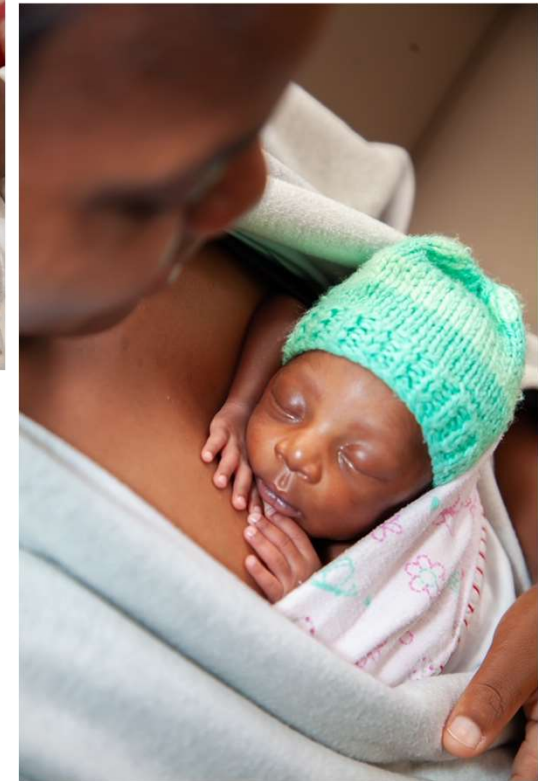
Neonatologist

Rahima Moosa Mother and Child Hospital

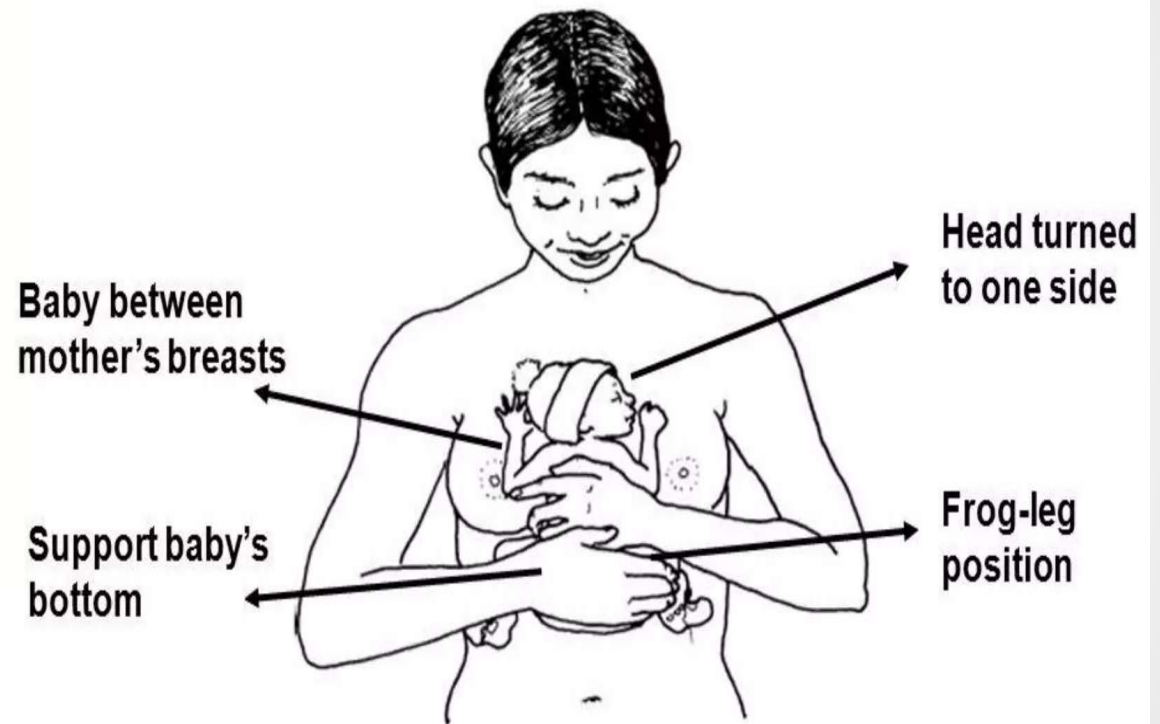


Outline

- History of KMC
- Intermittent KMC Benefits
- SDG goals and NMRs
- Immediate KMC trial
- Mother Newborn Care Units
- HIC Research
- Changing Policy



What is KMC?



History of KMC



- In 1979 Edgar Rey & Hector Martinez introduced the concept in Bogotá, Columbia
- Staff shortages, lack of equipment
- High infection & mortality rate because of overcrowding
- For stable preterm infants who had overcome initial problems and required only to feed and grow
- Maternal-infant skin to skin contact and exclusive breast feeding
- Infant discharged if gaining weight

1998 Bogotá Declaration

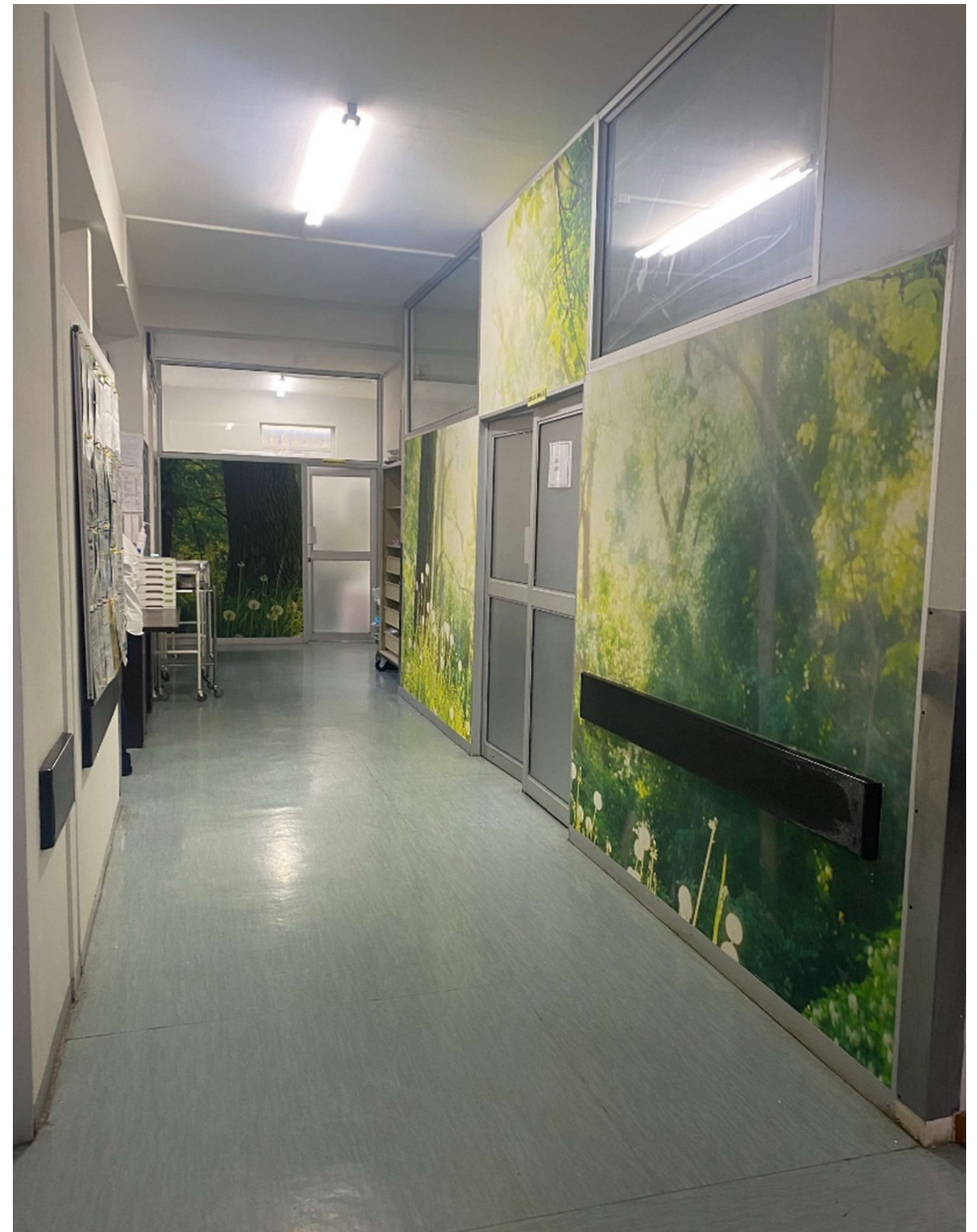
Kangaroo Mother Care is a **basic right** of the newborn and should be an **integral part of the management** of low birth weight and full term infants **in all settings, at all levels of care** and in all communities.

2003

Recommended evidence-based care for LBW infants by the World Health Organization (WHO)

First KMC unit at RMMCH (2004)





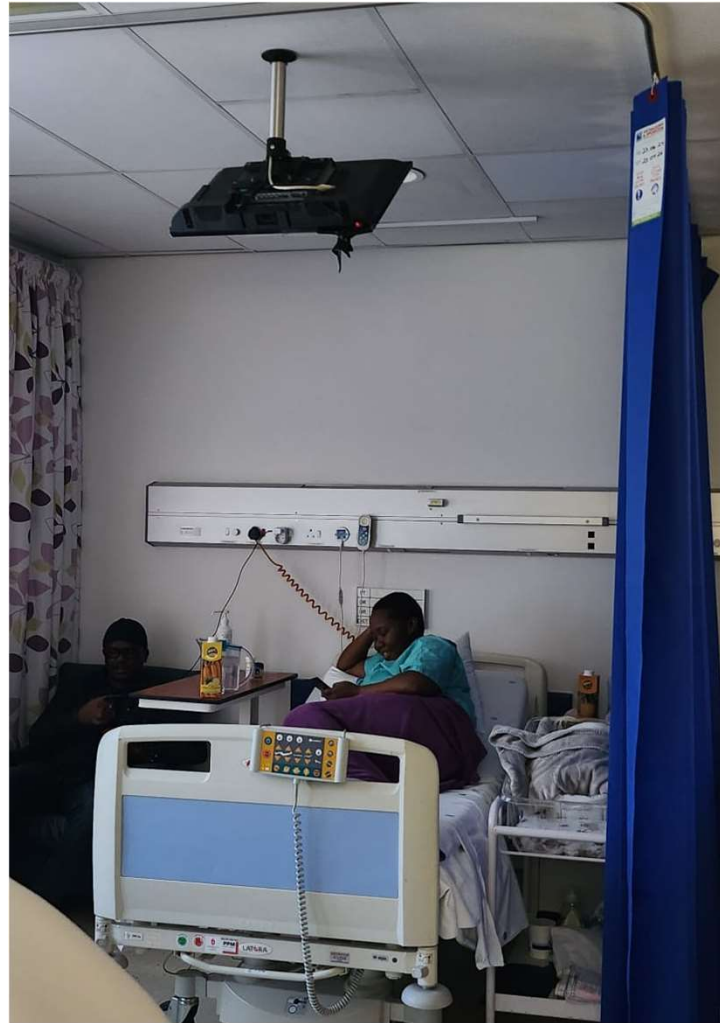
RMMCH KMC Unit



New RMMCH KMC Unit - Opened in 2020

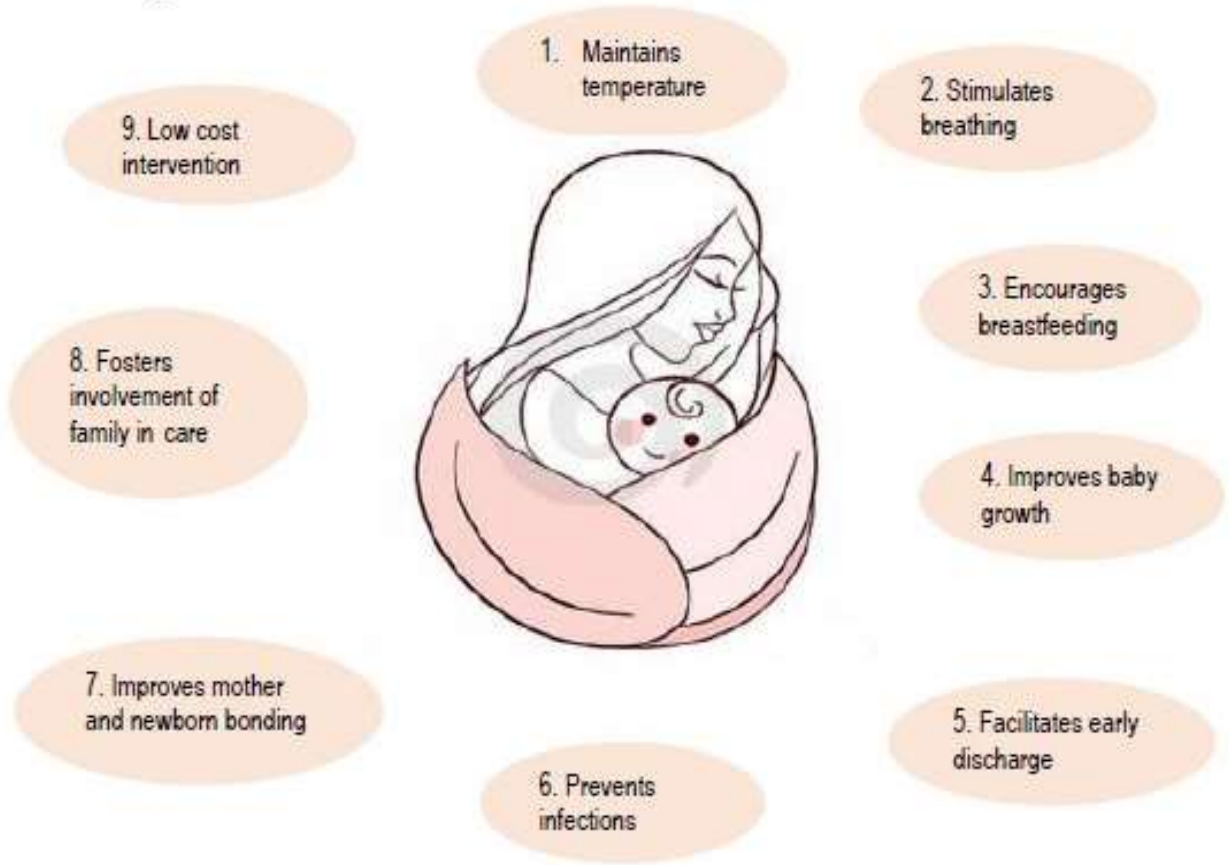


**Netcare Garden City KMC Unit
Opened 2022**



Pictures courtesy of Dr Carla Jardine

Benefits of Kangaroo Mother Care



Benefits for baby

- Warmth for 24 hours a day
- Reduced infection
- Multimodal stimulation
- Breastfeeding on demand
- Reduced apnoea and oxygen requirement
- Improved growth
- Improved neurodevelopmental outcome
- Physiological stability

Benefits for the mother

- Improved confidence
- Improved bonding
- Empowered to be a role player in providing care
- Breast feeding is promoted

Benefits to the Hospital

- Cost saving
- Less dependence on incubators
- Less nursing staff needed
- Shorter hospital stay
- Improved morale and quality of care
- Better survival

Kangaroo mother care to reduce morbidity and mortality in low birthweight infants

✉ Agustin Conde-Agudelo, José L Díaz-Rossello
Authors' declarations of interest

Version published: 23 August 2016 [Version history](#)



Kangaroo mother care to reduce morbidity and mortality in low birthweight infants

Evidence for
Everyday **Midwifery**



Compared with conventional neonatal care, kangaroo mother care (KMC) probably reduces infants' risk of mortality, hypothermia and severe infection/sepsis at discharge or at 40 to 41 weeks' postmenstrual age (moderate-certainty evidence). KMC probably also increases weight gain (moderate-certainty evidence) and breastfeeding at discharge or at 40 to 41 weeks' postmenstrual age (moderate-certainty evidence) and at one to three months' follow up (low-certainty evidence). KMC compared with conventional neonatal care may make little or no difference to infants' psychomotor development (low-certainty evidence).



Cochrane Review (published August 2016); 21 studies with 3042 infants with low birthweight comparing kangaroo mother care (defined as 'skin-to-skin contact between mother and newborn, frequent and exclusive or nearly exclusive breastfeeding, and early discharge from hospital') with conventional neonatal care.

evidentlycochrane.org | [@CochraneUK](https://twitter.com/CochraneUK) | [#EEMidwifery](https://www.facebook.com/EEMidwifery) | <http://bit.ly/2XYmfZI>



Cochrane Review of 21 studies (2016)

KMC versus Conventional neonatal care: At discharge or 40 to 41 weeks PMA

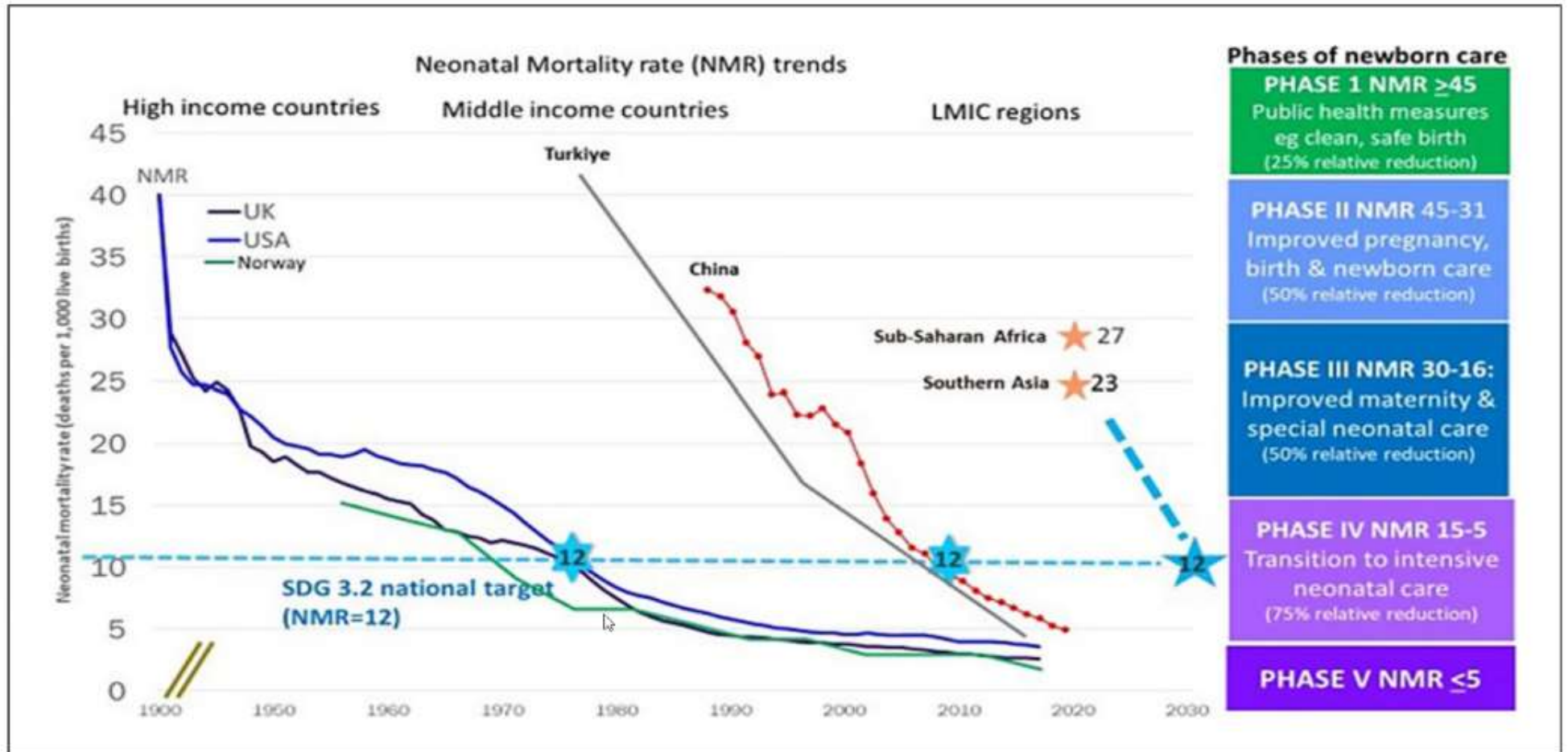
- 40 % reduction in the risk of mortality (RR 0.60, 95% CI 0.39 to 0.92)
- 65% reduction in nosocomial infection/sepsis (RR 0.35, 95% CI 0.22 to 0.54)
- 72 % Reduction in hypothermia (RR 0.28, 95% CI 0.16 to 0.49)

At latest follow-up

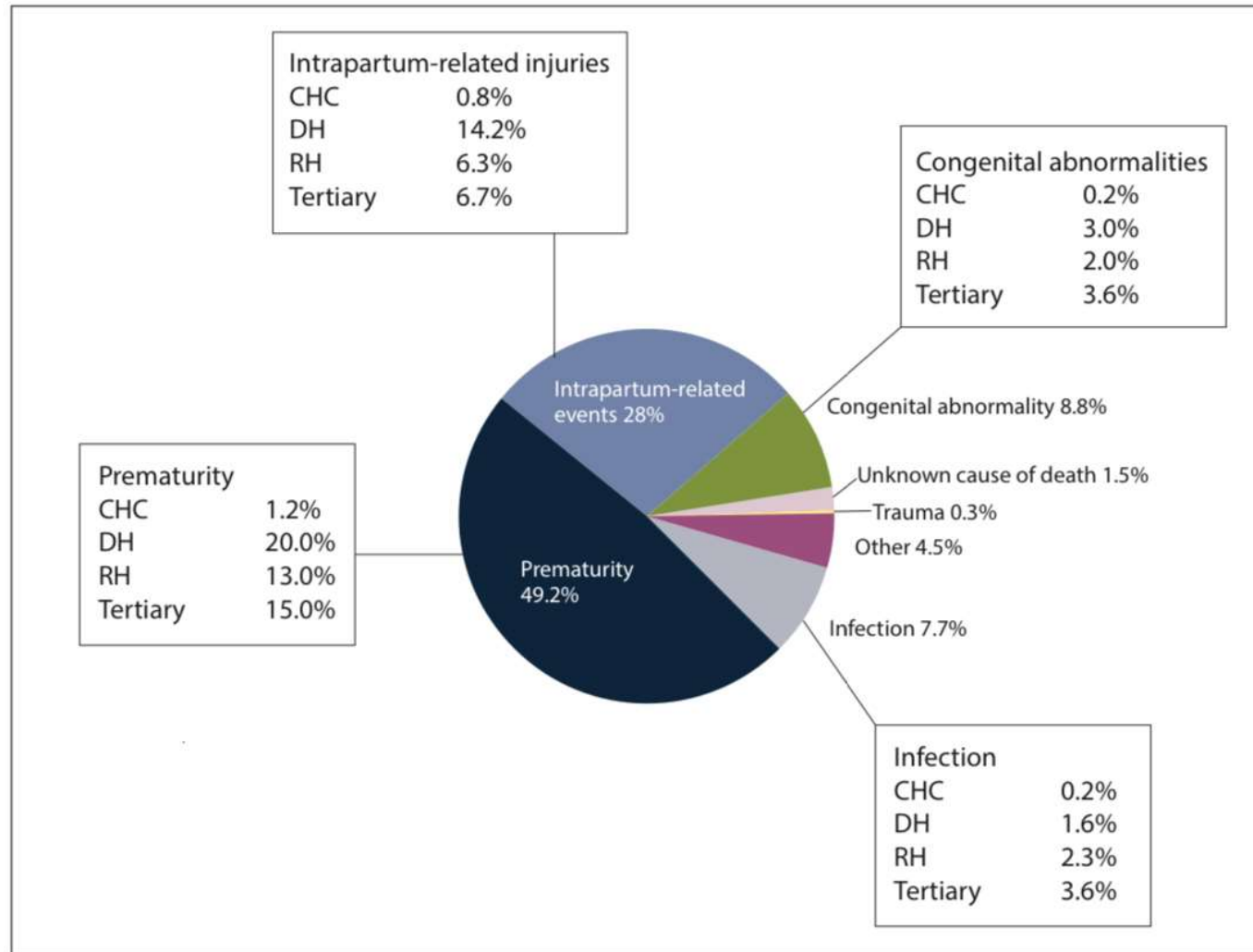
- significantly decreased risk of mortality (RR 0.67, 95% CI 0.48 to 0.95)
- severe infection/sepsis (RR 0.50, 95% CI 0.36 to 0.69)
- increase weight gain (mean difference [MD] 4.1 g/d, 95% CI 2.3 to 5.9)
- exclusive breastfeeding at discharge or 40 to 41 weeks PMA (RR 1.16, 95% CI 1.07 to 1.2)



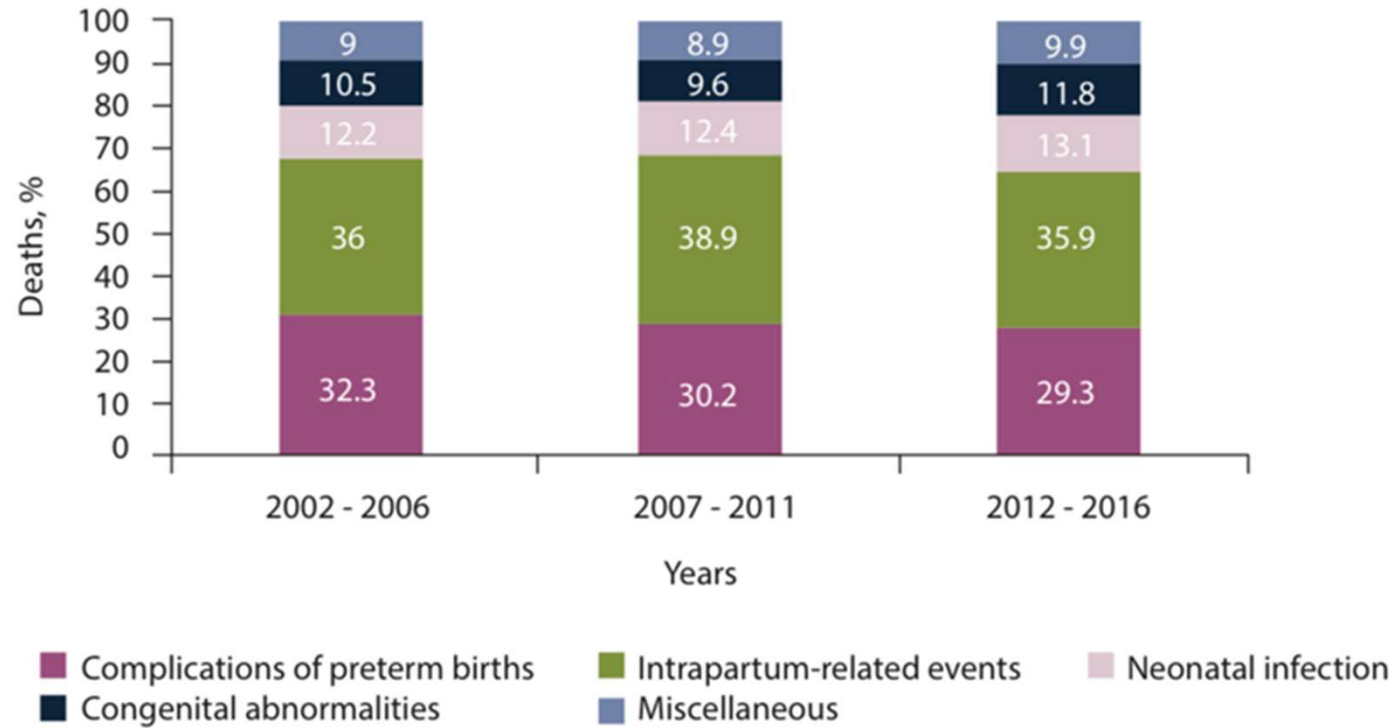
- SDG 3.2 - every country to reach a NMR of $\leq 12/1,000$ live births by 2030
- More than 60 countries are off track
- Almost half under-five deaths occur in the neonatal period
- 2.3 million newborns still die each year



Causes of Deaths per Level of Care



Cause Specific Percentage of Neonatal Deaths in babies > 1kg



Rationale for immediate KMC study

- Eventhough KMC implemented decades ago in Columbia
 - low uptake KMC 5%
- Reducing mortality in LMIC key to the achieving the UN SDGs
- 1/3 of neonatal of deaths in first 24hrs
- By time babies are eligible/stable for KMC the most fragile have died
- Can immediate KMC can promote stabilisation of babies and save more lives?

The NEW ENGLAND JOURNAL of MEDICINE

May 27, 2021



Ghana

India

Malawi

Nigeria

Tanzania

ORIGINAL ARTICLE

Immediate “Kangaroo Mother Care” and Survival of Infants with Low Birth Weight

WHO Immediate KMC Study Group*

Sites: India, Malawi, Ghana, Nigeria and Tanzania



World Health
Organization

Department of Maternal, Newborn, Child & Adolescent Health

WHO immediate KMC study group

WORLD HEALTH ORGANIZATION COORDINATION & TECHNICAL SUPPORT

Rajiv Bahl*
Suman Rao*
Sachiyo Yoshida
Nicole Minckas

GHANA, KUMASI:
Sam Newton*
Gyikua Plange-Rhule*
Roderick Larsen-Reindorf

TANZANIA, DAR ES SALAAM:
Augustine Massawe*
Helga Naburi*
Matilda Ngarina

NIGERIA, ILE-IFE:
Ebunoluwa Adejuyigbe*
Oluwafemi Kuti*
Chineme Henry Anyabolu

INDIA, DELHI:
Harish Chellani*
Sugandha Arya*
Pratima Mittal
Nitya Wadhwa

MALAWI, BLANTYRE:
Kondwani Kawaza*
Queen Dube*
Luis Gadama

SWEDEN AND NORWAY INTERVENTION SUPPORT:

Bjorn Westrup*
Nils Bergman*
Siren Rettedal
Agnes Linnér

* Study Coordinator/
Principal investigators

FUNDED BY: Bill and Melinda Gates Foundation



The
iKMC Study
compared:

Delaying KMC
until the baby
has been
stabilised in
intensive care

1602 babies
(1 to 1.799 kg)



Starting KMC
immediately after
birth, inside
the intensive
care unit

1609 babies
(1 to 1.799 kg)

iKMC - Intervention Requirement

Three components:

1. Continuous skin to skin contact with mother or surrogate starting within 2hrs of birth, aiming >20hrs/day
2. Counselling and support for exclusive breastmilk feeding
3. Provision of required medical care for mother and baby in STS contact with minimal/no separation



Immediate KMC – Logistics

- Initiating KMC in labour room or theatre
- Transportation in KMC position
- Creating a mother's bed in NICU for continuous KMC till discharge

Experience of KMC Transport

- **KMC transport is feasible**- 71% in intervention group transported in KMC position. Mostly with surrogates (62.2% vs 8.6%)
- **KMC transport is efficacious** – 98.2% babies received in M-NICU eutermic
- **KMC transport is not only safe but also stabilized babies** – babies had less desaturation (4.3% vs 9.8%), less severe chest indrawing (5.9% vs 10.2%), less nasal flaring (2.4% vs 6.4 %), less grunting (2.0% vs 7.2%)

Mother Newborn Care Unit or M-NICU



MNCU – Infrastructure for care of mother



Mother's examination cubicle



Kitchen



Bathroom facilities

Care of mothers in the M-NICU

- A major challenge as mothers have just delivered
- Essential care package developed for immediate post natal care – neonatal nurses trained
- Obstetric team to care for mother in M-NICU
- Required a strong collaboration and buy-in from obstetric team

MNCU improved duration of iKMC



STS (hours per day)	M-NICU	NICU
Median	16.9 hrs	1.5hrs
IQR	(13.0-19.7)	(0.3-3.3)

iKMC Improved Breastfeeding



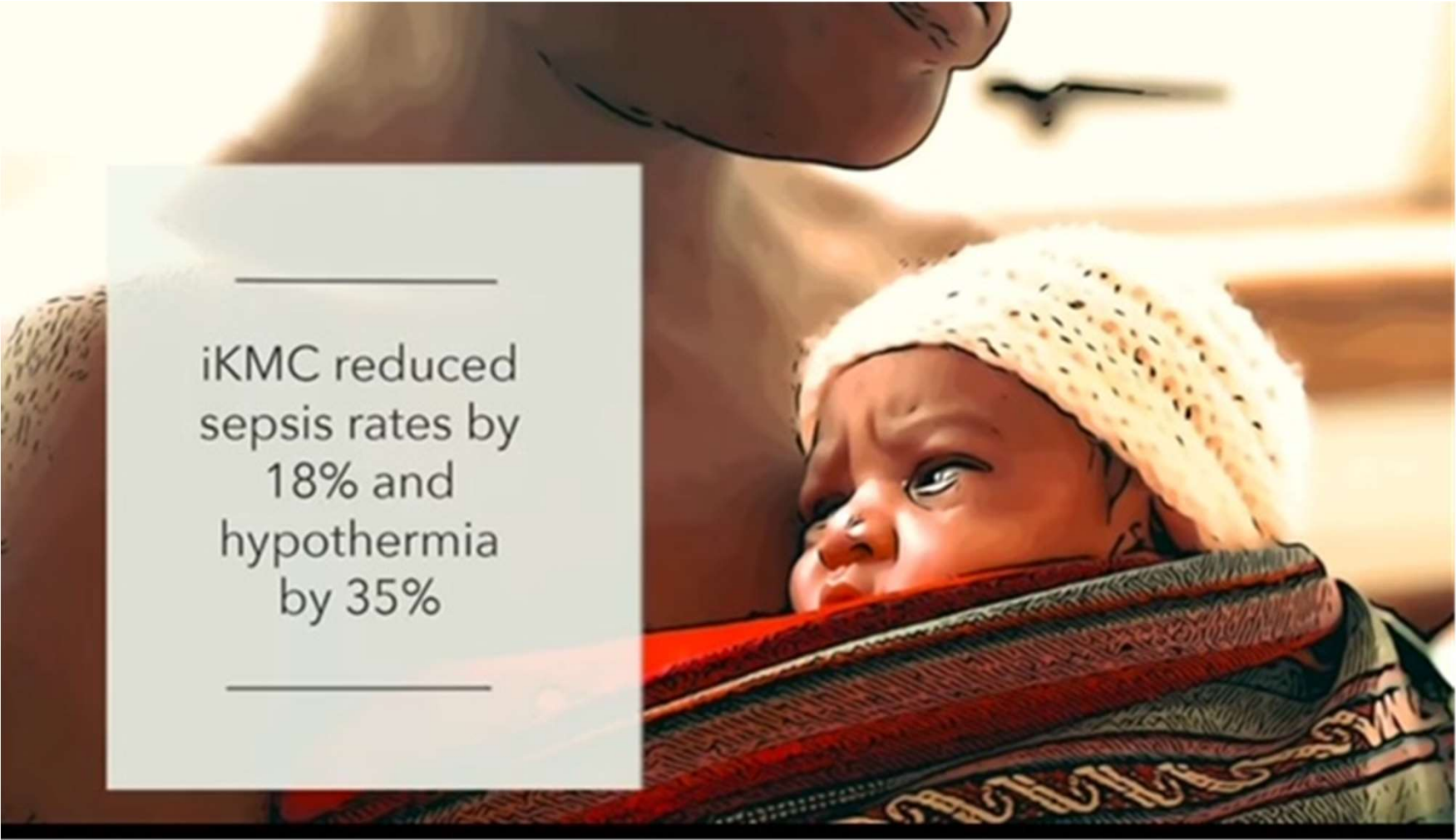
Breastfeeding	M-NICU	NICU	P-value
Initiation of breast milk feeds within 24hrs	71.2%	57.2%	<0.0001
Reaching full breast milk feeds within 7 days	88.8%	65.5%	<0.0001
Discharged on exclusive breast milk feeding	84.9%	75.0%	<0.0001

Does the mother or surrogate increase sepsis in the M-NICU?

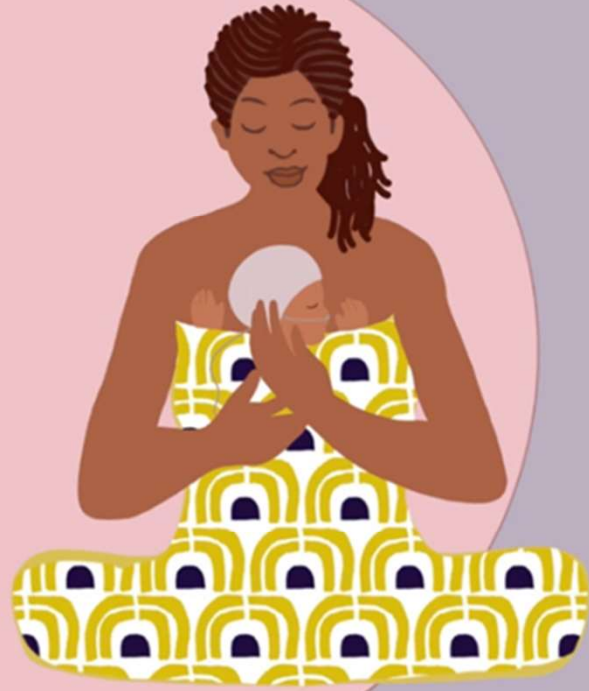


	Intervention (n=1575)	Control (n=1561)	RR (95%CI)
Suspected sepsis no. (%)	361(22.9)	434(27.8)	0.82(0.73-0.93)
Case fatality no. (%)	70/361(19.4)	109/434(25.1)	0.77(0.59-1.01)
Sepsis related mortality no. (%)	70/1575 (4.4%)	109/1561 (6.9%)	0.64 (0.48 - 0.85)

iKMC -decreased sepsis by 18% and sepsis related mortality by 36%



—
iKMC reduced
sepsis rates by
18% and
hypothermia
by 35%
—



The study found Immediate Kangaroo Mother Care reduced mortality by 25% compared to starting KMC only after the baby is stable.



iKMC puts mothers back at the centre of caring for preterm babies.



iKMC could
save 150,000
babies a year, if
implemented
worldwide.

MOTHERS AND HEALTH CARE STAFF

Mothers

We spent fewer days in the hospital as the weight gain was faster

i am happy that my baby and I are always together. No anxiety

It saved us a lot

It feels as if the baby is still in my womb as I feel her movements

Health care staff

- It reduced our work burden

[Empty rectangular box]

Mothers doing it had better, more regular breastmilk output

Their babies cried much less at night and slept better

Infant- and Family-Centred Developmental Care (IFCDC)

The *generic* term of *nurturing care of the newborn* with goal to **ensure the best health and development into adulthood** for every individual infant, *by optimising both*

- *individual care*
- *hospital systems.*

It is founded on the

- leading-edge work of *Berry Brazelton* and *Heidelise Als*



IFCDC three core principles

1. *Sensitive care* based on the behavioural communication of the infant is an essential foundation for child development
2. *Individualised care* gives the baby a voice of its own
3. *Parent engagement* is essential for
 - parental well-being
 - parent-infant relationship
 - newborn health and later child development

Mother-Newborn Couplet Care

From birth *coupling* the care of the *baby* with the care of the *mother* and continuing on in the NICU – *Mother-Newborn Couplet Care unit*.



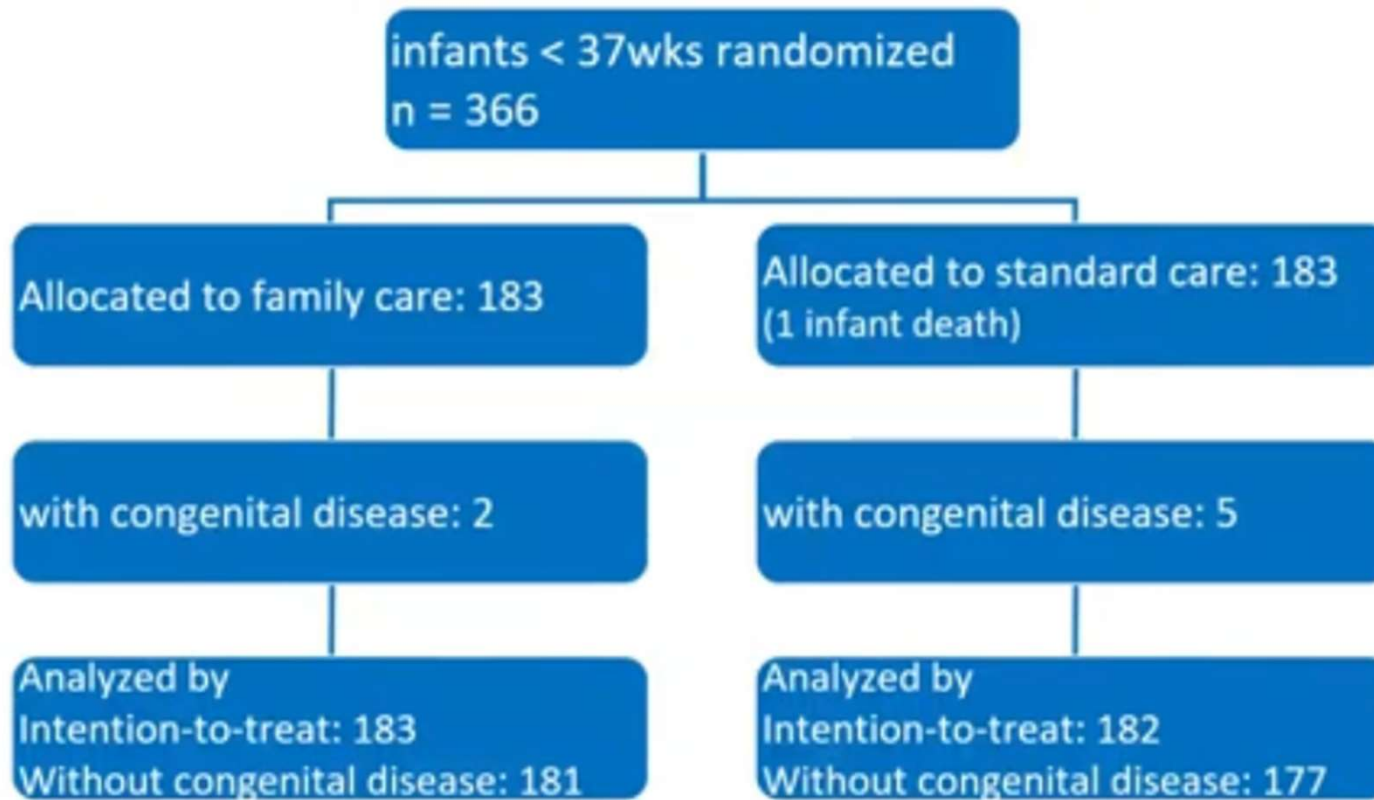
NIDCAP training
at Karolinska –
Danderyd NICU 1996

2000 MNCC Planning
From for a new
2nd floor
Opening 2003



The Stockholm Neonatal Family Centered Care

Örtenstrand A, Westrup B, et al. Pediatrics 2010



Infant- & Family-Centred Developmental Care Mother-Newborn Couplet Care

- Reduced incidence of lung morbidity – BPD
- Reduced total length of stay especially during need of intensive care
- Improved and attuned mother-infant stress regulation (cortisol)
- Reduced mothers' anxiety and boosted feelings of competence
- Enhanced breastfeeding 3 months post discharge
- Improved mother-infant interaction and child behavioural impairments at toddler age

(Westrup 2000, 2004, Kleberg 2000, Örténstrand 2010, 2012)

MINI REVIEW

Mother-Newborn Couplet Care from theory to practice to ensure zero separation for all newborns

Stina Klemming¹ | Siri Lilliesköld^{1,2} | Björn Westrup² 

Systems change in planning and organization of care, facilities and design of units, along with education and training of staff for new competences and change of mindset



WHO recommendations for care of the preterm or low-birth-weight infant



November 2022



Home / News /

WHO advises immediate skin to skin care for survival of small and preterm babies



WHO advises immediate skin to skin care for survival of small and preterm babies

15 November 2022 | News release
| Reading time: 3 min (786 words)



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Immediate kangaroo mother care reduces risk of sepsis for babies born early or small



Immediate kangaroo mother care reduces risk of sepsis for babies born early or small

5 June 2023 | Departmental update

WHO recommendations for care of the preterm or low-birth-weight infant



November 2022

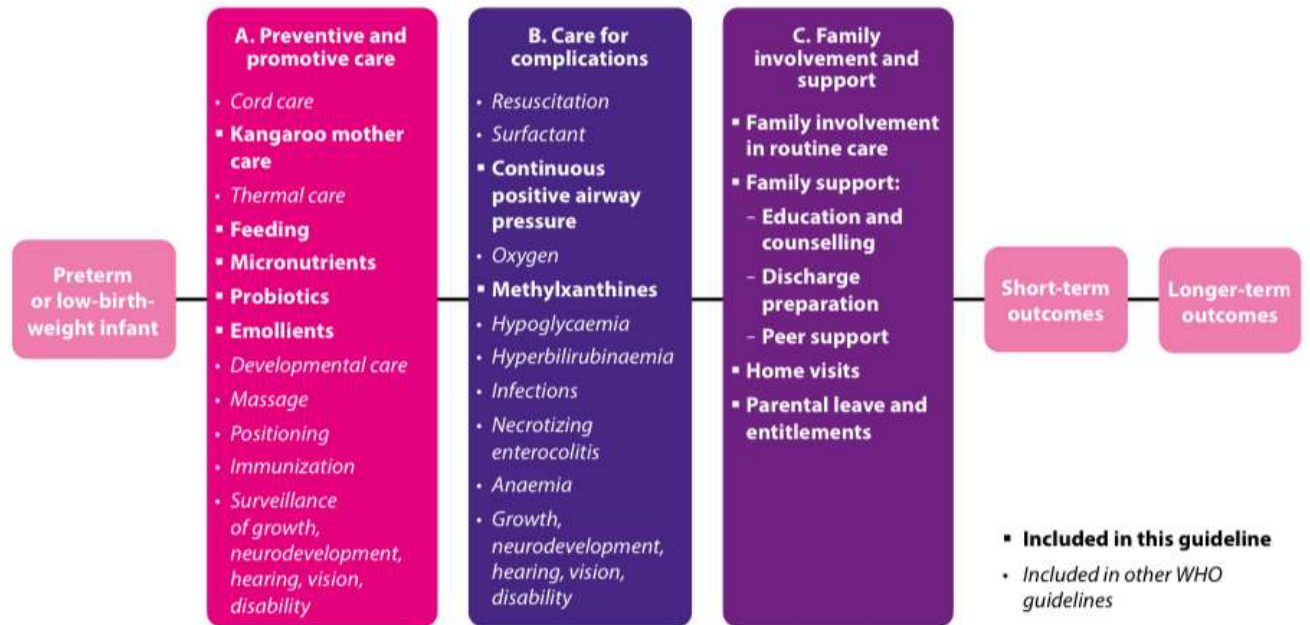


Table 1. WHO recommendations for the care of the preterm (< 37 weeks' gestation) or low-birth-weight (< 2.5 kg) infant

Domain	Recommendation	Status	Strength/type
A. PREVENTIVE AND PROMOTIVE CARE			
A.1a Any KMC	Kangaroo mother care (KMC) is recommended as routine care for all preterm or low-birth-weight 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). <i>(Strong recommendation, high-certainty evidence)</i>	Updated	Strong
A.1b Immediate KMC	Kangaroo mother care (KMC) for preterm or low-birth-weight infants should be started as soon as possible after birth. <i>(Strong recommendation, high-certainty evidence)</i>	New	Strong

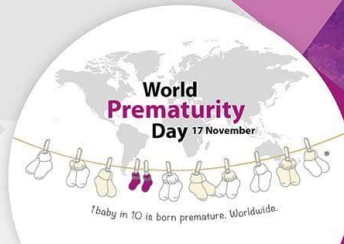
World Prematurity Day 2021

Theme

Zero Separation

Act now!

Keep parents and babies
born too soon together.



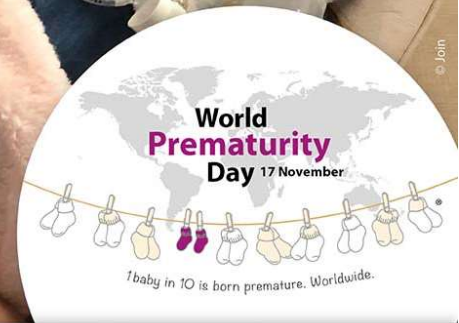
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#WorldPrematurityDay2021



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World Prematurity Day 2022

Theme

**A parent's embrace:
a powerful therapy.**

Enable skin to skin contact
from the moment of birth




World Prematurity Day 17 November

1 baby in 10 is born premature. Worldwide.

**A parent's embrace:
a powerful therapy.**


Enable skin to skin contact
from the moment of birth




**THE BENEFITS OF
SKIN TO SKIN CARE**

Mortality	40%
Infection/sepsis	65%
Hypothermia	72%

A meta-analysis shows that Kangaroo Mother Care for preterm babies also **reduces mortality** by 40%, infection/sepsis by 65% and hypothermia by 72%.⁵



Continuous skin-to-skin care after preterm birth **decreases the cortisol level in mother and baby, parental stress, depression and supports breastfeeding.**⁷



World Prematurity Day 17 November

1 baby in 10 is born premature. Worldwide.

#WorldPrematurityDay2022



Kangaroo Mother Care (KMC) has significant, long-lasting **social and behavioral protective effects** on a preterm baby, even after 20 years.⁴



Skin-to-skin contact between mother and baby, enhances the general stability of the child resulting in **less stress, better sleep and cognitive control** across the first 10 years of life.⁶



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4. Charpak N. *Pediatr* 139(1):e20162063 (2017)
 5. Conde-Agudelo A. *Cochrane Database Syst Rev* 8 (2016)
 6. Feldman R. *Biol Psychiatry* 75, 56–64 (2014)
 7. Morellus E. *Early Hum Dev* 91, 63–70 (2015)

World Prematurity Day 2023

Theme

small actions BIG IMPACT:
immediate skin-to-skin care
for every baby everywhere

15 years

World Prematurity Day 17 November

#WorldPrematurityDay2023

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15 years

World Prematurity Day 17 November

#WorldPrematurityDay2023

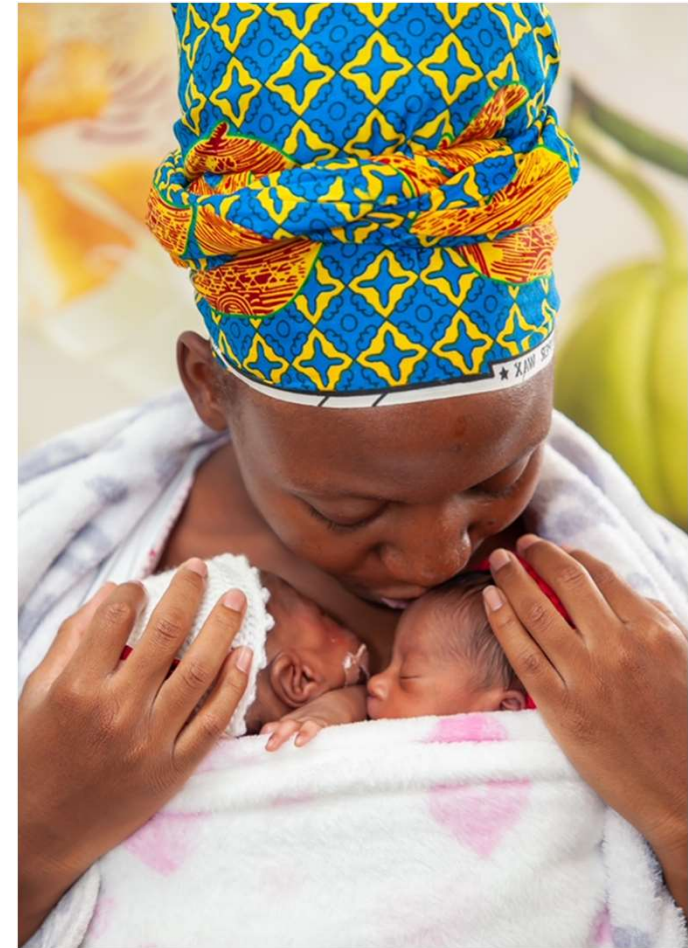
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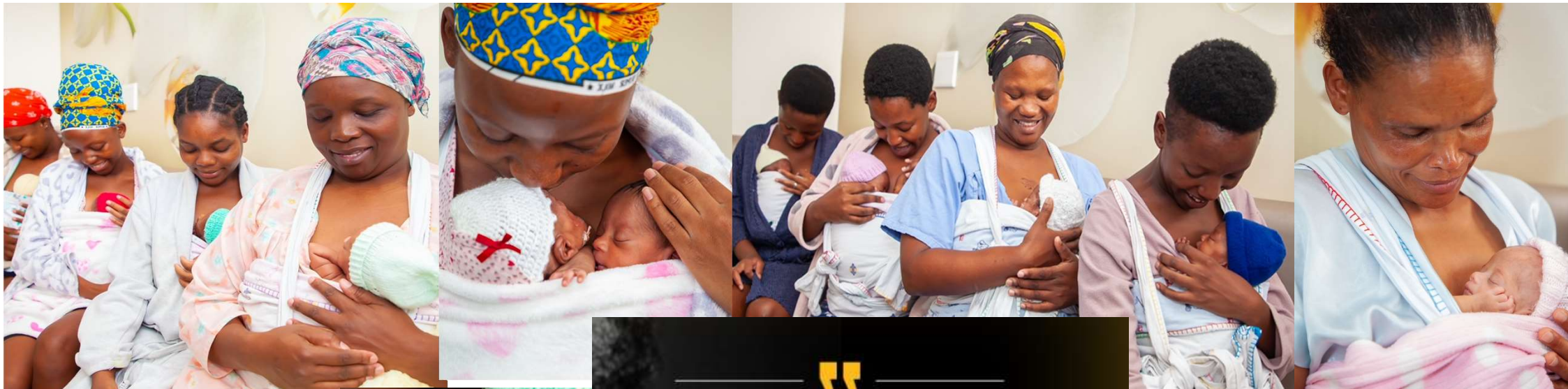
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To make Zero Separation a reality

- Changes in policy
- Changes in infrastructure
- Changes in the mindset of healthcare worker





“
**IT ALWAYS SEEMS
IMPOSSIBLE
UNTIL IT'S DONE.**
-NELSON MANDELA

