Infant- & family-centred developmental care“

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**Terminology**

- Developmental Care (DC)
- Family Centered Care (FCC)
- Patient- & Family-Centered Care (PFCC) – USA
- Family Integrated Care (FiCare) – Canada
- Family Participatory Care (FPC) – India
- *Infant- & Family-Centred Developmental Care (IFCDC) – Europe, USA, globally*
Terminology

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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*
- *Declaration of Infants’ Rights* – World Association for Infant Mental Health (WAIMH) 2016
Infant- and family-centred developmental care (IFCDC)

IFCDC is evidence based on

- *Science of*
  - neurobehaviour
  - neurodevelopment
  - parent-infant interaction (early relationship)
  - parental involvement
  - breastfeeding promotion
  - environmental and *systems adaptation*
IFCDC has three core principles:

• *Sensitive and responsive caregiving/parenting* based on the behavioural communication of the infant is an essential foundation for child development
• *Parent engagement* promotes
  – parental well-being,
  – parent-infant relationship and consequently
  – child development
• *Individualised care* gives the baby a voice of its own
Infant- & Family Centred Developmental Care – IFCDC

1. Zero separation / Family access
2. Very early and continuous skin-to-skin contact
3. Support for parental-infant bonding
4. Parental involvement
5. Supportive sensory environment
6. Management of the acoustic environment
7. Family support services
8. Case management and transition to home
9. Clinical consultation and supervision for healthcare professionals on supporting families
10. Education and training for infant- and family-centred developmental care
Infant- & Family-Centred Developmental Care

Synactive Model of systems perspective


In SL Friedman, MD Sigman (eds.).
The Psychological Development of Low Birthweight Children.

Observe
Interpret
Support...
Support during painful procedures
Co-regulation between baby and parent (caregiver) promotes the baby’s self-regulation –
control of bodily functions including:
autonomic stability
manage primary emotions
maintain focus and attention,
enable social interaction → parental bonding and infant attachment
Family access is a essential for successful breastfeeding

- **Breastfeeding is the normal way** of providing young infants with the nutrients they need for healthy growth and development.
- **Virtually all mothers can breastfeed**, provided they have accurate information, and the support of their family, the health care system and society at large.
- ** Colostrum**, the yellowish, sticky breast milk produced at the end of pregnancy, is recommended by WHO as the perfect food for the newborn, and *feeding should be initiated within the first hour after birth.*
- **Exclusive breastfeeding is recommended up to 6 months** of age, with continued breastfeeding along with appropriate complementary foods up to two years of age or beyond.
Couplet Care

From the very start:

coupling the care of the baby with the care of the mother in the NICU.
Couplet Care

coupling the medical care of the infant and mother in the NICU as soon as mother’s condition allows

- Reduces the total length of stay especially during need of intensive care
- Reduces the incidence of lung morbidity - BPD
- Reduces mothers’ anxiety and boosts their feelings of competence as a parent
- Improves and attunes the mother-infant stress regulation (cortisol)
- Enhances breastfeeding 3 months post discharge
Couplet Care

*Maternal exclusion criteria:*

- Severe pre-eclampsia/eclampsia
- Large bleeding or hemodynamic instability
- Other reasons for maternal ICU care
- Contagious decease
- Severe psychiatric illness
Preterm birth–associated death or neurodevelopmental impairment

Blencoe et al., 2013.
Daily risk of death for newborn infants during the first 28 days
Total: 2.5 million/year

70% preterm or VLBW infants

Most infants die before reaching "stability" and being eligible for WHO recommended KMC/SSC

Up to 50% of neonatal death occur in the first 24 hours

75% of neonatal death occur during the first week
Zero separation, SSC and Mother-NICU (Couplet Care)

Rajiv Bahl
Research and Guidelines Team Leader
Department of Maternal, Newborn, Child and Adolescent Health
World Health Organization, Geneva
Kangaroo Mother Care (KMC)

KMC initiated in hospitals in stable <2000g babies
- Improves survival by 40% (8 studies)*
- Reduces nosocomial infection by 55% (3 studies)*

Knowledge gap: is KMC equally effective if initiated ...
- at home for stable babies?
- immediately after birth without waiting for babies to become stable in hospitals?

Community-initiated kangaroo mother care (ciKMC) study on survival of infants with low birthweight: a randomized controlled trial

- **Population:** Clinically stable, birth weight 1500-2250g
- **Intervention:** KMC initiated within 72hrs and continued at home
- **Control:** conventional care
- **Outcome:** mortality in first 28d, first 6 months
- **Site:** rural north India
- **Sample size:** 8000 babies

Sarmila Mazumder, Sunita Taneja, Brinda Dube, Kiran Bhatia, Runa Ghosh, Medha Shekhar, Bireshwar Sinha, Rajiv Bahl, Jose Martines, Maharaj Kishan Bhan, Halvor Sommerfelt, Nita Bhandari

[www.thelancet.com](http://www.thelancet.com) Published online October 4, 2019 https://doi.org/10.1016/S0140-6736(19)32223-8
Community-initiated KMC - ciKMC: mortality

Cumulative hazard of death from enrolment to age 28 days (A) and from enrolment to age 180 days (B)

Conclusion:
Stable low birth weight babies >1500g can be managed outside a hospital
**immediate KMC (iKMC) Study**

<table>
<thead>
<tr>
<th><strong>Design:</strong></th>
<th>Individually randomized controlled trial in referral hospitals in Ghana, India, Malawi, Nigeria and Tanzania</th>
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</thead>
<tbody>
<tr>
<td><strong>Sample size:</strong></td>
<td>4200 mother-baby dyads</td>
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<tr>
<td><strong>Population:</strong></td>
<td>Birth weight 1000-1800 g</td>
</tr>
<tr>
<td><strong>Intervention:</strong></td>
<td>KMC initiated as soon as possible after birth and continuous beyond by mother or surrogate</td>
</tr>
<tr>
<td><strong>Control:</strong></td>
<td>KMC initiated only after baby is clinically stable</td>
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<tr>
<td><strong>Outcomes:</strong></td>
<td>mortality, clinical sepsis, hypothermia, hypoglycemia</td>
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**Initiators:** Nils Bergman, Barak Morgan, Björn Westrup  
**Study coordination (WHO):** Rajiv Bahl, Suman Rao, Sachiyo Yoshida, Nicole Minkas  
**Funder:** Bill & Melinda Gates Foundation
Characteristics of enrolled babies

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Preliminary</th>
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</thead>
<tbody>
<tr>
<td>Birth weight in kg, mean (SD)</td>
<td>1.5 (0.2)</td>
</tr>
<tr>
<td>Preterm, n (%)</td>
<td>1908 (91%)</td>
</tr>
<tr>
<td>Babies born from twin pregnancy, n (%)</td>
<td>453 (26%)</td>
</tr>
<tr>
<td>Caesarean delivery, n (%)</td>
<td>784 (38%)</td>
</tr>
<tr>
<td>APGAR score &lt;7 at 5 minutes after birth, n (%)</td>
<td>175 (8%)</td>
</tr>
<tr>
<td>Oxygen saturation &lt;90% at NICU admission, n (%)</td>
<td>167 (8%)</td>
</tr>
<tr>
<td>Hypothermia at NICU admission, n (%)</td>
<td>455 (22%)</td>
</tr>
<tr>
<td>Respiratory distress at NICU admission, n (%)</td>
<td>634 (30%)</td>
</tr>
<tr>
<td>Skin to skin contact during NICU stay in intervention group, mean (SD)</td>
<td>18 hours/day (14 with mother, 4 with surrogate)</td>
</tr>
</tbody>
</table>
Equipment:
- CPAP
  simple, based on electric oxygen concentrators and double prongs (easy to clean)
- saturation monitors

Training by team from Karolinska Institute
- Minimum Package of Care (WHO)
- Safe skin to skin contact
  secured airways!!
- Breastfeeding support

Helga Naburi, Dar es Salaam
## MINIMUM CARE PACKAGE FOR MOTHER

<table>
<thead>
<tr>
<th>VAGINAL DELIVERY</th>
<th>CESEREAN DELIVERY</th>
</tr>
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<tbody>
<tr>
<td>Admitted after two hours observation</td>
<td>Admitted after 2 hours in post-op room + 4 hours post-operative ward if she is stable</td>
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</table>

**OBSTETRICIAN** monitoring *once* a day

- PALLOR
- PULSE RATE
- BLOOD PRESSURE
- BLEEDING P/V
- EPISIOTOMY
- BREAST CONDITION
- CALF TENDERNESS

**STAFF NURSE** *half hourly monitoring* in first 4 hrs –

- PULSE RATE
- BLOOD PRESSURE
- TEMPERATURE
- BLEEDING P/V
- UTERINE TONE
- URINARY OUTPUT

**OBSTETRICIAN** monitoring *twice* a day for

- PALLOR
- PULSE RATE
- BLOOD PRESSURE
- BLEEDING P/V
- ABDOMINAL WOUND
- BREAST CONDITION
- CALF TENDERNESS
<table>
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<tr>
<td><strong>VAGINAL DELIVERY</strong>&lt;br&gt;After 4 hours</td>
</tr>
<tr>
<td><strong>STAFF NURSE</strong> 6 hourly monitoring till 48 hrs.&lt;br&gt;Twice a day after 48 hrs.&lt;br&gt;PULSE RATE&lt;br&gt;TEMPERATURE&lt;br&gt;BLEEDING P/V&lt;br&gt;INPUT / OUTPUT MONITORING</td>
</tr>
<tr>
<td>Nutrition: Normal nutritious diet</td>
</tr>
<tr>
<td>Antibiotics as per institutional protocol</td>
</tr>
<tr>
<td>Episiotomy care</td>
</tr>
<tr>
<td>Early mobilization &amp; DVT prophylaxis as per institutional protocol</td>
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Status of the WHO iKMC Study

- Continuous Serious Adverse Events (SAE) monitoring: expected lower 28 day mortality (lower clinical sepsis rate) in iKMC group

- Study to be completed by summer 2020

- Jan 20, 2020 Data Safety and Monitoring Board (DSMB) STOPPED the study for benefit (lower mortality) at 75% enrolment !!

- Analyses and write-up expected to be ready May 2020
There is a lot of scope for improving quality of care provided for the 1,000,000 infants yearly cared for in SNCUs (= NICU Level III).

- dissemination of Kangaroo Mother Care (KMC)
- **Family Participatory Care (FPC)** guidelines
  - empowered the mother to stay with the newborn
  - provide *developmentally supportive care* ("IFCDC")
Step down/ KMC unit is to be renovated or merged as **Mother-Newborn Intensive Care Unit (M-NICU)**  
Preferably as a part of SNCU complex to keep the mother-baby dyad together to fulfill the following objectives  
• observational care for *newborns* who do not require intensive care in SNCU.  
• Making provisions for the *mothers of SNCU* admissions (Bed, diet and *treatment*)  

• **COUPLETT CARE for all of India!**  
• (in xx? years)