Optimal Infant and Young Child Feeding

*Relevance for child survival, health and nutrition*

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Outline

• Importance of optimal IYCF practices
• Status of IYCF and Nutrition in Karnataka
• How to improve IYCF practices
IMPORTANCE OF OPTIMAL IYCF PRACTICES
Optimal Infant and Young Child Feeding

• Begin breastfeeding within an hour
• Exclusive breastfeeding for the first six months
• Complementary feeding after six months
• Continued breastfeeding for 2 years or beyond
First year is critical for child survival, growth and development!

- Underweight (-2sd) NFHS-3
- Over 60 million

Years of life
Under-five child deaths (%) 2011

5 countries contribute 50% global child deaths

http://www.childinfo.org/mortality_underfive.php
India – Causes of Child Deaths

- 1.7m (23% of world total) U5 children died in 2010
- 51% deaths occurred in first month
- Major causes:
  - pneumonia
  - prematurity
  - diarrhea
48 countries account for 95% of global U5 underweight
Cumulative % of Under-five Underweight Children Worldwide

http://www.unsystem.org/scn/Publications/AnnualMeeting/SCN34.p

80%: 16 countries

15%: 32 countries

5%: 75 countries

India, India, Bangladesh, Pakistan, China, Nigeria, Indonesia, Ethiopia, Congo (DRC), Afghanistan, Philippines, Vietnam, Namibia, Yemen, Malawi, Sri Lanka, Côte d’Ivoire, Guatemala, Saudi Arabia, Cameroon, Guinea, Zambia, Korea (DPR), Somalia, Lao PDR, Rwanda, Morocco

Percentage share of global under-5 underweight

(1) Tanzania, Madagascar, Kenya, Niger, Brazil, Burkina Faso, Angola, Thailand, Mexico, Mali, Cambodia, Mozambique, Chad, Ghana, Iran, South Africa, Burundi, Egypt, Iraq, Malawi, Sri Lanka, Côte d’Ivoire, Guatemala, Saudi Arabia, Cameroon, Guinea, Zambia, Korea (DPR), Somalia, Lao PDR, Rwanda, Morocco

Source(s): BCG analysis
Contribution of undernutrition to child mortality

Risk of neonatal mortality according to time of initiation of breastfeeding

- Six times more risk of death
- Risk with in 1 hour: 0.7
- Risk from 1 hour to end of day 1: 1.2
- Risk on day 2: 2.3
- Risk on day 3: 2.6
- Risk after day 3: 4.2

Source: Edmonds EK et al, 2007

*Pediatrics* 2006;117:380-386
Early Initiation - Potential Mechanisms

- Suckling shortly after birth have a greater chance of successfully establishing and sustaining breastfeeding throughout infancy.
- Rich immune and non-immune components that are important for early gut growth and resistance to infection.
- Early feeding with non-human milk proteins may severely disrupt normal gut function, introduce infection.
- Promotion of warmth and protection may reduce the risk of death from hypothermia.
U-5 child deaths (%) saved by universalising key interventions in India

- Oral rehydration therapy: 15%
- Antibiotics for pneumonia: 6%
- Newborn resuscitation: 4%
- Breastfeeding: 15%
- Complementary feeding: 6%
- Clean delivery: 4%
- Water, sanitation, hygiene: 3%
- Vitamin A: 2%
- Measles vaccine: 1%

Percentages

Breastfeeding Saves Lives!

Source: Black RE et al, 2013
Breastfeeding promotion could potentially prevent 250,000 child deaths due to pneumonia and diarrhea

UNICEF 2013 –Landscape Report
Evidence on the long-term effects of breastfeeding
Systemic Reviews and Meta-Analyses

Protective effect on NCDs

- High Blood pressure
- Hypercholesterolemia
- Risk of overweight and obesity
- Risk of type-2 diabetes

World Health Organization 2007, 2013
Breastfeeding and School Achievements/intelligence Levels

• Increased cognitive development
• Positive association with educational attainment
  – LCPUFA – important for retinal and cortical brain development
  – Bonding between mother and child
Breastfeeding and Blood Pressure in Later Life

• Small but significant protective effects of breastfeeding on systolic and diastolic blood pressure
  ✓ Long-chain PUFA – important structural components of tissue membrane system (vascular endothelium)
  ✓ Protective effect against overweight
  ✓ Low sodium level
Breastfeeding and Blood Cholesterol in Later Life

• Lower mean cholesterol in adults who were breastfed
  – High cholesterol in breastmilk – down regulation of hepatic hydroxymethyl glutaryl coenzyme A - ↓ synthesis of cholesterol later in life
Breastfeeding and the Risk of Overweight and Obesity in Later Life

- Small protective effect on prevalence of obesity
  - ↓ Protein content of breastmilk
  - Lesser insulin response to feeding – less deposition of fat and decreased number of adipocytes
  - Adapt more readily to new foods such as vegetables – reduced calorie density
Breastfeeding and the Risk of Type – 2 Diabetes

• Protective effect on type –2 diabetes
  – Fasting glucose level is inversely correlated to LCPUFA in skeletal muscle membrane
  – Formula fed infants have higher basal and post-prandial insulin and neurotensin levels – early insulin resistance and DM-2
Beneficial effects of breast milk in the NICU on the developmental outcome of ELBW infants at 18 months of age n=1035

- Multivariate analyses, a significant independent association of breast milk on all 4 primary outcomes:
  - Mental Development Index
  - Psychomotor Development Index
  - Behavior Rating Scale
  - incidence of re-hospitalization

- For every 10-mL/kg per day increase in breast milk ingestion, the Mental Development Index increased by 0.53 points, the Psychomotor Development Index increased by 0.63 points, the Behavior Rating Scale percentile score increased by 0.82 points, and the likelihood of rehospitalization decreased by 6%

## Effects of breastfeeding on maternal health

<table>
<thead>
<tr>
<th>Outcome</th>
<th>BF measure</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovarian cancer</td>
<td>BF duration (months)</td>
<td>Risk reduced 28% for each year of BF</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>BF duration (months)</td>
<td>Risk reduced 4.3% (1st report) and 28% (2nd report) for each year of breastfeeding</td>
</tr>
<tr>
<td>Diabetes type 2</td>
<td>BF duration (months)</td>
<td>Risk reduced 4% (1st analysis) and 12% (2nd analysis) for each year of breastfeeding</td>
</tr>
<tr>
<td>Hypertension</td>
<td>No BF versus EBF for 6 months</td>
<td>Risk increased by 29%</td>
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</table>

Status of IYCF and Nutrition in Karnataka
Initiation of Breastfeeding Within 1 Hr

Institutional Delivery – 65.1% (DLHS 3)
Exclusive Breastfeeding in Karnataka

<table>
<thead>
<tr>
<th>Survey</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFHS-2</td>
<td>66.5</td>
</tr>
<tr>
<td>NFHS-3</td>
<td>58.6</td>
</tr>
<tr>
<td>DLHS-3</td>
<td>68.2</td>
</tr>
</tbody>
</table>
Exclusive Breastfeeding Declines Rapidly

(NFHS-3)
Complementary Feeding quality and quantity is inadequate (NFHS-3)
Reasons for sub-optimal IYCF practices

- Inadequate and Inappropriate
  - Information to mother and family
  - Skilled support to the mother
    - Cultural Beliefs, Traditional Practices, Inexperience

- Aggressive marketing practices by the industry
- Lack of adequate maternity benefits
Trends in Children’s Nutritional Status in Karnataka (Percentage of children under three year)

Note: Nutritional status estimates are based on the 2006 WHO International Reference Population
HOW TO IMPROVE IYCF PRACTICES
What Action is required to improve IYCF Practices?

Training

Policy, Plan and Coordination

International Code, WHA

Communication and Information

Maternity Protection

Health, Nutrition care System

IYCF in difficult circumstances

Protection

BFHI

Promotion

Mother support, community outreach

Support
Breastfeeding Gear Model

Coordinated actions improve breastfeeding practices

Exclusive breastfeeding among < 6 mo

Median Breastfeeding Duration - months
Global initiatives

Source: Lutter and Morrow; Advances in Nutrition; 2013.
Changes in the duration of breastfeeding (months) and WBTi Score

Chessa Lutter, 2012
Breastfeeding Counseling works!

<table>
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<tr>
<th>Method of Counseling</th>
<th>Increase in Odds of EBF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neonatal Period</td>
</tr>
<tr>
<td>Individual counseling</td>
<td>3.45 (95%CI 2.20-5.42) p&lt;0.00001</td>
</tr>
<tr>
<td>15 studies</td>
<td></td>
</tr>
<tr>
<td>Group Counseling</td>
<td>3.88 (95% CI 2.09-7.22) p&lt;0.0001</td>
</tr>
<tr>
<td>6 studies</td>
<td></td>
</tr>
</tbody>
</table>

Counseling Works!

- Individual and group counseling are effective tools to improve duration of excl. breastfeeding
- For COMPLEMENTARY FEEDING: Education and counselling on CF in food secure homes, PLUS food supplements in food insecure homes

Conclusions

• Appropriate IYCF practices are cornerstone for child survival and nutrition
• Status of IYCF practices is dismal
• It is feasible to improve IYCF practices with coordinated multifaceted action
• There is a need to develop a state/country level action plan for protecting, promoting and supporting breastfeeding and CF.
“The nature has designed the provision that infants be fed upon their mother’s milk. They find their food and mother at the same time. It’s a complete nourishment for them both for their body and soul”
Rabindranath Tagore
Thanks!!!

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