Application of Implementation Science: the case of Infant and Young Child Nutrition programs

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## Disclosures

<table>
<thead>
<tr>
<th>AFFILIATION/FINANCIAL INTERESTS (prior 12 months)</th>
<th>Funding sources</th>
</tr>
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<tbody>
<tr>
<td>Scientific Advisory Board/Consultant/Board of Directors:</td>
<td>None</td>
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<tr>
<td>Speakers Bureau:</td>
<td>None</td>
</tr>
<tr>
<td>Stock Shareholder:</td>
<td>None</td>
</tr>
<tr>
<td>Employee:</td>
<td>Global Alliance for Improved Nutrition</td>
</tr>
<tr>
<td>Other</td>
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Outline

• The implementation science (IS) framework applied to program cycles

• A few examples from IYCN programs
  • **Short term feedback:** Identification of delivery platforms in Mozambique
  • **Medium term feedback:** Improving design and program delivery in Bangladesh
  • **Long term feedback:** Estimating program potential, impact and redesign in Mexico

• Final reflections
Implementation science framework
Implementation science is defined by its objective and process, not by type of study or design.

Discovery research
- Verification research establishes evidence for potential nutrition interventions

Initiation; scoping
- Identify appropriate intervention, delivery platform, policies required

Planning
- Adapt program design/implementation to the environmental and cultural context

Improvement; informing scale-up
- Identify and resolve implementation challenges and test delivery effectiveness

Impactful programs
- Test and compare delivery
- Process evaluation
- Impact evaluation

Landscape analysis
- Formative research

Moving from policy to program in Mozambique: testing feasibility of implementation delivery platforms

In response to high prevalence of malnutrition, the Ministry of Health of Mozambique developed a comprehensive action plan – with many nutrition interventions, including provision of micronutrient powders (MNP) with counselling to improve infant and young child feeding.
Ministry of Health requested development partners to test diverse delivery platforms across different regions of the country.
**Ultimate program goal:** to reduce ID anemia in children 6 to 23 months of age through improved infant and young child feeding (IYCF) practices and use of micronutrient powders.

**Pilot program objective:**
Test the viability of a hybrid model to motivate improved IYCF practices and MNP use among children 6 to 23 months of age

**Delivery:** Provision of vouchers and education on IYCF via voluntary community health workers (SCI) or cell phone – retrieve MNPs from community vendors (PSI - known and selling other goods)
Delivering where national health systems don’t reach
Specific objectives of implementation research (on-going)

- Identify factors affecting the delivery of MNP vouchers to caregivers;
- Identify factors affecting the redemption of MNP vouchers by caregivers;
- Identify factors that modify (positively and negatively) acceptance and utilization of MNP by caregivers and their children;
- Identify factors affecting the delivery of BCC activities aimed at promoting IYCF and utilization of MNP by caregivers.

Early results:
- Time constraints of voluntary community workers may be insurmountable
- Program cannot be fully reliant on volunteers
Resolving implementation challenges: Bangladesh

GAIN and partners with funding from BMGF developed a pilot program to promote complementary feeding for children aged 6-24 months, including subsidized sales of micronutrient powders (MNP) by BRAC volunteers:

- Evaluation (IFPRI) revealed:
  - High acceptance
  - Low coverage and utilization of MNP
  - Need for more consistent volunteer visits

Interest from BRAC to scale up to additional regions – but implementation issues had not been addressed.
Good study design is not sufficient: effective implementation research requires process to define the questions and dialogue to identify feasible solutions to address challenges.

- **BRAC** (implementation)
- **CIFF** (funding)
- **ICDDRB** (evaluation)
- **GAIN** (knowledge mobilization)
- **RENATA** (MNP production)

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*Images of children and families, indicating a focus on community and family settings.*
Partners work to prioritize research questions, interpret results and identify feasible modifications for testing

Evaluation design

Quantitative assessment (Coverage surveys or CS)
- Stepped-wedge design
- Conduct 3 baseline and 3 corresponding endline surveys

Qualitative assessment (QA)
- Concurrent qualitative data collection:
  - Key-informant interview
  - In-depth interview
  - Focused Group Discussion
  - Observation

Independent assessments
- Formative research
- Process evaluation
- Policy evaluation

Triangulation

Operations Researches
Economic evaluation

Haribondhu et al. Micronutrient Forum 2016
Refine how we think about and assess coverage, based on Tanahashi (1978) model

**Endline (n=2883)**
- Effective coverage ≥3x/week: 5.87%
- Any coverage ≥1x/week: 8.57%
- Contact coverage (Ever used): 38.86%
- Message coverage (Ever heard): 65.08%

**Baseline (n=2887)**
- Effective coverage ≥3x/week: 0.76%
- Any coverage ≥1x/week: 1.17%
- Contact coverage (Ever used): 26.13%
- Message coverage (Ever heard): 46.22%

Haribondhu et al. Micronutrient Forum 2016
### Studies identified diverse implementation challenges

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<tr>
<th>Problem</th>
<th>Determinants and barriers to change</th>
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<td>Persistent high prevalence of poor breast- and complementary feeding practices</td>
<td>• Low coverage of service platform (household visits by volunteers)&lt;br&gt;  • Tendency to be selective in households visited, not necessarily aligned with need&lt;br&gt;  • Lack of standardized, specific, implementable messages related to feeding&lt;br&gt;  • Lack of time dedicated to promoting improved feeding&lt;br&gt;  • Lack of capacity of volunteers related to delivery of such promotion</td>
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<td>Low coverage of micronutrient powders</td>
<td>• Low coverage of service platform (household visits by volunteers)&lt;br&gt;  • Insufficient/ inconsistent supply of MNPs&lt;br&gt;  • Lack of demand for MNP&lt;br&gt;  • Low perceived need despite awareness of product</td>
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Program adjustments to improve implementation: evaluation results in 2018

**Training**
- 7685 Shasthay Shebika
- 1815 Shasthya Kormis
- 100 PO & FO
- 44 UM and DM

**SS counseling card**
- HH level counseling by SS, SK, PO
- Court yard session

**Behavior change strategy**
- 1461 yard session with mothers
- 617 yard session with fathers
- 595 folk theater

**Supply**
- Smooth management of supply chain
- Buffer stock at central and field level
- Ensured Zero stock out at SS level

**New Initiatives**
- Piloting Business planning for SS
- Bi-monthly Refresher’s for SS
- Incentive modification
- Piloting of Mobile App in one district
Long-term investments in implementation research to improve design and delivery:

The case of Mexico’s *Prospera* program
Progresa, a conditional cash transfer program began in 1997 in rural Mexico (100k pilot), expanded and scaled to national level (>25 million). Program later named Oportunidades, now Prospera

**Benefits**
- Educational scholarships
- Cash transfer
- Fortified food supplements

**Co-responsibilities of beneficiary families**
- Regular assistance of child in school
- Assistance of family members to preventative health care
- Health and nutrition education
20 year journey of research-program collaboration

RURAL

- Iron bioavailability in fortified food
  - Impact
  - Formative Research (supplements)
    - Impact

- Early childhood stimulation
  - Impact
  - Rural model pilot
    - Rural model national scale-up

- Supplement consumption
  - Efficacy of 3 supplements
    - Pilot, modified nutrition supplements and education

URBAN

- Formative research new model (urban & rural)
  - Impact
  - Urban model pilot
    - Urban model national scale-up
Problems related to design and implementation

**Design issues:**
Focus on supplements as the nutrition intervention

- Extremely diverse population (language, culture, nutrition problems)
- Lack of consistency in messages and inappropriate education methods
- Poor alignment of approach with nutritional problems in some cases
- Lack of relevancy in messages and approaches
- Lack of follow-through with initial modifications

**Implementation issues:**

- Little and poor training, high turn-over
- Inter-sector implementation but lack of coordination
- Inconsistent supplement availability, lack of materials
- Inappropriate storage conditions of supplements

Led to a set of concrete recommendations to Government: Final design developed by national expert panel based on those

- Comprehensive strategy to address nutritional issues, avoid over-emphasizing supplement as focus of that strategy
  - Breastfeeding protection and promotion
  - Healthy eating focus (appropriate to life stage)
  - Focus on “healthy growth” (weight and height)
  - Supplements aligned with nutritional needs and with high potential for impact
    - Eliminate high energy supplement for women, and children (urban areas only)
- Given population diversity, Program requires diverse package of benefits in Urban and Rural areas, requires translation and adaptation for Indigenous populations
Integrated Strategy for Attention to Nutrition (EsIaN)

Roll out at national scale completed in 2016

Modified Nutritional supplement scheme:
Rural, Urban differentiation

Equip all health centers to facilitate continual training, growth monitoring, anemia detection

Communication and training plan with intensive support and follow up:
75 000 workers
1300 trainers
130 master trainers
What has made these examples successful?

1. **Culture of evaluation** in the program and *mission-driven* research institute facilitated joint planning and priority setting; “knowledge mobilizer” role supports this in Bangladesh and Mozambique

2. Explicit process to foster sense of ownership

3. Willingness to compromise:
   - **Program:**
     - Waited for results before acting
     - Included researchers in target setting
   - **Researchers:**
     - Best feasible design fit to purpose and context
     - Actionable recommendations
Thank you