Diagnose, Design, Deliver, Redesign: Applying Implementation Science to Nutrition

Global Alliance for Improved Nutrition (GAIN),
The Society for Implementation Science in Nutrition (SISN),
The Strengthening Partnerships, Results, and Innovations in Nutrition Globally project (SPRING)
Implementation Science in Nutrition: What is it and how does it relate to public health programs and interventions

David Pelletier
SISN President
Professor of Nutrition Policy
Division of Nutritional Science
Cornell University
Outline

1. The Implementation Opportunity and Challenge

2. Definitions
   – Implementation
   – Implementation research and a classification scheme
   – Implementation science

3. An Integrative Framework
59 countries are leading a global movement to end malnutrition in all its forms.

59 countries and States of Maharashtra and Uttar Pradesh committed to SUN

| Evolution of Countries and States committed to SUN |
|---------------------------------|----------------|
| 2010  | Launch |
| 2011  | 19     |
| 2012  | 33     |
| 2013  | 41 + 1 |
| 2014  | 54 + 1 |
| 2015  | 56 + 1 |
| 2016  | 57 + 2 |

Image source: http://scalingupnutrition.org/
### Figure 2.3: Number of countries at various stages of progress against the global targets on nutrition

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Missing data</th>
<th>Off course, little/no progress</th>
<th>Off course, some progress</th>
<th>On course, at risk</th>
<th>On course</th>
<th>Global Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunting children under 5</td>
<td>79</td>
<td>15</td>
<td>58</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wasting children under 5</td>
<td>63</td>
<td>63</td>
<td></td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight children under 5</td>
<td>84</td>
<td>24</td>
<td>22</td>
<td>26</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Exclusive breastfeeding, &lt;6 months</td>
<td>110</td>
<td>34</td>
<td>13</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anemia in women aged 15–49 years</td>
<td>8</td>
<td></td>
<td>182</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult overweight + obesity (BMI ≥ 25)</td>
<td>3</td>
<td></td>
<td>190</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult obesity (BMI ≥ 30)</td>
<td>3</td>
<td></td>
<td>190</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult diabetes (raised blood glucose)</td>
<td>3</td>
<td></td>
<td>185</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Global Nutrition Report 2016
Figure 1: Median coverage and distribution by country of selected nutrition sensitive and specific interventions.
**An Example:** What factors might affect the effectiveness of a national micronutrient powder intervention?

**A short list:**
- Gov’t approval/registration
- Procurement
- Partner support
- Logistics/ distribution
- Inventory management
- Mother’s concerns
- Grandmother’s concerns
- Household supplies
- Caregiver knowledge & compliance
- Health worker counseling quality
- Training of health workers
- Broader SBCC initiatives
- etc.
Nutrition Interventions

The Black Box of Implementation

Nutrition Outcomes

The Reason for the Challenge

Vitamin & Mineral Powder

Children who are EXCLUSIVELY BREASTFEED for the first 6 months of life are 4 times more likely to SURVIVE than NON-BREASTFEED children.

WASH

THE SOCIETY FOR IMPLEMENTATION SCIENCE IN NUTRITION

www.implementnutrition.org
2. Definitions
“...systematic and planned efforts within a system (or organization) to introduce and institutionalize a policy, plan, program, intervention, guideline, innovation or practice and ensure its intended effects and impacts.”

Adapted from WHO/TDR Implementation Research Toolkit, 2014
Opening the Black Box of Implementation (Five Domains)

1. Objects of Implementation
   - Nutrition-specific interventions
   - Nutrition-sensitive interventions
   - National multisectoral agendas
   - NGO projects (usually sub-national)
   - Implementation innovations

2. Implementing Organization(s)
   Frontline workers, supervisors and managers

3. Enabling Environment:
   Government, funders, civil society, private sector

4. Individuals, households and communities

5. Implementation Processes
   Initiation, Planning, Implementation, Sustaining

Nutritional Status

Adapted from Damschroeder et al., Implementation Science 4:50, 2009
Implementation Research (IR)

“...a variety of methods of assessment, inquiry and formal research whose purpose is to systematically assess, build on strengths and address potential weaknesses within and between each of the five domains that affect implementation.”

Adapted from WHO/TDR Implementation Research Toolkit, 2014
<table>
<thead>
<tr>
<th>Objects of Implementation</th>
<th>Initiation and Scoping</th>
<th>Planning and Design</th>
<th>Implementation, Iterative Improvement and Scaling Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition-specific interventions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition-sensitive actions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operationalizing a national multisectoral nutrition agenda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGO projects (typically sub-national)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation Innovations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## A Classification Scheme of Implementation Research

<table>
<thead>
<tr>
<th>Commitment, Support, Financing and Sustainability</th>
<th>Objects of Implementation</th>
<th>Initiation and Scoping</th>
<th>Planning and Design</th>
<th>Implementation, Iterative Improvement &amp; Scaling Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-cutting governance functions that require diverse methods for stakeholder analysis, assessment of advocacy needs and opportunities, costing, capacity assessments, coordination, etc.</td>
<td>Nutrition-specific interventions</td>
<td>diverse forms of assessments, stakeholder analysis, opinion leader research and consultations to guide: agenda setting, identification of policy/program/intervention options and their fit with a) the problem and b) delivery capacities, and c) available collaborations/partnerships.</td>
<td>diverse forms of formative research and consultations (at multiple scales/administrative levels) to guide the detailed design of policies/programs/intervention s and development of detailed implementation guidelines, guided by explicit PIPs or Theories of Change.</td>
<td>diverse forms of operations research, special studies, process evaluation, quality improvement/quality assurance schemes and monitoring and evaluation systems.</td>
</tr>
<tr>
<td>Nutrition-sensitive actions</td>
<td>A national multisectoral nutrition agenda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGO projects (typically sub-national)</td>
<td>Implementation innovations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Toolkit image source: http://worldartsme.com
# A Few Examples of IR in the Published Literature

## Commitment, Support, Financing and Sustainability
- Prioritizing and Funding the Uganda Nutrition Action Plan
- Nutrition Leadership: Drivers and Constraints in Four Countries
- The Gear Model for Scaling Up Breastfeeding

<table>
<thead>
<tr>
<th>Objects of Implementation</th>
<th>Initiation and Scoping</th>
<th>Planning and Design</th>
<th>Implementation, Iterative Improvement &amp; Scaling Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition-specific interventions</td>
<td>Stakeholder Perspectives on Regulating School Food in Mexico</td>
<td>Ca and IFA Suppl in Kenya</td>
<td>IFA in Pakistan</td>
</tr>
<tr>
<td>Nutrition-sensitive actions</td>
<td>Stakeholder Perceptions of Nutrition-Sensitive Agric in East Africa</td>
<td>National Flour Fortification</td>
<td>IFA Faltering (DHS)</td>
</tr>
<tr>
<td>Operationalizing a national multisectoral nutrition agenda</td>
<td>Intersectoral Convergence in Odisha, India</td>
<td>Governance of MSN in Nepal</td>
<td>MSN in Ethiopia and Nepal</td>
</tr>
<tr>
<td>NGO projects (typically sub-national)</td>
<td>IYCF BCC in Bangladesh</td>
<td>IYC Foods in Kenya</td>
<td>HKI Homestead FP in Cambodia</td>
</tr>
<tr>
<td>Implementation innovations</td>
<td>MNP Delivery Model in Vietnam</td>
<td>Program Assessment Guide (PAG)</td>
<td>QI / PDSA cycles</td>
</tr>
</tbody>
</table>
“... an interdisciplinary body of theory, knowledge, frameworks, tools and approaches whose purpose is to strengthen implementation quality and impact.”

It is NOT just new empirical research – it is “the science of implementation.”
3. An Integrative Framework for Implementation Science in Nutrition
This refers to practical IR embedded in and connected to implementation, such as stakeholder analysis, opinion leader research, formative research, rapid assessments, operations research, special studies, process evaluation, costing studies, Delphi studies and various forms of quality improvement or quality assurance, and more.
Some Mental Biases and Traps this Framework Seeks to Avoid

- Doing formative research with households while neglecting critical bottlenecks in the other four domains
- Emphasizing rigorous trials while neglecting the diverse methods for contextual inquiries and the value of experiential and tacit knowledge
- Emphasizing research on certain objects of implementation (such as nutrition-specific interventions) and neglecting others (such as nutrition-sensitive actions, national multisectoral agendas and implementation innovations)
- Conducting research on field-level implementation processes while neglecting the problems and bottlenecks at other stages in the implementation cycle
Summary of Key Messages

1. The high level commitment to nutrition now creates an urgent need for large-scale implementation and impact.

2. Business-as-usual implementation and business-as-usual research is not sufficient: Both must change. Good examples already exist.

3. The “Integrative Framework” presented here provides a way to improve the quality of implementation in a practical and timely fashion, by systematizing, integrating and utilizing diverse forms of knowledge at all stages of the implementation process.

4. SISN provides a mechanism for implementers, researchers and other parties to collaborate in this effort.
Want to find out more about SISN and the benefits of membership?

• More info on SISN’s Framework:
  http://www.implementnutrition.org/sisnframeworkwebinar/

• Check out our website: www.implementnutrition.org

• E-mail us at: implementnutrition@gmail.com

• Follow us: @implementnutri

The Society for Implementation Science in Nutrition
References


- Damschroeder et al. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science Imp Sci 2009 4:50
References for Case Studies


References for Case Studies (continued)


USING PROCESS EVALUATION FINDINGS TO STRENGTHEN THE DELIVERY OF A COMMUNITY HEALTH WORKER LED MICRONUTRIENT POWDER INTERVENTION IN BANGLADESH
Scaling up of access to and proper utilization of MNP

Collective Impact approach: Partnership between the CIFF, GAIN, BRAC, SMC, Renata, icddr,b, and the Government of Bangladesh (DGFP, IPHN)

27 Districts and 170 Sub-districts (164 rural + 6 urban slums in Dhaka city)

Cumulative target: 4 M children 6-59 m old

Cost per beneficiary: 4.25$ over entire project period from July 2013 to June 2018
4 KEY MESSAGES

1. **Exclusive Breastfeeding** (as of 6 months)
2. **MNP with Diverse Foods** (after 6 months)
3. 1 Sachet/day and min. 60 Sachets/6 months
4. Increase appetite and active child
Partners’ Role in MIYCN HF

Create demand and awareness

Delivery to ultra poor

Support

Overall management

Promotion

Research

Building an enabling environment

Conversion

Production

Delivery

P&A monitor

Environment

Dalberg

Govt.IPHN

COLLECTIVE IMPACT

改善

Improve program delivery and effectiveness

www.gainhealth.org
Research Activities
Sharing Study Findings with BRAC
Timeline of Evaluation Activities

Qualitative assessment
Coverage surveys
Date of sharing findings

Sharing OR findings monthly and PE findings periodically

3rd baseline
2nd end line
2nd QA
1st end line
2nd baseline
1st baseline
1st QA

Year 1
24/3 – 9/6

Year 2
4/9 29/9
7/3- 14/4
31/8 – 18/9
23/12/2014
9/6/2015

Year 3
24/4 - 19/5
7/3- 13/4
02 - 5/11
13/7/2016
14/2/2016
18/9/2016

2014
2015
2016

www.gainhealth.org
Key Findings: Number of demand side and supply side barriers to the coverage of MNP

1. Perceived lack of need for MNPs among caregivers

2. Stock-outs of MNPs from SSs and at the household level

3. Limited home visits by the SSs to the household with children U5

4. Lack of confidence in SSs during promotion of MNP at the community level

5. SSs sold MNP on loan, sometimes distributing them free of cost as sample
## Course Corrections Based on Recommendations Generated from Evaluation Findings

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Evidence</th>
<th>Course correction by BRAC</th>
</tr>
</thead>
</table>
| Ensure **adequate supply** of MNP at the community level | Stock-out of MNP from SSs and at the household level:  
  - Supply did not increase with increase in demand  
  - 59% and 72% of the caregivers mentioned that they ran out of MNP at their households  
  - Supply of MNP was interrupted due to political instability | Additional central store was hired to increase storage capacity  
Ensured buffer stock at sub-district level  
A Supply Chain and Quality Control Officer was recruited |
Journey Towards “0” Stock Out

- Forward thinking & planning for Ramadan and Rainy season and overcome the challenges successfully
- Buffer stock reached 10,702,034 in field level to ensure smooth supply in case of any emergency situation

Oct’16-Dec’16
- “0” stock out at SS level
- GAIN started regular following up with Renata and BRAC to ensure timely supply of Pushtikona 5 to SS
- Monitoring regular stock-in & stock-out and sharing bi-weekly stock update with partners

Apr’16-Jun’16
- Recruitment of Supply chain Manager
- Initiate monthly delivery plan for Renata
- Initiate monthly delivery plan for BRAC (HQ to field)
- Initiate regular stock update system

Jan’16-Mar’16
- Renting additional warehouses at central & local level
- Prioritizing Pushtikona 5 supply in MIYCN area

Oct’ 5- Dec’15

Jul’16-Sep’16
Limited Readiness of BRAC’s SS

- Organizational:
  - Lack of training, supplies and logistics, no guidance to generate income
- Programmatic:
  - Top-down supply chain, inappropriate SS recruitment, inadequate orientation on assigned activities
- Community:
  - Hesitation to visit all HHs, barriers around norms and gender, hard-to-reach locations

Source: Sarma H, et.al. (in preparation)
Consequences of Limited Readiness of SS

Frequency of HH Visit by SS

<table>
<thead>
<tr>
<th></th>
<th>Baseline Prevalence (n=1927)</th>
<th>Endline Prevalence (n=1924)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever visited HH by SS</td>
<td>79</td>
<td>72</td>
</tr>
<tr>
<td>SS visited within 1 year</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>SS visited within 2 months</td>
<td>26</td>
<td>31</td>
</tr>
</tbody>
</table>

Odds of SS Visit with Other Indicators

<table>
<thead>
<tr>
<th>Indicators</th>
<th>B 1</th>
<th>E 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted Odds Ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever heard of MNP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS visit (ref. No)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Yes</td>
<td>2.6***</td>
<td>4.6***</td>
</tr>
<tr>
<td>Good IYCF practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS visit (ref. No)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Yes</td>
<td>1.3**</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Source: Evaluation of BRAC HF Programme

B=Baseline, E=Endline;
*p<0.05; **p<0.01; ***p<0.001
A Conceptual Framework to Improve Performances of SSs

Positive Work Environment
- Supportive supervision
- Participatory monitoring
- Monthly motivational session

Capacity Building
- Recruitment and selection guidance
- Intensive training to create a skilled workforce
- Allocate manpower and resources based on module
- Monthly feedback session

Income Generating Guidance
- Child registration
- Data bank
- Tracking potential clients

Demand Generation
- Collaboration with GO & NGOs
- Social advocacy
- Community mobilization
- Nutrition Care Line (PCL)

Context: Different Programmatic Platforms

Outcome
Increase Home Contact
Increase Coverage
Reduce Micronutrient Malnutrition

Context: Cultural norms, Socio-economic

Context: Geography
Immediate Outcomes of Course Correction: Increased Sale of Pushtikona

Source: brac MIS sale data

Contextual factor: Political instability during Jan-Feb 2015

icddr,b: Stock issue should be addressed
icddr,b: Stock should be revised
icddr,b: Incentive should be revised

brac ensured buffer stock at sub-district
Ibrac revised incentive plan
Ibrac hired another central store for pushtikona
Ibrac started child survey in other implementation areas

icddrb: OR finds child registration as an effective intervention activities

Immediate Outcomes of Course Correction:

Increased Sale of Pushtikona

Source: brac MIS sale data
Immediate Outcomes of Course Correction: Increased Use of Pushtikona

<table>
<thead>
<tr>
<th></th>
<th>1st baseline (Sept 2014)</th>
<th>1st endline (Sept 2015)</th>
<th>2nd baseline (March 2015)</th>
<th>2nd endline (March 2016)</th>
<th>3rd baseline (May 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MNCH</td>
<td>23%</td>
<td>37%</td>
<td>26%</td>
<td>39%</td>
<td>20%</td>
</tr>
<tr>
<td>A&amp;T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

icddrb: Attitudes of the community need to be considered.

icddrb: SS’s Skill should be enhanced.

BRAC rolled out SBSC campaign.

BRAC modified training module for SS and SK in October 2015.

BRAC revised SS recruitment criteria in January 2015.

BRAC with the support of GAIN rolled out SBCC in September 2016.

www.gainhealth.org
Conclusions

• Measuring vs ensuring impact
  • Ne’er the twain shall meet?
  • The collective impact approach
Synergies and Partnership Around the Concurrent Evaluation

Donor: funding and provides strategic guidance

Knowledge broker: funding and catalyst for a learning agenda

Research organization: generates evidence for course correction through evaluation

Implementer: implements the program, uses evaluation findings for its course correction

Regular close dialogues between the partners
Conclusions

• Measuring vs ensuring impact
  • Ne’er the twain shall meet?
  • The collective impact approach

• Concurrent evaluation as a tool for both measuring and ensuring the effectiveness of large scale nutrition program
  • Accountability;
  • Provision of course correction;
  • Facilitates expansion and replication of program model
THANK YOU

Slides courtesy of: Haribondhu Sarma, Rudaba Khondker
About SPRING

Who we are

What We Do

• Strengthen global and country efforts to **scale up** high impact nutrition practices

• Prevent stunting and anemia in the first 1,000 days

• Link agriculture and nutrition under Feed the Future
Nutrition Social and Behavior Change Framework

By using proven strategies:
- Social mobilization for collective action
- Communication for behavior change
- Policy and systems strengthening

To engage populations:
- Individuals
- Families, partners, and peers
- Community leaders and service providers
- Government, business, NGO, and faith leaders

Programs can address these determinants:
- Knowledge: Culture, social structures, norms, and values
- Attitudes and intentions: Social norms, social behaviors, and attitudes
- Actions and access to resources: Agency and control of resources
- Policies and governance: Availability, access, and quality of goods and services

To increase the uptake of nutrition-specific and nutrition-sensitive practices:
- Food
- Health
- Care

And improve nutritional status:
- Dietary intake
- Health status
- Nutritional status
Secondary data review, context assessments, and formative research help us to:

• Develop a theory of change with clear behavioral and other outcomes (e.g. increased consumption of animal source foods; or increased farm and off-farm income)

• Determine, with affected stakeholders, priority practices to promote via interventions
  • Problem fit: uptake of the practice(s) contributes clearly to an activity outcome
  • Stakeholder fit: the practice(s) are feasible for actors, and their uptake solves a problem actors care about
  • Organizational fit: the implementers have the time, competencies, and resources needed to promote the practice(s)
  • Others as agreed with partners
Routine monitoring data help us to manage adaptively.

Source: WDR 2015 team.
Exercise: using data for decision making

• Just at your tables, take 10 minutes to read over these (very simplified) case studies and decide how you would modify your program based on either formative research or monitoring data

• We’ll have a short report out and discussion, focusing more on the process than the outputs of this exercise
Diagnose, Design, Deliver, Redesign: Applying Implementation Science to Nutrition

Discussion
It doesn't matter how many resources you have.

If you don't know how to use them, it will never be enough.
Iterative Intervention Design Research (IIDR) Spiral

Critical Reflection

Conceptual Shifts

Received Knowledge

Consecutive Iterations

Domain of Efficacious Interventions

Overall vision of the process

Adapted: Zeisel, 2006
THANK YOU