Evidence linking hand washing to improved child feeding outcome

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Presentation overview

- Background, study questions
- **Part 1**: Baseline study
  - Methods
  - Summary findings
- Pilot intervention description
- **Part 2**: Trials of Improved Practices (TIPs)
  - Methods
  - Findings on acceptability feasibility
  - Findings on factors associated with target behaviors
- **Summary, conclusions**
Background
Bangladesh children <5 nutritional status

<table>
<thead>
<tr>
<th>Year</th>
<th>Stunting (height-for-age)</th>
<th>Underweight (weight-for-age)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>51</td>
<td>43</td>
</tr>
<tr>
<td>2007</td>
<td>43</td>
<td>41</td>
</tr>
<tr>
<td>2011</td>
<td>41</td>
<td>36</td>
</tr>
</tbody>
</table>

Bangladesh Demographic and Health Surveys 2011
Decline during complementary feeding age

Most rapid decline during 3-15 months

KK Saha et al (ICDDR,B), Food and Nutrition Bulletin 2009
Infections in Young Children

- Children <2 experience 3-5 episodes of diarrhea annually in developing countries
- Peak is at 6-11 months of age

Source: Bulletin of the WHO 2003;81:197-204
Bars represent the 25th-75th percentiles across 20 countries (1990-2000)
Infection

• ↓ food intake (appetite)
• Impaired nutrient absorption
• ↑ metabolic requirements
• Impaired transport to target tissues
• ↑ nutrient losses

Malnutrition

• ↓ barrier protection
• ↓ gastric acid production
• ↓ intestinal renewal
• Impaired immune function
Impact of diarrhea on stunting at 24 months

25% of growth faltering attributable to >5 episodes of diarrhea in first 24 months of life

Hand washing reduces disease transmission*


**RI Ejemot et al, 2009, Handwashing for preventing diarrhea (Review). Cochrane Library

HWWS IRR: 0.68**
Common use of bare hands

Pictures; Fosiul Nizame
Common use of bare hands

Observed HWWS; 1-4%

Pictures; Fosiul Nizame
Research question

How can a hand washing intervention be incorporated into a nutrition intervention?

1. Need data on knowledge, practice, facilities (infrastructure important)
2. Need assessment of acceptability, feasibility
Methods
Study overview

Baseline study; situation analysis
3 regions

- Qualitative investigation
  36 households
- Quantitative survey
  350 households
- Dec 2010-Feb 2011
  • Collect data to inform hand washing intervention development

Intervention development

Trial of Improved Practices study
2 regions

- Qualitative assessment
  80 households
- Quantitative survey
  450 households
- May 2011-Jan 2012
  • Assess acceptability, feasibility
  • Determine factors associated with target behaviors
Selecting communities

3 districts

5 Upazilas
1 Manikgonj
2 Dinajpur
2 Chittagong

10 unions
(2 each upazila)

Exclude
-A&T upazilas
<-10 villages

50 villages-baseline

20 villages
4=TIPs
Baseline study
Baseline methods

- Quantitative survey, using standardized questionnaire (n=350)

- Qualitative
  - In-depth interview (n=24)
  - Focus group discussion (n=6)
  - Motivational exercise (n=6)
Key baseline results
Factors influencing hand washing behavior

Belief in benefits & risks
- HW with soap prevents Diarrhea: 15%
- HW with soap prevents Cough & Cold: 0%
- Family support needed: 35%
- Others don’t practice: 66%
- Convenience soap/soapy water: 63%
- Soap NOT costly: 82%

Social pressure
- Soap / HW Product: 82%
Summary baseline hand washing findings

• Limited knowledge of the link to childhood disease prevention.
• Soap available but not conveniently located
  – Soap in 96% homes
  – Soap at 10% of HW location
  – Distant location of soap and water from the child feeding place = BARRIER
  – Social norm to wash hands with water only
Intervention
Front line workers

Targeted primary audience
(Mothers of 6-24 month old children) through
• Household visits
  – Counseling & Demo of complementary feeding
• Mothers’ group meetings
• Video show at village meeting
Social mobilization

Targeted secondary audience

(Community leaders, father & grandparents) through

• Orientation of Promoters, Religious leaders, village doctors, school teachers, Union chairman & member

• Video show at village meeting
Mass media

TV & radio
Enabling environment

Hand wash station near child feeding area
Key messages

• Wash hands with soap
  – Before child food preparation
  – Before child feeding

• Complementary food for children 6 months and above
  – Adequate quantity (dependent on age)
  – Adequate variety (at least four food groups)
  – Adequate feeding frequency
  – Continue breast feeding
Trial
TIPs trial sites and sampling

- Two districts
- **Quantitative:**
  450 households (pre and post)
- **Qualitative:**
  Two villages each
  - 20 households/village
  - =80 households

*Households with child aged 6-23 months*
Qualitative assessments N=80

Program Design

Assessment 3
Day 83

Implement Interventions
Sept 2011

Assessment 1
Day 20

Implement Interventions

Assessment 2
Day 58

Implement Interventions
Trial findings
Hand washing with soap before child food preparation & feeding child (%)

<table>
<thead>
<tr>
<th></th>
<th>Assessment-1</th>
<th>Assessment-2</th>
<th>Assessment-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has tried</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Reported practice</td>
<td>60</td>
<td>56</td>
<td>78</td>
</tr>
<tr>
<td>Observed practice*</td>
<td>60</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

* N=20

Graph; Debashish Biswas
Quantity & frequency of complementary food (%)

- Has tried: Assessment-1 (64), Assessment-2 (78), Assessment-3 (82)
- Reported practice: Assessment-1 (38), Assessment-2 (44), Assessment-3 (43)
- Observed practice: Assessment-1 (45), Assessment-2 (65), Assessment-3 (60)

* Only quantity of complementary food
*N=20

Graph: Debashish Biswas
What affects reported hand washing with soap at both key times?

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Risk ratio† Before (N=454)</th>
<th>Risk ratio† After (N=444)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio demographic characteristic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother’s education (above primary)</td>
<td>2.28*</td>
<td>1.00</td>
</tr>
<tr>
<td>Wealth (High)</td>
<td>2.10*</td>
<td>1.01</td>
</tr>
<tr>
<td><strong>Exposure to the intervention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health workers home visit</td>
<td>-</td>
<td>1.89*</td>
</tr>
<tr>
<td>Mothers group meeting</td>
<td>-</td>
<td>1.11*</td>
</tr>
<tr>
<td>Hand wash station/soap near cooking/feeding area</td>
<td>-</td>
<td>1.29*</td>
</tr>
</tbody>
</table>

† adjusted for all variables shown ; * statistically significant
What affects acceptable complementary feeding?

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Risk ratio† Before (N=454)</th>
<th>Risk ratio† After (N=444)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio demographic characteristic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wealth (richest)</td>
<td>1.51*</td>
<td>1.24*</td>
</tr>
<tr>
<td><strong>Age of child</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-11 months</td>
<td>1.15</td>
<td>3.21*</td>
</tr>
<tr>
<td>12-23 months</td>
<td>1.68*</td>
<td>3.26*</td>
</tr>
<tr>
<td><strong>Exposure to the intervention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health workers home visit</td>
<td>-</td>
<td>1.62*</td>
</tr>
<tr>
<td>Mothers group meeting</td>
<td>-</td>
<td>1.30*</td>
</tr>
<tr>
<td>Recalled TV message</td>
<td>1.59*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

† adjusted for all variables shown ; * statistically significant
Results summary

After ≥80 days:

• 65% household maintained hand wash station near child feeding area
• Hand washing with soap before food preparation & feeding
  – *Reported* increased to 78%
  – Observed ~50%
• Appropriate food quantity and frequency for child’s age
  – *Reported* ~40%
  – Observed ~60% (quantity)
Trial summary

• Improving both hand washing and complementary feeding practices is possible when barriers are systematically addressed.

• Hand washing practices of mothers can improve by addressing convenience and improving awareness of health risk.
Study conclusions

• Including hand washing in a nutrition intervention makes sense
  – Food preparation and feeding involves bare hands
  – Improved hygiene can reduce infection

• Incorporating hand washing component was successful in the small scale trial
  – Acceptable and feasible
  – Improved reported and observed practices
  – Location of hand washing facilities increases convenience and facilitates hand washing
Translating research to practice

• Multi-sectoral collaboration
• Advocacy resulted in adoption by multiple stakeholders
• National campaign adopted hand washing with soap with the infant and young child feeding intervention
• National strategy has been developed by relevant government departments
  – Department of Public Health Engineering
  – Department of Public Health Nutrition
Acknowledgements

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Study participants

icddr,b
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• Hosne Nur Rob
• Rezwana Hossain
• Abdullah-Al-Masud
• Rabeya Hena
• Nirnita Khisa
• Shrila Sarkar
• Shewly Akter
For more information

Visit

www.aliveandthrive.org
Extra slides
Reported hand washing with soap is not a credible indicator; reported vs observed for same households

<table>
<thead>
<tr>
<th>Activity</th>
<th>Reported baseline</th>
<th>Observed Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before preparing food</td>
<td>25</td>
<td>0.7</td>
</tr>
<tr>
<td>Before eating</td>
<td>13</td>
<td>0.4</td>
</tr>
<tr>
<td>Before feeding a child</td>
<td>11</td>
<td>0.7</td>
</tr>
<tr>
<td>After cleaning child’s anus*</td>
<td>52</td>
<td>22</td>
</tr>
<tr>
<td>After defecation*</td>
<td>51</td>
<td>17</td>
</tr>
</tbody>
</table>

Graph: Tarique Huda
Sub-Study: use of own vs study provided hand wash station

- 80 HHs received Behavior Change Communication (BCC) about handwashing with soap/soapy water and CF.
- Only 40 HHs received a handwashing station with free detergent powder.
- The remaining 40 HHs were motivated to put their own soap/soapy water and a water vessel near the food preparation area and the area of feeding.
Study v own hand wash station

At endline;

• Observed handwashing with soap
  – Study HWS group; among 80%
  – own HWS group; 50%

• Observed handwashing stations convenient to the cooking and child feeding places
  – Study HWS group 90%
  – own HWS group 40%

• Reported recommended quantity and frequency of the complementary food
  – Study HWS group 50%
  – own HWS group 32%