Food Aid Quality Review
Insights and Implications for Nutrition

Washington, DC
May 4, 2017
FAQR Objectives

- Helping USAID/FFP ensure that food aid products are evidence-based to achieve best outcomes (fit for purpose)

- Focus on cost-effectiveness of outcome, not just cost of the products

- Efficiency gains across USG and global food aid players
Food Aid Quality Review - Overview

• Phase I: Is Title II food aid ‘fit-for-purpose?’
  • Delivering Improved Nutrition: Recommendations for Changes to U.S. Food Aid
  • Scientific and practitioner consultations
  • Identifying differences across specifications.
“In 2011, we completed a food aid quality review in partnership with Tufts University that resulted in the most far-reaching improvements to U.S. food aid since 1966.”
Food Aid Quality Review - Overview

• **Phase I: Is Title II food aid ‘fit-for-purpose?’**
  - *Delivering Improved Nutrition: Recommendations for Changes to U.S. Food Aid*
  - Scientific and practitioner consultations
  - Identifying differences across specifications.

• **Phase II: Oct 2011 – Jan 2016**
  - Multiple field studies initiated
  - Interagency harmonization
  - Published reviews (e.g. protein quality)

• **Phase III: Feb 2016 – Jan 2019**
  - Field study findings (impacts, C-E, SBCC)
  - Processing/packaging innovations
  - Supply chain optimization
  - Relative cost decision tools
  - Quality/safety monitoring, feedback reporting
FAQR’s relevance to nutrition

- **Protein quality**: re-introduction of dairy ingredients

- **Iron in micronutrient pre-mix**: ferrous sulfate or fumarate to NaFeEDTA

- **Retention of nutrients** in fortified products
SHELF LIFE STUDY RESULTS: CSB+ AND SC+ (VITAMIN A)

Vitamin A (mcg/100g)

Initial | Week 03 | Week 06 | Week 09 | Week 13 | Week 19 | Week 26

SuperCereal+ | Corn-SoyBlend+

shelf life - 40 C/104 F
shelf life - 30 C/86 F

Target & Permitted Range
FAQR’s relevance to nutrition

- **Protein quality**: re-introduction of dairy ingredient
- **Iron in micronutrient pre-mix**: ferrous sulfate or fumarate to NaFeEDTA
- **Retention of nutrients** in fortified products
- Sudden onset **emergency** responses – not just RUTFs
- **USG interagency coordination**
- Global **interagency harmonization**: micronutrient specifications, technical guidance, cost-effectiveness
- Transparency in research methods and findings: **REFINE**
http://www.refinenutrition.org
FAQR nutrition-specific research questions

• Are RDIs for malnourished children (recovering, post-treatment) same as for healthy children? Determinants of relapse.

• Do products supporting nutrition need ASFs? What micronutrients are essential to recovery from wasting?

• When is a food product ‘too costly’ to use? Price of products versus cost-effectiveness relating to desired outcomes.

• What about WASH? What about SBCC?

• Body composition effects of lipids versus grains; cognitive outcomes as metric of ‘recovery’; EED as confounder in recovery/linear growth.
E. Coli risk by type of water source (percent)

- **Pump**
  - Low risk: 11.7%
  - Intermediate risk: 14.2%
  - High risk: 22.1%
  - Unsafe: 52.1%

- **Protected well**
  - Low risk: 7.6%
  - Intermediate risk: 6.7%
  - High risk: 18.5%
  - Unsafe: 67.2%

- **Unprotected well**
  - Low risk: 6.0%
  - Intermediate risk: 7.8%
  - High risk: 19.0%
  - Unsafe: 67.2%

- **Surface water**
  - Low risk: 5.7%
  - Intermediate risk: 14.3%
  - High risk: 14.3%
  - Unsafe: 65.7%

- **Tap/bottled**
  - Low risk: 16.7%
  - Intermediate risk: 25.0%
  - High risk: 25.0%
  - Unsafe: 33.3%
Malawi: treating MAM with RUFs containing Whey versus soy as main protein

- Whey RUSF was superior, despite 33% less total protein and 8% less total energy

- Possible biological causal pathway
  - Amino acid absorption
  - Bioactive peptides
  - High lactose
  - Low anti-nutrients

- Results support the value of whey in RUSF to treat MAM

- More cost-effective per effective treatment
Malawi: sustaining recovery?

Primary outcomes between groups at 12 months follow-up

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n = 769)</th>
<th>Control (n = 718)</th>
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</thead>
<tbody>
<tr>
<td>Sustained Recovery</td>
<td>407 (53)</td>
<td>347 (48)</td>
<td>0.076</td>
</tr>
<tr>
<td>Relapsed to MAM</td>
<td>281 (37)</td>
<td>260 (36)</td>
<td>0.895</td>
</tr>
<tr>
<td>Developed SAM</td>
<td>27 (4)</td>
<td>46 (6)</td>
<td>0.010</td>
</tr>
<tr>
<td>Died</td>
<td>13 (2)</td>
<td>2 (0.3)</td>
<td>0.007</td>
</tr>
<tr>
<td>LTFU</td>
<td>41 (5)</td>
<td>63 (9)</td>
<td>0.009</td>
</tr>
</tbody>
</table>

- No difference in secondary outcomes (linear growth and illness)
- No difference in relapse rates during rainy/malaria season
Summary of FAQR Research on Nutrition
Completed field studies:

- **Malawi:**
  - SBCC/packaging/oil*  
    * Rogers et al. *Matern Child Nutr*, 2017
  - MAM treatment and relapse**  
    ** Stobaugh et al. *AJCN* 2016

- **Sierra Leone,** *truncated (Ebola)*

Ongoing field studies:

- **Burkina Faso,** analyzing data

- **Sierra Leone,** *just started*
  - Sub-study on Body Composition
  - Sub-study on Environmental Enteropathy
  - Sub-Study on Neurocognitive Function
Malawi: Implications for FFP

- **Beneficiaries do add more oil** to CSB if given sufficient oil and SBCC

- **Smaller bags** reduce handling breakpoints (potential benefits to food safety and dignity)

- **Care Group Model** was effective way to deliver SBCC messages regarding intended supplementary food preparation and child feeding practices

- **Cost-effectiveness** data (not just $/ton) needed to support program decisions
### Sierra Leone (Ebola-truncated): MAM Treatment

#### Time to recovery prior to study suspension, n=514

<table>
<thead>
<tr>
<th></th>
<th>SC+ (control) n=171</th>
<th>SC n=88</th>
<th>RUSF n=141</th>
<th>CSWB n=114</th>
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<tr>
<td><strong>mean ± SD</strong></td>
<td></td>
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<tr>
<td>Time to recovery (weeks)</td>
<td>4.7 ± 2.6</td>
<td>4.3 ± 2.5</td>
<td>5.8 ± 2.9</td>
<td>5.5 ± 2.8</td>
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#### Growth outcomes from >2 research visits, n=1259

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<thead>
<tr>
<th></th>
<th>SC+ (comparison) n=367</th>
<th>SC n=189</th>
<th>RUSF n=377</th>
<th>CSWB n=326</th>
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<tr>
<td><strong>mean ± SD</strong></td>
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<tr>
<td>Weight gain, first 4wks (g/kg/d)</td>
<td>1.9 ± 2.3</td>
<td>1.8 ± 2.6</td>
<td>1.2 ± 2.6</td>
<td>1.7 ± 2.9</td>
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<td>MUAC gain, first 4wks (mm/d)</td>
<td>0.1 ± 0.3</td>
<td>0.2 ± 0.3</td>
<td>0.1 ± 0.3</td>
<td>0.1 ± 0.3</td>
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<tr>
<td>Length gain, total (mm/d)</td>
<td>0.4 ± 0.4</td>
<td>0.4 ± 0.6</td>
<td>0.2 ± 0.5</td>
<td>0.4 ± 0.5</td>
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Sierra Leone (Ebola-truncated): MAM Treatment

1. No food performed best on all outcomes
2. Different outcome metrics gave different conclusions
3. FBFs comparable to/better than RUSF (on recovery rate, time to recovery, weight/length gain)
4. RUSF (at a lower kcal per dose) most costly per treatment and per recovered child
5. Recovery rates lower than elsewhere (~47-60%, cf. 70-80%)
6. Effects of Ebola unknown
Four Food trial in **Burkina Faso**: preventing stunting and wasting

**Study Site**
Beneficiary Practices: Sharing

- Overall (N=1601)
- CSB+ (N=403)
- CSB14 (N=397)
- SC+ (N=404)
- RUSF (N=397)

Sharing prevalence

0% 10% 20% 30% 40% 50% 60% 70% 80%

N=403  N=397  N=397  N=404  N=397
Costing Methods for Cluster-Randomized Cost-Effectiveness Trials

Total Cost

- Food
- Oil Repackaging
- Transportation
- Storage
- Distribution @Clinic
- Other Programmatic: Clinical and SBCC
- Start-up
- Fixed/Overhead
- Beneficiary Participation
FAQR works to establish evidence, information systems, tools, data-gathering and data-sharing platforms, that will support US government-wide actions for coming decades.