Existing approaches to costing, financing and estimating cost-efficiencies for nutrition

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WORLD BANK GROUP
Global Stunting Rates

159 million children stunted worldwide

85% of stunting concentrated in 37 countries

Child Stunting Prevalence
Global and regional trends, Children under 5 (1990-2014)

Investments in nutrition build human capital and boost shared prosperity

**SCHOOLING**
Early nutrition programs can increase school completion by one year

**EARNINGS**
Early nutrition programs can raise adult wages by 5-50%

**POVERTY**
Children who escape stunting are 33% more likely to escape poverty as adults

**ECONOMY**
Reductions in stunting can increase GDP by 4-11% in Asia & Africa
Nutrition Investments in First 1000 Days lock-in human capital for life

Investments in First 1,000 Days Have GREATEST IMPACT

First 1,000 days is tipping point for:
- Childhood disease
- Chronic disease
- Cognitive deficits
- Economic losses

Global Costs & Impact Estimates
### Three global studies that estimate costs of Scaling-Up Nutrition interventions

<table>
<thead>
<tr>
<th>World Bank</th>
<th>Bhutta et al.</th>
<th>World Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2013</td>
<td>2016</td>
</tr>
<tr>
<td>• Focus on estimating Costs, not impacts; covers all forms of undernutrition</td>
<td>• Focus on estimating costs and some impact estimations for stunting</td>
<td>• Focus on costs and impacts on 4 out of 6 SGD targets (stunting, anemia, exclusive BF, wasting)</td>
</tr>
<tr>
<td>• Includes interventions to address all forms of malnutrition</td>
<td>• Includes interventions to address all forms of malnutrition</td>
<td>• More realistic scale-up scenario: increasing current coverage to 90% over 10 yrs</td>
</tr>
<tr>
<td>• Assumes going from current coverage to 90% in 1 year</td>
<td>• Assumes going from current coverage to 90% in 1 year</td>
<td>• Declines in stunting over time are modelled, rather than assumed</td>
</tr>
<tr>
<td>• Addl cost to scale up: US$ 10.3 billion/yr</td>
<td>• Addl cost to scale up: US$ 9.6 billion/yr</td>
<td>• Addl cost to scale up: US$ 49.7 billion over 10 yrs</td>
</tr>
</tbody>
</table>

An affordable package of interventions to reduce stunting

- Improving nutrition for women during pregnancy
- Improving infant and young child feeding practices, including exclusive breastfeeding for the first six months
- Improving child nutrition, including micronutrient supplementation
- Improving policy coordination, capacity and evaluation

Source: World Bank, forthcoming
Estimated Costs & Impacts on Child Stunting

- **2016-2020**: $16.4 billion required
- **2021-2025**: $34.3 billion required
- **Total**: $49.7 billion over ten years

159 million stunted children

- **Underlying determinants of stunting**
- **Nutrition-specific interventions**

- **~100 million fewer children stunted in 2025**

- **$1 invested in stunting ≈ $18 economic returns**

*Includes food availability and diversity, women’s education and health and water, sanitation and hygiene.


† Compared to 2015 baseline

Source: World Bank, forthcoming
Estimating Costs & Impacts at country level
10 Key Nutrition-specific Interventions that produce results

Breastfeeding counseling
Complementary feeding education
Iron and Folic Acid supplements

Vitamin A supplements
Therapeutic zinc supplementation
Micronutrient powders
Deworming
Public provision of complementary food
Treatment of Severe Acute Malnutrition

For the General Population:
Iron fortification of staple foods
Salt iodization
There is a wide range of government spending on nutrition-specific programs across 26 high-burden countries.

Can we get more nutrition results for the money that is being spent?

Can we get more money for nutrition?

US$/child

Guatemala: 28.29
India: 19.42
Mexico: 11.05
South Africa: 9.83
Burundi: 5.64
Brazil: 3.88
Niger: 3.68
Bangladesh: 3.15
Tanzania: 2.92
Philippines: 2.29
Indonesia: 0.83
Kenya: 0.78
Pakistan: 0.66
Nepal: 0.65
Côte d'Ivoire: 0.53
Vietnam: 0.44
Zambia: 0.29
DRC: 0.28
Malawi: 0.25
Madagascar: 0.24
Benin: 0.14
Ethiopia: 0.09
Cambodia: 0.08
Uganda: 0.03

Excludes spending on overweight and obesity control.
## Costs and Benefits of Investing in a Package of 10 Nutrition-specific Interventions in Four African Countries (US Dollars)

<table>
<thead>
<tr>
<th>Country Region (Year)</th>
<th>Annual Public Investment required US$</th>
<th>Annual Estimated Benefits</th>
<th>Cost-effectiveness Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DALYs Averted</td>
<td>Lives Saved</td>
</tr>
<tr>
<td>DRC (2015)</td>
<td>371 M</td>
<td>2.6 M</td>
<td>77,000</td>
</tr>
<tr>
<td>Mali (2015)</td>
<td>64 M</td>
<td>509,302</td>
<td>14,000</td>
</tr>
<tr>
<td>Nigeria (2014)</td>
<td>837 M</td>
<td>6.3 M</td>
<td>180,000</td>
</tr>
<tr>
<td>Togo (2015)</td>
<td>13 M</td>
<td>115,295</td>
<td>3,000</td>
</tr>
</tbody>
</table>

<sup>a</sup>“Very cost-effective”, <sup>b</sup>“Cost-effective” and <sup>c</sup>“Not cost-effective” according to WHO-CHOICE criteria. See WHO 2014.
Maximizing Efficiencies: Some interventions are more cost-effective than others

<table>
<thead>
<tr>
<th>Intervention*</th>
<th>Cost/DALY Averted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community nutrition programs for growth promotion</td>
<td>77&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Vitamin A supplementation</td>
<td>43&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Therapeutic zinc supplementation with ORS</td>
<td>71&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Iron-folic acid supplementation**</td>
<td>101&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Public provision of complementary food for moderate acute malnutrition</td>
<td>478&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Community-based treatment of severe acute malnutrition</td>
<td>174&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>“Very cost-effective”,  <sup>b</sup>“Cost-effective” and  <sup>c</sup>“Not cost-effective” according to WHO-CHOICE criteria. See WHO 2014.
# Maximizing Efficiencies by Geographic Targeting
(all costs in US$)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total in millions</td>
<td>Cost/ DALY Averted</td>
<td>Total in millions</td>
<td>Cost/ DALY Averted</td>
</tr>
<tr>
<td>Full scale up of all 10 interventions nationwide</td>
<td>371</td>
<td>143</td>
<td>64</td>
<td>178</td>
</tr>
<tr>
<td>Full scale up in highest burden regions</td>
<td>135</td>
<td>173</td>
<td>44</td>
<td>212</td>
</tr>
<tr>
<td>Highest-impact interventions* nationwide</td>
<td>279</td>
<td>133</td>
<td>24</td>
<td>71</td>
</tr>
<tr>
<td>Highest-impact interventions* in highest burden regions</td>
<td>97</td>
<td>134</td>
<td>18</td>
<td>75</td>
</tr>
</tbody>
</table>

*Excludes public provision of complementary food.
Existing Approaches to Modelling for nutrition
Existing tools to estimate costs, impacts and cost-effectiveness

- OneHealth
- LiST
- PROFILES
- FANTA CMAM costing tool
- WBCi Infant and Young Child Feeding (IYCF) financial planning tool
- UC Davis optimization tool for Vitamin A for allocative efficiencies
OneHealth

- Developed under guidance of UN Inter-Agency Working Group (IAWG) on Costing; launched in 2012.
- Build on/incorporates existing tools: MBB, WHO Stop TB, LiST, FamPlan, AIM/GOALs/Resource Needs Model, others.
  - Models costs and impacts
- Guiding principle:
  - Plan and cost holistically, from the health system perspective.
  - Demonstrate possible impact resulting from the investments.
- Includes high impact nutrition interventions
  - Used to generate Lancet 2013 series cost estimates.
- Does not include prioritization/optimization functions.
Lives Saved Tool (LiST)

- Models the impact of health intervention on maternal and child mortality and morbidity
  - Includes high impact, evidence-based nutrition interventions
  - Outcomes include some key nutrition indicators: stunting and wasting (but no anemia, no overweight/BMI, no DALYs)
  - No economic impact
- Includes a costing module (LiST Cost) – linked to/based on One Health
- No cost-effectiveness or benefit estimates
- Currently being revised (expected in mid 2016?)
PROFILES

• Developed by USAID and FHI 360 in the 1990s
• Intended as an advocacy tool – not for policy and program planning purposes
• Estimates health and economic impact of improving nutritional status of women and children
  • Health impact: maternal and child morality; permanent disability
  • Economic impact: productivity gains
• Compares 2 scenarios: status quo and improved nutrition outcomes
• Improvements in nutrition outcomes are assumed - no link with specific interventions
FANTA CMAM Costing Tool

- Developed by USAID and FHI 360 in 2011
- Intended as a program planning and budgeting tool for community-based management of acute malnutrition (CMAM)
- No impact estimates
World Breastfeeding Costing Initiative (WBCi) Tool

• Developed by IBFAN South Asia and Breastfeeding Promotion Network of India and launched in 2012
• Assist governments in planning the implementation of essential IYCF actions consistent with the Global strategy for IYCF
• Data-intensive (no default data)
• No impact
UC Davis Tool for Optimization of Vitamin A Supplementation

• Estimates allocative efficiencies for Vit A supplementation

• Limited to single micronutrient and single intervention (Vitamin A supplementation)

• Very data intensive; tested in one country (Cameroon) only

• Current version complex and not user-friendly and not usable by policy-makers
## Existing Tools: Key Strengths and Weaknesses

<table>
<thead>
<tr>
<th>Tool</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Health</td>
<td>• Comprehensive planning and costing/budgeting tool</td>
<td>• Less useful for single program/issue</td>
</tr>
<tr>
<td></td>
<td>• Considers the health system</td>
<td>• No efficiency analysis</td>
</tr>
<tr>
<td></td>
<td>• Integrates cost and impact</td>
<td></td>
</tr>
<tr>
<td>LiST</td>
<td>• Integrated RMCH and nutrition tool</td>
<td>• No DALYs</td>
</tr>
<tr>
<td></td>
<td>• Includes key high impact interventions (Lancet 2013)</td>
<td>• No cost-effectiveness analysis</td>
</tr>
<tr>
<td></td>
<td>• Impact and cost: includes the LiST cost module linked to One Health</td>
<td>• No efficiency analysis</td>
</tr>
<tr>
<td></td>
<td>costing tool</td>
<td></td>
</tr>
<tr>
<td>PROFILES</td>
<td>• Estimates of health impact</td>
<td>• Impact of interventions is assumed (no explicit modelling)</td>
</tr>
<tr>
<td></td>
<td>• Estimates of economic impact</td>
<td>• No links to cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No effectiveness or efficiency analysis</td>
</tr>
<tr>
<td>FANTA CMAM tool</td>
<td>• Comprehensive costing tool - considers all major cost drivers in a</td>
<td>• Single intervention</td>
</tr>
<tr>
<td></td>
<td>standardized fashion</td>
<td>• No impact</td>
</tr>
<tr>
<td></td>
<td>• Manageable data needs-wise</td>
<td>• No effectiveness or efficiency analysis</td>
</tr>
<tr>
<td></td>
<td>• Excel-based and easy to use</td>
<td></td>
</tr>
<tr>
<td>WBCi costing tool</td>
<td>• Comprehensive list of EBF interventions</td>
<td>• Single intervention</td>
</tr>
<tr>
<td></td>
<td>• Excel-based and easy to use</td>
<td>• Data-intensive (no defaults)</td>
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<td>• No effectiveness or efficiency analysis</td>
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<tr>
<td>UC Davis Vit A tool</td>
<td>• Aims to optimize spending on Vitamin A supplementation</td>
<td></td>
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Next Steps in Nutrition costing, impact modeling and cost-effectiveness estimations

• **Good understanding of approaches** to estimate costs and impact
  • Strong evidence base of what works

• **Currently no tools that allow for cost-effectiveness analyses** or for allocative efficiency assessments (except UC Davis tool for Vit A)

• **Stronger, user-friendly tools needed that combine assessments of**
  • costs, impacts, cost-benefit analyses
  • maximize technical and allocative efficiency

• **Can “Optima Nutrition” fill this gap?**