SCALING UP NUTRITION (SUN) IN SOUTH ASIA

The South Asian Enigma on Malnutrition - Unraveled?

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World Bank
The problem is large and widespread.
Global and regional prevalence of stunting, wasting and overweight

Source: Department of Nutrition, World Health Organization
29 countries have alarming levels of undernutrition

Underweight children <5 in 2009

**Europe & Central Asia**
- 3 underweight children
- 6% of underweight children

**South Asia**
- 81 underweight children
- 40% of underweight children

**East Asia & Pacific**
- 13 underweight children
- 10% of underweight children

**Latin America & Caribbean**
- 3 underweight children
- 5% of underweight children

**Middle East & North Africa**
- 6 underweight children
- 11% of underweight children

**Sub-Saharan Africa**
- 33 underweight children
- 25% of underweight children

Note: 2009 Global Hunger Index; GHI components: Proportion of undernourished; Prevalence of underweight in children; Under-five mortality rate
Global trends in underweight
(Children 0-4 Years)
1980-2005

Rates of Under-nutrition

Numbers of underweight children

Prevalence of underweight (%)

No. of underweight children (million)

Africa
Asia
LAC
Developing
Developed

Repositioning Nutrition, 2006
Global trends in underweight

(Children 0-4 Years)

1980-2005

Repositioning Nutrition, 2006
Percent children underweight
1980-2007

Prevalence of underweight (% of children under five)

Year


Africa
Asia
Bangladesh
India
Nepal
Pakistan
Sri Lanka
Inequities in nutrition …

India: Percent of children under 5 that are undernourished (by wealth quintiles)

<table>
<thead>
<tr>
<th>Wealth Quintiles</th>
<th>% Under-weight children (weight-for-age below –2 SD)</th>
<th>% children anemic (HB&lt;11 g/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>60.7</td>
<td>78.8</td>
</tr>
<tr>
<td>Second</td>
<td>54.0</td>
<td>79.0</td>
</tr>
<tr>
<td>Middle</td>
<td>49.2</td>
<td>75.1</td>
</tr>
<tr>
<td>Fourth</td>
<td>38.9</td>
<td>72.3</td>
</tr>
<tr>
<td>Highest</td>
<td>26.4</td>
<td>63.9</td>
</tr>
</tbody>
</table>

Undernutrition affects the poorest most, & by targeting malnutrition we target the poor; but, it also affects the non-poor…

Repositioning Nutrition, 2006
### Nutrition and Poverty: Prevalence of Underweight by Wealth Quintiles
(Children <5 yrs, below -2SD)

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Lowest</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>South Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bangladesh</td>
<td>59</td>
<td>53</td>
<td>45</td>
<td>43</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>India</td>
<td>61</td>
<td>54</td>
<td>49</td>
<td>39</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Pakistan</td>
<td>54</td>
<td>47</td>
<td>43</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Benin</td>
<td>29</td>
<td>30</td>
<td>23</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Burkina Faso</td>
<td>42</td>
<td>40</td>
<td>41</td>
<td>39</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Ethiopia</td>
<td>49</td>
<td>51</td>
<td>51</td>
<td>45</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Mozambique</td>
<td>31</td>
<td>28</td>
<td>26</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Rwanda</td>
<td>27</td>
<td>30</td>
<td>28</td>
<td>24</td>
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<td></td>
<td>Tanzania</td>
<td>25</td>
<td>26</td>
<td>22</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Uganda</td>
<td>27</td>
<td>26</td>
<td>25</td>
<td>19</td>
<td>12</td>
</tr>
</tbody>
</table>


**Is Malnutrition in South Asia Really Worse than in Africa?**
### Prevalence of Anemia in Women aged 15-49 years

(Hb levels < 11g/dl for pregnant women, < 12g/dl for non-pregnant women)

by Wealth Quintile

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Lowest</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Highest</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Asia</td>
<td>India-1998/99</td>
<td>63</td>
<td>57</td>
<td>52</td>
<td>47</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td>Africa</td>
<td>Burkina Faso-2003</td>
<td>35</td>
<td>31</td>
<td>32</td>
<td>37</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Ghana-2003</td>
<td>29</td>
<td>26</td>
<td>26</td>
<td>21</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Tanzania-2004</td>
<td>52</td>
<td>51</td>
<td>46</td>
<td>42</td>
<td>46</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Uganda-2000/01</td>
<td>34</td>
<td>35</td>
<td>31</td>
<td>32</td>
<td>21</td>
<td>31</td>
</tr>
</tbody>
</table>


Is Malnutrition in South Asia Really Worse than in Africa?
The “Window of Opportunity” for Improving Nutrition is very small…pre-pregnancy until 18-24 months of age.

The chart illustrates the weight for age Z-score (NCHS) in Latin America and Caribbean, Africa, and Asia over the age range of 0 to 60 months. The chart shows a significant decline in weight for age Z-score, indicated as “IRREVERSIBLE” by a stamp on the image, emphasizing the critical period for intervention.
New Evidence shows the “window of opportunity” may be even smaller than we had anticipated…with a larger part of the damage happening before birth…

Mean height for age z-scores by age relative to the new WHO reference

By region (0-59 months)

Policy implications from the new WHO growth references ++ recent evidence

• Confirms importance of first 2 years of life as a critical window within which child growth is most sensitive to environmentally modifiable factors

• Monitoring length/height (in addition to weight) seems essential because faltering patterns are clearly different for HAZ and WAZ, and short stature is associated with deleterious long-term outcomes

• Reveal a much greater problem of undernutrition during the first 6 months of life than previously understood (shorter “window of opportunity”) with possibly even higher levels of intrauterine growth retardation emphasizing the need for even greater need for prenatal and early-life interventions, including preventing low birth weight and promoting appropriate infant feeding practices

• Suggests that BMI gain after 6 months of age increases adiposity but not height at 5 years – hence potentially negative implications for NCDs in adulthood
Relation Between Low Birth Weight and GDP per capita is not linear

Source: WB World Development Indicators, Latest available data for each country, GDP PC PPP, constant int’l 2005 $
Child stunting & underweight (height for age and weight for age) rates in South Asia are much higher than the GDP would suggest.

Slide courtesy of John Newman, SAR (2010)

Source: WB World Development Indicators, Latest available data for each country, GDP PC PPP, constant int’l 2005 $
- GDP losses ≥ 2-3%
- Leads to a >10% potential reduction in lifetime earnings for each malnourished individual
- Malnutrition (stunting) in early years linked to a
  - 4.6 cm loss of height in adolescence
  - 0.7 grades loss of schooling
  - 7 month delay in starting school

(Improved nutrition can be a driver of economic growth)
Age 2 may be the “tipping point” to prevent the long-term human capital consequences of both undernutrition and future adiposity and NCDs…? (Huntington et al, 2010)

- Growing evidence that rapid weight gain after age 2 associated with impaired Glucose tolerance and obesity, especially among low BMI kids (Harrington et al, 2010, Bhargava et al, 2004; Ibanez et al, 2006, Barker hypothesis, Dutch famine studies, etc…)

- “There is no evidence that rapid weight or length gain in the first 2 years of life increases the risk of chronic disease, even in children with poor fetal growth.”
Why is south Asia so different?

- Not enough focus on children under-two
- Gender issues remain un-addressed
Infant and young child nutrition and treatment of severe undernutrition

- Micronutrient supplementation & fortification
- Hygiene practices

- Agriculture & food security
- Health Systems
- Soc. Protection/safety nets
- Water & sanitation
- Gender & Development
- Girls’ Education
- Climate change

- Poverty reduction & economic growth programs
- Governance, stewardship capacities & management
- Trade & patents (&role of private sector)
- Conflict Resolution
- Environmental Safeguards

Adapted from UNICEF 1990

Determinants of Child Nutrition and Interventions to Address them

Nutrition specific interventions

Child Nutrition

Immediate causes

Underlying causes

Basic causes

INSTITUTIONS

POLITICAL & IDEOLOGICAL FRAMEWORK

ECONOMIC STRUCTURE

RESOURCES

ENVIRONMENT, TECHNOLOGY, PEOPLE

Interventions

- Infant and young child nutrition and treatment of severe undernutrition
- Micronutrient supplementation & fortification
- Hygiene practices

- Agriculture & food security
- Health Systems
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Adapted from Ruel, 2009
Public Funding on Children in India

The chart illustrates the average spending per beneficiary in the age group and the cumulative brain development percentage for children in India. The x-axis represents the age (years) ranging from 0 to 18, and the y-axis shows the spending per beneficiary ranging from 0 to 7000. The cumulative brain development percentage is plotted on the right y-axis, ranging from 0 to 100.

Key:
- ▲ Average spending per beneficiary in the age group
- ⬤ Cumulative brain growth
Women’s status and reductions in child undernutrition

Contributions to reductions in child malnutrition, 1970-95

Source: Smith and Haddad 2000
How do gender inequities in the “window of opportunity” lead to poor nutrition in South Asia?

Pre-pregnancy and pregnancy
- Low education
- Early marriage; Early pregnancy
- Constraints to use of antenatal services (mobility, access to resources; taboos)
- Poor diets; food taboos
- High workloads (at home and at work); lack of rest during pregnancy
- Domestic violence

First two years of life
- Lack of support for infant care and breast feeding
- Gender-based differences in infant feeding and health-seeking
- Resumption of work (within and outside home) soon after delivery
- Constraints to accessing health & nutrition services (mobility, access to resources, dis-empowerment)
- Domestic violence

Adapted from: Menon et al: Nutrition in South Asia: why gender matters, IFPRI 2009
Nutrition: Current Situation an anomaly

Despite an incontrovertible evidence base...

THE RESULTS
Top Ten

1. Micronutrient supplements (vitamin A & zinc) - Malnutrition
2. The Doha development agenda - Trade
3. Micronutrient fortification (iron and salt) - Malnutrition
4. Expanded immunization coverage for children - Diseases
5. Agricultural R&D - Malnutrition
6. Deworming and nutrition programs at school - Malnutrition
7. Lowering the price of schooling - Education
8. Increase and improve girls’ schooling - Women
9. Community-based nutrition promotion - Malnutrition
10. Provide support for women’s reproductive role - Women

"The attribution of more than a third of child deaths and more than 10% of total global disease burden to maternal and child undernutrition demonstrates the huge importance of these prevalent risk factors to international health goals."

The “Window of Opportunity” for Improving Nutrition is very small... pregnancy until 18-24 months of age.
Under-nutrition often goes un-recognised...

- By policy makers...
- And by families and communities...

7 years 7 years 4 years
And, despite the fact that…

- We know where to act
The 36 Highest-Burden Countries carry 90% of the global Malnutrition burden, albeit there are many small countries that also need attention.

**SAR**
- India
- Bangladesh
- Pakistan
- Afghanistan
- Nepal (IHP+)

**AFR**
- Nigeria
- Ethiopia (IHP+)
- Dem. Rep. of the Congo
- Tanzania
- Uganda
- Sudan
- Kenya (IHP+)
- Madagascar (IHP+ ?)
- South Africa, Mozambique (IHP+, BMGF),
- Niger (CI) Angola, Malawi (BMGF)
- Mali (CI, BMGF), Ghana (CI)
- Burkina Faso (CI, BMGF)
- Zambia (IHP+)
- Cameroon
- Côte d’Ivoire
- Burundi (IHP+)

**EAP**
- Indonesia
- Philippines
- Vietnam
- Myanmar
- Cambodia (IHP+)

**LAC**
- Guatemala
- Peru

**MENA**
- Yemen
- Egypt
- Iraq

**ECA**
- Turkey

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IHP+: International Health Partnership, CI: Catalytic Initiative, BMGF: Bill and Melinda Gates Foundation

Note: Many of these countries also have high child/maternal mortality rates

Source: Lancet Nutrition Series, IHP+, ++, 2008
We know what to do... the evidence base is strong

Interventions with Sufficient Evidence to Implement in All Countries

Maternal and Birth Outcomes
- Maternal supplements of multiple micronutrients
- Iron folate supplementation
- Maternal iodine through iodization of salt
- Maternal calcium supplementation
- Interventions to reduce tobacco consumption or indoor air pollution

Newborn Babies
- Promotion of breastfeeding (individual and group counseling)

Infants and Children
- Promotion of breastfeeding (individual and group counseling)
- Behavior change communication for improved complementary feeding
- Zinc supplementation
- Zinc in management of diarrhea
- Vitamin A fortification or supplementation
- Universal salt iodization
- Handwashing or hygiene interventions
- Treatment of SAM

Interventions with Sufficient Evidence to Implement in Specific Contexts

Maternal and Birth Outcomes
- Maternal supplements of balanced energy and protein
- Maternal iodine supplements
- Maternal deworming in pregnancy
- Intermittent preventative treatment for malaria
- Insecticide-treated bednets

Newborn Babies
- Neonatal vitamin A supplementation
- Delayed cord clamping

Infants and Children
- Conditional cash transfer programs (with nutrition education)
- Deworming
- Iron fortification and supplementation programs
- Insecticide-treated bednets

Source: The Lancet, 2008
And …

- We know “how” to intervene
  - Lancet nutrition series, Plus, plus, plus…
  - Albeit we need to know more about “delivery science” (see e.g. Shekar, M. (with 17 other co-authors): Delivery Sciences in Nutrition: The Lancet 2008; 371: 1751)

- We know more about what it will cost to scale-up some of the priority interventions
Costing the Scale-up: A two step approach

**Step 1: With an investment of US$5.5 billion**
- US$2.9 billion
  - Behavior change programs
- US$1.5 billion
  - Micronutrients
  - Deworming
- US$1 billion
  - Capacity development for program delivery
- US$0.1 billion
  - Monitoring and evaluation
  - Operations research and technical support for program delivery

**Step 2: With an investment of an additional US$6.3 billion**
- US$3.6 billion
  - Complementary feeding to prevent and treat moderate malnutrition
- US$2.6 billion
  - Treatment of severe acute malnutrition
- US$0.1 billion
  - Monitoring and evaluation
  - Operations research and technical support for program delivery

$11.8 bn total
- $1.5 bn from households
$10.3 bn financing gap

Depending on the assumptions, every $1 invested yields on average $16 in benefits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Low estimate</th>
<th>Medium estimate</th>
<th>High estimate</th>
<th>B/C ratio low</th>
<th>B/C ratio medium</th>
<th>B/C ratio high</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual cost /child &lt;5, $1</td>
<td>$24.3</td>
<td>$32.4</td>
<td>$40.5</td>
<td>12.7</td>
<td>15.8</td>
<td>21.1</td>
</tr>
<tr>
<td>Value of life year DALY, $2</td>
<td>$1000</td>
<td>$2000</td>
<td>$3000</td>
<td>8.33</td>
<td>15.8</td>
<td>23.3</td>
</tr>
<tr>
<td>Efficiency, %</td>
<td>50%</td>
<td>70%</td>
<td>90%</td>
<td>11.3</td>
<td>15.8</td>
<td>20.4</td>
</tr>
<tr>
<td>OVERALL B/C ratio</td>
<td>4.8</td>
<td>15.8</td>
<td>40.0</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

1. Based on Horton et al (2009), with cost variants +/- 25% (value DALY held constant at $2000)
2. Low variant uses GNI of low income/least developed, 2005, PPP, rounded; Medium variant uses GNI of 36 countries with greatest burden, weighted by # of children stunted, rounded; high variant uses GNI of low and middle income, rounded (cost value held constant at $32/4 per child)
3. Assumes that large scale programs have lower efficiency than those from which B:C are derived
4. Combines 1, 2 and 3, to give least and most favourable outcomes
Therefore….

No common platform/vision

Minimal ODA commitments

Narrow “nutrition lens” not linked to wider development agenda

Fragile Capacities (at Global and country levels)

Source: OECD DAC

Source: World Bank, 2009 (Scaling-up Nutrition)
A Framework for Action for Scaling-Up Nutrition

ONE unified and powerful call to action

....Building a Global SUN Movement

Framework for Action for Scaling-Up Nutrition

Three key elements of Sun Framework

1. Country-level action is key
   • Country ownership and leadership
   • Tailored to country-specific epidemiology
   • Tailored to country-specific context and capacities

2. Scale-up evidence-based cost-effective interventions
   • For prevention and treatment
   • Highest priority to the “minus 9 to 24 months window of opportunity”

3. Take a multi-sectoral approach
   • Food security, Social protection, health
   • Education, water and sanitation,
   • Gender, Governance and state fragility
Moving to action…

- Support for capacity development
- Paris-Accra principles of Aid-Effectiveness
- Mobilise key stake-holders in an inclusive approach to country ownership
- Use the “Three ones”
  - One agreed framework
  - One national coordinating body with broad mandate
  - One national M&E system
- Strong, prioritised country strategies
- Draw on support from related initiatives
  - Food security and agriculture, health, vulnerability protection, etc…
- Special needs for fragile states
Broadening the “nutrition lens”...

Narrow nutrition lens

Transportation sector
Financial sector
Agriculture sector
Health sector
Education sector
Private sector
Trade and tax policies sector
Environment sector
Multiple other sectors

Multisectoral nutrition lens

Governance
Gender
Poverty alleviation

Increasing space for new sectors & new partners

Financing envelope
It will support advocacy and mobilisation…

- To “Make Undernutrition Visible”

- And actionable…

- Link to video….

http://www.youtube.com/watch?v=yysyFtjcgzE
Sun Framework

- Released in April 2010 at a joint event co-hosted by Canada, Japan, USAID, and World Bank (Spring meetings, Washington DC)

- SUN Road-map to be reaffirmed at special event at MDG Summit, (Sep 21, 2010) led by US Secretary of State Hillary Clinton

- Country-affirmations and action to follow....

Sequencing of countries level actions....

1. Assumptions are: 100% coverage is reached after 5 years of scale-up efforts. With full coverage undernutrition burden is reduced by 25%. Additionally an increasing efficiency gain up 3% per year is assumed. Roll-out is based on “average countries” having all the same size and burden from the 36 high burden and the 32 additional smaller countries. Based on total costs of $11.8B. 32 small countries increase the beneficiary base 6% and the cost base 8%. A sequencing of 10, 10 and 12 countries aligned with the phases of the high burden countries is assumed.

Source: Horton et al., 2010. Scaling up Nutrition: What will it cost?, World Bank; BCG analysis
What does the SUN mean for South Asia?
Next steps for SAR governments…?

- Join the SUN partners group (starting with MDG event on Sep 21 hosted by US Secretary of State Hillary Clinton in NY)

- Request for technical assistance and/or capacity building support based on SUN principles

- Develop a country-specific and fully costed action plan to address undernutrition

- Request for coordinated donor-support in-line with Paris and Accra principles
For more information: stay tuned.....

Worldbank.org/nutrition

