The Baby and the Bathwater: WASH, Nutrition and Rubber Ducks

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USAID’s WASHplus Project, FHI 360
What is Clean, Fed & Nurtured?

• **Integrated programming**
  – Water, sanitation, hygiene (WASH)
  – Nutrition
  – Early child development

• **Consultative Meeting**
  – To kick start a community of practice and movement to promote a **thriving** child
Objective of This Session

• To share the evidence and the global conversation about integrated programming in WASH, nutrition and ECD
• To engage new energy and talent in promoting flowers to bloom everywhere across the WASH-nutrition-early child development nexus
Why Integrate These Sectors?

- Neither sector on its own is succeeding
- Dyads of integration
- Growing evidence pointing to growth and development needed for a thriving child
Review of the Evidence

Focus on WASH behaviors for Diarrhea Disease Reduction....

Safe Storage & Treatment of Water
- 21%
- 30-50%

Safe Feces Disposal
- 30% ++

Handwashing
- 43%
Interrelationship of Diarrhea & Malnutrition

- Children with diarrhea tend to eat less
- With diarrhea, nutrients from food are not well-absorbed
- Undernourished children are more susceptible to diarrhea
Most damage occurs during complementary feeding age
Prevalence of Diarrhea among Children < 5 years

by observed handwashing before preparing food

SHEWA-B, Rural Bangladesh

- None: 12.5%
- Water: 8.3%
- Water + Soap: 6.9%

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  SHEWA-B, Rural Bangladesh
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Month

2007 2008 2009

Prevalence of Diarrhea among Children < 5 years

by observed handwashing before preparing food

SHEWA-B, Rural Bangladesh

Open Defecation Accounts for Much of Excess Stunting

Sanitation alone explains 54% of international variation in child height - GDP only explains 29%

Source: Each data point is a collapsed DHS survey round (country-year), proportional to population. Spears (2012) www.riceinstitute.org #13
What is causing all this stunting?

Cause #1: Malnourished Mother
Cause #2: Poor Diet (inadequate weaning foods)
Cause #3: Diarrhea
Evidence exists that the effect of WASH interventions on linear growth is independent of its effect on diarrhea.

In several studies, WASH had a bigger effect on growth than it did on diarrhea.

.... there is something else going on...
Cause #4: The Environmental Enteropathy Hypothesis

• A subclinical condition of the small intestine, called environmental enteropathy (EE)

• Characterized by:
  – Flattening of the villi of the gut, reducing its surface area
  – Thickening of the surface through which nutrients must be absorbed
  – Increased permeability to large molecules and cells (microbes)

• Likely causes:
  – Too many microbes in the gut
  – Effects of toxins on the gut

Slides borrowed from Cornell U Division of Nutritional Sciences, Laura Smith, R Stoltzfus, F Ngure, B Reid, G Pelto, M Mbuya, A Prendergast, J Humphrey
Most frequent
38 times in 6 hours
75% visibly dirty

Dirtiest
Soil (3 ate avg 11 bites)
chicken faeces, stones
If allowed, toddlers consume poultry feces

Peruvian shantytown families:

- Households who owned free-range poultry:
  - Average ingestion of poultry feces by toddlers per 12-hour observation period was 3.9 times
    - Marquis GM et al., Am J Public Health 1990

Rural Zimbabwe:

- Not selected for poultry ownership:
  - 3 of 7 toddlers directly ate chicken feces during a 6-hour observation period.
    - Ngure F et al., submitted, 2012

Slides borrowed from Cornell U Division of Nutritional Sciences, Laura Smith. R Stoltzfus, F Ngure, B Reid, G Pelto, M Mbuya, A Prendergast, J Humphrey
<table>
<thead>
<tr>
<th></th>
<th>% HH with E coli + sample</th>
<th>E coli/Per gram</th>
<th>Average E Coli Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant Food</td>
<td>0%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Drinking Water</td>
<td>54%</td>
<td>2</td>
<td>800</td>
</tr>
<tr>
<td>Soil in laundry area</td>
<td>60-80%</td>
<td>70</td>
<td>1,400</td>
</tr>
<tr>
<td>Chicken feces</td>
<td>100%</td>
<td>10,000,000</td>
<td>10,000,000</td>
</tr>
</tbody>
</table>

Clearly, kids must stop eating dirt and chicken poop!
Routes of fecal disease transmission and protective barriers for babies!
Child Development: Multiple Contributing Factors

- Health
- Nutrition
- Learning Opportunities
- Sensitive/Responsive Caregiving
- Protection from Stress/Harm
- Social Protection
- School and Community Services
- Family Support

Slides taken from Maureen Black’s CFN Presentation
Child Development: Multiple Contributing Factors

Nutrition is necessary for child development, but not sufficient!
Developmental Perspective

Human Brain Development

Thompson & Nelson, 2000

1000 days

Slides taken from Maureen Black’s CFN Presentation
2007 & 2011

*Lancet* Series on Child Development

- Over **200 million children** < age 5 y in low & middle income countries do not reach developmental potential
  - Nutrition: Chronic undernutrition, micronutrient deficiencies
  - Lack of early learning opportunities
  - Extended to social & environmental risks
- **Efficacy of early interventions**
  - Early childhood policies & programs to reduce inequalities
  - Cost of not investing in child dev programs
  - Need for policies/procedures to scale up

[www.globalchilddevelopment.org](http://www.globalchilddevelopment.org)

Slides taken from Maureen Black’s CFN Presentation
Target of Interventions

- **Prenatal**
  - Prevent Toxic stress/LBW/Prematurity

- **Infancy**
  - Breastfeeding, complementary feeding
  - Responsive Parenting
  - Opportunities for early learning
  - Routines to promote regulation
  - Family support

Kramer et al., 2008; 2007 & 2011 Lancet series on Child Development

Slides taken from Maureen Black’s CFN Presentation
Two Separate Arms of Intervention Research

- **Promote physical health**
  - Nutrition/growth

- **Promote cognitive health**
  - Child development

**Caring Behaviors**

- Breastfeeding and complementary feeding practices
  - Quality of caregiver-child interactions
  - Responsive feeding behaviors
How Do Integrated Programs Work?

Additive effect of child development & nutrition intervention

Slides taken from Maureen Black’s CFN Presentation
Not Just about Child Survival
... and not just about more / better food

• Key period for formation of the brain, laying the foundation for development of cognitive, motor and socio-emotional skills
• Adequate nutrition for pregnant women and infants is necessary for ‘normal’ brain development
• Lack of micronutrients especially critical to optimal infant cognitive and motor development.
• Children with restricted development in early life are at risk
  – later neuropsychological problems,
  – poor school achievement,
  – early school drop out,
  – low-skilled employment and lower wage earnings,
  – poor care of their own children
• Some of damage is irreparable if not addressed before age 2**
• Contributes to the intergenerational transmission of poverty
Building the Case for Integration: The 3 Legged Stool
The Case for the 3 Legged Stool

Integrating WASH, Nutrition & ECD

- Recognition of the synchronicity of the dyads
  - WASH and nutrition
  - Nutrition and ECD
    - Abundant research has demonstrated that nurturing and responsive interactions between caregivers and infants promote optimal growth and development
- Maybe a handful of efficacy trials for even the ‘pairs’, none?? for the triad
- Limited intervention experience
- Little though promising programming guidance
Objectives of CFN Meeting

• Develop a shared understanding of the impacts on child growth and development of WASH, nutrition, and ECD, alone or in synergy

• Reflect on existing and potential programs that integrate two or three of the sectors

• Begin a global conversation that will identify future concrete actions
CFN Meeting Participants

- Academics
- Researchers
- Practitioners
- Private Sector
- Donors
CFN Topics

- Session 1: Panel on Evidence
- Session 2: Field Program Examples
- Session 3: Shared Indicators
- Session 4: Priority Household Practices
- Session 5: Future Actions
Challenges to Consider

**Monitoring and Evaluation**

- How can we develop common indicators?

**Overload of messaging**

- The same people become responsible for sharing multiple behavior change messages and approaches...how do we prioritize
Commitments and Actions

What types of commitments did participants make?

• To gain a deeper understanding of the household practices each sector currently promotes related to child growth and/or development

• To identify household practices that could be promoted across sectors

• To identify opportunities for integration, promoting household practices from each sector
Commitments + Actions = Progress

What has happened in the past four months?

• Development of hygiene actions by age cohort guidelines
• Organizational integration
• Sharing knowledge & continuing the conversation
Get involved!

**Discussion topics**
- What are you already doing that contributes to this area?
- What could you do?
- What barriers do you see to doing them?
- What would help you to do them?

**Commitment**
- Get involved in Clean, Fed, and Nurtured
Co-sponsors

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