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 advance the global conversation to different stakeholders and actors already engaged in WASH

• To engage new energy and talent in promoting flowers to bloom everywhere across the WASH-nutrition-early child development nexus
Why Integrate these Sectors?

• No sector succeeding on its own
• Dyads of integration
• Growing evidence pointing to growth and development needed for a thriving child
Review of the evidence
Safe Feces Disposal

Review of the Evidence

Focus on WASH behaviors for Diarrhea Disease Reduction….

Safe Storage & Treatment of Water

Handwashing

21%

30%

21%

30-50%

43%
Interrelationship of Diarrhea & Undernutrition

- Children with diarrhea tend to eat less
- With diarrhea, nutrients from food are not well-absorbed
- Undernourished children are more susceptible to diarrhea
Most stunting damage occurs during complementary feeding age.

Most rapid decline during 3-15 months.
Prevalence of diarrhea among children < 5 years by observed handwashing before preparing food

SHEWA-B, Rural Bangladesh

Mean diarrhea prevalence

- None 12.5%

Prevalence of diarrhea among children < 5 years by observed handwashing before preparing food

SHEWA-B, Rural Bangladesh

Mean diarrhea prevalence

- None: 12.5%
- Water: 8.3%

Prevalence of diarrhea among children < 5 years

by observed handwashing before preparing food

SHEWA-B, Rural Bangladesh

Mean diarrhea prevalence

- None
- Water
- Water + Soap

12.5% 8.3% 6.9%

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

Open defecation accounts for much of excess stunting.

Each data point is a collapsed DHS survey round (country-year) proportional to population.
.... But something else is going on...

What is causing all this stunting?

Cause #1: Malnourished Mother  
Cause #2: Poor Diet (inadequate weaning foods)  
Cause #3: Diarrhea
However:

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
What else might be happening?
Household observations shed light...

Most frequent:
38 times in 6 hours
75% visibly dirty

Dirtiest
Soil (3 ate average 11 bites)
chicken faeces, stones

Slides stolen from Cornell U Division of Nutritional Sciences, Laura Smith. R Stoltzfus, F Ngure, B Reid, G Pelto, M Mbuya, A Prendergast, J Humphrey
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 stolen 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>Source</th>
<th>% HH with E coli + sample</th>
<th>E coil/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!*

- **Sanitation**
- **Clean water supply**
- **Hygiene**
  - Protective Play Space

From Feces:
- Fluids
- Fingers
- Flies
- Fields/floors

From Fowl:
- Eating dirt and more

From Laundry Water:
- Nappy Handling
Nutrition is necessary for child development, but not sufficient!
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

- 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
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 and 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

http://www.washplus.org/wash-nutrition
Co-Sponsors

http://www.washplus.org/wash-nutrition
http://aliveandthrive.org/events/clean-fed-nurtured