Linking WASH, environmental enteric dysfunction and stunting in rural households

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AUSTRALIA
Overview

• Brief intro
• Household-level cleanliness indicators
• Guatemala study findings – 2017
• Lao PDR study – 2018
• What we need now
Stunting

• 166 million children under the age of 5 were stunted in 2016
• Stunting is THE most prevalent outcome of undernutrition
• Global targets set to reduce stunting in children under 5 by 40% by 2025
• Traditional nutrition interventions e.g. micro-nutrient supplements, breastfeeding promotion
• Nutrient supplements shown to reduce stunting only by one fifth (Walker et al., 2013)
• If global trends continue, the 40% target will not be achieved
WASH and Stunting – what do we know?

• Poor household WASH conditions an underlying cause of undernutrition

• Poor sanitation attributed as the second leading cause of stunting worldwide (Danaei et al., 2016)

• Multifaceted problems crossing biological, social and environmental spheres

• Environmental enteric dysfunction (EED) - biological and environmental
Environmental Enteric Dysfunction (EED)

- AKA environmental enteropathy (EE) or tropical enteropathy
- **Asymptomatic**, hard to diagnose, strongly associated with stunting
- Occurs when harmful pathogens are ingested on a regular basis over a long period of time
- Leads to long-term gut damage
  - Small intestine villi damaged
  - Impaired nutrient absorption
  - Pathogens leak through gut lining
  - Chronic inflammation
  - Reduced nutrients for body
- HH’s with poor WASH have higher incidence of EED
WASH & Nutrition

First 1000 days

Poor WASH + Good Nutrition → pathogen exposure → illness & vomiting due to diarrhoea

Poor WASH + Poor Nutrition → pathogen exposure → inadequate nutrition

Good WASH + Poor Nutrition → inadequate nutrition → loss of nutrients → impaired nutrient absorption

Good WASH + Good Nutrition → optimal growth
Household-level Indicators

• Handwashing after defaecation, and before food preparation and feeding children
• Faeces disposal (human and animal)
• Child environment
• Clean drinking water
• Food cleanliness/ hygiene
• Neighbouring households
Guatemala Study – 300 Households

- **Quiché**
  - 15 communities
  - 51% stunting

- **Quetzaltenango**
  - 4 communities
  - 54% stunting

- **Huehuetenango**
  - 4 communities
  - 62% stunting

- **Guatemala Capital**
Guatemala Findings

- Number of children under 2 years in household
- Knowledge of good handwashing practices 55 – 60%
- Knowledge of sanitation, drinking water, child environment 13 – 30%
- Sanitation coverage high
- Safely managed sanitation = lower rate of safe child faeces disposal
- Exposure to faecal matter increased after 1 year
- No correlation between stunting and presence of animals in yard
- Strong correlation between diarrhoea and stunting
Next steps: Lao PDR – 2000 Households

- Vientiane Capital:
  - 40.8% stunting
  - 39% HHs using improved sanitation

- Khammuane:
  - 40% stunting
  - 42% HHs improved sanitation

- Savannakhet:
  - 40.8% stunting
  - 39% HHs using improved sanitation
What We Need Now

- Long-term, sustainable policy and national strategies integrating WASH and nutrition
- Actively facilitate and promote collaboration between CSOs, government departments, private sector, community groups/leaders, and all of the above
- Donors invest in nutrition intervention that integrate WASH
- RESEARCH – evidence based studies to fill the knowledge gap
Thank you, Gracias, ขอบคุณ

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