WASH and Nutrition
Evidence & Impact

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Under-nutrition

• 35% of all child deaths caused by low calorie and micronutrient intake \(^1\)

• 30% of children in low-income countries <5 years are chronically undernourished \(^2\)

• Caused by an interaction between inadequate dietary intake and disease, and multiple indirect factors
Recent work

World Bank, 2008
WHO, 2008
Lancet, 2009
And less recent work...

• Edwin Chadwick

• Mills-Reinicke
Systematic Review

1. To evaluate the strength of evidence on the effectiveness of water, sanitation and hygiene interventions in improving child nutritional status

2. To identify current research gaps
Hypothesis

• Evidence that WASH interventions positively impact prevalence of childhood disease\textsuperscript{3,4,5}.

• Diseases such as diarrhoea, tropical enteropathy and nematode infections have negative effects on nutritional status in children\textsuperscript{6,7,8,9}.

• WASH interventions could be associated with improved measures of nutritional status in children.

• Indirect pathways could also contribute:
  – time taken to collect water
  – the purchase of water
  – chemical contamination of water
Conceptual framework - how poor water, sanitation and hygiene might impact child nutritional status

- **Water source far from home**
  - Less time for food preparation and meal supervision

- **Inadequate storage capacity**
- **Low water quantity**

- **Water pricing**
  - High amount spent on water
  - Less money for food

- **Unimproved sanitation**
  - Poor hand-washing post-defecation
  - Faecal contamination of home
  - Contaminated material ingested

- **Nematode infection**
- **Tropical Enteropathy**
- **Diarrhoea**

- **Poor water quality**
  - Unprotected water source

- **Poor nutritional status**
Methods

• **Primary outcomes:**
  – weight-for-height (wasting)
  – weight-for-age (underweight)
  – height-for-age (stunting)

• **Secondary outcomes:**
  – all other child anthropometric measures
  – biochemical measures of micronutrient status

• 6 databases will be searched using a keyword search and MeSH terms
Method

• All included studies to have controlled design.

• Participants: children < 18 years old from both low and high income countries.

• Intervention types included are those aimed at:
  1. improving access to facilities which ensure the hygienic separation of human excreta from human contact
  2. promotion of hand-washing with soap
  3. introducing a new/improved water supply and/or improved distribution
  4. improving the microbiological quality of drinking water
Implications

- WASH may be a major contributor to child nutritional status
- Development of integrated approaches towards WASH and nutrition policy