Community-based Environmental Sanitation and Hygiene

Diarrheal Disease Reduction Through Hygiene Improvement
Diarrheal Disease and Children’s Health

Diarrheal Disease in Child Survival Programs

EHP’s Approach to Hygiene Improvement

Field Examples
Diarrheal disease causes an estimated 1.9 million deaths per year among children under the age of 5 in developing countries.
Why Do We Focus On Diarrhea Prevention?

- Preventable major burden on health care system
- Important contributor to malnutrition in children under 5
- Negative impacts on household economics, education, and time
Primary Prevention

- Oral Rehydration Therapy
- Continued feeding
- Timely care seeking

Case Management
- Oral Rehydration Therapy
- Continued feeding
- Timely care seeking

Improved Host Resistance
- Nutritional Status
  - Birth weight
  - Complementary feeding
- Exclusive breastfeeding
- Micronutrients (Zn, VitA)
- Measles Vaccinations

Diarrhea Causing Agent → New Host → Illness

New Host

Improved Host Resistance

Case Management
Primary Prevention
The F-Diagram

Source: Wagner and Lanois, 1958
Primary Prevention
The F-Diagram

Source: Wagner and Lanois, 1958
Primary Prevention
The F-Diagram

Source: Wagner and Lanois, 1958
The F-Diagram

Sanitation

Fluids

Fields

Feces

Flies

Fingers

Food

New Host

Water Quality

Water Quantity

Source: Wagner and Lanois, 1958
The F-Diagram

Primary Prevention

Source: Wagner and Lanois, 1958
Effectiveness of Hardware and Hygiene Interventions in Reducing Diarrhea Morbidity

Hygiene Improvement

Access to Hardware

Hygiene Promotion

Diarrheal Disease Reduction

Improved Host Resistance

Reduced Need for Case Management
Hygiene Improvement

- Access to Hardware
- Hygiene Promotion
Hygiene Improvement

- Access to Hardware
- Hygiene Promotion

- Enabling Environments
Access to Hardware
Hygiene Promotion
Behavioral/Social Change Methods:

- Community Mobilization
- Social Marketing
- School Programs
- Community Participation in Identifying Problems and Solutions
Enabling Environments
Hygiene Improvement

Access to Hardware
- Community Water Systems
- Sanitation Facilities
- Household-level Technologies and Materials

Hygiene Promotion
- Behavioral/Social Change Methods:
  - Community Mobilization
  - Social Marketing
  - School Programs
  - Community Participation in Problem Identification and Solutions

Enabling Environments
- Policy Improvement
- Community Organization
- Financing and Cost Recovery
- Public-Private Partnerships
- Institutional Strengthening
Impact Indicators

- Percentage of children <5 years of age with diarrhea in the last two weeks
- Quantity of water used per capita per day
- Percentage of child caregivers and food preparers with appropriate handwashing behavior
- Percentage of population using hygienic sanitation facilities
Field Examples
Hygiene Improvement

Access to Hardware
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jamaica
Context

Strategies
results

- Household use of hygienic latrines up
- Grey water disposal up significantly
- Household solid waste disposal improved
- Increase in covering of water storage containers
- Household handwashing up dramatically
central america
Soap and the Private Sector
Hygiene Improvement

Access to Hardware
- Community Water Systems
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Hygiene Promotion
Behavioral/Social Change Methods:
- Community Mobilization
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Context

central america

Strategies
After one year of the campaign in Guatemala among the 1,572,395 children under five nationwide in the two lowest economic strata, there were:

- 14,500 fewer children with diarrhea during any two week period during the rainy (high diarrhea) season
- 7,000 fewer children with diarrhea during any two week period during the dry (low diarrhea) season
- 322,000 fewer cases of diarrhea over the course of a year
- 1,287,000 fewer days of diarrhea over the course of a year.
Hygiene Improvement

Context Strategies

safe

Access to Hardware
- Community Water Systems
- Sanitation Facilities
- Household-level Technologies and Materials

Hygiene Promotion
- Behavioral/Social Change Methods:
  - Community Mobilization
  - Social Marketing
  - School Programs
  - Community Participation in Problem Identification and Solutions

Enabling Environments
- Policy Improvement
- Community Organization
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## Results (9 months)

<table>
<thead>
<tr>
<th></th>
<th>Baseline (%)</th>
<th>Evaluation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of diarrhea prevention: clean water</td>
<td>5</td>
<td>97</td>
</tr>
<tr>
<td>Knowledge of diarrhea prevention: feces disposal</td>
<td>6</td>
<td>77</td>
</tr>
<tr>
<td>Reported behavior: mother usually uses latrine</td>
<td>86</td>
<td>99</td>
</tr>
<tr>
<td>Reported behavior: child 3-5 usually defecates in a latrine or fixed place</td>
<td>12</td>
<td>90</td>
</tr>
<tr>
<td>Observation: no feces lying inside latrine</td>
<td>37</td>
<td>99</td>
</tr>
<tr>
<td>Handwashing demonstration: all 5 key elements</td>
<td>2</td>
<td>82</td>
</tr>
<tr>
<td>Observation: ash or soap for handwashing</td>
<td>4</td>
<td>99</td>
</tr>
<tr>
<td>Impact: diarrhea in a child, last 2 weeks</td>
<td>43</td>
<td>20</td>
</tr>
</tbody>
</table>
Household Latrine Access — Model 1

Intervention Area

Baseline
- Hanging latrine: 75%
- None: 11%
- Hygienic latrine: 14%

Final
- Hanging latrine: 43%
- None: 4%
- Hygienic latrine: 53%

Control Area

Baseline
- Hanging latrine: 54%
- None: 24%
- Hygienic latrine: 22%

Final
- Hanging latrine: 68%
- None: 9%
- Hygienic latrine: 23%
Household Latrine Access – Model 2

**Intervention Area**

- **Baseline**
  - Hanging latrine: 48%
  - None: 31%
  - Hygienic latrine: 21%

- **Final**
  - Hanging latrine: 11%
  - None: 1%
  - Hygienic latrine: 88%

**Control Area**

- **Baseline**
  - Hanging latrine: 77%
  - None: 16%
  - Hygienic latrine: 7%

- **Final**
  - Hanging latrine: 80%
  - None: 9%
  - Hygienic latrine: 11%
EHP’s Hygiene Improvement Activities...

- Explicitly address diarrhea prevention
- Use a systematic, analytical approach to develop a broad strategy of intervention
- Tailor interventions to local conditions
- Actively identify partners to maximize public health impact
- Include a participatory, community-based approach
- Continuously monitor, evaluate, adjust, and improve

Apply proven methods to achieve health outcomes
Conclusions and Take Home Points
Take Home Points

- Diarrhea is a priority health concern
- Diarrhea is preventable
- Evidence-based solutions for diarrhea prevention have been documented
- A combination of field-applicable strategies are available to prevent diarrhea
- Field examples demonstrate the success of these strategies