Module on Childhood Diarrhea
Part 4 – Sanitation and Hygiene

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Sanitation & Hygiene:
Designing an intervention in rural Zimbabwe

Introduction to Global Health
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Lecture roadmap

• Global trends in sanitation
  • The scale of the challenge
  • Implications
• Climbing the sanitation ladder
  • Sanitation ladder?
  • How is the world doing?
• Basic considerations in sanitation intervention
• Designing a sanitation and hygiene intervention in Zimbabwe

The scale of the challenge

• 2.6 billion people – four in ten people in the world – do not use improved sanitation
• 884 million people do not use improved sources of drinking water
• Every day, diarrheal disease kills 5,000 children.
• Every week, it kills 42,000 people.
• Every one of these deaths is tragic – and preventable.

The global picture

Total Sanitation Coverage 2006

The good news

• Coverage in the developing world has increased from 41% to 53% (1990 -> 2006)
  ⇒1.1 billion people gained access!
• Coverage in South-eastern and Eastern Asia increased 17%
• Many countries are making rapid progress, despite initial low coverage and rapid population growth:
  – Vietnam: 47 percent of the population gained access to sanitation (1990-2006)
  – Philippines: 43%; Pakistan: 40%; Benin: 30%; Cameroon and Mali: 29%


The bad news

- Sub-Saharan Africa recorded least progress – only 5%: from 26 (1990) to 31 percent (2006).
- Southern Asia recorded moderate progress – 12 percent: from 21% (1990) to 33% (2006).
- The majority of people without sanitation live in Asia (70%) and Sub-Saharan Africa (22%).
- The world is not on track to meet the MDG sanitation target. At the current rate, we will miss the target by over 700 million people.

Progress towards the MDG sanitation target 2006

Sanitation for all – why is it important?

Five simple truths on sanitation:

1. Sanitation is vital for human health
2. Sanitation generates economic benefits
3. Sanitation contributes to dignity and social development
4. Sanitation protects the environment
5. Improving sanitation is achievable

Sanitation is vital for human health

Lack of sanitation is one of the biggest causes of illness and death in the developing world:

- One gram of feces can contain 10 million viruses, one million bacteria, one thousand parasite cysts and 100 worm eggs.
- More than half the hospital beds in Sub-Saharan Africa are currently occupied by patients with preventable diarrheal disease; improving sanitation and hygiene would free up money and resources to tackle other health issues.
- Access to a toilet can reduce child diarrheal deaths by over 30 percent.
- Diarrhea coupled with pneumonia kills more children than any other disease.
- Children infested by worms lose up to one-third of the nutrient value of their food.

Sanitation generates economic benefits

- Meeting the Millennium Development Goal for sanitation would cost about $10 billion every year, but yield benefits upwards of nearly $200 billion per year.
- Sanitation is among public health’s most cost-effective policy interventions.
- Around 12 percent of the health budget in Sub-Saharan African countries is currently spent treating preventable diarrheal diseases.
- Investing in sanitation makes investments in education more effective; girls are more likely to go to school and stay in school when girl-friendly toilets are available.
- Investments in sanitation also protect water resources, make investments in water supply more effective, and increase tourism revenues.
Sanitation contributes to dignity and social development

- 1.2 billion people defecate in the open, exposing themselves to ridicule, shame; and, for women and girls, the risk of attack.
- Within thirty years, UN-Habitat estimates that one in three people in the world will live in a slum. Without adequate sanitation, they will live surrounded by human filth.

Sanitation protects the environment

Investments in sanitation protect vital natural resources, keep rivers and coastal seas clean, and reduce degradation of productive land and fisheries:

- Worldwide, every year more than 200 million tonnes of human waste and vast quantities of solid waste and wastewater remain untreated.
- In Southeast Asia 13 million tons of feces are released to inland water sources each year, along with 122 million m³ of urine and 11 billion m³ of gray water.

The sanitation ladder

<table>
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<tr>
<th>Open defecation</th>
<th>Unimproved facilities</th>
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<tr>
<td>Open defecation: when human feces are deposited on fields, forests, bushes, open bodies of water, beaches or other open spaces or disposed of with solid waste.</td>
<td>Unimproved sanitation facilities: do not ensure hygienic separation of human excreta from human contact. Unimproved facilities include pit latrines without a slab or platform, hanging latrines and bucket latrines.</td>
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Shared sanitation facilities: Separation facilities of an otherwise acceptable type shared between two or more households. Only facilities that are not shared or not public are considered improved.

Improved sanitation facilities: Ensure hygienic separation of human excreta from human contact. They are use of the following facilities:
- Flush type flush toilets, piped sewer system, septic tank, pit latrines
- Ventilated improved pit (VIP) latrines
- Pit latrine with slab
- Composting toilet

Designing a sanitation and hygiene intervention in Zimbabwe

Pop: 12.5 million
~ 70% rural
2008: 25% OD, 7% Unimproved, 24% Shared, 44% Improved
Basic principles: The F-diagram of disease transmission and control

- Primary barriers (pathogens -> environment):
  - Proper disposal of feces in adequate sanitation facilities
  - Contain flies
  - Prevent contamination of fluids, fields & floors
  - Can reduce child diarrheal deaths by over 30%
  - Washing hands with soap after fecal contact
  - Can reduce child diarrheal deaths by over 40%
- Secondary barriers:
  - Water treatment - e.g. boil, disinfect
  - Food hygiene - e.g. reheat

The Blair Ventilated Improved Pit (VIP) latrine
Invented in Zimbabwe in 1973 (Peter Morgan)

How the Blair VIP latrine works

The basic capabilities for the household production of health

- Values: World view that guides action (explicit, implicit)
- Practices: Customary ways of doing things (formal, informal)
- Resources: Material (money, infrastructure) or non-material (time, knowledge, motivation)
Hygiene and Sanitation Formative Research

Slides and audio related to Dr Mbuya’s study
“Designing a Sanitation and Hygiene Intervention in Zimbabwe” will be made available after the data have been published.

Summary

- The world is not on track to meet the sanitation MDGs
  - Open defecation is still practiced by 1.2 billion people
- Sanitation and hygiene improvement, or lack thereof, at the household level is a function of:
  - Values,
  - Practices
  - Resources

Thank you!! Siyabonga!! Tatenda!!