

# WHO – World Health Report of 2004 – Leading Causes of Death

|  |              |
|--|--------------|
| ■ Global Total                                     | 57.0 million |
| – Communicable, maternal Perinatal and nutritional | 18.3 million |
| – Non-communicable                                 | 33.5 million |
| – Injuries   | 5.2 million  |

# WHO – World Health Report of 2002 – Leading Causes of Death

|   |              |
|---|--------------|
| Infectious & parasitic disease deaths – total | 10.9 million |
| – Acute respiratory infections                | 3.96 million |
| – HIV/AIDS                                    | 2.77 million |
| – Gastroenteritis                             | 1.79 million |
| – Tuberculosis                                | 1.56 million |
| – Malaria                                     | 1.27 million |
| – Measles                                     | 0.61 million |
| – Bordetella pertussis                        | 0.29 million |
| – Tetanus                                     | 0.21 million |
| – Dengue fever                                | 0.18 million |
| – Meningitis                                  | 0.17 million |
| – STD's                                       | 0.17 million |
| – Intestinal parasites                        | 0.11 million |
| – Hepatitis B                                 | 0.10 million |



# WHO – World Health Report of 2004 – Leading Causes of Death

- Mortality Statistics – of 57.0 million deaths
  - 5.3 million will be children under 5-years old
    - Down from 10 million in 1998
    - Down from 21 million in 1955
  - 99% of childhood deaths <5yo are in developing countries

# Percentage outpatient attendance

## ■ 10 Causes of clinic visits %

|                                |      |
|--------------------------------|------|
| – Malaria                      | 44.1 |
| – Upper Resp. Infection        | 7.2  |
| – Diarrhea                     | 4.3  |
| – Skin Diseases                | 4.2  |
| – Hypertension                 | 2.7  |
| – Home/occupational injuries   | 2.3  |
| – Acute eye infection          | 2.1  |
| – Pregnancy related condition  | 1.9  |
| – Rheumatic and joint diseases | 1.9  |
| – Anemia                       | 1.7  |
| – All other conditions         | 27.7 |

# 10 Leading Causes of In-Hospital mortality

| ■ Disease                  | %    |
|----------------------------|------|
| – Malaria                  | 17.1 |
| – Anemia                   | 9.6  |
| – Pneumonia                | 7.2  |
| – Cerebrovascular accident | 5.6  |
| – Typhoid Fever            | 3.5  |
| – Diarrhea                 | 3.5  |
| – Hypertension             | 3.3  |
| – Hepatitis                | 3.2  |
| – Meningitis               | 3.0  |
| – Sepsis                   | 2.8  |

# Potential Causes of Diarrhea

- Food poisoning – Staph aureus, Bacillus cereus, Clostridia perfringens
- Non-invasive diarrhea – Entertoxogenic E. coli, cholera, Giardia, Cryptosporidium, Cyclospora, Noravirus, Rotavirus, adenovirus
- Invasive diarrhea – Salmonella, Shigella, Campylobacter, amebiasis, invasive E. coli,



# Principles of Treatment

- **Hydration, Hydration** is the most important principle of treatment for every intestinal infection
- Antibiotics are of limited benefit except for Typhoid fever and amebiasis
- Children are at greatest risk from diarrheal illness. Balanced salt/sugar solutions are most helpful for hydration in children



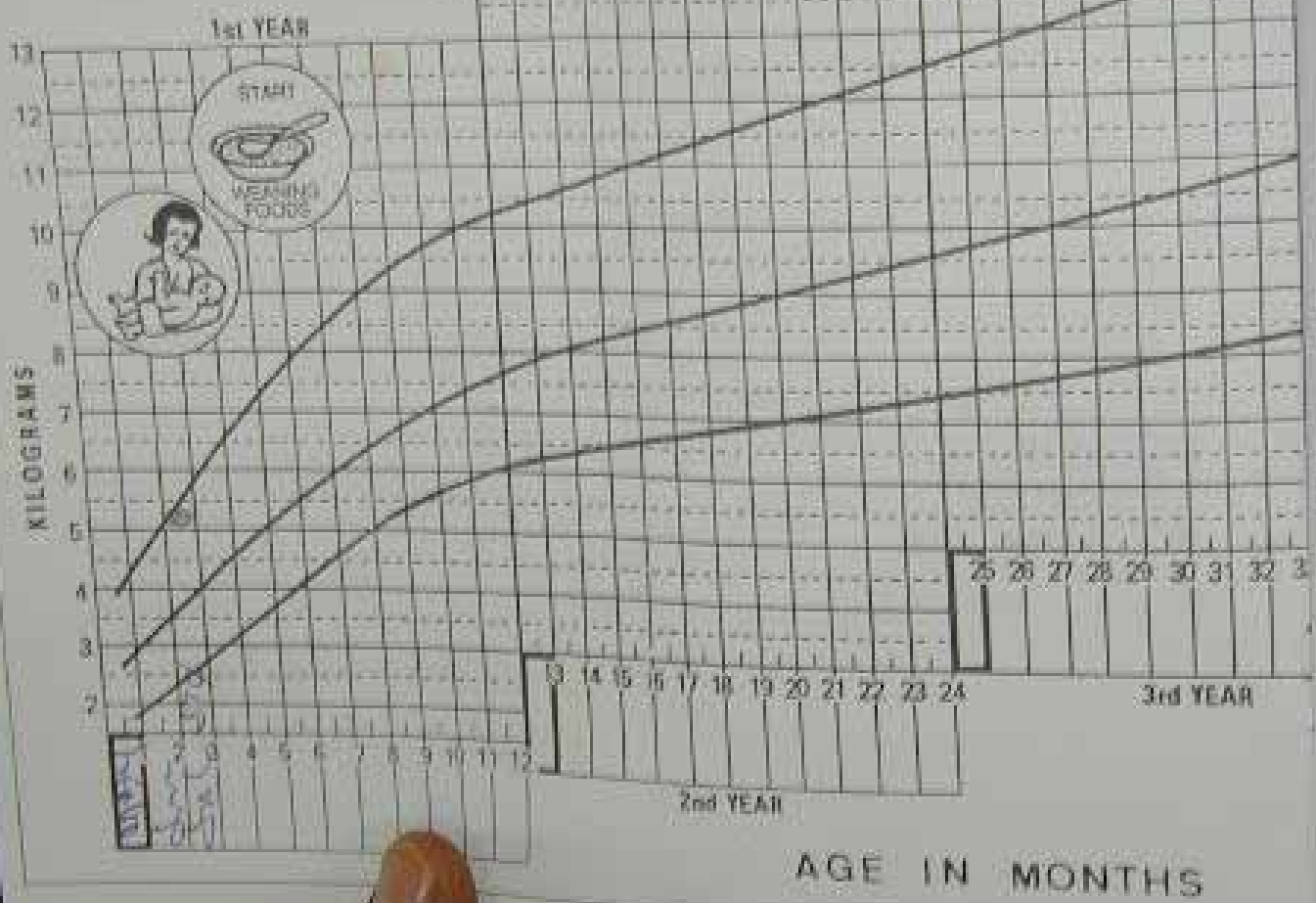
# Start with the Children

- UNICEF's GOBI Program
  1. Growth monitoring
  2. Oral rehydration
  3. Breast feeding
  4. Immunization





Child's name: \_\_\_\_\_  
Father: \_\_\_\_\_





**BREASTMILK**  
*Below the Age  
of six (6) Months*  
**BREASTMILK**  
*is the only*  
**FOOD** that the  
**Baby**  
**Needs**

**ADVANTAGES OF BREASTFEEDING**

- BREASTMILK IS THE BEST FOOD FOR THE INFANT.
- BREASTFEEDING IS ECONOMICAL.
- BREASTFEEDING PREVENTS ILLNESS AND DEATHS IN INFANTS.
- BREASTFEEDING PROMOTES LOVE BETWEEN THE MOTHER & INFANT.
- BREASTFEEDING PROVIDES A HEALTHY FOUNDATION FOR THE INFANT'S GROWTH AND DEVELOPMENT.

**DONATED BY**



**PLAN  
INTERNATIONAL  
GHANA**

# Gastroenteritis -- Diarrhea

Improved survival with breast feeding

Treatment -- maintaining hydration

INNOCULATION CENTRE





# Quality of Water

- Commercially bottled water – expensive
- Boiled water – expensive
- Chlorine/iodine treated – poor taste
- Filter system – sand filters, commercial filters
- Government treated – variable quality
  - Good at treatment center
  - May become contaminated in delivery pipe
- Home produced water for sale – contaminated
- Closed wells – more likely safe
- Open wells – usually contaminated
- Rivers – highly contaminated
- Ponds – highly contaminated

# Barekuma Village Project

- Plans for school water/sewage, Scott Benson

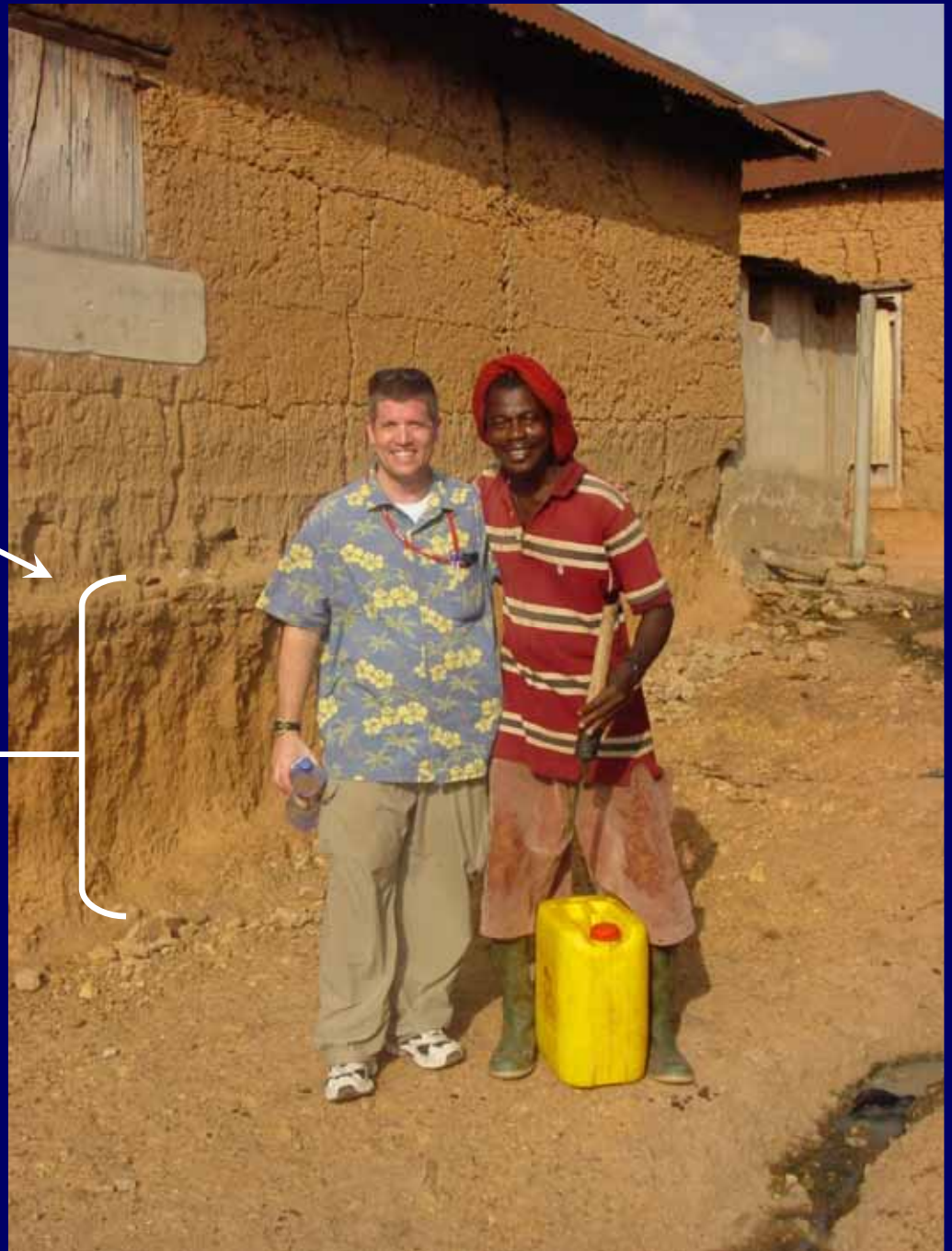






House  
foundation

Erosion







# Noravirus

- The most common cause of diarrhea in the USA – 75 million cases per year
- Study in Northern Ghana
  - Rotavirus 55%
  - Adenovirus 28%
  - Noravirus 10%
  - Parasites 5%
  - Bacteria 5%

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# Integrated Management of Childhood Illness (IMCI) from UNICEF

- Dr. Easmon Otupiri – Chairman of Public Health at Kwame Nkrumah University of Science and Technology
- 80% of children that die in northern Ghana are not seen or treated by a medical care provider
- 80/1000 children die before age 5.

# IMCI – in Action

Childhood mortality 80/1000 or 1 of 13

If you can't get the children to the clinics then train first responders in the villages to treat the three main causes of mortality in children under 5.

Villages choose respected women

One week training course

Records by pictures

Malaria – effective treatment --  
artesunate/lumefantrin

Diarrhea – oral rehydration

Pneumonia – antibiotic

Early results are that mortality is down from  
75/1000 to 25/1000

# Use of oral rehydration salts (ORS) Juaben, Ghana

- 193 mothers interviewed
- 75 children – diarrhea in last two weeks
- 92% of mothers aware of ORS
- 82.6% previously used ORS
- 86.6% described preparation of ORS
- 28.6% used ORS with last diarrhea
- Diarrhea resolved in one week
  - 87% treated with ORS
  - 65.4% of those not treated

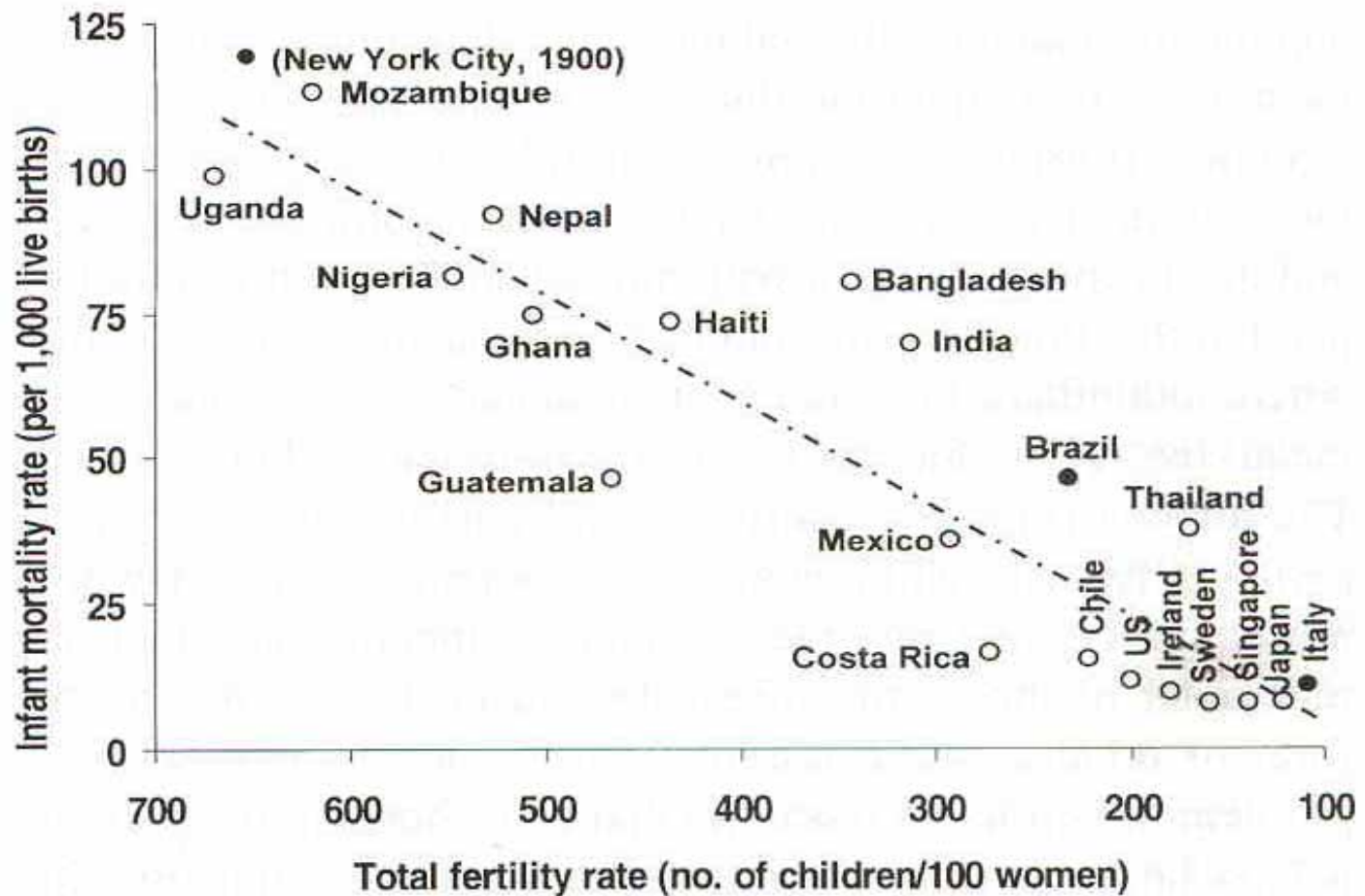


# Millennium Goals by 2015

- Eradicate extreme poverty and hunger
- Reduce childhood mortality
- Improve maternal health
- Combat HIV/AIDS, malaria, other diseases
- Ensure environmental stability
- Develop a global partnership for development

# How fast can we change?

- Greatest change has been in China and India
- Slow change in Sub-Saharan Africa
  - At present rate:
    - Extreme poverty 2147
    - Childhood mortality 2165



**Figure 1.** Correlation of infant mortality and total fertility in selected countries and areas of world. 1995 data updated from [24].



# Typhoid Fever

- Positive blood cultures at KATH in Kumasi
- *Salmonella typhi*
- Salmonella species
- *Staph. aureus*

# Salmonella Carrier Status of Food Vendors in Kumasi, Ghana

Enrollment: Sitting and Itinerant Food Vendors

Number

258

Total positive for Salmonella

6

2.3%

*Salmonella typhi*

3

Salmonella other species

3

# Complications of Typhoid Fever

- 66 consecutive cases of typhoid perforation of the ileum
- Complications of surgery
  - Enterocutaneous fistula
  - Wound infection
  - Intestinal obstruction
  - Wound dehiscence
  - Pneumonia