

**The Danger of...**

**...Diarrhea**

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Temple of Understanding

# MDG #4

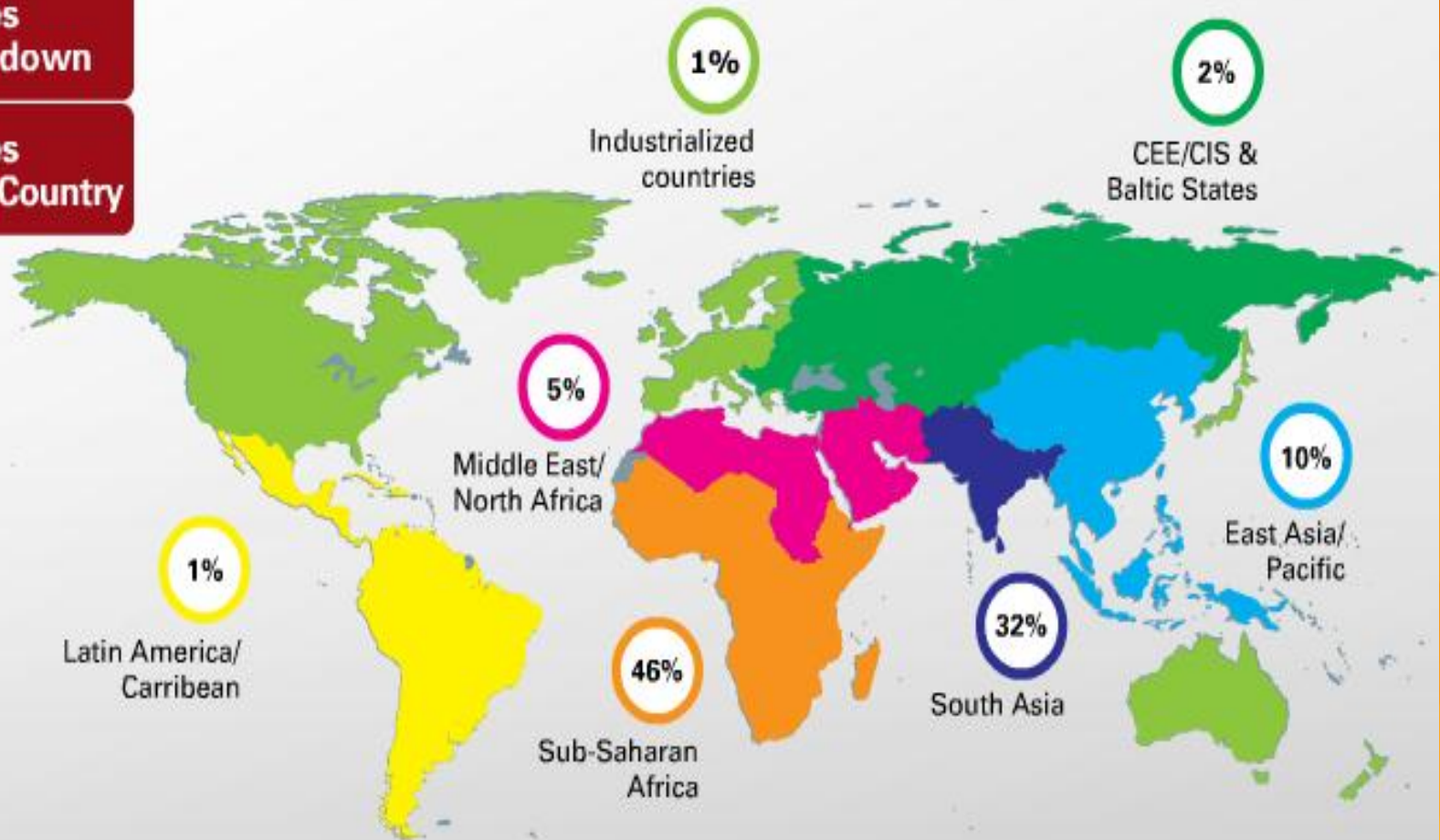
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- ◆ In 2000, the world leaders developed the **Millennium Development Goals** with hopes of achieving them by the year 2015.
- ◆ The fourth MDG centers upon child health, specifically to reduce  $\frac{2}{3}$  of the mortality rate among children under five.
- ◆ In 1990, under-five mortality ratio in the 60 priority countries was 115 per 1000 live births.
- ◆ The MDG goal is to reach 38 per 1000 live births by 2015.
- ◆ According to UNICEF, the actual annual rate of reduction shows the ratio will be 85 to 1000.

# Problem Areas

60 Countries  
2015 Countdown

60 Countries  
Country By Country



# Leading causes of death in children under 5

1. Neonatal death- 37%
2. Pneumonia - 19 %
3. **Diarrhea- 17 %**
4. Malaria- 8%
5. Measles- 4%
6. HIV/AIDS - 3%
7. Injuries- 3%



# What is Diarrhea?

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- ◆ Diarrhea is the cause of a change in the lining of the intestine
- ◆ There is an imbalance of fluid and nutrients across bowel wall
- ◆ Dehydration is common result of diarrhea
  - Leads to large decrease of body fluids and electrolytes

# Types

1. Acute Watery Diarrhea- 50%
  - ◆ sufferer cannot be rehydrated
2. Persistent diarrhea - 35%
  - ◆ lasts 14 days or longer
3. Dysentery- 15%
  - ◆ bloody diarrhea

# How does it cause death?

## 5% loss of body fluid leads to:

- ◆ Rapid heart rate
- ◆ Dizziness
- ◆ Disorientation
- ◆ Coma

## 10% loss of body fluid leads to:

- ◆ Acidosis
- ◆ Shock
- ◆ Death

# Causes

- ◆ Viral infections  
(causes 40% of deaths)
- ◆ Bacterial infections
- ◆ Parasites
- ◆ Food intolerances
- ◆ Food poisoning
- ◆ Reaction to medicines
- ◆ Intestinal disease  
(inflammatory bowel disease)

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# The Cycle

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- ◆ Diarrhea decreases appetite
  - lowers amount of nutrients absorbed
  - leads to malnutrition
- ◆ Kids with malnutrition are twice as likely to contract and they have it for a 3x as long
- ◆ Increases in the occurrence of diarrhea worsens malnutrition
  - hinders mental/physical development

## Usually...

- ◆ Diarrhea is common
- ◆ Many people have it once or twice a year
- ◆ It lasts two to three days and can be treated with over-the-counter medicine

## In Actuality.....

- ◆ Kills more than 1.5 million children each year
- ◆ Is more deadly than AIDS, malaria, and measles combined

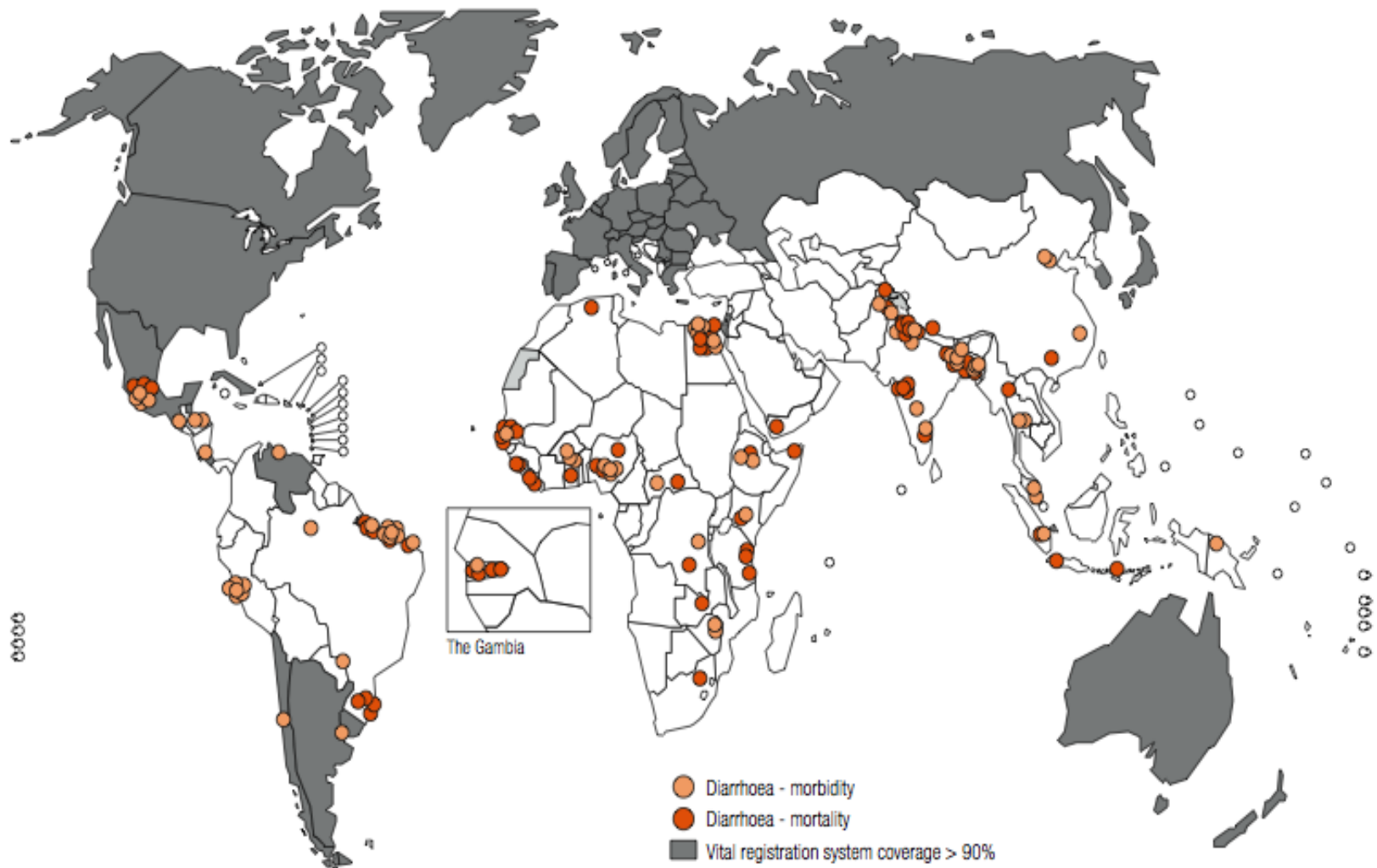
# Gross National Product



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# Most Affected Areas

Fig. 1. Distribution of epidemiological studies used in the analysis





# Coincidence??

## I Think Not!

- ◆ Over half the deaths due to diarrhea occur in 5 countries: India, Nigeria, Afghanistan, Pakistan, and Ethiopia.
- ◆ Most affected areas are the low income/developing countries
  - This this problem is due to lack of money resulting in a lack of resources.
  - Requires in decrease in poverty level and increase in education for improvement

# Treatment

## Environment

- ◆ Access to safe drinking water (30-55% reduction)
- ◆ Good personal hygiene (40% reduction)
- ◆ Proper removal of waste
- ◆ Less bottle feeding
- ◆ Education

## Medical

- ◆ Fluids (more than usual)
- ◆ Antibiotics
- ◆ Breastfeeding
- ◆ Zinc Supplementation
- ◆ Immunization against rotavirus (causes 40% of deaths)

# High Income Health Insurance

- ◆ Has a national health care system
- ◆ Financed by government
- ◆ In 2000, WHO rated France as best overall health care in the world
- ◆ In 2005, France spent 11.2% of GDP on health care, less than the US
- ◆ Workers pay 21% of income to national system
- ◆ On average government pays for 70% of bill
- ◆ Sickest people get 100% coverage
- ◆ New mothers get child allowance

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# Top Causes of Death

1. Neonatal causes - 53%
2. Other- 38%
3. Injuries- 8%
4. Pneumonia- 1%
5. **Diarrhea- 1%**



# France

- ◆ Spend \$4,966 US dollars on health per person
- ◆ **Life expectancy** - 81
- ◆ **Under 5 Mortality Rank** - 169
- ◆ **Under 5 Mortality rate**- 4 to 1000 births (one of the lowest)
- ◆ 50-80 children die from diarrhea each year
- ◆ 50,000 children hospitalized for dehydration

# Why isn't France affected?

- ◆ Have access to the majority of vaccines and medicine
- ◆ Drinking water in urban and rural areas is 100% clean
- ◆ Sanitation facilities are 100% improved
- ◆ Consistently wash their hands with soap
- ◆ Have better education in terms of disease control and prevention

# Low income Health Insurance

- ◆64% of nation has some form of healthcare
- ◆40% have access to basic health facilities
- ◆Government spends 6% of GDP
- ◆In 2003, 11 doctors and 18 nurses for 100,000 people
- ◆In 2005, medical facility for every 27,000 people

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# Top Causes of Death

1. Pneumonia - 25%
2. **Diarrhea- 19%**
3. Measles-6%
4. Malaria-1%
5. Injuries-1%



# Afghanistan

- ◆ Spend \$42 dollars per person annually
- ◆ 4th highest number of deaths due to diarrhea
- ◆ **Life expectancy** - 44
- ◆ **Under 5 mortality rank-**  
2
- ◆ **Under 5 mortality rate-**  
257 per 1000 births (25%)
- ◆ 82,000 children die annually from diarrhea
- ◆ Most children get 6 episodes of diarrhea a year

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# Why is Afghanistan affected?

## Drinking water source

- ◆ 78% of urban population improved
- ◆ 39% of rural population improved

**Total improvement: 48%**

## Sanitation facility access

- ◆ 60% of urban population improved
- ◆ 30% of rural population improved

**Total improvement: 37%**

# Why is Afghanistan affected?

- ◆ Government dumps waste in the same area as water
- ◆ Many people don't wash hands before preparing food
- ◆ In 2003, in 30.8% of cases children were not given fluid
- ◆ 43% of women think children should not be given fluid
- ◆ Children are not breastfed long enough
  - Mothers replace with cereals with the contaminated water
  - Formula is diluted with contaminated water

# UN Efforts

- ◆ In 1970s, WHO and UNICEF began using oral rehydration theory
- ◆ 1 million deaths have been prevented each year
- ◆ Evidence some countries knowledge and use of therapy is declining
- ◆ Success depends on the acceptance of the government and medical community



# Treatment/Prevention Plans

## Treatment

1. Fluid replacement (ORS salts)
2. Zinc treatments

## Prevention

1. Immunization against rotavirus
2. Early breastfeeding/ vitamins
3. Hand washing with soap
4. Improved water
5. Community-wide sanitation

Taj Bibi's first two children died, one of them from severe diarrhea, because the family could not afford to take them to the doctor. "Now, if our children get diarrhea or any other illness, I take them to the Community Health Worker."

A CHW gave Taj Bibi's children oral rehydration solution (ORS), zinc, and advice on hand washing. "I followed her advice and completed the course of medication. It was very useful," says Taj Bibi. "Our CHW can help us manage these sicknesses and give us the proper medicines."

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