



Centre for Affordable
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CAWST, the Centre for Affordable Water and Sanitation Technology, is a nonprofit organization that provides training and consulting to organizations working directly with populations in developing countries who lack access to clean water and basic sanitation.

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This presentation is used with Lesson Plan:
*Maternal and Child Health, WASH-Related
Diseases and HWTS.*

Available at www.cawst.org/resources



Maternal and Child Health:

**Key connections with
Household Water Treatment
and Safe Storage (HWTS)**



Learning Outcomes

1. Compare the diseases that are particularly harmful to pregnant and lactating women and children under five.
2. Identify the consequences that WASH-related diseases have on maternal and child health.
3. Analyze the effectiveness of household water treatment in preventing the diseases that are harmful to pregnant and lactating women and children.
4. Explain why water, sanitation, and hygiene are needed to improve the health of pregnant and lactating women and children.



Overview

- Introduction
- WASH-Related Diseases, Anemia, Malnutrition and Maternal and Child Health
- The Multi-Barrier Approach
- Effectiveness of Household Water Treatment for Maternal and Child Health
- WASH and Maternal and Child Health
- Review



The Facts

- The immune systems of women change when they are pregnant, which make them more vulnerable to some infections.
- Children under the age of two have weaker immune systems that make them more vulnerable to infections.

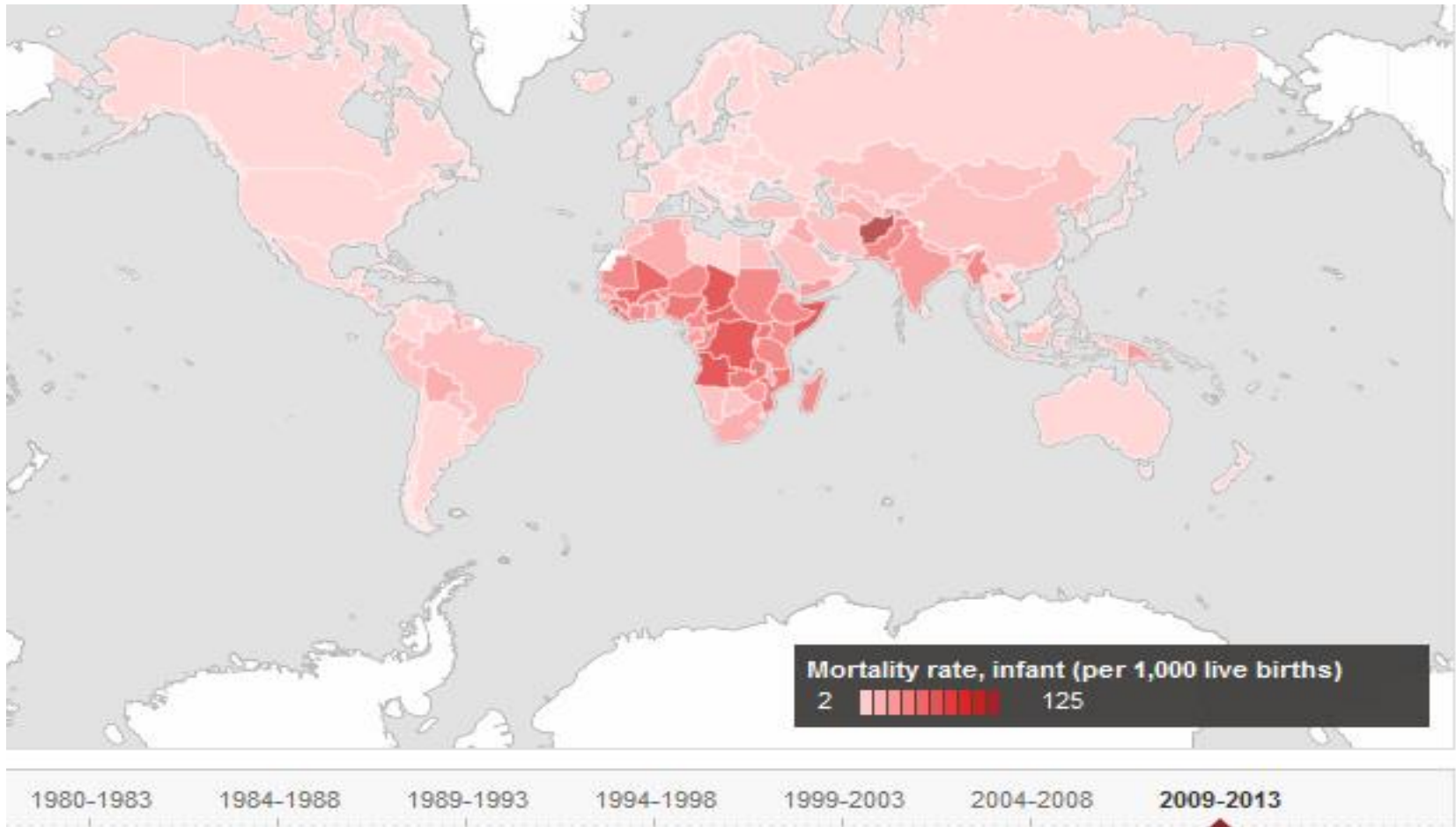


The Facts

- 18,000 children under 5 die every day.
- Diarrhea kills 2,195 children every day—more than AIDS, malaria, and measles combined.
- 56% of diarrheal diseases are related to unsafe water, inadequate sanitation and a lack of hygiene.
- About 1,000 children die each day because of poor WASH



Child Mortality



From <http://data.worldbank.org/indicator/SP.DYN.IMRT.IN/countries/1W?display=map>

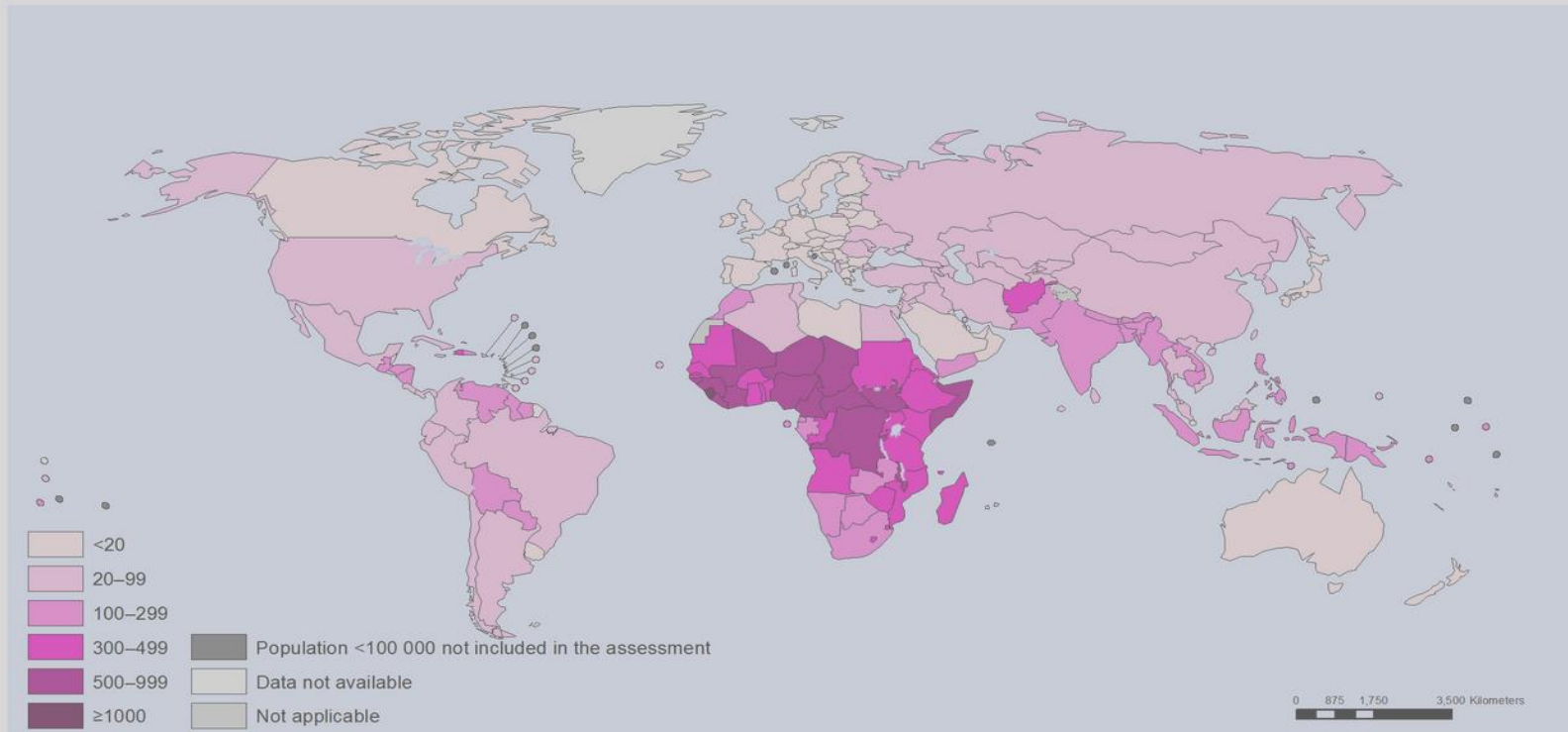
The Facts

- Maternal Mortality Rate, or the number of deaths of mothers, in 2013 was an estimated 289,000 per year.
- Maternal anemia accounts for 115,000 deaths of mothers per year.



Maternal Mortality

Maternal mortality ratio (per 100 000 live births), 2013



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization



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Maternal and Child Mortality Rates

- What do mortality (death) rates tell us?
 - If death is high, then general illness and ill health are also likely to be high.
- What issues contribute to these high rates?
 - Access to safe water, adequate sanitation, and proper hygiene
 - Access to, and quality of, health care
 - Education, particularly of mothers
 - Nutrition



Disease Summary

Create a summary of the disease that you have been assigned. Your summary should include the following:

- What type of pathogen is it?
- What are the symptoms?
- How is the disease transmitted?
- Where is it prevalent?
- What are the impacts for pregnant women and children?



Example Summary: Rotavirus

Pathogen - Virus

Transmission – Water & food contaminated by feces, lack of handwashing

Symptoms – Watery diarrhea, vomiting, dehydration, low fever and stomach pain

Prevalence – Worldwide

Impact – Leading cause of severe diarrhea and 40% of hospital admissions due to diarrhea in **infants** and **young children**.

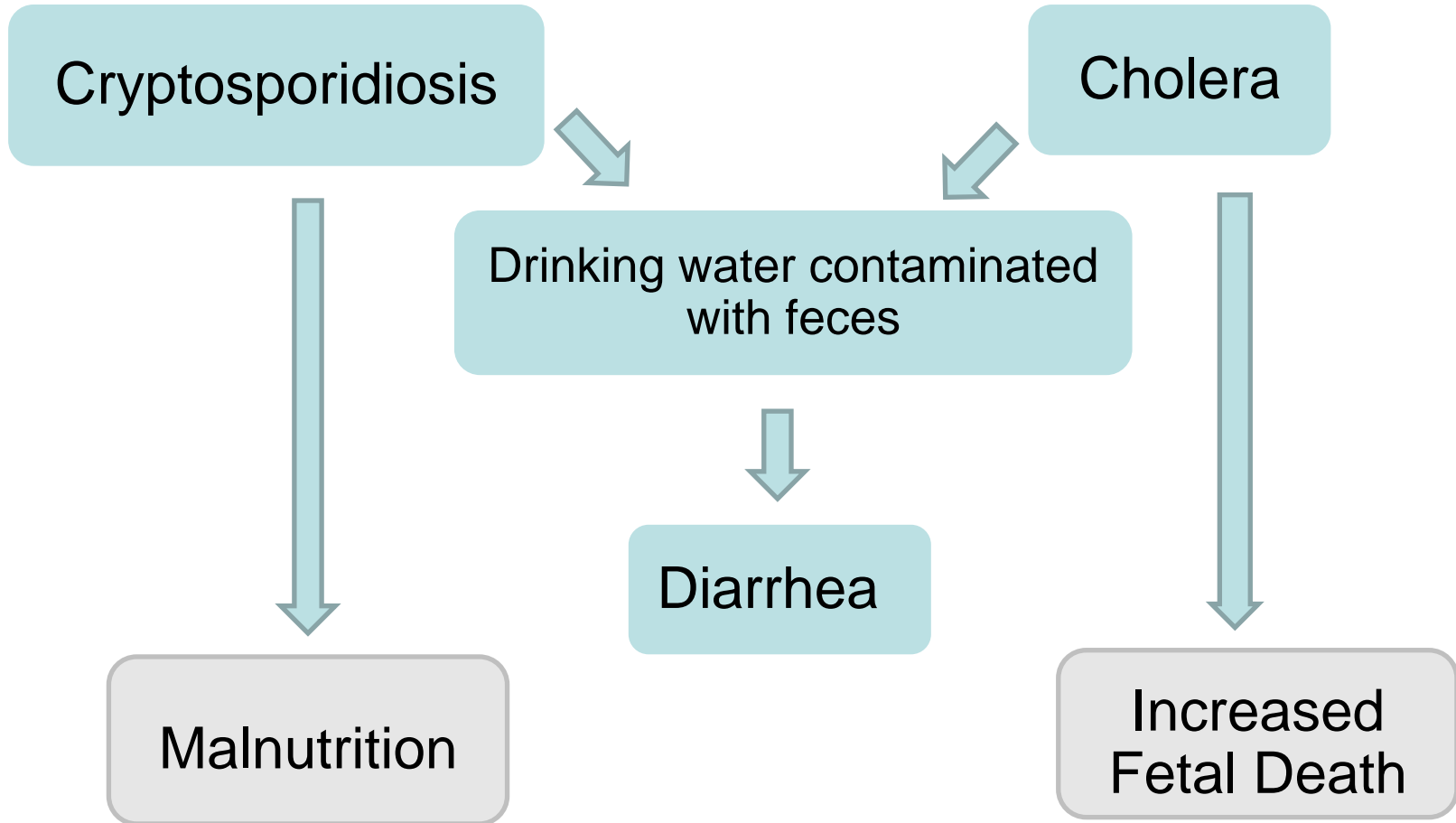


Concept Map

- Create a concept map that illustrates the similarities and differences between the diseases you have discussed.
- Incorporate the words provided into the concept map. Feel free to add other words and or pictures.



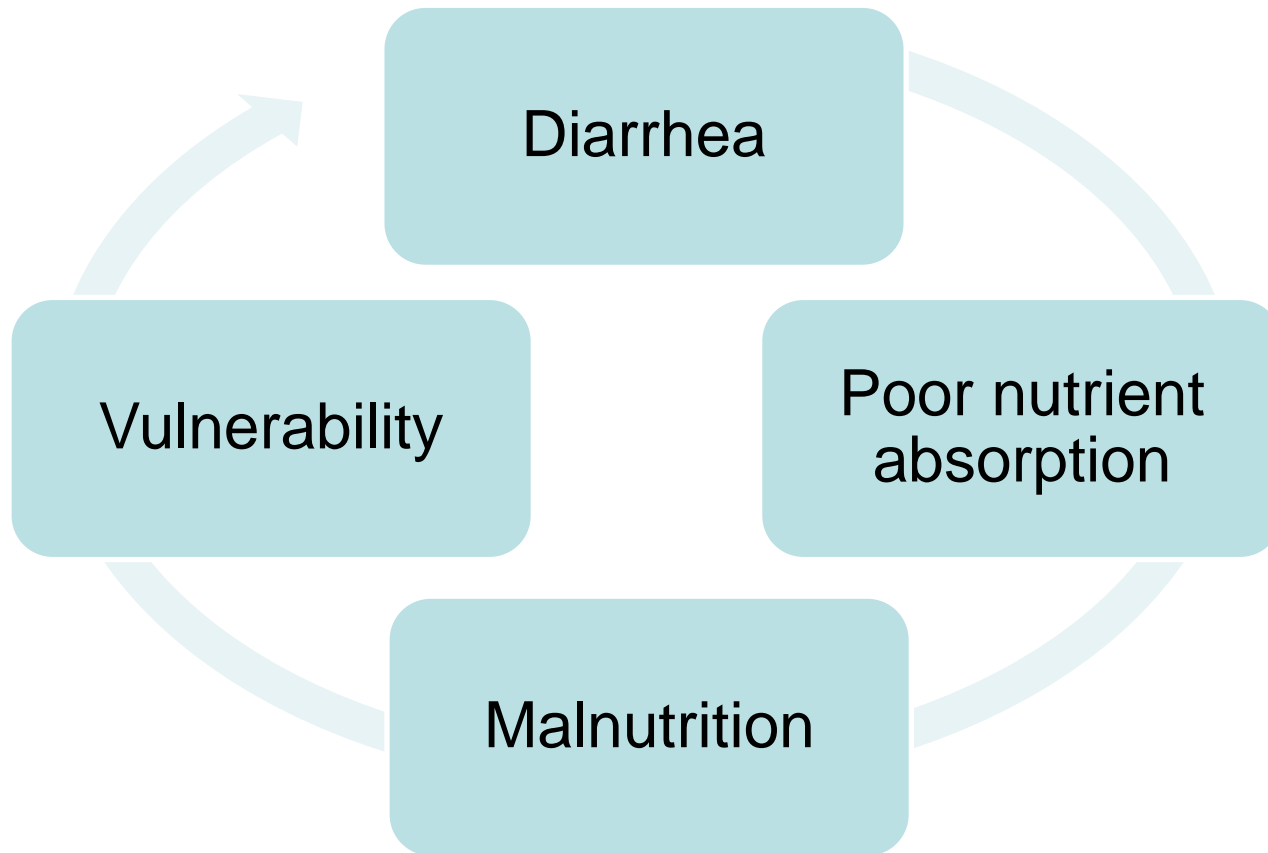
Example Concept Map



= Provided Cards

= Added Cards

Impact of Diarrhea



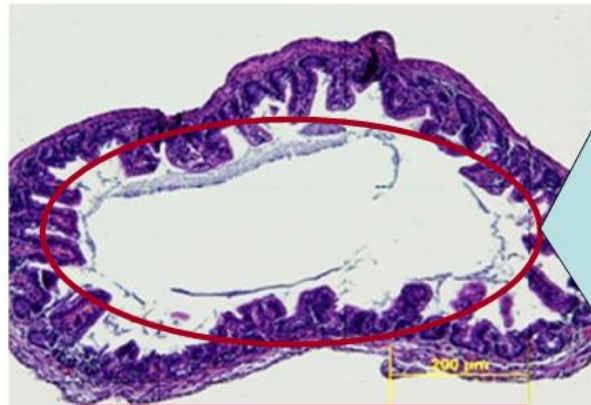
Impact of *Cryptosporidium* Infection on Ability of Intestines to Absorb Nutrients

Child's small intestine
at 14 days old



Malnourished, noninfected

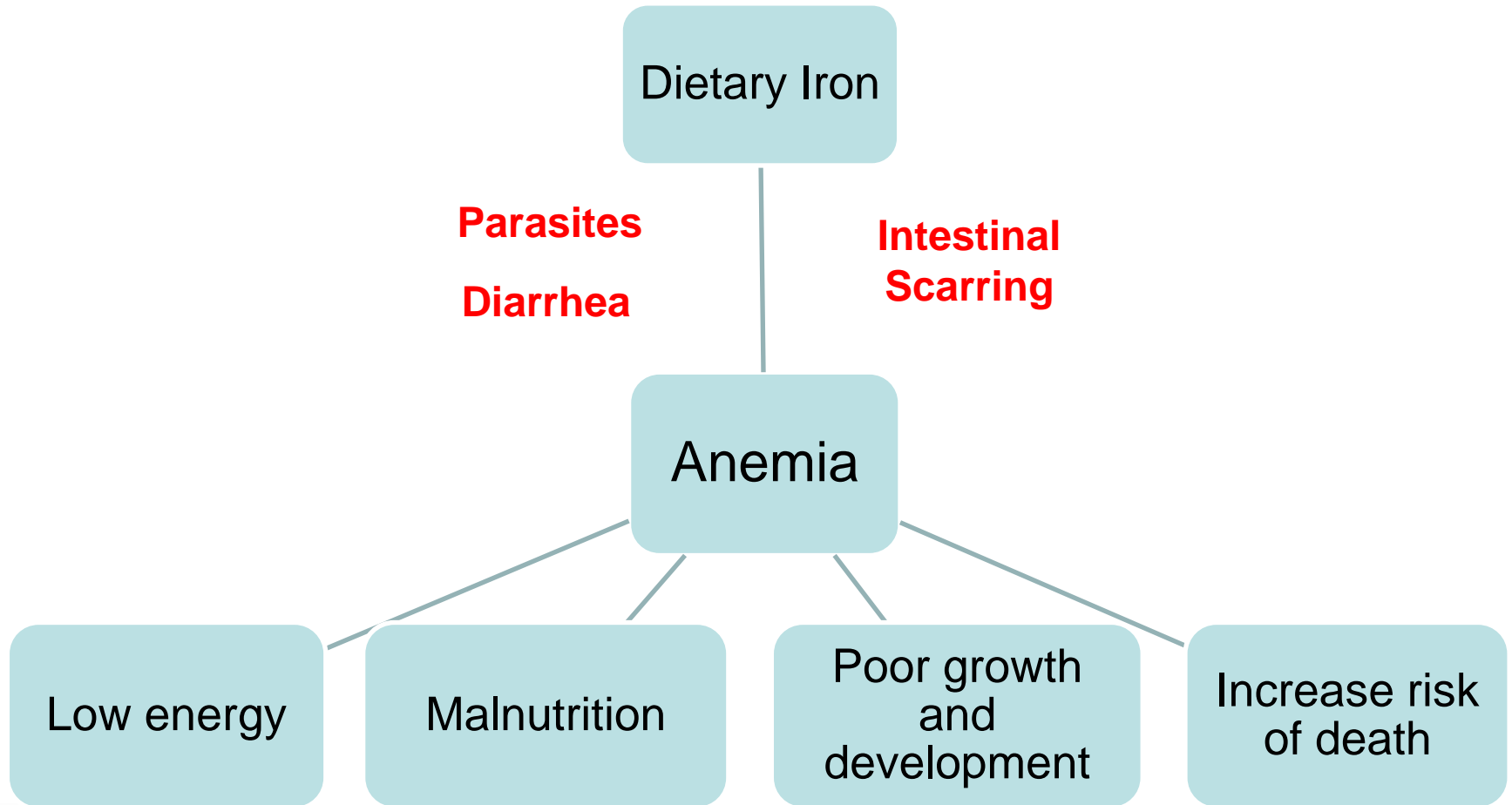
Child's small intestine
8 days after infection



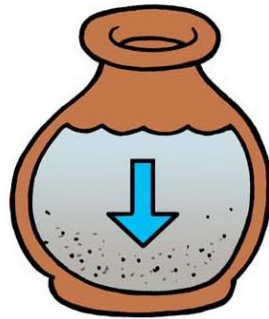
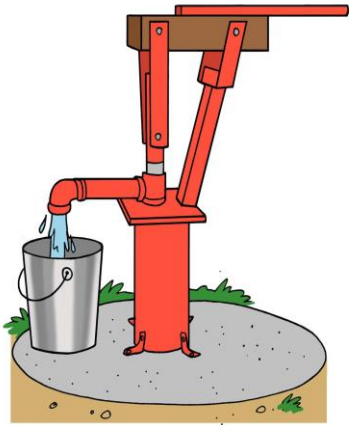
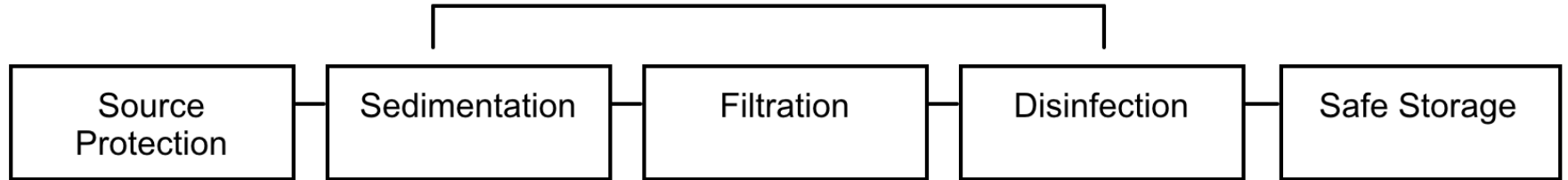
Malnourished, infected

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Iron Deficiency Anemia



Multi-Barrier Approach



Pathogen Sizes

Smallest



Virus

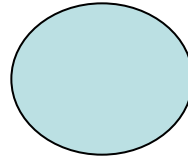
Bacteria

Protozoa

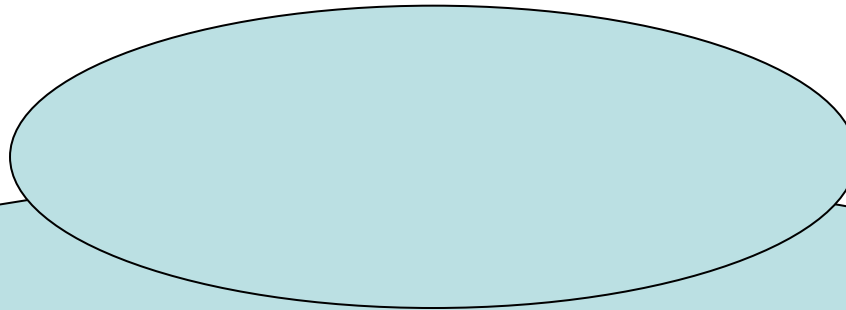
Helminth



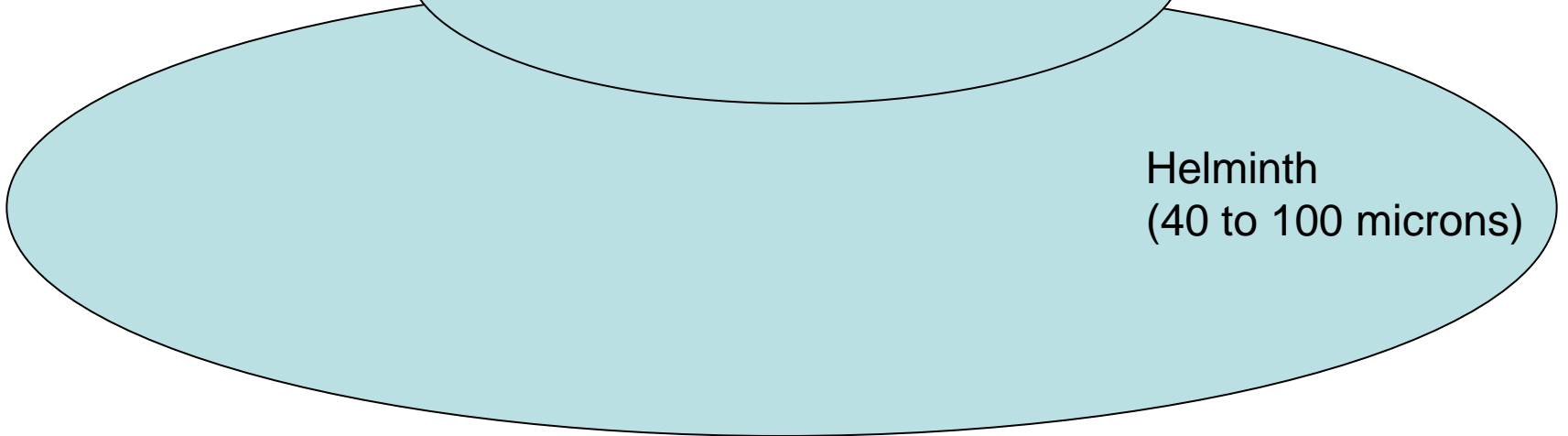
Virus (0.02 to 0.2 microns)



Bacteria (0.2 to 5 microns)



Protozoa
(4 to 20 microns)



Helminth
(40 to 100 microns)

(Normal diameter of a hair is 40 microns)

20

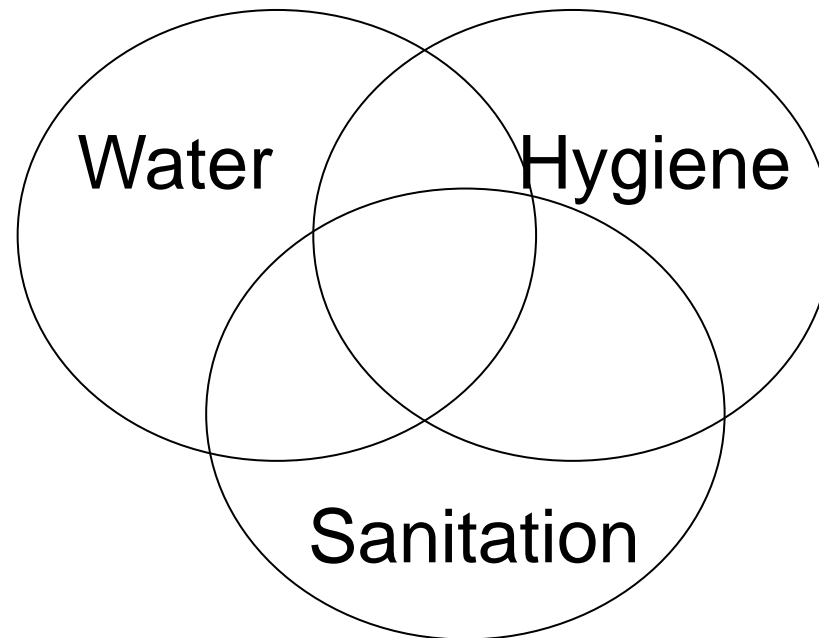
HWTS Station

- Rotate through the different stations on household water treatment.
- Read the information provided.
- Add the information to the table provided.

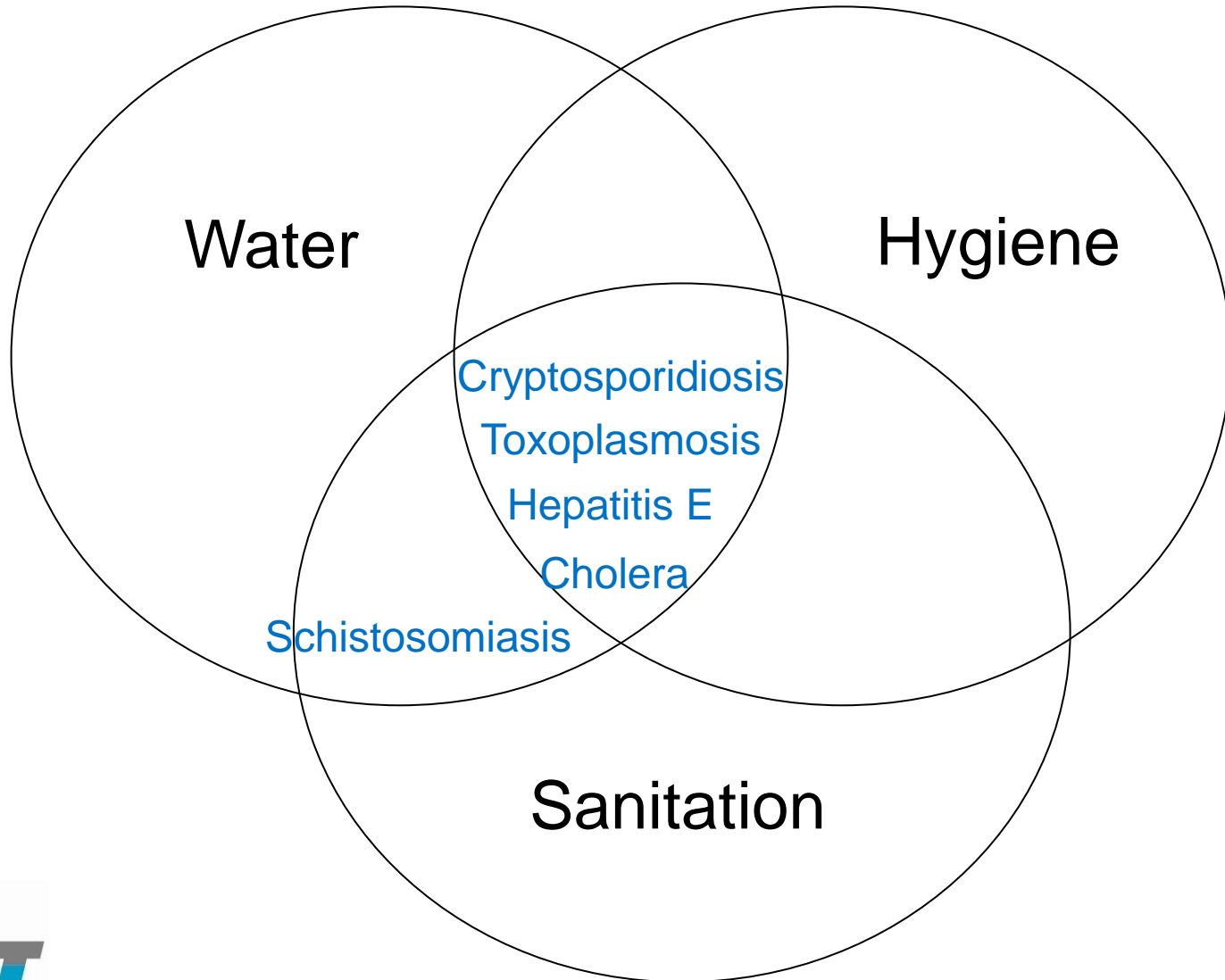


Water, Sanitation and Hygiene

- Draw a 3 circle Venn Diagram. Label the circles: Water, Sanitation and Hygiene.
- Locate disease affecting maternal and child health in the appropriate circles.



Water, Sanitation and Hygiene



Clear Link between WASH and Health

- "Water and Sanitation is one of the primary drivers of public health. I often refer to it as "Health 101", which means that once we can secure access to clean water and to adequate sanitation facilities for all people, irrespective of the difference in their living conditions, a huge battle against all kinds of diseases will be won." Dr Lee Jong-wook, Director-General, World Health Organization
- "We shall not finally defeat AIDS, tuberculosis, malaria, or any of the other infectious diseases that plague the developing world until we have also won the battle for safe drinking water, sanitation and basic health care." Kofi Annan, United Nations Secretary-General

Questions for Review

- a) Why are women and children more susceptible to water related diseases?
- b) What diseases are particularly harmful to pregnant and lactating mothers and children?
- c) What is the connection between anemia, malnutrition and the diseases that affect mothers and children?



Questions for Review

- d) What are the consequences of WASH related diseases on maternal and child health?
- e) What household water treatment technologies are most effective in preventing the diseases that are harmful to mothers and children?



Questions for Review

- f) What is the multi-barrier approach and why is it important to maternal and child health?
- g) Why are water, sanitation and hygiene needed to improve the health of mothers and children?

