

UNIT 2:

Lesson 1: Risks and Solutions

Suggested Class Time: 65 minutes

Objectives:

- Become familiar with the main causes of preventable deaths of children under five;
- Become aware of readily available and low-cost solutions;
- Understand how knowledge is translated into programs;
- Read and interpret tables, graphs, pie charts, and maps.

Session Plan:

- Opening Activity: Saving Lives with Bed Nets -15 minutes
- Group Activity: Problems, Explanations, Solutions - 50 minutes

Vocabulary:

Oral Rehydration Salts (ORS), Ready-to-Use Therapeutic Food

Materials Needed:

- Copies of the *Youth Report*, Chapter 2 and Glossary
- World map or globe (optional)
- Copies of Handouts 4 and 6 for the whole class.
- Copies of Handout 5 for students doing Extension Activity
- Equipment for showing video: computer with Internet connection or TV and DVD player
- Internet Access: Lesson Activities

UNICEF video:

Kenya http://www.unicef.org/sowc08/profiles/7_kenya.php

UNICEF: Voices of Youth, Be In the Know: Fact Sheet

http://www.unicef.org/voy/explore/sowc/explore_4107.html

- Internet Access: Extension Activities

UNICEF, *The State of the World's Children*, 1996; "ORS: the medical advance of the century"

<http://www.unicef.org/sowc96/joral.htm>

UNICEF "News Note: Improved formula for oral rehydration salts to save children's lives"

http://www.unicef.org/media/media_31825.html

UNICEF Nutrition Newsline, May 28, 2008. "UNICEF readies for food crisis with unique basket of solutions for children at risk," Elizabeth Kiem, UNICEF Nutrition Newsline, May 28, 2008 (see p. 21)

http://www.unicef.org/nutrition/index_44186.html

"UNICEF Executive Director inaugurates Ethiopia's first Plumpy'nut factory"

http://www.unicef.org/infobycountry/ethiopia_38423.html

Background for Teachers

Malaria

Malaria is a serious disease spread through mosquito bites. Each year, there are 300 million to 500 million cases of malaria throughout the world resulting in about 1 million child deaths. In areas where malaria is common, it can be the leading cause of death and poor growth among young children.

Sleeping under a mosquito net treated with a recommended insecticide is the best way to prevent mosquito bites. All members of the community should be protected against mosquito bites, particularly young children and pregnant women, and especially between sunset and sunrise when mosquitoes are most active.

Mosquito nets, curtains, or mats dipped in a recommended insecticide kill mosquitoes that land on them. Special, permanently treated mats should be used, or nets, curtains, or mats that are dipped in insecticide regularly. Trained health workers can advise on safe insecticides and re-treatment schedules.

Babies and other small children should sleep under an insecticide treated mosquito net. If the nets are expensive, the family should buy at least one big net, which the small children can sleep under. Breastfed babies should sleep with their mothers under a net. Treated mosquito nets should be used throughout the year, even during times when there are fewer mosquitoes.

Opening Activity: Saving Lives with Bed Nets

Directions

1. Have the following questions on the board when students enter the classroom:
 - What is the biggest killer of children under five in Kenya?
 - What are two effective ways of controlling this disease?
 - How do these free or inexpensive methods affect a child's chances of surviving the disease?
2. Have someone locate Kenya on the world map.
3. Introduce the UNICEF video about malaria prevention in Kenya. Explain that students will find answers to the questions in the video.

4. Show the video and have volunteers answer the questions written on the board. What is the biggest killer of children under five in Kenya? (*malaria*) What are the two most effective ways of controlling malaria? (*insecticide treated bed nets and spraying*) How do free or inexpensive bed nets affect a child's chances of surviving malaria? (*Free bed nets give children protection from malaria.*)

Group Activity: Problems, Explanations, and Solutions

Directions

1. Have students turn to page 11 of the *Youth Report*, "Why Do Children Die Before Age Five." Use the following questions to facilitate a discussion of the graph:
 - Besides malaria, can any of the other causes of child mortality be prevented? (*Students may know that measles can be prevented by vaccination and undernutrition by a healthy diet.*) Point out that the measles vaccine and adequate diets are not always available. Explain that treatments for diarrhea and pneumonia can prevent these illnesses from being fatal, but that such treatment is not always available.
 - Why do you think undernutrition is an underlying cause in so many under-five deaths? (*Without proper nutrition the body is vulnerable to disease.*)
2. Reproduce Handout 4, which consists of three sets of seven "cards" (based on the three-column chart on page 12 of the *Youth Report*). Make extra cards as needed so every student has one.
3. Divide the class into three groups and distribute cards to form three groups: the "Problem" group; the "Explanation" group; and the "Solution" group.
4. Students in each group locate their two counterparts; each "Problem" is then matched with the appropriate Explanation and Solution.
5. Once the new groups of three form, have students learn more about their "Problem" by reading relevant sections of the *Youth Report*, Chapter 2, "Lifesaving Solutions," (beginning on page 13) and "Voices of Youth, Be in the Know: Fact Sheet" at http://www.unicef.org/voy/explore/sowc/explore_4107.html
6. Each small group will select one person to make a presentation explaining the group's problem and solution to the class. In the presentation, ask students to include an answer to this question: Why is this a more serious problem in developing countries than in industrialized countries?



Tip: Instead of using the following activity as an Extension Activity, assign some students to work on it at the same time as others engage in the Group Activity.

Science Extension Activity: Two Low-Cost Solutions — How Do They Work?

Directions

- 1.** Invite interested students to investigate and report on the science involved in two low-cost solutions to child survival threats: Oral Rehydration Therapy and Ready-to-Use Therapeutic Foods.
- 2.** Distribute Handout 5. As students answer the questions on Handout 5, they will need Internet access to locate information.

Resources: Oral Rehydration Therapy

“ORS: the medical advance of the century” UNICEF, *The State of the World’s Children*, 1996:

<http://www.unicef.org/sowc96/joral.htm>

“News Note: Improved formula for oral rehydration salts to save children’s lives,”

http://www.unicef.org/media/media_31825.html

Resources: Ready-to-Use Therapeutic Foods

“UNICEF readies for food crisis with unique basket of solutions for children at risk,

” Elizabeth Kiem, UNICEF Nutrition Newsline, May 28, 2008

http://www.unicef.org/nutrition/index_44186.html

“UNICEF Executive Director inaugurates Ethiopia’s first Plumpy’nut factory”

http://www.unicef.org/infobycountry/ethiopia_38423.html

- 3.** Students can then present information about their topic to the class. In their presentations, students should answer the questions on Handout 6.

Problem, Explanation and Solution Cards

1 PROBLEM: Undernutrition

Undernutrition is caused by a lack of nutritious food to maintain health and growth. Many children get enough food but are underweight or stunted because their diet is not nutritious. Undernutrition is linked to nearly half of all deaths of children under the age of five.

2 PROBLEM: Major preventable diseases

Polio, measles, diphtheria, pertussis (whooping cough), and tetanus are the major preventable diseases. Millions of children die every year from these diseases, which can be prevented by vaccines.

3 PROBLEM: Diarrhea

Diarrhea kills over 1 million children every year through dehydration and malnutrition. Children are more likely than adults to die from diarrhea because they become dehydrated more quickly. About 1 in every 200 children who contract diarrhea will die from the illness.

4 PROBLEM: Malaria

Malaria is a serious disease spread through mosquito bites. Each year, there are 300 million to 500 million cases of malaria throughout the world and about 1 million child deaths. The death toll is higher in tropical and subtropical regions.

5 PROBLEM: Lack of micronutrients

Many children are missing vitamins and minerals, such as vitamin A and iodine, in their diets. Vitamin A helps children resist illness and prevents night blindness. Iodine is needed to promote growth and prevent learning disabilities.

6 PROBLEM: Pneumonia

Pneumonia, a serious disease of the lungs, causes the most child deaths around the world—about 2 million children each year.

7 PROBLEM: Lack of Safe Drinking Water and Sanitation

Unsafe drinking water, lack of sanitation, and poor hygiene contribute to diarrhea, pneumonia, newborn disorders, and undernutrition — four of the major causes of child deaths.

Problem, Explanation and Solution Cards

1 EXPLANATION: Undernutrition

Undernutrition weakens the body's resistance to illness and deprives a young child's body and mind of the nutrients needed for growth and development. Children who receive good nutrition are less vulnerable to many illnesses.

2 EXPLANATION: Major preventable diseases

Measles and pertussis (whooping cough), both preventable diseases, can lead to other serious illnesses such as pneumonia and tuberculosis. Half of all deaths from whooping cough, a third of all cases of polio, and a quarter of all deaths from measles occur in children under one year old.

3 EXPLANATION: Diarrhea

Poor sanitation and hygiene practices and a lack of clean water are sources of the germs that cause diarrhea. Diarrhea kills children by draining vital fluids from the body. Children with diarrhea often have other diseases.

4 EXPLANATION: Malaria

Spread by the bite of an infected mosquito, malaria causes fever and the loss of body fluids through sweating. Malnutrition and dehydration can result when malaria is untreated. Frequent malarial infection can slow children's growth and brain development and is likely to cause anemia.

5 EXPLANATION: Lack of micronutrients

Micronutrients are essential to keeping children healthy; without this type of nourishment, children are vulnerable to diseases such as diarrhea, measles, and malaria.

6 EXPLANATION: Pneumonia

Undernourished children are at a high risk of developing pneumonia. Many children die of pneumonia at home because their families do not recognize the symptoms of the illness and delay getting medical care.

7 EXPLANATION: Lack of Safe Drinking Water and Sanitation

More than half of all illnesses and deaths among young children are caused by germs that get into their mouths through food, or water, or dirty hands.

Problem, Explanation and Solution Cards

1 SOLUTION: Undernutrition

Breastfeeding during the first six months of life and ready-to-use therapeutic foods provide lifesaving nutrition to children who are undernourished.

2 SOLUTION: Major preventable diseases

Immunization is one of the most important and cost-effective ways of protecting children from these diseases. A child is immunized by vaccines, which build up defenses against disease. Immunization only works if given before the child has the disease.

3 SOLUTION: Diarrhea

Breastfeeding can reduce the severity and frequency of diarrhea. Another low-cost treatment is Oral Rehydration Salts (ORS).

4 SOLUTION: Malaria

Prevention and early treatment of malaria saves lives. Sleeping under bed nets treated with insecticide can reduce deaths of children from malaria by 20 percent. Treated bed nets protect sleeping children from infected mosquitoes that swarm at night.

5 SOLUTION: Lack of micronutrients

Supplementing children's diets with micronutrients (vitamins and minerals) is essential for growth and development. Iodized salt used in food prevents brain damage; vitamin A capsules can boost the immune system and prevent blindness.

6 SOLUTION: Pneumonia

Good nutrition, clean air, and immunization protect children from pneumonia. Antibiotics (medicines that kill disease-causing bacteria) are used in cases of severe pneumonia. With the help of community health workers, parents can be taught to recognize symptoms and treat pneumonia at home.

7 SOLUTION: Lack of Safe Drinking Water and Sanitation

Community awareness, political action, and international commitment are crucial to providing safe drinking water and proper sanitation for all people. Community health workers teach the importance of hand washing and safe water for drinking and cooking. Families with clean water, free of germs, have fewer illnesses.

HANDOUT 5

Oral Rehydration Salts and Ready-to-Use Therapeutic Foods

Directions: Answer the following questions about Oral Rehydration Salts and Ready-to-Use Therapeutic Foods on a separate sheet of paper. Your teacher will suggest online resources for you to use.

ORAL REHYDRATION

1. What do “hydration” and “rehydration” mean?
2. How much of the human body is water?
3. How much clean water is required for human health each day?
4. Why is diarrhea such a deadly disease for young children?
5. How do oral rehydration salts save lives?

READY-TO-USE THERAPEUTIC FOODS

1. What are Ready-to-Use Therapeutic Foods?
2. What problem do Ready-to-Use Therapeutic Foods solve?
3. What are some of the ingredients in Ready-to-Use Therapeutic Foods?
4. Why are Ready-to-Use Therapeutic Foods such a practical solution?
5. Explain why the use of Ready-to-Use Therapeutic Foods is or is not a good long-term solution to the problem of undernutrition?