Cancer Education Project

Reading for Evidence: Cancer Understandings

Overview:

This activity provides background information about the statements in the Truth/Myth Survey, and asks students to select evidence from the reading that either supports or rejects the statements as cancer truths.

Students first work individually to complete a *Reading for Evidence* activity about the same 10 cancer statements. They read short reading passages about cancer and use the information in the passages to judge whether the statements are, in fact, cancer truths. Teams of 2-3 students are formed to share answers and reach consensus about the evidence. Students, then individually complete the *Teens' Concerns About Cancer* form.

Objectives:

Students will provide evidence that they can:

- select evidence from reading passages to support or reject each statement is a cancer truth
- reach consensus to support or reject each statement as a cancer truth
- write reflective statements about teenagers' concerns about cancer

Preparation:

- Make copies for each student of the *Reading for Evidence* sheets
- Make copies for each student of the *Teens' Concerns About Cance*r form

Lesson Plan Checklist:

___ 1. Distribute and give directions for the *Reading for Evidence* sheets – 4 minutes

___ 2. Allow time for students to individually complete the *Reading for Evidence* sheets – 15 minutes

___ 3. Form student teams and allow time for teams to reach consensus on the 10 statements – 11 minutes

___ 4. Allow time for students to work individually to complete the of *Teens' Concerns About Cancer* form – 8 minutes

___ 5. Collect individual *Reading for Evidence* and *Teens' Concerns About Cancer* forms – 2 minutes

___ 6. Optional: Mail the *Teens' Concerns About Cancer* forms to the University of Rochester:

Dina Markowitz, PhD
Center for Science Education and Outreach
University of Rochester Medical Center
Department of Environmental Medicine
575 Elmwood Avenue, Box EHSC
Rochester, NY 14642

Name _____ Teacher _____
Period _____ School _____

Reading for Evidence

Directions: Below are the 10 statements about cancer followed by the words "Support" or "Reject" and a short reading passage about each statement. Each reading passage contains information about the cancer topics in each statement. For each statement:

- Underline or highlight the part of the passage that you believe provides evidence to support or reject that the statement as a cancer truth.
- Then circle the word "Support" or "Reject" to indicate what you concluded based on the evidence you found.

A. If your parents had cancer, so will you.

Support Reject

While having a family history of certain cancers may increase your risk, it does not automatically mean that you will develop cancer. Some types of cancer such as breast cancer, ovarian cancer, and colorectal cancer are hereditary. If a parent has these cancers, the cancer gene may be passed on to an offspring. If a child inherits the gene, it does not mean that the child will develop cancer. The gene only increases his/her likelihood of developing cancer. Whether the child develops cancer or not depends on many other factors such as the environment, a person's lifestyle, and other genes in the cells.

B. If you find an abnormal lump on your body, it must be cancer.

Support Reject

Many lumps turn out to be benign tumors or cysts, rather than malignant tumors. For example, 90% of breast lumps are totally harmless. If you detect an abnormality such as a lump, you should see your doctor. Your doctor may suggest a procedure known as a biopsy or other tests to determine if the cells in the lump are cancerous.

C. It is possible to have cancer without exhibiting any symptoms or warning signs.

Support Reject

Cancer is a complicated disease and there is no sure way to always detect it. Cancer cells can grow anywhere in a person's body, sometimes on the skin, or often deep within internal organs. Until the cancer growth reaches a certain size, symptoms or warning signals may not reveal the presence of cancerous tumors. Many cancers can exist in the body for some time with no apparent symptoms. By the time you experience symptoms or feel a lump, the cancer may have been there for many years. Scientists have developed cancer-screening tests that can detect some types cancer in early stages. They are looking for additional screening tests that can detect other types of cancer before symptoms appear.

D. Young peoples' lifestyles affect their chances of getting cancer later in life.

Support Reject

Most cases of cancer are the result of many years of exposure to several risk factors. What you eat as a young person, or whether you are physically active, get sunburned regularly, and especially whether you smoke can have a substantial influence on whether you develop cancer later in life. More than two-thirds of all fatal cancer cases could be prevented with simple life style changes: eating fruits, vegetables and whole grains; exercising regularly; maintaining a healthy body weight; using protection against the sun; and especially, not smoking.

E. Cancer that has metastasized (spread throughout the body) is fatal.

Support Reject

Yes, cancer can cause death, and if metastasis has occurred, the risk of dying is significantly increased. New breakthroughs in early detection of cancer and chemotherapy drugs or other treatments have made it possible for an estimated 40% of cancer patients to reach or exceed the five-year survival mark.

F. Everyone with same stage (or the same kind) of cancer gets the same kind of treatment.

Support Reject

Doctors tailor cancer treatments to the patient. What treatment the patient receives depends on where the cancer is located, whether or how much it has metastasized, and how it is affecting body functions and general health. In addition, cells from the same type of cancer many have different features in different people. These differences can affect how the cells respond to treatment, which in turn may influence the doctor's recommendations.

G. The only treatments for curing cancer are surgery, radiation, and chemotherapy.

Support Reject

Surgery, radiation and chemotherapy are the most common types of cancer treatments. However, there are other cancer procedures used by doctors that are also proving effective in the treating cancers. Angiogenesis inhibitors (drugs that reduce the blood supply to tumors), bone marrow transplants, gene therapy, vaccines, hyperthermia, and phototherapy are just a few of the alternatives being used to target cancer cells more effectively with fewer side effects.

H. If you are infected with a cancer-causing virus, you will get cancer.

Support Reject

There are two known contagious viruses, HPV and Hepatitis C, that may increase people's risk of developing cancer. HPV is a known risk factor for cervical cancer and Hepatitis C is a risk factor for liver cancer. Both viruses can be transmitted through unprotected sexual intercourse. Hepatitis C is more often transmitted through blood-to-blood contact such as sharing needles and transfusions. However, many people who have the HPV or Hepatitis C virus may never develop cancer.

I. Cancer patients involved in clinical trials receive the best possible treatment for their cancer.

Support Reject

Clinical trials are research studies designed to determine whether promising approaches to cancer prevention, diagnosis, and treatment are safe and effective for use in humans. In Phase I trials, a small number of patients are tested evaluate how a new drug should be given, how often, and what dose is safe. Phase II trials continue to test the safety of the drug, and begin to evaluate how well the new drug works on a particular type of cancer. Phase III trials involve large numbers of patients in testing a new drug, a new combination of drugs, or a new surgical procedure in comparison to the current standard. A participant will usually be randomly assigned to a group that receives the new treatment or to a control group that is given the current standard treatment. Potential benefits of cancer trials include:

- Health care provided by leading physicians in the field of cancer research
- Access to new drugs and interventions before they are widely available
- Close monitoring of your health care and any side effects

The potential risks include:

- New drugs and procedures may have side effects or risks unknown to the doctors
- New drugs and procedures may be ineffective, or less effective, than current approaches
- Even if a new approach has benefits, it may not work for each patient.

J. Cancer is caused by changes in genetic material.

Support Reject

Cancer begins with damage (mutations) in a cell's DNA. DNA contains a set of chemical instructions for cells, telling them how to grow and divide. Normal cells often develop mutations in their DNA, but most cells have the ability to repair most of these mutations. If cells can't make the repairs, the cells often die. However, certain mutations aren't repaired, causing the cells to grow and become cancerous. Mutations also cause cancer cells to live beyond a normal cell life span and to spread throughout the body. This causes the cancerous cells to form tumors and to metastasize. The initial genetic mutation may be present at birth, or occur later in life, but the mutation is just the beginning of the process by which cancer develops. Scientists believe that a need a number of mutations within cells have to accumulate in order for cancer to develop. A person's genetic makeup, lifestyle choices, and environment may increase the risk for developing these. For instance, if you inherited a genetic mutation that predisposes you to get cancer, you may be more likely than other people to develop that cancer when you are exposed to certain cancer-causing substances.

Name ___**Teacher Version/Evidence** Teacher _____
Period _____ School _____

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NOTE TO TEACHERS: Red or bold type areas below represent a sample of evidence for the Truth decision.

A. If your parents had cancer, so will you.

~~**Support**~~ **Reject**

While having a family history of certain cancers may increase your risk, **it does not automatically mean that you will develop cancer**. Some types of cancer such as breast cancer, ovarian cancer, and colorectal cancer are hereditary. If a parent has these cancers, the cancer gene may be passed on the to an offspring. If a child inherits the gene, it does not mean that the child will develop cancer. The gene only increases the likelihood that the child will develop cancer. **Whether the child develops cancer or not depends on many other factors such as the environment, a person's lifestyle, and other genes in the cells.**

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C. It is possible to have cancer without exhibiting any symptoms or warning signs.

Support ~~**Reject**~~

Cancer is a complicated disease and there is no sure way to always detect it. Cancer cells can grow anywhere in a person's body, sometimes on the skin, or often deep within internal organs. **Until the cancer growth reaches a certain size, symptoms or warning signals may not reveal the presence of cancerous tumors.** Many cancers can exist in the body for some time with no apparent symptoms. By the time you experience symptoms or feel a lump, the cancer may have been there for many years. Scientists have developed cancer screen tests that can detect some types of cancer in early stages. They are looking for additional screening tests that can detect other types of cancer before symptoms appear.

D. Young peoples' lifestyles affect their chances of getting cancer later in life.

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Support ~~**Reject**~~

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~~**Support or**~~ **Reject**

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Support ~~**or Reject**~~

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Eagle Valley High School

Dear High School Student,

The purpose of this questionnaire is for you to give us some information about your concerns about cancer. You do not have to put your name on the form. Please provide us with honest answers to the following questions and return this form to your teacher. Again, we thank you for helping us with our Cancer Education project.

- Eagle Valley High School Cancer Education Team

TEENS' CONCERNS ABOUT CANCER

1. Pick one of the 10 Truth/Fact statements (A-J) that you would like to know more about. Circle the letter of that statement below:

A B C D E F G H I J K L

2. What makes the statement you circled important to you? Why did you select the one you circled?

3. What do you believe is the one, most important thing that teenagers should know about cancer?

4. Help us understand your answer to the previous question by giving some reasons why you answered that way?