

SCIENTIFIC DECISION-MAKING

IS IT A HEART ATTACK?



ABOUT THE PROJECT

Baylor
College of
Medicine

CENTER FOR
EDUCATIONAL
OUTREACH

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Activities described in this book are intended for middle or high school students under direct supervision of adults. The authors, Baylor College of Medicine and AHRQ cannot be held responsible for any accidents or injuries that may result from conduct of the activities, from not specifically following directions, or from ignoring cautions contained in the text. The opinions, findings and conclusions expressed in this publication are solely those of the authors and do not necessarily reflect the views of BCM or the sponsoring agency.

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BioEdSM

BioEdSM Teacher Resources from the Center for Educational Outreach at Baylor College of Medicine.

Authors: Ronald L. McNeel, DrPH, Barbara Z. Tharp, MS, Gregory L. Vogt, EdD, and Nancy P. Moreno, PhD.

Editor: James P. Denk, MA

Designer: Martha S. Young, BFA

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All persons depicted in photographs throughout this guide are models and their images are used strictly for illustrative purposes only. The images are not intended to represent the model, nor any person living or deceased.

CONTACT

Center for Educational Outreach, Baylor College of Medicine
One Baylor Plaza, BCM411, Houston, Texas 77030
713-798-8200 • 800-798-8244

edoutreach@bcm.edu | www.bioedonline.org | www.bcm.edu



IS IT A HEART ATTACK?

Overview

Using reference materials and their own knowledge, students compile a list of warning signs and symptoms of a heart attack.

Students also view a video showing what happens immediately before, during and after a heart attack.



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Your class has learned about plaques that form, over time, inside the arteries. These plaques may become unstable and rupture, resulting in formation of blood clots that can block an artery completely. Blockage of a coronary artery results in a heart attack, or myocardial infarction (MI). Blockage of an artery that feeds the brain causes a stroke. A severe reduction or full stoppage of blood flow to any part of the heart for more than a few minutes deprives heart muscle cells of oxygen, causing permanent injury and death of the cells. Extensive damage and loss of heart muscle can kill or disable an individual. This is why it is so critical to recognize and treat a heart attack as quickly as possible.

Someone having a heart attack may experience one or more signs and symptoms. The most common warning sign is mild to severe chest pain or discomfort, uncomfortable pressure, or squeezing in the center or left side of the chest. However, one-third of heart attack patients report no chest pain. Another warning sign is shortness of breath, either during or before the onset of chest pain. Heart attack pain sometimes feels like indigestion or heartburn. Some individuals also experience nausea, vomiting, light-headedness and/or dizziness. Some victims break out in a cold sweat, or feel discomfort in one or both arms, the back, neck or jaw. Women account for nearly half of all heart attack deaths, and are more likely than men to experience shortness of breath, nausea/vomiting, and back or jaw pain.

The survival of a heart attack victim may depend on how quickly these signs are recognized and medical aid is rendered. If you think you or someone else may be having a heart attack, call 911 immediately. It is better to be safe than sorry. The sooner treatment begins, the less damage the heart will sustain, and the greater the chances for recovery.

MATERIALS (SEE SAFETY)

Teacher

- Signs Introduction PowerPoint® file included with this unit
- Copies of "Warning Signs and Symptoms of a Heart Attack," reference material
- Computer and projector or interactive white board
- Internet connection (to view the video, YouTube must be allowed in your school)

Each team of students will need:

- Notebook paper (one sheet per student)

SETUP

Have the PowerPoint® slideshow, Signs Introduction, ready for viewing before class. If using the video, be sure the video links or files are open and ready to project.

Conduct a discussion with the entire class. Then have students work in teams of four for the remainder of the activity.

SAFETY

Students should wash their hands with soap and water before and after any science activity, even if wearing gloves. Always follow all district and school laboratory safety procedures.

Information Resources

- **American Heart Association**
<http://www.heart.org>
- **National Heart, Lung and Blood Institute**
<http://www.nhlbi.nih.gov>
- **Mayo Clinic**
<http://www.mayoclinic.com>

Body Story: Episode 3

YouTube links for the three, ten-minute video segments are shown below (see Step 9).

Part 1, Episode 3:

http://www.youtube.com/watch?v=MyZ1-haX_ZE

Part 2, Episode 3:

<http://www.youtube.com/watch?v=RtCbJolDslE&feature=related>

Part 3, Episode 3:

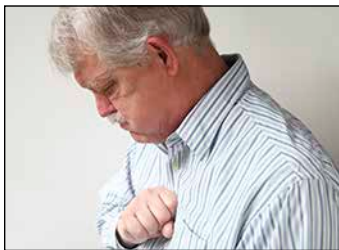
<http://www.youtube.com/watch?v=9hxzHqG5Vg8&feature=related>

PROCEDURE

1. Show the first PowerPoint® slide (road sign indicating danger from falling rocks). Ask students, *What does this picture say to you?*
2. Move to the second slide (road sign showing a sharp curve). Ask, *What is the meaning of this picture?*
3. Show to the third slide (sign warning of children at play). Repeat your questions to prompt students' discussion.
4. Display the fourth slide and ask students, *What do all of these pictures have in common?* [All contain "danger" warning signs.]
5. Ask the class, *How important is it to understand the meaning of these signs? Why?*
6. Show the fifth slide (man clutching his chest in pain) and ask the class, *What do you think might be happening to the person in this picture?* Students should realize the man might be having a heart attack. Ask, *Are there warning signs for heart attacks?*
7. Distribute a copy of "Warning Signs and Symptoms of a Heart Attack," to each team. Have each team member read a portion of the material out loud. Using the reference materials, have each team create a list of at least 8 warning signs and symptoms. Possible answers include the following.
 - No warning signs or symptoms
 - Chest pain or discomfort
 - Squeezing sensation or pressure in the chest that doesn't go away
 - Feeling of indigestion or heartburn that cannot be relieved
 - Aching in one or both arms (most commonly the left arm if only one)
 - Ache or pain in the neck, jaw, or stomach
 - Shortness of breath
 - Nausea or vomiting
 - Light-headedness or sudden dizziness
 - Cold sweat
 - Fatigue (malaise or lack of energy)
 - Sleep disorders
8. Have each team place a star in the margin next to three signs or symptoms that surprised them. Then, lead a class discussion in which students share some of their surprises. Most commonly, students are surprised by "no signs at all," "jaw pain," and "back pain."
9. Show the Discovery Channel video, "Body Story: Episode 3, The Beast Within – Heart Attack," (for URLs, see "Body Story: Episode 3," left sidebar).
10. End with a class discussion of what happened during the video, or have students conduct a "3-2-1" exercise for discussion or submission (each student notes 3 things he/she learned; 2 interesting facts; and 1 question he/she still has). ■

WARNING SIGNS AND SYMPTOMS OF A HEART ATTACK

REFERENCE



Does this man have indigestion or is he having a heart attack?

© Alice Day

Over time, plaque that forms inside arteries may become unstable and rupture, producing blood clots that may block an artery completely. Such blockage in a coronary artery feeding the heart results in a heart attack, or myocardial infarction (MI). Blockage of an artery that feeds the brain results in a stroke. A severe reduction or full stoppage of blood flow to any part of the heart for more than a few minutes deprives heart muscle cells of oxygen, causing permanent injury and death of the cells. Extensive damage and loss of heart muscle can kill or disable an individual. Early recognition and treatment of a heart attack can help minimize damage to the heart muscle, and even might save a life.

Someone having a heart attack may feel one or more symptoms, and not all victims experience the same signs. Sometimes a heart attack is silent—occurring with no warning symptoms at all. The most common sign is mild to severe chest pain or discomfort, uncomfortable pressure or “fullness,” or squeezing in the center or left side of the chest. This chest pain may not go away, or it may last a few minutes, go away, and return. However, chest pain is not always a symptom. One-third of patients experiencing a heart attack report no chest pain.

Another warning sign of a heart attack is a feeling similar to indigestion or heartburn that does not respond to antacids. Pain or numbness in one or both arms may indicate a heart attack. If the pain is in only one arm, it is

usually the left. Some victims feel pain in the back, neck or jaw. Other possible symptoms include shortness of breath, nausea, vomiting, cold sweat, light-headedness and/or sudden dizziness, sleep disorders, malaise (lack of energy), and fatigue. Women, account for nearly half of all heart attack deaths, and are more likely than men to experience shortness of breath, nausea/vomiting, and back or jaw pain. In general, the more signs and symptoms that are present, the more likely a person is having a heart attack.

Heart disease is the number one killer of both women and men, and women account for nearly half of all heart attack deaths. They are more likely than men to experience shortness of breath, nausea/vomiting, and back or jaw pain during a heart attack. Typically, female heart attack victims are about ten years older than their male counterparts. Women are less likely than men to believe they are having a heart attack, and less likely to seek medical help.

If you or someone nearby is experiencing one or more warning signs and symptoms, call 911 to seek medical attention immediately. The survival of a heart attack victim may depend on how quickly the signs are recognized and medical aid is rendered. It is better to be safe than sorry. The sooner treatment begins, the less damage the heart will sustain, and the greater the chances for recovery. The person should not drive while experiencing the symptoms. ■