Unit 4.4 Learning Targets

Preface

Anna Garcia had a history of heart disease, but did this disease contribute to her death?

Heart disease is a broad term used to refer to the range of diseases that can affect the heart. This may include diseases of the blood vessels, heart rhythm problems, heart infections, and problems in the heart a person is born with, called congenital heart defects. Many forms of heart disease can be treated, and even prevented, with lifestyle modifications. Unfortunately, advanced disease may need to be treated with medication or medical procedures.

Lifestyle plays a role in prevention and maintenance of many diseases and disorders. *Risk factors* are conditions that put a person at greater risk of developing a specific disease. Some risk factors are *modifiable*; they can be affected by lifestyle and daily actions. Smoking and eating a diet high in saturated fat are modifiable risk factors. You can make a choice to end these behaviors. Unfortunately, some diseases also have *nonmodifiable* risk factors, risk factors that cannot be changed. Family history of disease, race, and gender are risk factors that are considered nonmodifiable - you have no control over these. The more risk factors a person has for a particular disease, either modifiable or not, the greater chance the person has of developing the disease.

In this lesson students will explore what happens to the body when blood vessels fail to deliver oxygen to the tissues. Students will investigate medical procedures used to treat blocked blood vessels and prevent events such as heart attack and stroke, and build a model to demonstrate one of these techniques. Students will return to both Anna's medical history documents as well as her autopsy report and brainstorm how issues of the heart may have played a role in Anna's final demise.

In this final project of the lesson, students will assess risk of heart disease. They will use an online risk calculator to explore factors that increase or decrease the risk of heart attack or associated coronary disease. They will calculate risk for both Anna Garcia and a patient they have been assigned. As they design a heart disease intervention plan for their assigned patient, students will think about all they have learned in this unit and how lifestyle and the choices we make impact overall health.

Understandings

1. A blocked coronary artery can lead to tissue death causing a myocardial infarction, or heart attack.

2. Risk factors such as genetics, poor diet, high cholesterol, high blood pressure, diabetes, and smoking increase a person's risk of developing heart disease.

Knowledge and Skills

It is expected that students will:

- Describe the function of an angiogram in diagnosing blocked vessels.
- Recognize that blocked blood vessels can be treated surgically using procedures that tunnel through or around the areas that disrupt normal blood flow.
- Explain how lifestyle changes as well as medication or medical treatment may help decrease heart disease risk.
- Demonstrate a technique used to open a blocked vessel.
- Analyze medical data and brainstorm causes of death linked to the cardiovascular system.
- Analyze heart disease risk and design a risk reduction program.

Essential Questions

1. What is heart disease?
2. What happens inside the heart to cause a heart attack?
3. How do doctors treat a blocked blood vessel?
4. What are risk factors for the development of heart disease?
5. How can a person decrease his or her risk of heart disease?
6. What is metabolic syndrome?