

B.O.A. Responder: Safe and Unsafe Transfusions Activity Suggestion Activity 3F

Note:

This activity suggestion describes how specific content might be taught to middle school students. It does not contain fully developed lesson materials, which we hope to develop under future funding in this content area. Any feedback on how you are able to use this lesson suggestion would be greatly appreciated. Your comments can be sent to us at teachhealthk-12@uthscsa.edu.

Activity Focus:

The focus of this activity is to provide an awareness of the importance of accuracy in blood typing as it relates to transfusions. Students will examine the procedures to accurately determine blood type. Students will look at the importance of patients receiving the correct blood type during a transfusion. They will also learn about health risks to receiving the wrong blood type transfusion.

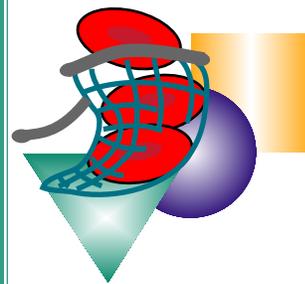
This activity focuses on transfusion safety as it deals with blood type. *Activity 3G: Safety of the Blood Supply* from the *Positively Aging®/M.O.R.E.* curriculum will focus on how the blood supply is kept safe from diseases such as HIV and hepatitis.

Activity Rationale:

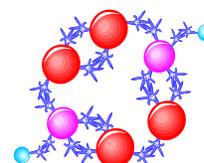
Blood flow is crucial to maintaining life. To date, we have no known substitute for human blood. This means that if a person does not have enough blood volume to maintain healthy body functions, they need a blood transfusion or they will eventually die. That is a fact.

An adult has about 14–18 pints of blood. The difference in the number of pints is due to the fact that some people are bigger than others, thus, they need more blood volume.

The following is a quote from the article titled: *“Transfusion Errors in New York State: An Analysis of 10 Year’s Experience”* – (Linden JV, Wagner K, Voytovich AE and Sheehan J. *Transfusion* 2000; 40:1207-13)



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Cast Your Net: Adventures With Blood

“From 1990 through 1998, approximately 256 transfusion services [in New York State] reported incidents that resulted in administration of Blood of incorrect ABO or Rh group. Erroneous administration was observed for 1 of 19,000 red cell units administered. Forty nine percent of these events, including testing of the wrong specimen, transcription errors and issuance of the wrong unit, occurred in the Blood bank and 51 percent occurred outside the Blood bank, including administration to the wrong recipient (38%)... Many events (15%) involved multiple errors; the most common was failure to detect at the bedside that the incorrect unit had been issued. The authors concluded that transfusion error continues to be a significant risk and that most errors result from human actions, thus they may be preventable.”

As you may see, this is a serious problem with blood transfusions. Two hundred fifty-six incorrect transfusions in eight years is more frequent than most people realize.

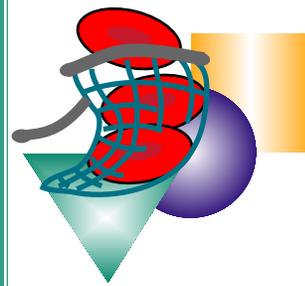
If the wrong blood type is given during a blood transfusion, a transfusion reaction will occur. It is important for those who even suspect a transfusion reaction to get immediate medical help. If a transfusion reaction is quickly stopped it can clear up gradually. There are serious outcomes, including death, if the transfusion reaction is not stopped as soon as symptoms occur.

The U.S. Food and Drug Administration determines blood transfusion guidelines in the United States. If you are in another country, find out which department in your government is responsible for setting blood transfusion guidelines.

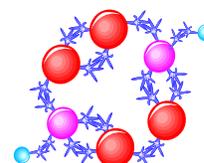
Suggested Methodology:

You know your students and the time you have to determine what kind of activity in which you want your students involved. The following are activity suggestions.

- ▼ Students can research the FDA’s five layer safeguards for blood transfusions.
- ▼ Students can research the prevalence of wrong blood transfusions given in the U.S. (or your country) for the past 10 years
- ▼ Students can interview a hospital administrator to find out the hospital’s safeguards for giving patients the correct blood transfusion; if students work in groups they can compare the safeguards of the various hospitals



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- ▼ Students can read the paragraph previously quoted and write scenarios in which there is the potential for incorrect blood transfusions to take place; they may want to contact a hospital to see if they would want to use the scenarios to practice getting the transfusions correct

If your school has the money you can buy “**blood typing**” kits from an educational science supply company. Many kits contain fake blood that can be determined as to its’ type.

Activity 3A: Hey, What’s Your Type? from the **Positively Aging®/M.O.R.E.** curriculum is a good pre-activity for students to gain a beginning understanding of the ABO blood types as a discussion of matching blood types which is a must in any activity addressing blood transfusions.

Suggested Resources:

What is a Blood Transfusion?

http://www.nhlbi.nih.gov/health/dci/Diseases/bt/bt_what.html

What Are the Risks of a Blood Transfusion?

http://www.nhlbi.nih.gov/health/dci/Diseases/bt/bt_risk.html

Blood Typing—interactive game where students must determine blood type on accident victims then choose the correct blood type to give as a transfusion.

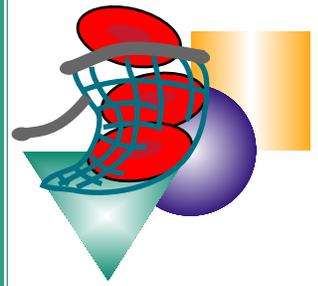
http://www.nhlbi.nih.gov/health/dci/Diseases/bt/bt_risk.html

PBS Red Gold—website full of history, pictures, information.

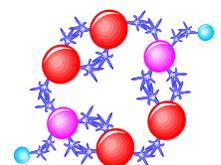
<http://www.pbs.org/wnet/redgold/basics/>

U.S. Food and Drug Administration’s information: “Keeping Blood Transfusions Safe: FDA’s Multi-layered Protections for Donated Blood.”

<http://www.fda.gov/opacom/factsheets/justthefacts/15blood.html>



Activity Suggestion, continued



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