

Safety of the Blood Supply

Activity Suggestion

Activity 3G

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:

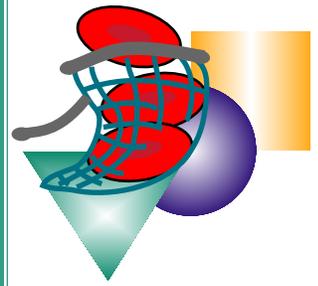
The focus of this activity is to provide an awareness of the importance in modern medicine of a safe and adequate blood supply in order to provide life-saving care. There are a number of safety considerations in maintaining our blood supply. A fascinating network of agencies and health care professionals administer the task of keeping the blood supply safe. Students will come away with an understanding of some of the means and methods involved as well as an awareness of some lifestyle and behavior choices that increase susceptibility of an individual to infectious diseases such as *HIV (human immunodeficiency virus)* and *hepatitis*.

Activity Rationale:

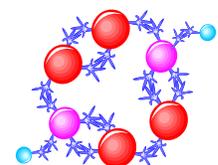
As most of us know, blood is integral to saving and preserving life in contemporary medicine. About 5% of the population (8 million people) gives roughly 15 million donations a year. Approximately 5 million patients benefit from their generosity.

But how safe is the blood supply? What is a blood recipient's chance of infection? Who develops and enforces the policy to keep the blood supply safe and how do they do it?

The blood supply is safer than at any other time in history. The three diseases of major concern are *hepatitis B*, *HIV (human immunodeficiency virus)* and *hepatitis C*. The risk of getting these diseases from a blood transfusion is less than 1/200,000, 1/1,500,000 and 1/1,000,000 respectively. Other diseases of concern such as *malaria*, *human T-lymphotropic virus*, *babesiosis*, *Chagas' disease* and *syphilis* are even less likely to be transmitted.



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This level of safety is no accident. There are specific guidelines developed by FDA through the Center for Biologics Evaluation and Research (CBER) that ensure the safest blood supply possible. The FDA enforces a five layered system of protection blood collection centers must follow that includes:

- Donor screening
- Testing the blood for infectious diseases (*Hepatitis B and C, HIV, Human T lymphotropic virus* and *syphilis*)
- Keeping lists of donors that have been deferred
- Quarantining the blood until tests show it is infection free
- Over site and documentation of collection, testing and manufacturing procedures

In addition, policy for potential or emerging disease threats is developed prophylactically. One example is Creutzfeldt-Jakob disease. Creutzfeldt-Jakob disease is a potential or emerging disease of concern. Although there are no incidences of anyone contracting Creutzfeldt-Jakob from a blood transfusion, donors are screened for it to protect recipients.

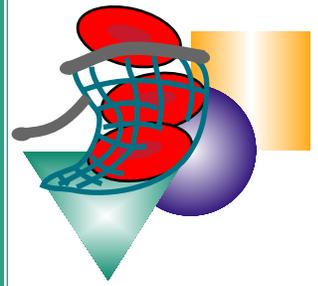
Becoming aware of the process and the risks, students will have the knowledge to make informed lifestyle choices regarding some infectious diseases and the decisions surrounding donation and receipt of blood.

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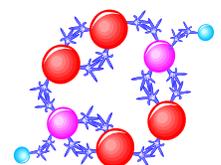
Students can play the role of health professionals helping to ensure the safety of our blood supply by becoming familiar with blood donor screening criteria/concerns/methods then use that knowledge to make judgments about the safety of specific model donors. For this activity, the focus will be on the donor screening process.

The typical donor screening/donation process at a blood collection center:

- The donor arrives and provides some personal information such as name, address, phone number, etc.
- The donor is provided with educational materials and/or counseling.
- The donor is provided with a list of medications that represent a potential risk for the blood recipient.
- **The donor answers relevant questions from a donor history questionnaire by either filling out the questionnaire or responding in a face-to-face interview.**



Activity Suggestion, continued



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Cast Your Net: Adventures With Blood

- The donor is given a medical exam in which vital signs and blood to test hemoglobin and hematocrit are taken.
- Once screening indicates the donor's blood is safe, the donor has an IV started and about a pint of blood is taken.
- The IV is discontinued and the donor is served refreshments and asked to stay and rest for a short time to allow their body to adjust to the decrease in blood volume.

Students conduct research using *teacher provided materials*. This option is best considering some of the sensitive topics student may encounter if they conduct independent research. Background information is obtained and students can be assigned a health care provider role. They can report back to the class about their role in maintaining a safe blood supply.

Alternately, the teacher can prepare fictional donor backgrounds and students can evaluate these potential donors to determine if they will be deferred or become active blood donors. Students will present their fictional case to the class and justify their decision. Students can be challenged to develop a set of criteria based on their research.

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 since a discussion of matching blood types is a must in any activity addressing blood transfusions.

Suggested Resources:

Note of Caution:

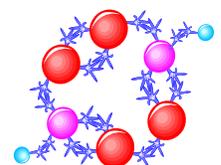
This topic involves potentially sensitive subjects; therefore the teacher must carefully monitor the information used by students from these and other sources.

Centers for Disease Control: A good beginning resource for information about infectious disease: <http://www.cdc.gov/>

American Red Cross website: This site has great information including statistics risk factors and procedure involved in donating blood: <http://www.givelife2.org/donor/default.asp?thisHB=06/23/2006%2011:37:39>



Activity Suggestion, continued



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Cast Your Net: Adventures With Blood