

Guidelines for Instructors

Description of this Exercise:

In this exercise, students apply basic principles of transfusion medicine in health care settings, recognizing when and how blood products are utilized and what problems may arise in their usage. It is geared toward beginning students in health sciences, including medical, nursing, and physician's assistant students who would be working in clinical settings in which use of blood products may be encountered. They may work as a team to recognize, treat, and monitor patient care situations with use of blood products. Thus, this exercise may be appropriate as an interprofessional educational activity.

Documents for this exercise:

Applications in Transfusion Medicine-Guidelines_Implementation.doc

This explains the general purpose of the exercise for instructors and guidelines for deployment.

Applications in Transfusion Medicine-Instructors_Guide.doc

This has the cases along with the questions and their answers, as well as a suggested timeline for instructors. This should not be distributed to the students.

Applications in Transfusion Medicine_Student_Guide.doc

This is the document for use by the students while participating in the exercise.

Applications in Transfusion Medicine-Tutorial_Preparation.doc

This document is assigned and provided to the students and instructors prior to the exercise for preparation. Students can use this tutorial as a guide during the session.

General Objectives for this Exercise:

Describe the indications for usage of the following blood products: packed red blood cells, platelets, fresh frozen plasma, and cryoprecipitate. Define "massive transfusion," and describe the metabolic derangements.

Describe and distinguish the following transfusion reactions: hemolytic, febrile, anaphylactic, circulatory overload, and transfusion-related acute lung injury (TRALI).

Define the infectious disease risks of blood products, including bacterial contamination, viral hepatitis B and C, HIV, HTLV, CMV, and malaria.

Define the meaning of and rationale for type and screen, and type and crossmatch, for blood products and explain the appropriate settings and processes for emergency release of blood and the use of “universal donor” blood.

Define alloimmunization in the context of hemolytic disease of the newborn. Describe the role of prenatal compatibility testing. Explain the role of Rh immune globulin prophylaxis in preventing hemolytic disease of the newborn.

Purpose of this Exercise:

This work utilizes the format of Case Based Learning (CBL) to apply basic principles of transfusion medicine for health science students. This work is modeled after similar group exercises at the authors' medical school that have been well-received.

The exercise consists of a set of cases that can be read for discussion. This exercise works best if the cases are NOT distributed to students ahead of time. Instead, faculty facilitate discussion using the guide provided to them. The pre-test and post-test questions can be used together at the end of the discussion for review if desired. This exercise does not require any special equipment and can therefore be done in a variety of settings.

It is suggested that the optimal group size ranges from 4 to 8 students, but group sizes may vary based upon faculty and facility limitations.

It is suggested that at least 2 hours be allotted for this exercise, and more depending upon the amount of time devoted to testing and review. The suggested timeline is given in below.

Context:

This exercise is intended for beginning students in the allied health sciences, such as medical, nursing, and physician’s assistant students.

Facilitation Schema:

This application was written to be used in a group-learning format. Ideally, groups would consist of 4-8 students, with students randomly assigned to groups. The suggested timeline for the exercise is as follows:

| | |
|---------------------|------------|
| Pre-test (if done) | 10 minutes |
| Case 1 | 10 minutes |
| Discussion | 10 minutes |
| Case 2 | 10 minutes |
| Discussion | 10 minutes |
| Case 3 | 10 minutes |
| Discussion | 10 minutes |
| Case 4 | 10 minutes |
| Discussion | 10 minutes |
| Case 5 | 10 minutes |
| Discussion | 10 minutes |
| Post-test (if done) | 10 minutes |
| Final review | 15 minutes |

Total Time: 115 for cases + 20 for testing = 135 minutes

When students arrive to the session, they should sit in their assigned groups. For assessment, the pre-test can be distributed by the facilitator. After everyone has successfully completed the pre-test, which is typically done individually if it is taken for a formal score for a grade, the groups should begin to read and discuss Case 1 amongst themselves for the next 10 minutes. At the end of the allotted time, the facilitator should interject and begin to lead all the groups in discussion of Case 1 for the next 5-10 minutes. During this time, the stem questions included with each case should be briefly discussed, and any questions with the case should be addressed. This same sequence should be repeated for the remaining cases.

Once the groups' case discussions has been completed, the post-test can be administered and completed by each group. Answers can be formulated as a group, with discussion and agreement amongst the group. Upon the completion of the post-test, the facilitator should lead a whole class discussion of the test, going through each question one by one and allowing students to discuss the answers. During this final period, any questions remaining from the pre-test, if administered can also be addressed.