

CPMC LABORATORY MEDICINE COURSE

Group Session 11/9/98

A 38 year old male was the victim of an automobile accident. At University Hospital trauma center, the patient received 4 units of uncrossmatched group O blood. He sustained bilateral femur fractures and a lacerated liver. He required 20 units of RBCs, 6 units of FFP, 18 units of platelets, and 10 units of cryoprecipitate during surgery.

1. How much volume of each blood product did the patient get?

2. What function did each product type provide?

Approximately 5 weeks after discharge, the patient noted scleral icterus and was seen in clinic.

3. What is the differential diagnosis?

4. How would you work up this patient?

5. Is there any reason to notify the transfusion service?

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A 42-year old steel worker with a long history of alcohol abuse is found confused and hypotensive by fellow employees and brought to the emergency room. Upon admission, he is noted to be hemorrhaging from esophageal varices and he receives 2000 ml of lactated Ringer's solution. Four units of RBCs are ordered STAT. The patient's blood type is AB, Rh-positive. After two units of RBCs have been infused, six additional units of RBCs are requested for surgery, as it appears this patient will use a large amount of blood. The blood bank inventory contains the following units of RBCs by type:

	<u>O</u>	<u>A</u>	<u>B</u>	<u>AB</u>
Rh-positive	20	23	8	2
Rh-negative	6	4	2	1

1. Which type of blood should be selected for surgery?

2. If this patient should need plasma products, what type of plasma should be given?

A two-year old child is scheduled for open-heart surgery. His parents learn that his blood type is group O, Rh negative. His father suspects that the child is not his because he knows that his wife is group B, Rh positive. The father is group A, Rh positive.

1. Are the father's suspicions valid based on the known blood types?

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A 26-year old patient with a blood donor card stating that his blood type is group O, Rh positive notes that he is being transfused with group O, Rh-negative blood.

1. Should this patient be anxious about receiving the wrong type of blood?

Additional Information. The hospital transfusion service has recorded the patient's blood type as Rh negative.

2. Explain how the donor center and the hospital transfusion service could both be correct.
3. Was the appropriate blood used for this patient?

When testing for a patient's ABO type, the laboratory obtained the following results:

	Cell Grouping		Serum Grouping	
	<u>Anti-A</u>	<u>Anti-B</u>	<u>A Cells</u>	<u>B Cells</u>
Patient's cells	4+	0	1+	4+

1. Can you determine the patient's ABO group accurately given the above information?
2. If additional testing is needed, blood of which ABO group should be given in an emergency?

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JH is a 21-year old male who presents to your office for preoperative evaluation for knee surgery. He reports that he received blood once in the past during surgery. He also complains of a 3-day history of malaise, headache and sore throat. Upon testing, his blood type is found to be group A, Rh positive with a positive antibody screen. After extensive antibody identification, he is found to have the following antibodies: anti-I, anti-E, and anti-Jk^a. Diffuse interstitial infiltrates are also noted on routine chest X-rays and are felt to be consistent with *Mycoplasma pneumoniae*.

1. Which of these antibodies are likely to be clinically significant?

2. What criteria are used to determine clinical significance?

3. What percentage of group A, Rh-positive donors would you expect to be suitable for this patient?

4. What must be done by the transfusion service to provide blood for this patient's surgery?

5. What extra precaution may be prudent at the time of transfusion for this patient?

Your hospital's transfusion service receives a "type and screen" request for a 16 year old male patient with sickle cell disease who is scheduled for a right hip replacement secondary to

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aseptic necrosis of the femoral head. Another "type and screen" is requested for a 29-year old woman scheduled for a cesarean section.

1. Is a "type and screen" an appropriate order for each of the above surgical procedures?

2. Why should each of these patient's previous transfusion records be checked prior to serologic testing?

3. What testing is performed for a "type and screen"?

4. What request should the transfusion service have received for the 16-year old patient? Why?

5. What type of crossmatch is performed if blood is needed urgently for a patient with a negative antibody screen?

Additional Information: The 16-year old patient's previous transfusion records indicate that he has been multiply transfused and that his antibody screen has been negative to date. However, the technologist performing the antibody screen notes positive reactions at 37 C and in the indirect antiglobulin test (IAT) phase.

6. Is the antibody likely to be clinically significant? Why?

7. What additional testing should be done for this patient to prepare to have blood available for his surgery?