**Human Blood Type Problems**

*In your answers to the questions below, include the role of the various antigens and antibodies that are present.*

1. A patient with Type AB blood is rushed to the emergency room and has suffered severe blood loss. Type AB blood is in short supply, but the nurse says, "Don't worry, he's type AB positive. We can give him any kind of blood." Explain.

1. On the battlefield, a medic is treating a soldier who has lost a great deal of blood. They are out of blood typing supplies so the medic, who is Type O negative, simply donates his own blood to the patient. Why could this work?
2. There is a practical joker in the maternity ward who removed all the baby identification bracelets. There are three babies that cannot be easily distinguished and of course the new parents want to be sure they get the right baby back. The doctors decide to do a blood test. A particular mom is homozygous type A and the dad is type O. The babies have blood types AB, A, and O. Which baby belongs to these parents? Why?

1. The police have rounded up the usual suspects in the latest rash of bookstore robberies. The thief got a nasty paper cut at the scene of the crime. The suspects are of blood types O, A, B and AB. The blood at the crime scene contained O alleles. Which suspect therefore **cannot** have been involved? Explain.

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| **Suspect 1** | Blood Type O | Possible Genotype(s): |
| **Suspect 2** | Blood Type A | Possible Genotype(s): |
| **Suspect 3** | Blood Type B | Possible Genotype(s): |
| **Suspect 4** | Blood Type AB | Possible Genotype(s): |

1. In a paternity case, a single mother claimed that a certain man was the father of her baby. The man denied it, claiming that her current boyfriend was the father. The court ordered a blood test (much cheaper than DNA testing) to see if he could be ruled out as the father. The mother was Type O and the baby was Type O. The man was Type AB. Is it possible that he was the father? Why or why not?
2. Ms. Pratt is claiming that Mr. Johnson is the father of her child. Ms. Pratt’s blood type is O negative. Her baby boy has type A positivite blood. Mr. Johnson’s bllod is typed and found to be B positive. Could he be the father of her child?

If not, what blood type would the father be expected to have?

1. (True Story) In Denmark, a husband and wife who had been unsuccessfully trying to have a baby went to a fertility clinic. Sperm and eggs were collected from father and mother, and combined in a petri dish, creating several "test-tube babies". These babies were implanted in the mother and 9 months later she delivered twins, one with light skin and one with dark skin. Because this seemed strange, a DNA test was conducted and it was found that both children were related to the mother, but only the light skinned child was related to the father. How can this be explained?