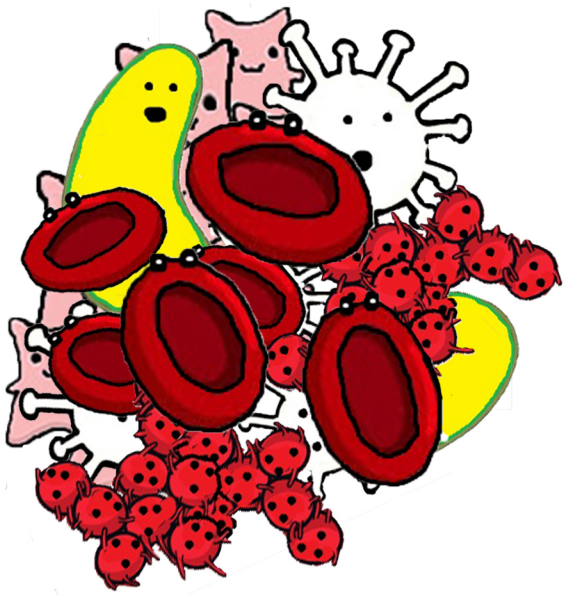


Blood Components

This activity takes about 10 mins plus an introduction

Intro:
The activity is designed to make people aware that when blood is donated that it isn't usually used as whole blood but is spun down into blood components and it's these components that are transfused. It also introduces the structure of blood and the various components within blood.

The Science:
A blood transfusion does not normally use 'whole blood' but it is spun and separated into blood components: red blood cells, white blood cells, platelets and plasma. Red blood cells distribute oxygen to body tissues and carry waste carbon dioxide back to the lungs, white blood cells fight infection and are part of the body's defence system, platelets (or thrombocytes) are a constituent of the blood formed in the bone marrow. These tiny fragments of cells are crucial in helping your blood to clot by working with the clotting factors in plasma to form a mesh "plug" to stop or prevent bleeding. Most people think that blood is red but the truth is that it's only the red blood cells that make it appear that way. Take them away (and the other cellular components) and you're left with plasma, a yellow coloured fluid that carries all the blood cells. Blood services may process plasma to extract other vital products such as:
• Albumin: this protein is really useful when treating anyone who's been severely shocked or burned, or anyone who's lost large amounts of blood.
• Clotting factors: one of the major agents in plasma is Factor VIII. It helps anyone whose blood doesn't clot properly.

What you will need:
Blood component cards
Patient cards

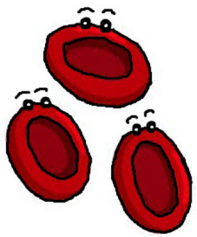
Instructions:
There are two sets of cards: Blood Component Cards and Patient Cards.
Volunteers ask attendees to lay out all the Blood Component Cards and then explain that whole blood is separated into these components and how these components can be used.
Volunteers ask attendees to look at the Patient Cards and work out which blood component would be most useful to treat which patient.
Attendees can place the Patient Cards next to the Blood Component card they think the patient needs.
Attendees can then look on the Answer Card to find out if they were correct.

IBMS Institute of Biomedical Science

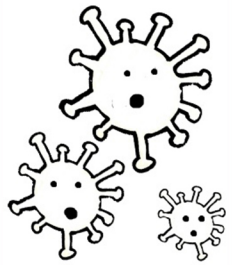
Biomedical science is at the heart of healthcare!

BLOOD COMPONENT CARDS

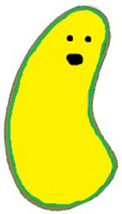
Red Blood Cells



White Blood Cells

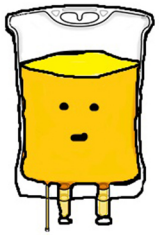


Albumin (from plasma)



Platelets

Plasma



Clotting factors (from plasma)

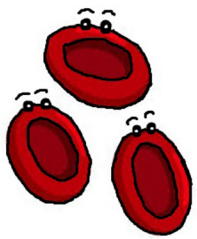
Patient A

a woman who has given birth and has suffered some blood loss during childbirth.

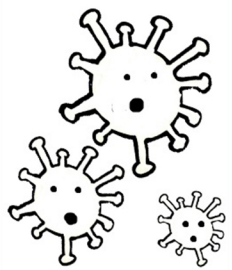
Patient B

an older gentleman who is suffering from sepsis has been given antibiotics but they don't seem to be working.

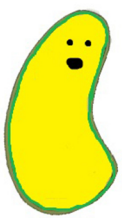
Red Blood Cells



White Blood Cells

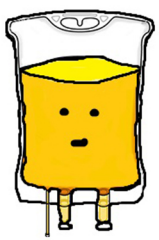


Albumin (from plasma)



Platelets

Plasma



Clotting factors (from plasma)

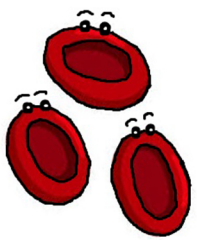
Patient C

a young boy who has been diagnosed with leukaemia

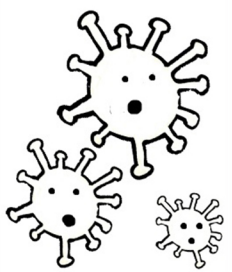
Patient D

a man who was involved in a road collision and is suffering from severe trauma and has serious injuries including burns

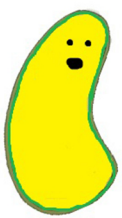
Red Blood Cells



White Blood Cells

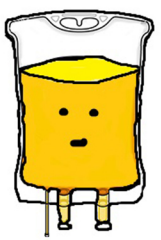


Albumin (from plasma)



Platelets

Plasma

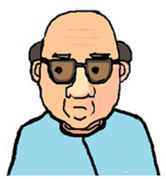


Clotting factors (from plasma)

Patient E

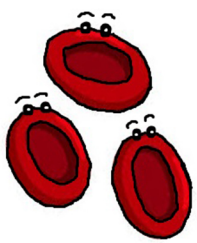
a woman who has been admitted to hospital with liver problems

Patient F

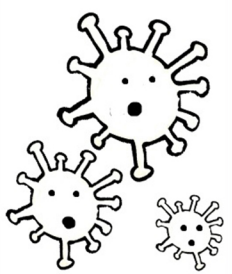


a man who is regularly admitted to hospital as he suffers with haemophilia, a blood clotting disorder

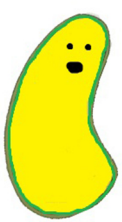
Red Blood Cells



White Blood Cells

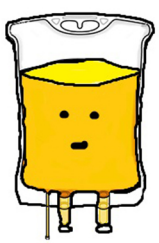


Albumin (from plasma)



Platelets

Plasma



Clotting factors (from plasma)

Answer Card

Patient A: Requires red blood cells
Patient B: Requires white blood cells
Patient C: Requires platelets
Patient D: Requires albumin
Patient E: Requires plasma
Patient F: Requires clotting factor