

WHAT HAPPENS TO BLOOD IN PRODUCTION SERVICES?

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Blood goes in ...

All whole blood donations are sent from Blood Service Collection Centres to the Processing Centre and are receipted on the national blood management system, NBMS.

What does NBMS do for Production Services?

Whole blood is manufactured into components such as red cells, platelets and plasma. The type of components whole blood is converted into changes according to inventory needs. The NBMS indicates which components are suitable to be manufactured from each donation. Processing Staff determine the components required to be made each day, based on required inventory levels and demand patterns.

Taking blood for a spin

Centrifugation of whole blood will cause the blood to separate into layers (pictured). The bottom layer is made of red cells, the middle layer, called 'buffy coat' is made up of white cells and platelets and the plasma is on the top.

How is whole blood separated?

Once whole blood is spun into the three layers, it is put in a press, which pushes the red cells out of the base of the bag and the plasma out of the top. The buffy coat is left behind.

What next?

The red cells are run through a filter with a special additive solution to make the final red cell component. Four buffy coats are joined together and run through a filter with a small amount of plasma and a special additive solution. This makes the final 'pooled' platelet component. Plasma needs no further filtering or additives and can be frozen and stored.

What does the filter do?

The filters remove more than 99% of the white cells. This process is called 'leucodepletion' and we do it because white cells may cause transfusion reactions.

What does Processing do with plasma donations?

Plasma is also obtained from apheresis donations, where only plasma is collected. About 70% is processed for fractionation and goes to CSL Biotherapies who separate it and make specific products (see our fact sheet *Fractionation*, Vol 1, No 11). The other 30% is processed for clinical use and is frozen and kept at the Blood Service until it is issued to hospitals for patients.



What does Processing do with platelet donations?

Platelets can also be collected by apheresis. These are already filtered during the collection process. A sample is taken for Bacterial contamination testing and then the Platelets are kept at room temperature on rockers, providing gentle agitation until used.

The components are made and sent to ...

Inventory & Distribution (I&D) departments. Components are released into Finished Goods (in I&D) once test results are cleared. I&D is open 24/7 and receives orders from our customers for blood components, products and special patient orders. Most of our blood supply is used by large hospitals which hold inventory of each component which is 'topped up' each day to an agreed level.

How are blood inventory levels managed?

That is another big story. In essence, the level of stock for each ABO group and every component is kept within certain levels. This ensures our customer needs can be met when orders are placed.

BLOOD FACT

Blood, Hollywood style: Golden syrup, red food colouring and cocoa powder. Edible and Scary!