

Blood products

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Aims

- To give an overview of the processing of blood products and the different processes involved before it leaves NHSBT
- Describe the different products produced

Most vital part!



Precious donation

- Aim to make the most from each donation
- Turn a single donation into:
 - Red cells
 - Plasma product
 - Platelets

Receipt into Manufacturing

- Approximately 22 component donations and 800 whole blood donations each day.
- 7 days a week
- Receive in the afternoon or evening of day 0 and then again at 06:45 on day 1

Day 0 - Splitting of Apheresis Platelets

- Can be made into single, double or triple product.
- Split depending on product volume
- Aim for equal amounts in each pack
- End up with approx 40 to 60 separate products

Day 1 - Quality Monitoring

- All products are QM to ensure process is in control and products meet specification
- Check for
 - Platelet count
 - White cell count
 - Volume
 - Hct
 - Protein levels
 - FVIII level

Day 2 – Bacterial Screening

- Minimum 36 hours after donation
- All apheresis and pooled platelets are tested

Bacterial Screening

- Sampled for Aerobic and Anaerobic organisms
- Incubated for life of products

Storage of platelets

- Platelets labelled and stored in platelet agitator
- Mandatory test
- Negative result necessary for release to Validation

Whole blood donations

- Aim to maximise the use of each donation
- Used to make FFP, cryoprecipitate and red blood cells
- Process the majority of the blood on day 1

Storage of whole blood

- Ambient overnight hold of whole blood
- Sorted into pack types, male and female, time bled and product
- Strict timelines

Filtration

- Whole blood mixed
- Hung up on filtration rack
- Filtered to remove white cells
- Empty collection pack and filter cut off

Centrifuges

- Packed up
- Centrifuged
- Separation of red cells and plasma

Separation

- Processed on optipress
- Plasma removed into separate transfer pack
- SAGM added to red cells
- FFP has air removed then frozen

Cryoprecipitate production

- Frozen plasma removed from freezer
- Placed on trolleys in fridge
- Defrosted slowly overnight

Cryo precipitates out

- The cryo precipitates out of the plasma
- Centrifuged
- Removal of waste plasma
- Re-frozen

Cryo pooling

- Single cryo
defrosted rapidly
- Heated and mixed
- 5 singles used to
make 1 pool

Cryo pooling

Validation

- Products presented to Pulse
- Checks that all mandatory testing is completed
- Label produced

Product storage

- Red cells stored in walk in fridges at 4 degree
 - Phenotype stock
 - Exchange donations
 - LVT's
- Platelets in RT incubator
 - HLA matched
- Frozen products in walk in freezer

Secondary processing

- Other products made on request
 - PAS platelets
 - Washed red cells

Hospital Services

- Orders sent in from the hospital via OBOS
- Staff issue the products to that hospital completing the audit trail for that donation.

Out the door