

# Blood components and appropriate transfusion

Jordan Reed

Transfusion Practitioner

York and Scarborough Hospitals NHSFT



## Content

- Blood components – what are they
- Purpose of different components
- Alternatives and adjuncts to transfusion
- Clinical scenario
- Summary

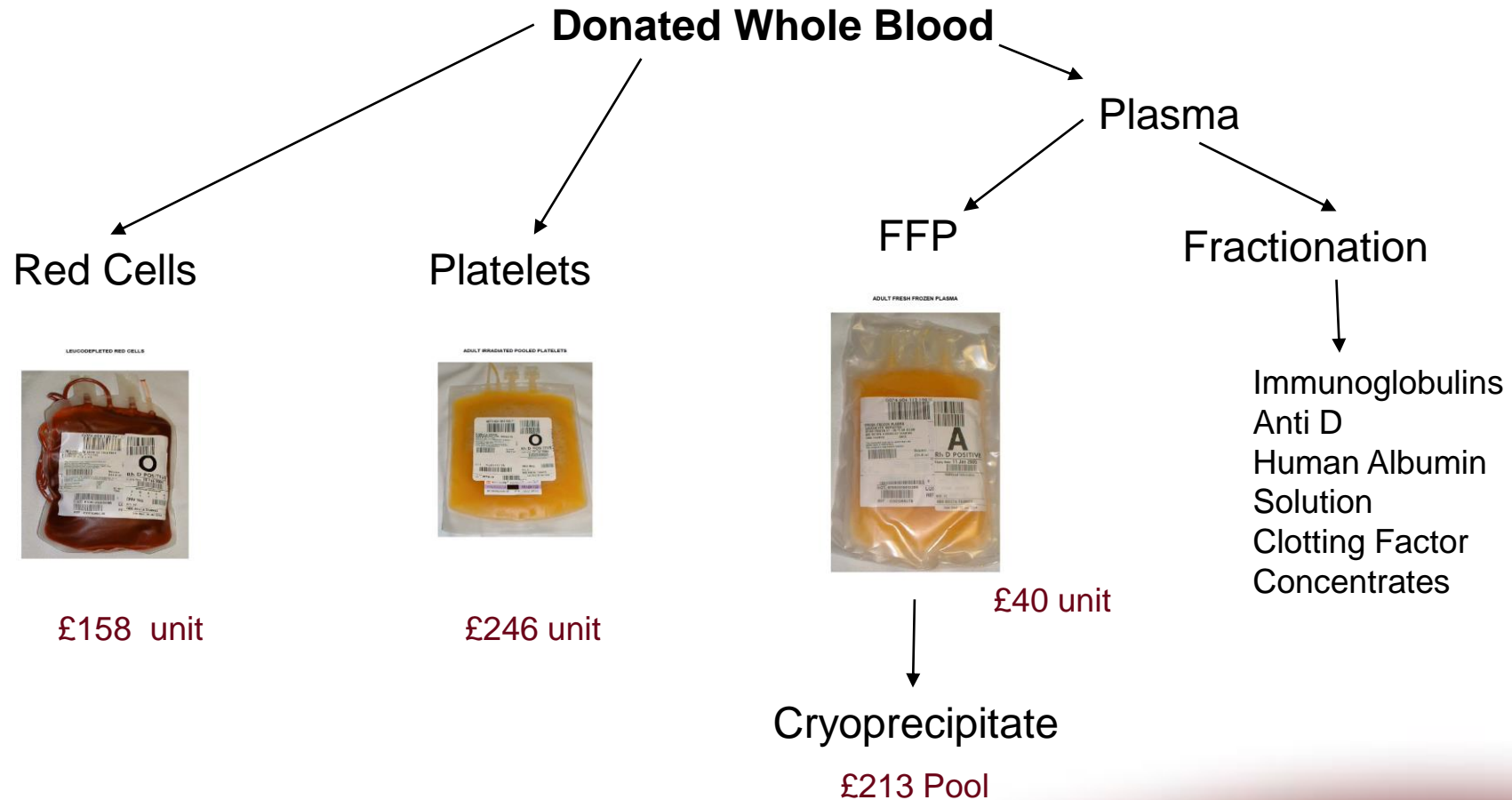


# what are blood components?

- Platelets
- Red cells
- Fresh frozen plasma
- Cryoprecipitate
- White cells
- Blood products are any therapeutic substance prepared from human blood



# Blood Components



## Red cells



- What do red cells do in the body?
  - O<sup>2</sup> Transport
- 250 – 300 mls
- Leucodepleted (white cells removed) Why?
  - vCJD prion transmission
  - Reduces febrile non haemolytic transfusion reaction
- Stored at 4°c for 35 days



## Platelets



- Indicated for the prevention and treatment of haemorrhage in patients with thrombocytopenia or platelet function defects.
- What do platelets do?
  - Form a 'plug' at the tissue damage site
- Stored at room temperature
  - Infection transmission risk
- Stored for 7 days - with agitation
- Availability issues

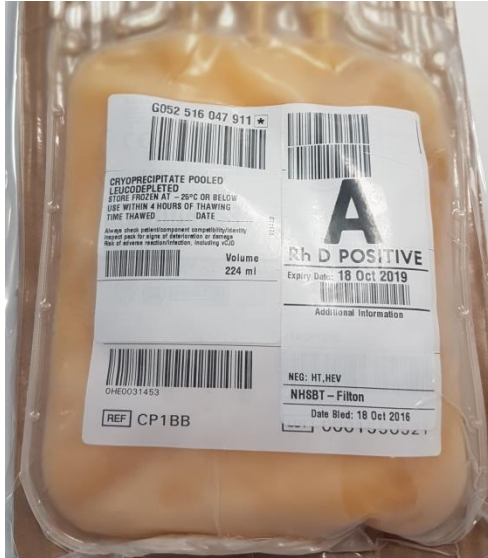


## Fresh Frozen plasma



- What does FFP contain?  
Clotting factors and fibrinogen
- Why is it transfused?
  - Although FFP is widely used - Current BSH guidelines suggest indications:
    - Treatment of TTP – plasmapheresis (octoplas)
    - DIC with bleeding
    - Certain single clotting factor deficiencies e.g factor v
    - **Has limited place in prophylaxis prior to liver biopsy with mild coagulopathy**
    - Major Haemorrhage
    - Should **NOT** be used to reverse warfarin
- 200-300mls per unit
- Frozen 2 years, expires 24hours post thawing

## Cryoprecipitate



- Concentrated form of fibrinogen
- Indication inherited or acquired deficiency eg DIC, Major haemorrhage
- Frozen for 2 years
- Pooled products = 5 donors per pack





## Factors to consider

- Risks
- Limited supply
- Cost
- Transfusion thresholds



# Questions

- Does this person really need a transfusion?
- Are there alternatives?



## Alternatives

- Iron po/iv – anaemia management plan
- Erythropoetin injections – renal anaemia, can support some cancer treatments, selective MDS patients
- B12 and folate – check haematinics, - pernicious anaemia, lack of vitamins in diet, medication (anti convulsants, PPI) - B12 supplements, Folic acid
- Vitamin K – insufficient dietary Vit K – inability to activate clotting cascade
- Prothrombin complex concentrate (beriplex, octoplex)



## Adjuncts

- Cell salvage – intra or post op
- Tranexamic acid – pre op, trauma
- Fibrin glue
- Reduce unnecessary blood tests – iatrogenic anaemia



## Clinical scenario

80 yr ♀ Hb 80g/L and with MDS

➤ Do they need a transfusion?

- Signs and symptoms
- Comorbidities
- Natural history of the disease
- Alternatives/adjuncts
- Number of units
- Speed of transfusion
- Further review

30 yr ♀ Hb 80g/L post partum

➤ Do they need a transfusion?

- Signs and symptoms
- Comorbidities
- Natural history of the disease
- Alternatives/adjuncts
- Number of units
- Speed of transfusion
- Further review



## other considerations

- Chronically transfused e.g MDS, thalassaemias
  - Changing picture
  - Increasing age → increasing frailty and comorbidities → changing requirements
  - Look out for other reasons for increasing transfusion requirements e.g iron deficiency



## Realistic about what transfusions can achieve



## Summary

- Blood from a donor is filtered, centrifuged and then separated into blood components: red cells, platelets, FFP and cryoprecipitate.
- Each component has a role but the risks of transfusion, limited supply and costs mean that they need to be used judiciously and appropriately.
- Consider alternatives and adjuncts to transfusion with each patient.
- Remember that each patient has different needs and these will also change with time.





- Thank you for listening



# Any Questions

