



REVIEW KOMPONEN DARAH



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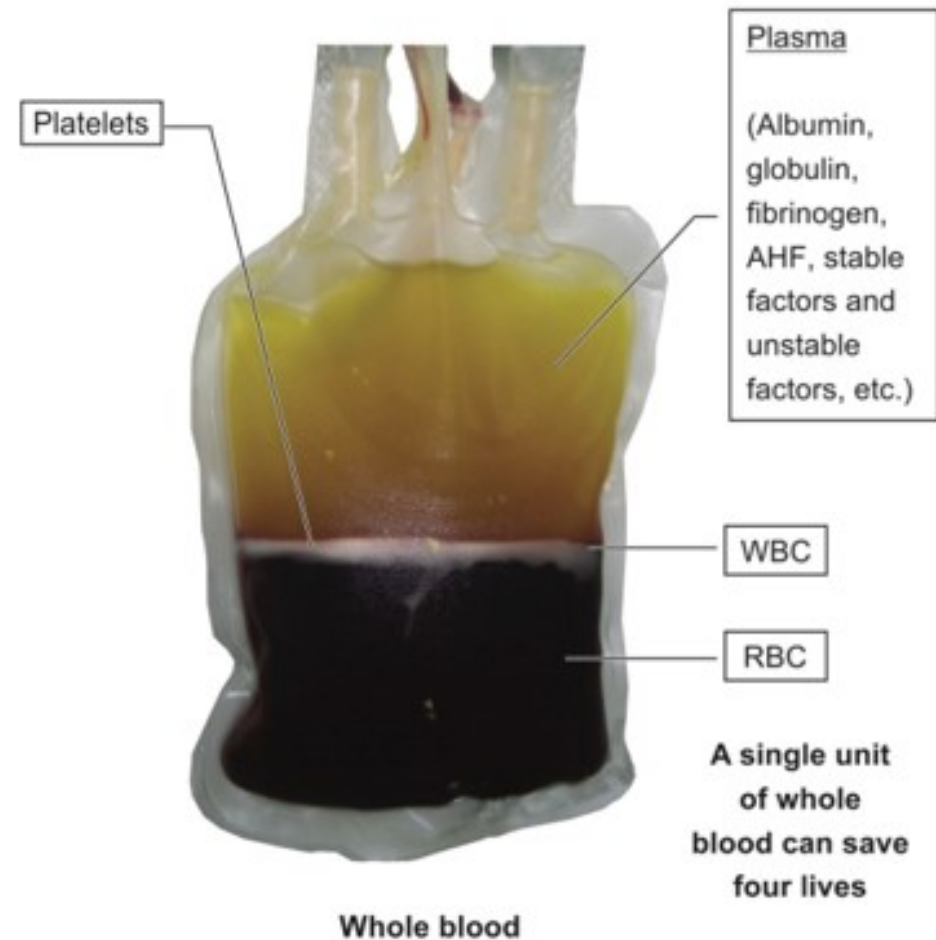


Mengapa Harus Komponen?

- ❑ Dapat digunakan untuk beberapa pasien
- ❑ Pasien hanya menerima komponen yang memang dibutuhkan
- ❑ Mengurangi risiko reaksi transfusi
- ❑ Penyimpanan dapat optimal
- ❑ Keuntungan logistik, etik, dan ekonomi



Komposisi Darah

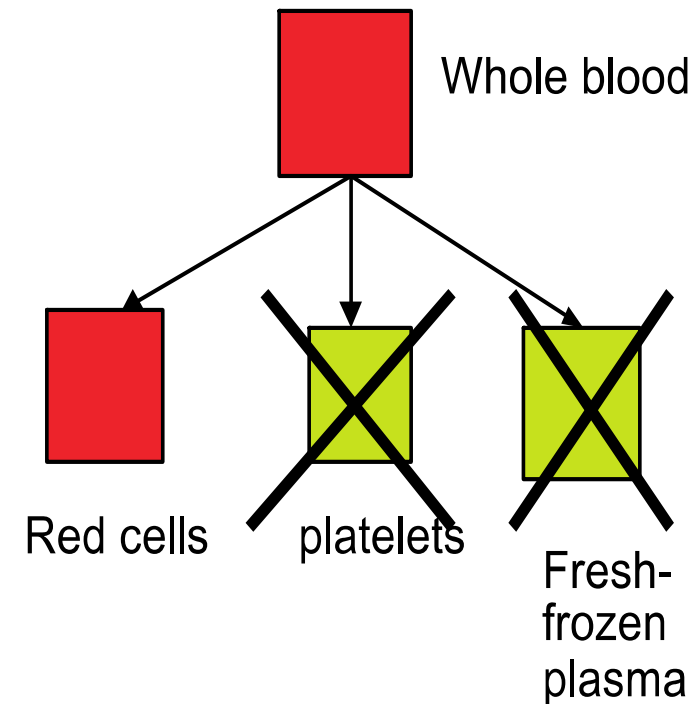
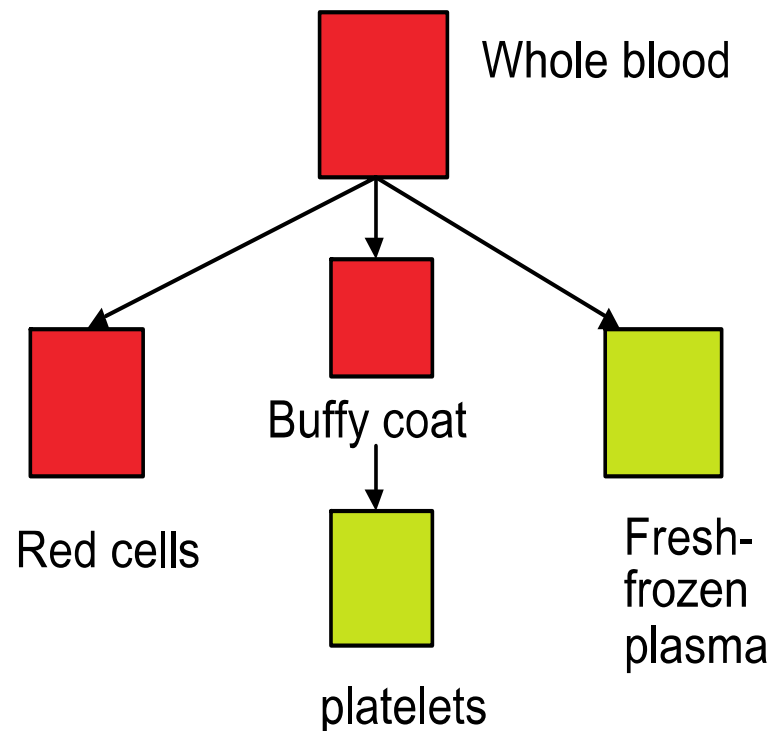




Suhu simpan-preparasi komponen

Day of blood collection <8 hours
or after 24 hours at 22°C

After storage at 4°C for 24–72
hours



Transfusion Alternatives in Transfusion Medicine 10, 92–101



Bag System

- A wide variety of PVC (polyvinyl chloride) plastic bag is available
- Sterile and pyrogen-free
- Storage of platelet requires a plastic with increased oxygen permeability.



Prinsip Sentrifugasi

- Ukuran, berat jenis
- Viskositas medium, fleksibilitas sel
- Kecepatan dan waktu





	Mean density (g/ml)	Mean volume (10e-15 litre)
Plasma	1.026	
Platelet	1.058	9
Monocyte	1.062	470
Lymphocytes	1.070	230
Neutrophile	1.082	450
Red cell	1.100	87



Prosedur Preparasi





Pemisahan Plasma



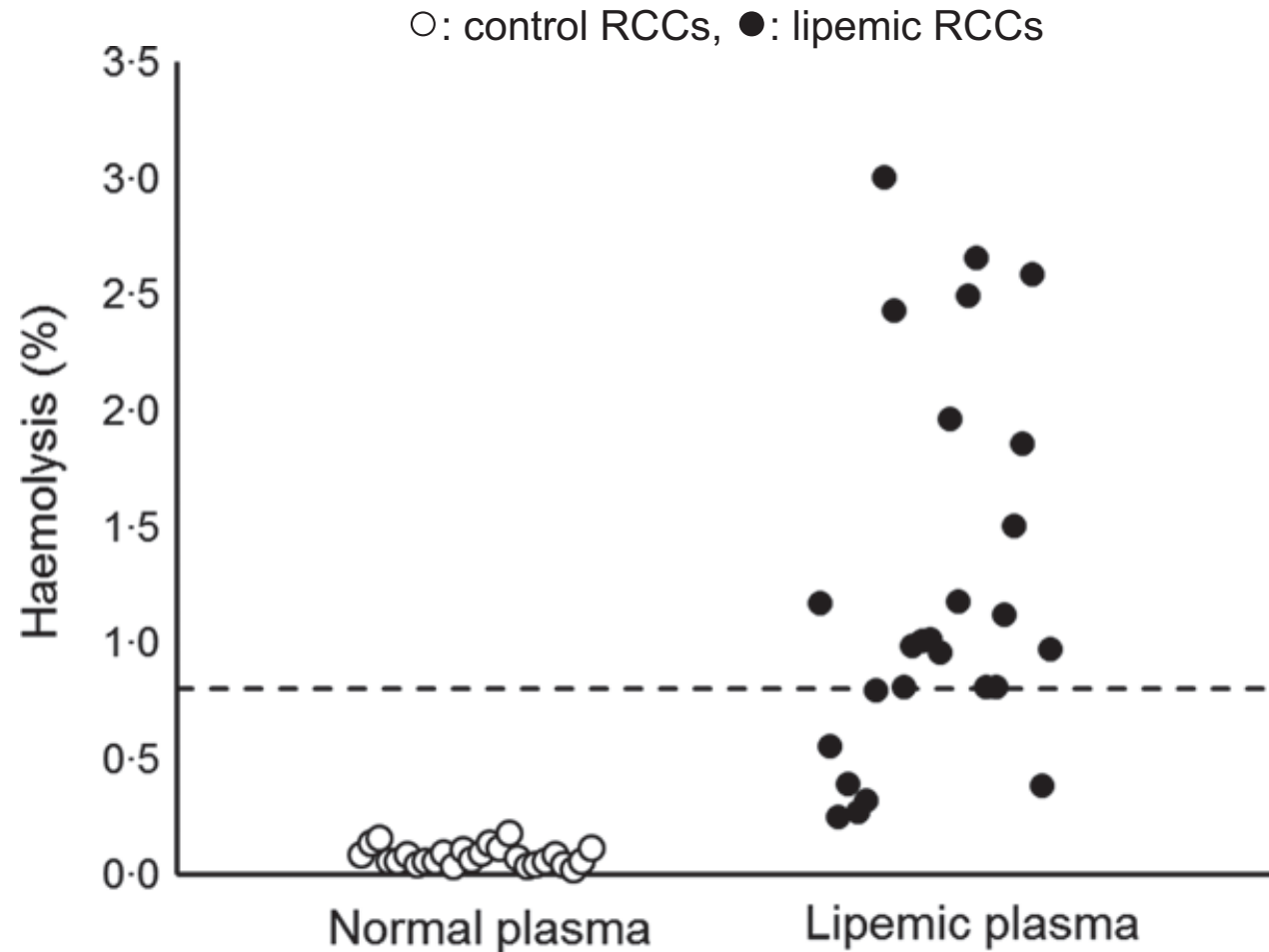


Basic Blood Components

- Red Blood Cells
- Platelets
- Fresh Frozen Plasma (FFP)
- Cryoprecipitated Anti-hemophilic Factor
- Granulocytes.



PRC DISIMPAN 42 HARI





Cryopreserved-RBCs

- **Frozen RBCs**
 - Glycerol is added to cryoprotect the unit
 - Glycerol prevents cell lysis (dehydration, intracellular ice)
 - Why? Freezing RBCs preserves rare units or extends to life of autologous units.



Courtesy LifeSouth Community Blood Centers, Gainesville, Fla.



Washed-RBCs

- Not effective in reducing WBCs
- For patients (with anti-IgA) that may react with plasma proteins containing IgA
- Reactions may be allergic, febrile, or anaphylactic.



Irradiated-RBCs

- Prevents T-cell proliferation that may cause transfusion-associated graft versus host disease (GVHD)
- Used for:
 - Donor units from a blood relative
 - HLA-matched donor unit
 - Intrauterine transfusion
 - Immunodeficiency
 - Premature newborns
 - Chemotherapy and irradiation
 - Patients who received marrow or stem cells.



Wholeblood-derived Platelets

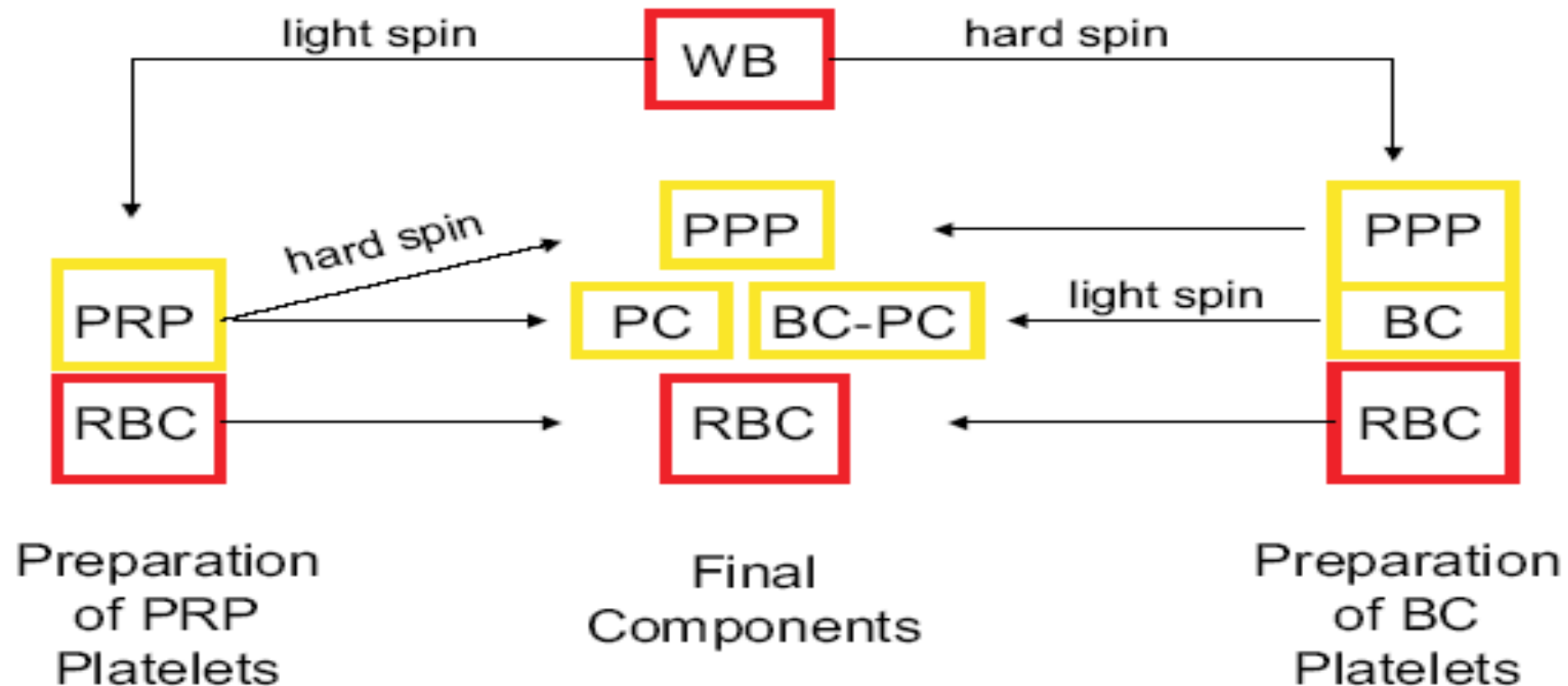


Figure 13-1. Preparation of whole-blood-derived platelets. WB = whole blood; PRP = platelet-rich plasma; PPP = platelet-poor plasma; PC = platelet concentrate; BC = buffy coat; RBC = red blood cell.



Wholeblood-derived Platelets

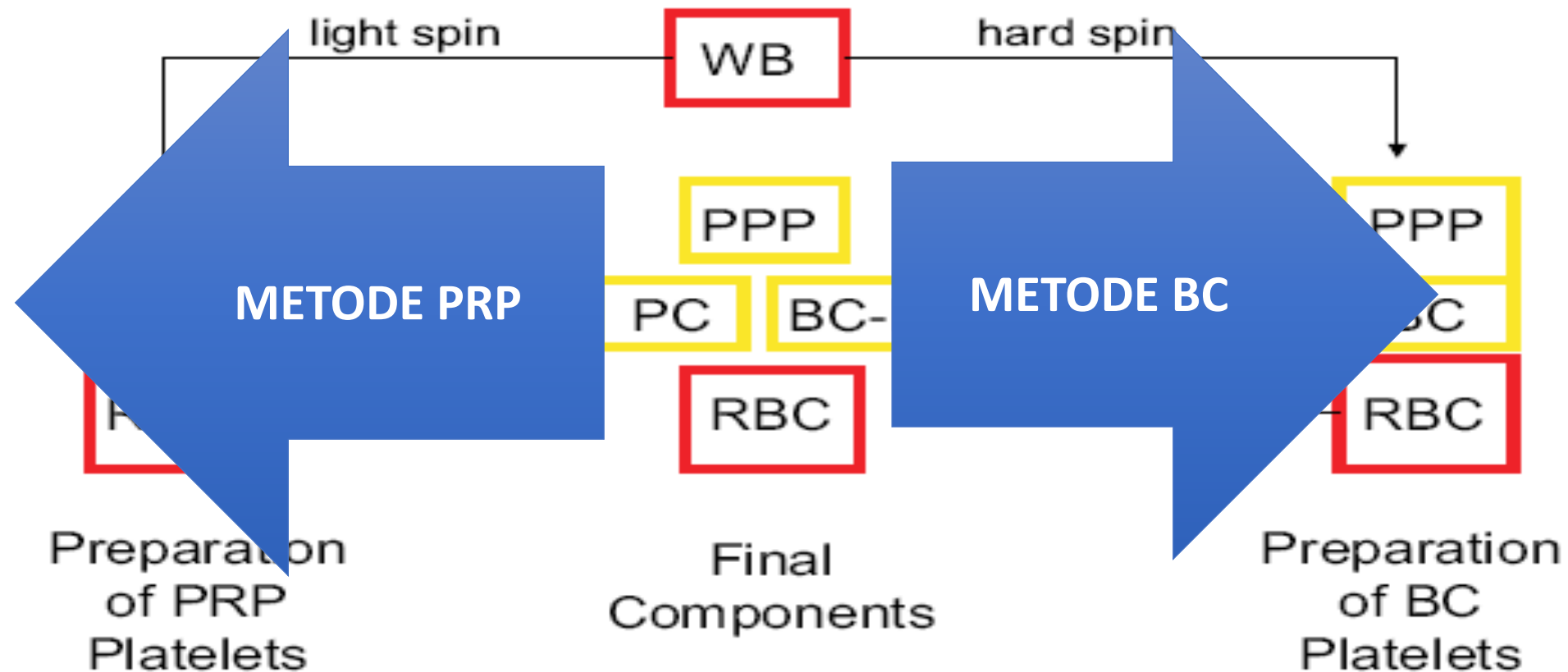


Figure 13-1. Preparation of whole-blood-derived platelets. WB = whole blood; PRP = platelet-rich plasma; PPP = platelet-poor plasma; PC = platelet concentrate; BC = buffy coat; RBC = red blood cell.



Pooling of Buffycoat





Estimation of the residual risk of a leukocyte-depleted component being issued containing residual leukocytes above defined levels

$> 1 \times 10^6/U$ $> 5 \times 10^6/U$ $> 100 \times 10^6/U$

Apheresis platelets	1:175	1:1352	1:6381
Pooled platelets	1:202	1:2028	< 1:22304
Red cells in additive	1:160	1:1522	1:7250
Fresh-frozen plasma	1:1072	1:18251	< 1:14783



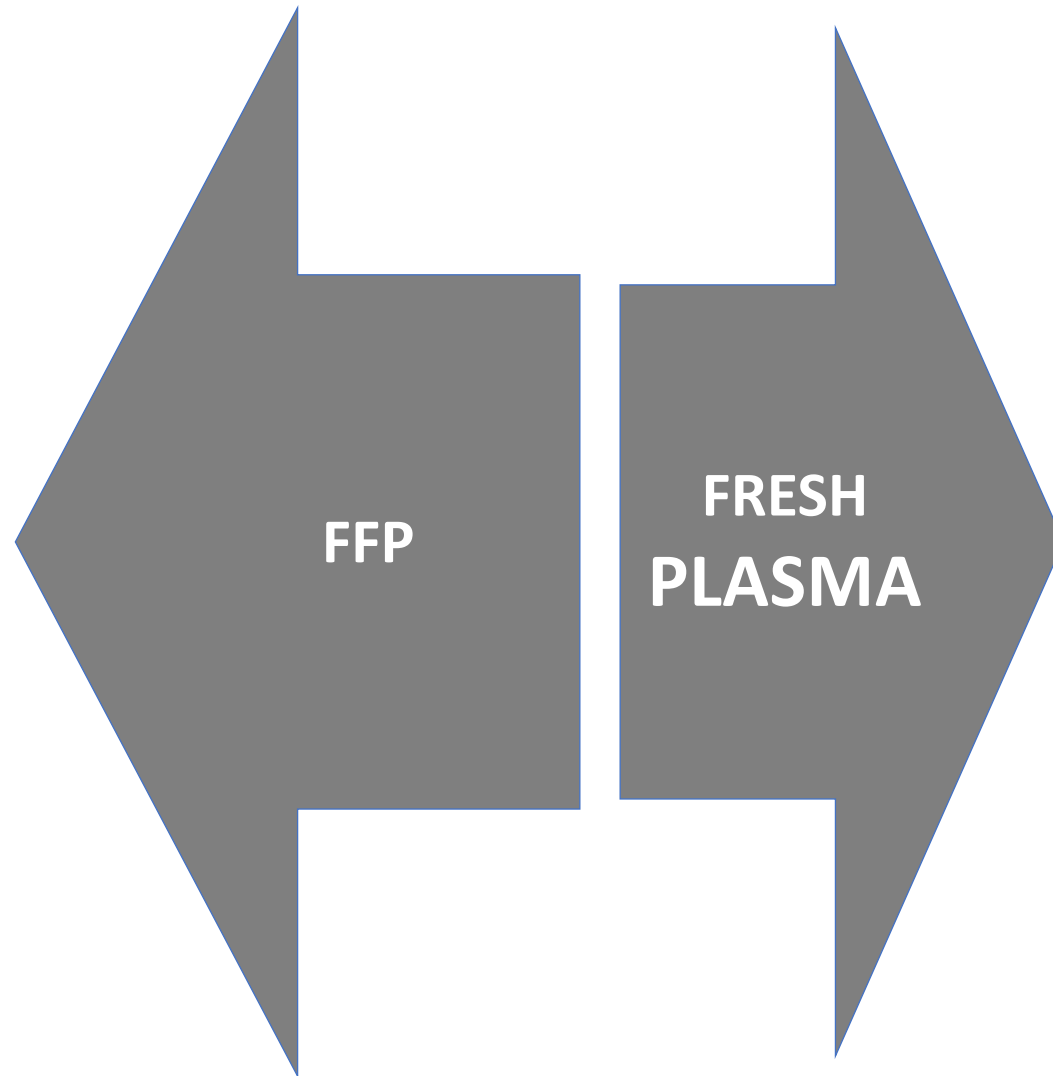
Characteristics of Plasma Products

- FFP
- Plasma Frozen within 24 hours
- Plasma cryoprecipitate reduced or cryopoor plasma
- Thawed plasma
- Liquid plasma
- Cryoprecipitae AHF
- Source plasma



Fresh Frozen Plasma (FFP)

- Plasma that is frozen within 8 hours of donation
 - -18°C or older for 1 year
- Method of freezing
 - Should bring the core temperature down to -30C or below within 60 minutes
 - Should be presented in a regular configuration to maximize exposure to the freezing process
 - If a liquid environment is used, container cannot be penetrated by the solvent





Cryoprecipitate

- Cryoprecipitated antihemophilic factor (AHF) or “Cryo” is the precipitated protein portion that results after thawing FFP
- Contains:
 - von Willebrand’s factor (plt. adhesion)
 - Fibrinogen
 - 150 mg in each unit
 - Factor VIII
 - About 80 IU in each unit
 - Fibrinonectin



Granulocytes

- Neutrophils are the most numerous, involved in phagocytosis of bacteria/fungi
- Although rare, it is useful for infants with bacteremia
- Prepared by hemapheresis
- $\geq 1.0 \times 10^{10}$
- Maintained at room temp for 24 hours.



AUTOMATISASI: Gen 1-2-3



Vox Sanguinis (2014) 107, 10–18



TERIMA KASIH