# Blood Components Therapy – 2023

**ABO Blood Group System**

- Type A: contains A antigens and anti-B antibodies.
- Type B: contains B antigens and anti-A antibodies.
- Type AB: contains both A and B antigens but no antibodies.
- Type O: contains no antigens, but contains both anti-A and anti-B antibodies

**Rh System**

- Additional antigen called Rh factor
- Patients either Rh+ or Rh -
- **Rh (-) blood cannot receive Rh (+) blood**
- Rh(+) blood can receive both Rh (-) and Rh (+) blood
    - Important in childbirth. Rh- women should receive RhoGAM injections in pregnancy to prevent formation of anti-D antibodies

**Blood Compatibility**

| Blood Type: | Can receive blood from: |
|---|---|
| O + | |
| O - | |
| A + | |
| A - | |
| B + | |
| B - | |
| AB + | |
| AB - | |

**Transfusion Therapy**

- Objectives of Transfusion Therapy
    - Maintain blood volume
    - Maintain and replace components of blood
        - RBC's
        - Platelets
        - Plasma
        - Clotting factors

**Transfusion Options**

- Where does donated blood come from?
    - Homologous Blood-
    - Autologous Blood-
- How blood is given:
    - Whole blood
    - RBC's
    - Platelets
    - Fresh Frozen Plasma
    - Cryoprecipitate
    - Albumin

Blood Product: *Whole Blood*

- Volume expansion by plasma
- Replacement of O2 carrying capability of RBC's
- Indicated for
    - Treatment of massive blood loss
- Must be ABO & Rh compatible

Blood Product: *Packed Red Blood Cells* (PRBCs)

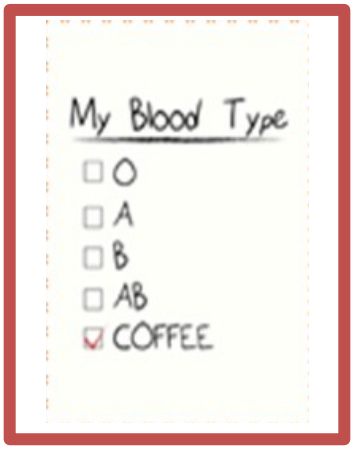
- Increase O2 carrying capacity with less risk of fluid overload
- Indicated for
    - Acute blood loss
    - Symptomatic anemia
- 1 unit is approx. 1 g/dl increase in Hgb
- Must be ABO & Rh compatible

Blood Product: *Platelets*

- To control or prevent bleeding caused by thrombocytopenia
- No need to match blood types
- Multiple vs. single donor
    - Plateletpheresis for single donor method

Blood Product: *Fresh Frozen Plasma (FFP)*

- Coagulation factor deficiencies
    - Liver disease, vitamin K deficiency, excess warfarin (Coumadin)
- Rich in clotting factors, but contains no platelets
- Try to match patient's blood type, but Rh compatibility doesn't matter

Blood Product: *Cryoprecipitate*

- Cryoprecipitate is prepared from FFP
    - Contains clotting factors
- Indicated to correct deficiencies of
    - Factor VIII (hemophilia)
    - Von Willebrand factor
    - Fibrinogen
- Try to match patient's blood type, but Rh compatibility doesn't matter