

Disease Process	Whole Blood	Packed Red Blood Cells	Fresh Frozen Plasma	Frozen Plasma or Cryo-Supernatant	Cryo-Precipitate	Colloid / Other Resuscitation Fluids
Regenerative anaemia	■	★				
Non regenerative anaemia	■	★				
Pancytopenia	Fresh					
Anaemia with hypoproteinaemia	■	★	■	■		■
Anaemia with hypovolaemia	■	★		■		■
Anaemia with coagulopathy	■	★	★	■	■	
Von Willebrand factor deficiency (vWD) (Pre-surgery or as treatment for bleeding issue)			■		★	
Hypoproteinaemia See Guideline Albumin Equation below			■	■		■
Low immunoglobulin (Ig)			■	★		
Haemophilia A Factor VIII (Pre-treatment or as treatment for bleeding issue)			■		★	
Haemophilia B Factor IX (Pre-treatment or as treatment for bleeding issue)			■	★		
DIC	■	■	■	■		
Pancreatitis			■	■		
Liver disease with coagulopathy			■	■		
Liver disease with anaemia	■	■	■	■		
Thrombocytopenia#	Fresh					
Thrombocytopathia#	Fresh					
Neonatal isoerythrolysis		★				
Rodenticide toxicity coagulopathy (Need to replace factors II, VII, IX and X)			■	★		

■ Indicates suitable blood products that can be utilised in treating the disease process ★ Designates the superior product or combination of products of choice when more than one suitable product can be utilised
Note if platelets or white blood cells are required FRESH whole blood must be collected and administered within six hours of collection however a limited number of viable platelets/wbc will be transfused.
If associated with severe anaemia and fresh whole blood is not available, PRBC can be considered.

Data was provided by Dr Anne Hale

COMPONENT: Storage instructions & shelf life	Indications for use	Action	Not indicated for	Hazards	Dosage and Administration <i>Use an in line blood filter (170-260 microns) with all products</i>
Whole Blood (Fresh) collected in CPD or CPDA Room temperature - after 12 hours store 2-6°C < 21 days as Whole Blood (Stored) Transfuse < 6 hours to have any viable platelets and full coagulation factors 1 unit average volume = 450ml Average PCV 45% unless measured	Symptomatic anaemia (blood loss) Platelet deficiency: Fresh Whole Blood is unlikely to have a significant therapeutic effect in a severely thrombocytopenic patient (GUIDELINE: 10ml/kg of fresh whole blood raises the PLT count by 10 x 10 ⁹ /l)	Restores O ₂ carrying capacity and blood volume, if used within 6 hours of collection, supplies all coagulation factors and some viable platelets	Pharmaceutically treatable anaemias (i.e. those that will respond to specific non-transfusion therapy) because of risks associated with transfusions	Immunologic transfusion reactions (e.g Alloantibody reactions, allergic reactions) Non - Immunologic transfusion reactions (e.g anticoagulant and toxin accumulation in products associated with storing blood products, circulatory overload, infectious disease transmission)	Calculate dose and administer each unit < 4 hours. As a general estimate, 2ml/kg of Whole Blood will raise PCV by 1% or the haemoglobin by 0.3g/dl. Rate of Administration: Start transfusion at a rate of 0.5-1ml/kg/hr for the first 15-30 minutes, then according to patients' fluid status, if hypovolaemic, at rates up to shock doses (as fast as blood is being lost), if normovolaemic 5-10ml/kg/hr, if compromised circulation (cardiovascular compromise/renal failure) 1-2ml/kg/hr.
Packed Red Blood Cells (PRBC) in SAG-M nutrient solution 2-6°C 42 days from date of production 1 unit average volume = 250ml Average PCV 62% unless measured	Symptomatic anaemia in presence of normovolaemia without clotting factor deficits	Restores O ₂ carrying capacity	Pharmaceutically treatable anaemias (i.e. those that will respond to specific non-transfusion therapy) because of risks associated with transfusions. Clotting factor and platelet deficits	As for Whole Blood Ammonia levels can increase in stored red cell products. These should be used with caution in dogs with known liver disease	Calculate dose and administer each unit < 4 hours. As a general estimate, 1ml/kg of Packed Red Blood Cells will raise PCV by 1% or the haemoglobin by 0.3g/dl. Rate of Administration: as Whole Blood above.
Fresh Frozen Plasma (FFP) < -18°C 1 year from date of production Becomes FP after 1 year and will store for a further 4 years 1 unit average volume = 200ml	All coagulopathies Immunoglobulin (Ig) transfer (i.e. passive immunity) Pretreatment of vWD and haemophilia A patients before invasive procedures Can be considered for volume resuscitation in acute trauma	Source of all clotting factors, immunoglobulins, albumin, lipids and electrolytes	Volume replacement alone Does not contain viable platelets. Sole therapy for hypoalbuminaemia in the absence of coagulopathy	Immunologic transfusion reactions (e.g allergic reactions) Non - Immunologic transfusion reactions (e.g circulatory overload, infectious disease transmission)	Calculate dose and administer each unit < 4 hours. Standard dose: 10-30ml/kg to effect. Severe coagulopathies require the higher end of the dose range. Hypoalbuminaemia – large volumes are required to increase circulating albumin by 10g/L – it is considered that the risks of transfusing such large volumes, (risk of reaction as well as cost) negate plasma as an effective sole treatment for hypoalbuminaemia. Rate of Administration: as Whole Blood above.
Frozen Plasma (FP) < -18°C 5 years from date of production 1 unit average volume = 200ml	Deficit in non-labile vitamin K dependent clotting factors (II, VII, IX, X), Ig transfer Can be considered for volume resuscitation in acute trauma	Source of non-labile clotting factors (II, VII, IX, X), immunoglobulins and albumin, lipids and electrolytes	Volume replacement alone Does not contain viable platelets Sole therapy for hypoalbuminaemia in the absence of coagulopathy	As Fresh Frozen Plasma	Calculate dose and administer each unit < 4 hours. Standard dose: 10-30ml/kg to effect. Hypoalbuminaemia – large volumes are required to increase circulating albumin by 10g/L – it is considered that the risks of transfusing such large volumes, (risk of reaction as well as cost) negate plasma as an effective sole treatment for hypoalbuminaemia. Rate of Administration: as Whole Blood above.
Cryo-Precipitate (Cryo-P) < -18°C 1 year from date of production 1 unit average volume = 60ml	Pre-treatment for vWD or haemophilia A before invasive procedures or treatment of active bleeding in these dogs	Source of factor VIII, fibrinogen, vWF	Coagulopathies involving non-labile clotting factors (II, VII, IX, X). As a source of albumin or immunoglobulin	As Fresh Frozen Plasma	Calculate dose and administer each unit < 4 hours. Standard dose is 1 unit/10kg. Additional amounts may be required for actively bleeding haemophiliacs/vWD. If used as a pre-treatment of coagulopathy before surgery, the dose should be given within 4 hours of the event. Rate of Administration: as Whole Blood above.
Cryo-Supernatant (Cryo-S) < -18°C 1 year from date of production 1 unit average volume = 140ml	Vitamin K dependent coagulopathy, Ig transfer Can be considered for volume resuscitation in acute trauma	Source of non-labile clotting factors (II, VII, IX, X), immunoglobulins and albumin, lipids and electrolytes. The concentration of albumin in Cryo-S is slightly higher than in Fresh Frozen Plasma.	As Frozen Plasma	As Fresh Frozen Plasma	As Fresh Frozen or Frozen Plasma

GUIDELINE RED CELL EQUATION: Volume of donor blood to be transfused = recipient weight (kg) x 90 (dogs) x (recipient desired PCV - current PCV/PCV of anticoagulated donor blood)

GUIDELINE ALBUMIN EQUATION: Albumin deficit (g) = [desired alb (g/L) – current alb (g/L)] x BW(kg) x 0.3. Albumin level in donor plasma averages 25g/L.