

**GRANULOCYTE CONCENTRATE:** Granulocyte Concentrate consists of the white blood cell fraction collected from a single donor and is reserved and directed to a specific critically ill patient, often a newborn with sepsis. Prior to donation, donors of granulocyte concentrate require pre-medication with growth factor, i.e. Neupogen, and often also dexamethasone, for stimulation of granulopoiesis. All granulocyte concentrates must be pre-arranged by communication with the Blood Bank. A Blood Bank Pathologist must be on-call at all times, and can be reached through the Blood Bank.

**GRANULOCYTE CONCENTRATE definitions:** Granulocyte Concentrate is the white blood cell fraction collected by apheresis, and contains a majority fraction of granulocytes, but also all types of white blood cells. A single donor Granulocyte Concentrate contains at least  $1.0 \times 10^{10}$  white blood cells in a volume of 200 to 300 mL of citrated plasma. A single donor Granulocyte Concentrate also contains approximately 20 to 50 mL of RBCs and  $1.0 \times 10^{11}$  platelets. Granulocyte Concentrate must never be refrigerated, and Granulocyte Concentrate outdates and is no longer available for transfusion 24 hours after collection.

**GRANULOCYTE CONCENTRATE dosages and indications:** The usual dosage for neonates, infants, and children is 10 to 15 mL/Kg via a standard 180 to 260 micron filter. Granulocytes are indicated for acute bacterial or fungal sepsis in neonates, or in immunosuppressed transplant patients with neutropenia, or in patients with chronic granulomatous disease. Drugs or medicines must NOT be infused via the same intravenous line during transfusion. The cardiorespiratory status of neonates must be considered in deciding rate and amount of transfusion to avoid volume overload.

Because Granulocyte Concentrate contains many RBCs, donors must be ABO and Rh compatible, and the product must be crossmatched to the recipient prior to administration. For obvious reasons, Granulocyte Concentrate cannot be leukoreduced, so if the recipient is CMV negative, then CMV negative donors must be recruited. Because Granulocyte Concentrate contains viable lymphocytes, and is infused into immunocompromised patients, it must be irradiated prior to transfusion in order to prevent graft versus host disease. Additionally, for social reasons, Granulocyte Concentrate donors are often close blood relatives, which is an additional indication for irradiation of the product. Because Granulocyte Concentrate contains viable lymphocytes, it often causes HLA alloimmunization.

**GRANULOCYTE CONCENTRATE contraindications and hazards:**

Granulocyte Concentrate is not for palliative care, so not used when patient's condition is irremediable.