

Tips for the Transfusionist Part 3 – Recommended Blood Administration Tubing

All blood components must be transfused using blood administration tubing with a filter. The standard filter size recommended for blood administration is 170-260 micron.¹ Specialty filters may be required for specific patients or certain clinical situations.

A 170-260 micron filter is designed to trap fragments of cells, clots or particulate matter that may develop as a result of blood product storage. This same filter size can be used for all blood and blood components. For optimal flow rates, filters should be primed with 0.9% normal saline and the drip chamber half-filled to allow observation of blood flow.¹ Manufacturer's recommendation for changing the tubing is usually after 2-4 units or after 4 hours.

Specialty Filters

Specialty filters may be part of the tubing or could be an additional filter when using:

- rapid fluid/blood infusion devices
- cell salvage devices
- extracorporeal circuits (e.g. cardiac bypass, ECMO)
- syringe pumps for neonates
- bedside leukocyte reduction (not common practice)

Microaggregate and leukocyte reduction filters are common types of specialty filters.

Microaggregate filters (generally 20-40 micron) are used for specific instances of red cell transfusion such as during cardiopulmonary bypass or cell salvage collections. These filters are designed to remove smaller particles or particulate material from collected blood prior to reinfusion but will not remove WBC to the level required for a product to be considered 'leukocyte-

reduced'. Microaggregate filters should never be used for granulocyte transfusions because the filter removes some granulocytes resulting in a suboptimal product for the patient.

Leukocyte reduction filters are specifically designed to reduce the number of white cells in a red cell or platelet product. Performing leukocyte reduction during manufacturing is more effective than when performed at the bedside.² Leukocyte reduction improves transfusion safety by reducing febrile non-hemolytic transfusion reactions, prevention of CMV transmission from blood products, and decreases the risk of developing antibodies that lead to poor response to platelet transfusions.^{2,3} Based on their purpose, leukocyte reduction filters should never be used with granulocyte transfusions.

Specialty filters are not generally used for routine blood transfusion.

Always follow your institution's policy for blood administration

References:

1. Alexander M (ed). Infusion Therapy Standards of Practice. Journal of Infusion Nursing (2016); 16(1s).
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3. Yazer et al. The effect of prestorage WBC reduction on the rates of febrile nonhemolytic transfusion reactions to platelet concentrates and RBC. Transfusion. 2004 Jan;44(1):10-5.
4. Bassuni WY, Blajchman MA & Al-Moshary MA. Why implement universal leukoreduction? Hematology/Oncology and Stem Cell Therapy. 2008; 1(2): 106-123.

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