



## 1. Questions about perioperative autologous and directed donations?

Prescriber questions and requests must be directed through an APL Transfusion Medicine physician.

## 2. Types of blood donation

There are three basic types of blood donation:

- **Homologous (Allogeneic) Donation** – when blood is voluntarily donated for the community supply.
- **Perioperative Autologous Donation (PAD)** – when a patient's own blood is collected and stored until needed for elective transfusion. This is restricted to circumstances of rare blood types or plasma protein deficiencies in which allogeneic blood components may not meet patient needs. PAD is discouraged in all other situations due to the overall increased risk of requiring a transfusion. See [NAC Statement on Perioperative Autologous and Matched Donations | National Advisory Committee on Blood and Blood Products \(NAC\) \(nacblood.ca\)](#)<sup>1</sup> for more information.
- **Directed (Designated) Donation** – when a donor donates for a specified recipient (e.g. parent to their minor child). This type of donation has been discontinued at Canadian Blood Services (CBS) effective March 31, 2024 due to declining demand as well as the increased risks associated with receiving blood components from a related donor.<sup>2</sup> See [NAC Statement on Perioperative Autologous and Matched Donations | National Advisory Committee on Blood and Blood Products \(NAC\) \(nacblood.ca\)](#)<sup>1</sup> for more information.

## 3. How is a perioperative autologous donation (PAD) arranged?

Contact your local Transfusion Medicine physician to screen the request for PAD appropriateness.

Required information includes (but is not limited to):

- Patient's information
- Number of units and types of components required (red cells, plasma or both)
- Date and location of planned transfusion
- Patient's hemoglobin, blood group and antibody screen

The APL Transfusion service will then contact CBS ([medicalservices@blood.ca](mailto:medicalservices@blood.ca)) to request PAD collection and assist in completing the necessary paperwork.

For patients meeting the criteria to proceed, it is critical that the units are collected a minimum of 4 (four) business days before the intended transfusion. A maximum of 4 (four) donations, one week apart can be collected. Each PAD unit collected is tested for the same transfusion-transmitted infection (TTI) markers as allogeneic donations. Any unit testing positive on confirmatory testing for markers other than syphilis will be destroyed and result in deferral of further PAD collections.<sup>1,4</sup>



#### **4. What are the specific risks to perioperative autologous and directed donations?**

Many of the risks associated with allogeneic transfusion also exist for perioperative autologous and directed donations, including bacterial contamination, reaction to blood component bags or additives, transfusion associated circulatory overload (TACO), errors related to patient and unit identification.<sup>1,4</sup>

PAD increases the overall risk of receiving a transfusion and receiving more blood components in an attempt to avoid discarding pre-donated blood, compared to patients who have not donated blood prior to a procedure. Hemoglobin optimization should be considered as a preferred alternative where possible.<sup>1,4</sup>

Blood components from a biologically related donor are associated with an increased risk of:

- Transfusion Related Acute Lung Injury (TRALI). This is usually due to antibodies found in blood donors who have had pregnancies or have had previous transfusions.<sup>1</sup>
- Formation of anti-HLA antibodies, which may make it more difficult to find family members who would be compatible as stem cell or organ donors if needed in the future.

#### **5. What if my patient requires rare blood components that could have been collected from a family member through directed donation?**

Transfusion needs for patients requiring rare blood components will be supported through CBS' Rare Blood and Specialized Cell Program.<sup>2</sup>

Family members of patients requiring rare blood components are encouraged to become regular blood donors. If they meet the allogeneic blood donor criteria, their blood can be collected and used by their family member if needed. Donor criteria can be found on the CBS website: [ABCs of eligibility to donating blood](#)<sup>3</sup> CBS' Rare Blood and Specialized Cell Program can also freeze rare units for future use by a recipient who requires it.<sup>1</sup>

#### **6. REFERENCES**

1. Tinmouth A, Yan M. NAC Statement on Perioperative Autologous and Matched Blood Donation [Internet]. Ottawa: National Advisory Committee on Blood and Blood Products; July 19, 2018 [updated 2023 20 24]. Available from: <https://nacblood.ca/en/resource/nac-statement-perioperative-autologous-and-matched-donations>
2. Canadian Blood Services. Discontinuation of Directed Donations: Customer Letter #2024-01 [Internet]. Ottawa: Canadian Blood Services; January 15, 2024 [cited January 16, 2024]. Available from: [www.blood.ca](http://www.blood.ca)
3. Canadian Blood Services. ABCs of eligibility for donating blood, platelets and plasma [Internet]. Ottawa: Canadian Blood Services; cited January 16, 2024. Available from: [ABCs of eligibility to donating blood](#)
4. Foster T, Yan M. Preoperative autologous donation [Internet]. Ottawa: Canadian Blood Services; April 21, 2021 [cited January 16, 2024]. Available from: [Preoperative autologous donation | Professional Education \(blood.ca\)](#)