Canadian Blood Services
BLOOD PLASMA STEM CELLS ORGANS & TISSUES

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INFORMATION ONLY

Updated NAC Recommendations for Use of Irradiated Blood Components in Canada

Customer Letter # 2024-06

2024-01-30

Dear Colleagues:

The National Advisory Committee on Blood and Blood Products (NAC) in collaboration with the Comité consultatif national en médecine transfusionnelle (CCNMT, advisory committee for Quebec) recently published recommendations for the use of irradiated blood components in Canada. Upon review of the best-available information, the NAC-CCNMT Irradiation Subcommittee has updated its original recommendations document to help Canadian clinicians determine which patients should receive irradiated components and define the age of blood components at the time of irradiation and the length of storage post-irradiation.

Significant changes to clinical indications for irradiated blood component transfusion include:

- Clarification that pathogen reduced cellular components treated with psoralen and ultraviolet A (UVA) light are irradiation-equivalent and must not be irradiated
- A new recommendation in the setting of chimeric antigen receptor T-cell (CAR-T) therapy
- A new recommendation pertaining to donor lymphocyte infusion
- Addition of considerations for lifting irradiation requirements in specific scenarios, including:
    - Following successful allogeneic stem cell transplant engraftment,
    - Following achievement of disease remission in Hodgkin lymphoma
    - Following completion of treatment with alemtuzumab, purine analogues and purine-like analogues
- Removal of the requirement for irradiated blood component transfusion to premature infants requiring top-up transfusion
- Clarification of indications for irradiated blood component transfusion in neonates with suspected congenital immunodeficiency syndromes
- Clarification that irradiated cellular blood component transfusion is not indicated in the setting of solid tumors, solid organ transplantation and autoimmune disorders, regardless of disease state or immunosuppressive therapies utilized as a part of treatment

A quick-reference summary of clinical indications for irradiated blood component transfusion is found within Appendix A of the recommendations document and is attached to this document.

Please share a copy of this customer letter with healthcare professionals at your hospital who might be interested in this information.

This customer letter can also be viewed at www.blood.ca in the “Hospital Services” section. If you have questions about this letter, or if you require it in an accessible format, please contact your local hospital liaison specialist.

Sincerely,

Dr. Tanya Petraszko
Senior Medical Director Medical, Laboratory, and Stem Cell Services

Appendix A from the recommendations: Quick reference of clinical indications for irradiated blood component transfusion.

Patient Category	Condition	Duration of Irradiated Blood Requirement
General Population	Directed donation (blood from first- and second-degree relatives)	NA - Product related
	HLA-selected (matched) platelets	NA - Product related
	Granulocyte transfusions	NA - Product related
Pregnancy, to a fetal recipient	Intrauterine transfusion (IUT)	During the entire pregnancy
Pediatrics	Neonatal exchange transfusion	Each procedure only
	Neonatal small volume (top-up) transfusions • Prior IUT recipient, and until 6 months after the EDD (40 weeks gestational age) • Consult local policies in uncertain situations	6 months following the EDD
	Congenital severe T-cell immune deficiency • If suspected or proven ○ Consideration should be given to routine newborn screening results (if available)	Until immunodeficiency ruled out, or life-long if proven immunodeficiency
	Congenital cardiac abnormalities • If suspected to be related to an immunodeficiency syndrome (e.g. del 22q11)	Until immunodeficiency ruled out, or life-long if proven immunodeficiency
Hematology	Hodgkin lymphoma • From diagnosis and following completion of curative therapy	Minimum of 6 months following achievement of remission
	Aplastic anemia • If patient has ever received ATG • If patient has ever received alemtuzumab	Unable to recommend a duration following therapy Minimum of 6 months after cessation of therapy

	Allogeneic HSCT
	• From time of conditioning chemo/radiotherapy and following HSCT until all of the following criteria are met:
	  ○ > 6 months since transplant date
	  ○ Lymphocyte count > $1x10^9$
	  ○ Patient is free of active chronic GvHD
	  ○ Patient is off all immunosuppression
	• In the context of DLI for post-HSCT therapy
	• If acute or chronic GVHD is present
		Until meets criteria for discontinuation
		**Appropriateness of lifting the indication for irradiation should be reviewed at least yearly by the Transplant Hematologist*

	Autologous bone marrow transplant • From initiation of chemotherapy and post-transplant (no total body irradiation) and post-autologous cell infusion • From initiation of chemo/radiotherapy, including total body irradiation, and post-autologous cell infusion	Until 3 months post-transplant Until 6 months post-transplant
	CAR-T therapy • From initiation of conditioning chemo/radiotherapy and post CAR-T cell infusion	Until 6 months post-CAR-T cell infusion
	Harvest (collection) of stem cells for autologous or allogeneic HSCT (apheresis or bone marrow source), DLI or CAR-T cell therapy	For 7 days prior to and during the bone marrow or peripheral blood stem cell/lymphocyte collection

Medications (generic names listed only)
 	
Refer to Section 16 for details.
	Certain chemotherapy/ immunosuppressive agents (generic names listed only)
	• Alemtuzumab – if given for in the context of a hematologic diagnosis
	
	• Anti-thymocyte globulin (rabbit or horse) – if given for aplastic anemia
	
	• Purine analogues
	  ○ Fludarabine
	  ○ Cladribine
	  ○ Deoxycoformicin (pentostatin)
	  ○ Nelarabine
	
	• Purine-like analogues
	  ○ Bendamustine
	  ○ Clofarabine
	
	* The product monograph of new immunosuppressive therapeutic agents should be consulted to guide the use of irradiated blood components.
		Minimum of 6 months after cessation of therapy
		
		Unable to recommend a duration following therapy
		
		During therapy and for a minimum of 6 months after cessation of therapy
		
		During therapy and for a minimum 6 months after cessation of therapy