GUIDELINES FOR
IRRADIATED BLOOD COMPONENTS
1. Policy Statement

1.1 Blood transfusion services shall have a policy which indicates recipients who are to receive irradiated blood components.

1.2 A policy shall be in place that identifies recipients at risk of Transfusion Associated Graft versus Host Disease (TA-GvHD) who require specialized transfusion products.

2. Definitions

2.1 Blood Components: a therapeutic part of blood intended for transfusion.

2.2 Irradiated: refers to blood and blood components that have been exposed to gamma radiation.

3. General Information

3.1 Cellular blood components that require irradiation to reduce the risk of graft-versus-host disease include red blood cells, platelets, platelet-pheresis and granulocytes-pheresis.

3.2 Irradiated blood components are recommended for but are not limited to the following recipients to reduce the risk of TA-GvHD:

3.2.1 All individuals with chronic graft-vs-host disease
3.2.2 Individuals with congenital cellular immunodeficiency; thymic hypoplasia, Wiskott-Aldrich syndrome, DiGeorge syndrome, infants with congenital cardiac aortic arch defects, severe combined immune deficiency, purine nucleoside phosphorylase deficiency, reticular dysgenesis, and cell-mediated immune deficiency of unspecified etiology.
3.2.3 Allogeneic and autologous hematopietic stem cell transplant recipients.
3.2.4 Individuals receiving HLA compatible platelets
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3.2.5 Individuals with hodgkin’s disease or those treated with purine analogs (Cladarbine, Fludarabine, 2-CDA, Penntastatin, Deoxycoforycin).

3.2.6 Individuals receiving granulocyte transfusions

3.2.7 All individuals undergoing intrauterine transfusions and neonates who have previously received intrauterine transfusions

3.2.8 Individuals receiving a transfusion from a biological/blood relative.

3.3 Probable indications for irradiated blood components include:

3.3.1 Infants weighing less than 1200 g at birth

3.3.2 Individuals being treated with cytotoxic agents for hematologic malignancies other than hodgkin’s disease.

3.3.3 Individuals receiving aggressive immunosuppressive therapy (chemotherapy, radiation therapy)

3.3.4 Platelet donors chosen for crossmatch compatibility or HLA matching.

3.4 Controversial indications for irradiated blood components include:

3.4.1 Individuals undergoing solid organ transplant

3.4.2 Aplastic anemic individuals not receiving immunosuppressive therapy

3.4.3 Term neonates undergoing extracorporeal membrane oxygenation.

3.5 Irradiation of cellular blood components prevents the proliferation of T-lymphocytes and thus prevents T-lymphocytes from invading the recipient’s immune system which may cause transfusion associated graft versus host disease.

3.6 Irradiated blood components are required to be exposed to a minimum dose of 25 Gy of gamma irradiation.

3.7 All irradiated blood components will be labelled to indicate that the product has been irradiated, the facility performing irradiation and the expiration date.

3.8 The maximum expiration time for irradiated whole blood and red blood cells is 28 days after irradiation or original expiration date, whichever is shorter.
3.9 Once established that a recipient requires irradiated cellular blood components it is necessary that the recipient continue to receive irradiated components for as long as clinically indicated.

3.10 Irradiated blood components can be transfused to recipients who do not require irradiated components.

4. Quality Control

4.1 Nursing staff shall review the physician’s transfusion order identifying the need for specific blood component requirements and ensure they are prescribed, transfused and documented in accordance with facility policy in an attempt to prevent Transfusion Associated Graft vs Host Disease (TA-GvHD).

4.2 All Irradiated blood components shall be appropriately labelled as irradiated for positive visual verification.

4.3 The blood component and blood product label applied by the blood supplier shall not be manipulated except when revision is necessary to identify the contents of a modified blood component or blood product.

4.4 Irradiated blood components shall not be used after the expiry date.

5. Process or Procedure

5.1 Ensure the specific blood component or modification is legibly documented by the physician when prescribing the required irradiated blood components.

5.2 Request the specific irradiated blood component when ordering from the Transfusion Medicine Laboratory.

5.3 Check special modification requirements for irradiated blood components on the:
   5.3.1 Physician medical order
   5.3.2 Blood component label
5.4 Administer irradiated blood components to recipients at risk of developing TA-GvHD according to facility policy.

5.5 If irradiated blood components are not available and a delay in the transfusion is life threatening, the transfusion of regular blood components can proceed with the documented approval of the recipient’s primary physician.

6. Records Management

6.1 A complete record pertaining to the identification of the blood component including Transfusion Medicine Laboratory testing results and worksheets and the collecting facility shall be retained indefinitely.

6.2 The recipient transfusion data file in Transfusion Medicine Laboratory shall be retained indefinitely.

6.3 All transfusion records in the recipient’s medical chart shall be retained in accordance with health care facility’s retention policy for medical records.
7. References


7.2 Canadian Society for Transfusion Medicine: Standards for hospital transfusion services. Ver. 3.0. Ottawa, Canada: Canadian Society for Transfusion Medicine; 2011.

