International forum on the use of irradiated blood in patients with haematological malignancy: responses

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INTERNATIONAL FORUM

Vox Sanguinis ISBT International Society of Blood Transfusion

International Forum on the Use of Irradiated Blood in Patients With Haematological Malignancy: Responses

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SOUTH AFRICA

Vernon J. Louw and Gamuchirai Y. Tadzimirwa

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://www.wcbs.org.za/wp-content/uploads/2023/11/SANBS-Clinical-Guidelines-Booklet-2023-FA-v1.pdf

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing chimeric antigen receptor T-cell (CAR-T) therapy? Yes, 3 months.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 7 days before harvest until 1 year post-transplant.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, while on active treatment with ATG.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Primary immunodeficiency
- Immunosuppressive treatment
- Neonates
- Potential haematopoietic transplant recipients
- Potential solid organ transplant recipients
- Chronic transfusion recipients

Other:

- Patients at high risk of cytomegalovirus (CMV) infection
- Infants <1 year old
- Critically ill
- Cardiac surgery
- Trauma patients receiving a massive transfusion

Which method(s) is used for leucoreduction of blood components? BOTH pre-storage leucocyte reduction AND post-storage leucocyte reduction.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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INDIA

Satyam Arora and Nita Radhakrishnan

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? No.

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? No.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, stage III and stage IV, 3 months.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, allogeneic donors: only for priming the circuit; otherwise, the allogeneic donors do not need irradiated blood components. Autologous donors: 1 week prior and for priming the circuit.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, until 6 months after the treatment is completed.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, until 6 months after the treatment is completed.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, until 6 months after treatment is completed.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, 3 months.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Primary immunodeficiency
- Immunosuppressive treatment
- Paediatrics
- Neonates
- Potential haematopoietic transplant recipients
- Potential solid organ transplant recipients
- Chronic transfusion recipients

Which method(s) is used for leucoreduction of blood components? BOTH pre-storage leucocyte reduction AND post-storage leucocyte reduction.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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ARGENTINA

Carlos Gonzalez

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-797-2013-217264 and https://www.sap.org.ar/docs/profesionales/AAHI_revista_de_transfusion_XXXIII_nro3_4_2007.pdf

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? Yes, patients are on treatment with purine analogues, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, indefinitely.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Primary immunodeficiency
- Secondary immunodeficiency
- Immunosuppressive treatment

- Pregnancy
- Neonates
- Potential haematopoietic transplant recipients
- Potential solid organ transplant recipients
- Chronic transfusion recipients

Comments

The national guidelines (not updated since 2007) establish the following indications for leucoreduction:

1. Prevention of non-hemolytic febrile reaction. When the patient has had two or more consecutive reactions and in those patients who require long-term transfusion support, even if they have not developed a non-hemolytic febrile reaction (e.g., patients with beta-thalassaemia major, chronic aplastic anaemia, myelodysplasia, sickle cell disease, anaemia of chronic renal failure and paroxysmal nocturnal hemoglobinuria)
2. Prevention of platelet refractoriness. In those patients who, due to their disease (e.g., oncohematological diseases) will require sustained transfusion support with platelet
3. Decreased incidence of CMV infection. In transplant patients with haematopoietic progenitors, immunocompromised individuals, pregnant women, in intrauterine transfusion and in neonates up to one year of age (especially in children under 3 months fo age).
4. Reduction of graft rejection in haematopoietic transplantation due to severe aplastic anaemia and hemoglobinopathies. To prevent human leucocyte antigen (HLA) allosensitization and non-hemolytic febrile reactions in patients with sickle cell anaemia and major beta-thalassaemia, candidates are required for haematopoietic transplantation.
5. Prevention of HLA alloimmunization in solid organ transplantation by preventing HLA alloimmunization.

Which method(s) is used for leucoreduction of blood components? Both pre-storage leucocyte reduction and post-storage leucocyte reduction.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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UNITED STATES

Ryan A. Metcalf and Erica Swenson

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? No.

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all Stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? Yes, all subtypes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, indefinitely. We do not specify a time period prior to the harvest.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, indefinitely.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used? We use leucocyte-reduced blood components universally at our institution.

Which method(s) is used for leucoreduction of blood components? Pre-storage leucocyte reduction ONLY.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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CHILE

Maria A. Nuñez and Edgardo Saa

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? No.

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, 1 year.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? Yes, the time period is per provider discretion.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? No. We do not perform CAR-T therapy.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? No.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Primary immunodeficiency
- Secondary immunodeficiency
- Immunosuppressive treatment
- Pregnancy
- Neonates
- Potential haematopoietic transplant recipients
- Potential solid organ transplant recipients
- Chronic transfusion recipients

Comments

Our policy is to transfuse leucocyte-reduced blood components to all of the above; however, we have been doing universal leucodepletion for almost a year now, so all patients receive leucocyte-reduced blood components.

Which method(s) is used for leucoreduction of blood components? Pre-storage leucocyte reduction ONLY.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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OMAN

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General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? No.

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? Yes, all subtypes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? Yes, for patients receiving highly immunosuppressive chemotherapy until therapy is completed.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? Yes, if on rabbit-anti-thymocyte globulin and/or alemtuzumab and when the patient undergoes bone marrow transplantation.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, from the time of the start of conditioning chemo/radiotherapy as long as the patient receives graft-versus-host disease (GvHD) prophylaxis, usually for 6 months post-transplant, or until lymphocytes are >1 $\times$ 10^9/L or indefinitely for patients with chronic GvHD or if continued immunosuppressive treatment is required.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, from the time of initiation of conditioning chemo/radiotherapy, continued until 3 months post-transplant or 6 months if total body irradiation was used in conditioning.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Not applicable; CAR-T is not available yet in the country.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 7 days prior to the stem cell harvest and during the harvest procedure if the patient requires red cell or platelet transfusion.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, the time period is per provider discretion.

Additional comments

We also offer irradiation if the patients are receiving granulocytes, HLA-matched platelets, or donations from first- and second-degree relatives.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

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CANADA

Ali Tabatabaey and Yulia Lin

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://nacblood.ca/en/resource/recommendations-use-irradiated-blood-components-canada

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, up to 6 months following remission.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, within 7 days prior to and during the stem cell collection.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, until 6 months following cessation of therapy.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, until 6 months following cessation of therapy.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, until 6 months following the cessation of therapy.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, until 6 months following the cessation of therapy.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

Contributors

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AUSTRALIA

Aditya Tedjaseputra and Erica Wood

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://anzsbt.org.au/news/transfusion-associated-graft-versus-host-disease-guidelines/

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, for a minimum of 1 year from the start of conditioning and continued until there is no evidence of graft-versus-host disease (GvHD) or need for immunosuppression for GvHD (treatment or prevention).

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, from 7 days prior to lymphocytes (or stem cells) including when transfusion

of blood components is required for a donor (e.g., CAR-T autologous lymphocyte collections).

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, when patients are receiving alemtuzumab for the treatment of haematological conditions, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, until all immunosuppressive agents have been tapered off.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

Contributors

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SPAIN

Alexandra Pedraza and Cristina Sanz

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://www.sets.es/images/site/guias/GuiaTransfusi%C3%B3n_5%C2%BA_EDICION_2015.pdf

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, 1 year, extended if chronic GvHD occurs.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 7 days before and during the collection process.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, 1 year.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

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BELGIUM

Corentin Streel and Véronique Deneys

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: Superior Health Council, Advice n° 8381, 2010—Not yet updated—Therefore, there are updated recommendations in the University Teaching Hospital, extended to other hospitals.

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, 3 months.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 7 days before collection.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, 6 months.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

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MEXICO

Amalia G. Bravo and Karla Maldonado

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://www.ammtac.org/docs/GuiasTransfusion/GuiaParaElUsoClinicoDeLaSangre.pdf

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? No.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? No. Only in patients with Hodgkin lymphoma who are going to undergo transplantation and/or in advanced stages of the disease is their use considered routinely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? No. CAR-T therapy is not yet available.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, the time period is per provider discretion.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Primary immunodeficiency
- Secondary immunodeficiency
- Immunosuppressive treatment
- Potential haematopoietic transplant recipients
- Chronic transfusion recipients

Which method(s) is used for leucoreduction of blood components? BOTH pre-storage leucocyte reduction AND post-storage leucocyte reduction.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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BRAZIL

Luiz Amorim and Thais Ferraz

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2017/prc0005_03_10_2017.html#ANEXOIV

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? No. CAR-Tcell is licensed in Brazil, but it is not available in public hospitals, which are in charge of 70% of the Brazilian population.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 3 months.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, indefinitely.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Primary immunodeficiency
- Secondary immunodeficiency
- Neonates
- Potential haematopoietic transplant recipients
- Chronic transfusion recipients

Which method(s) is used for leucoreduction of blood components? BOTH pre-storage leucocyte reduction AND post-storage leucocyte reduction.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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JAPAN

Yoshihiko Tani and Naoko Goto

General information

Does your country offer universal irradiation for all cellular blood components? Yes.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

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FRANCE

Fanny Delettre and Pierre Tiberghien

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://www.has-sante.fr/upload/docs/application/pdf/2015-02/transfusion_de_globules_rouges_homologues_-_produits_indications_alternatives_-_recommandations.pdf; https://www.has-sante.fr/upload/docs/application/pdf/2015-11/recommandations_-_transfusion_de_plaquettes.pdf

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? No.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 3 months usually, 1 year if total body irradiation.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? No.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 7 days before (and during) stem cell harvest.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, the time period is at the provider's discretion.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, the time period is per provider discretion.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

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NETHERLANDS

Jaap Jan Zwaginga

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://richtlijnendatabase.nl/richtlijn/bloedtransfusiebeleid/startpagina_-_bloedtransfusiebeleid.html

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? No.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, 1 year or longer in case of GvHD.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, the time period is not defined and is per provider discretion.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, if the medication description recommends it, but not routinely anymore (this was changed in 2019); not defined; the time period is per provider discretion (it was 6–12 months but hence now according to the specific recommendations going with the medication).

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, 1 year.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, 6 months.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, 6 months.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Which method(s) is used for leucoreduction of blood components? Pre-storage leucocyte reduction only.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No, pre-storage leucocyte reduction has already been implemented for

many years in the Netherlands; it is unclear if at that moment the irradiation strategy changed.

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UNITED KINGDOM

Theodora Foukaneli and Paul Kerr

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://b-s-h.org.uk/guidelines/guidelines/guidelines-on-the-use-of-irradiated-blood-components

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, a minimum of 6 months and lymphocytes above 1×10^9/L, not on immunosuppression, no active GvHD and no other reasons to continue irradiation (type of conditioning, diagnosis, previous chemo with purine analogues).

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, a minimum of 3 months. All patients undergoing allogeneic stem cell transplantation, irrespective of underlying diagnosis or indication for this treatment, should receive irradiated cellular blood components from the initiation of conditioning chemo/radiotherapy until 3 months post-transplant (6 months if total body irradiation was used in conditioning) unless conditioning, disease or previous treatment determines indefinite duration (e.g., previous diagnosis of Hodgkin lymphoma or previous purine analogue treatment).

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, 3 months from initiation of conditioning unless conditioning, disease or previous treatment determines indefinite duration (e.g., previous diagnosis of Hodgkin lymphoma or previous purine analogue treatment). Also, for CAR-T cells, duration might be determined as 'indefinitely' by providers of CAR-T (bispecific) or by clinical trial protocols.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, 7 days prior to and during collection (unless there is another reason for different duration, e.g., treatment with purine analogues, etc.)

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, patients with chronic lymphocytic leukaemia or other haematological diagnoses treated with alemtuzumab should receive irradiated components indefinitely.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, indefinitely; for aplastic anaemia and rare T cell dysfunction (such as familial haemophagocytic lymphohistiocytosis; for immunology patients, irradiation can stop if, following a review by immunologists, the patient is deemed to have achieved immunological recovery).

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? Yes, guidelines became more relaxed in some areas. For example, patients receiving ATG or alemtuzumab for non-haematological indications no longer require irradiated components. Patients with non-Hodgkin lymphoma, and no other risk factors such as treatment with purine analogues, do not require irradiation. Recommendations were added to the guideline for emergency conditions if irradiated components are not available (treatment with blood should not be delayed and in preference use older blood).

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DEMOCRATIC REPUBLIC OF CONGO

Samclide Mbikayi Mutindu and Alphonse Mosolo Nganzele

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? No.

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? No.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? No.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? No.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? No.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? No.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? No.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? No.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? No.

For which indications are leucocyte-reduced blood components routinely used?

- Pregnancy
- Neonates
- Chronic transfusion recipients

Comments

It is difficult to obtain these leucocyte-depleted and irradiated blood components here.

Which method(s) is used for leucoreduction of blood components? Pre-storage leucocyte reduction ONLY.

If you did have access to universal pre-storage leucocyte-reduction blood components, would this change your policy for irradiated blood? No, I think that leucocyte-reduced blood must necessarily be irradiated to further reduce the risk.

Would the method of leucocyte reduction influence your policy for irradiated blood? No.

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GERMANY

Richard Schäfer

General information

Does your country offer universal irradiation for all cellular blood components? No.

Does your country have national guidelines or policies on the indications for the use of irradiated blood components? Yes.

Citation or weblink: https://www.wbbaek.de/fileadmin/user_upload/_old-files/downloads/pdf-Ordner/MuE/Querschnitts-Leitlinien_

BAEK_zur_Therapie_mit_Blutkomponenten_und_Plasmaderivaten-Gesamtnovelle_2020.pdf https://www.bundesaerztekammer.de/fileadmin/user_upload/BAEK/Themen/Medizin_und_Ethik/Richtlinie-Haemotherapie-2023_neu2.pdf

Does your centre have local guidelines or policies on the indications for the use of irradiated blood components? Yes.

Disease- and/or treatment-specific irradiation practices

Do you routinely offer irradiated blood components to patients with Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients with non-Hodgkin lymphoma, irrespective of the treatment given? Yes, all stages, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients with acute leukaemias, irrespective of the treatment given? Yes, indefinitely or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients with aplastic anaemia, irrespective of the treatment given? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing allogeneic stem cell transplantation? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing autologous stem cell transplantation? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing CAR-T therapy? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing bone marrow/peripheral stem cell harvest? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing treatment with purine analogues (fludarabine, cladribine, pentostatin)? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing treatment with bendamustine? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing treatment with alemtuzumab? Yes, indefinitely, or until revoked by the treating physician.

Do you routinely offer irradiated blood components to patients undergoing treatment with anti-thymocyte globulins (ATG)? Yes, indefinitely, or until revoked by the treating physician.

Leucoreduction

Are leucocyte-reduced blood components available in your country? Yes.

Does your country provide universal pre-storage leucocyte reduction of blood components? Yes.

Did access to universal pre-storage leucocyte reduction of blood components result in changes to your policy for irradiated blood? No.

Comments

In Germany, mandatory universal pre-storage leucocyte reduction was introduced in 2001.

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