Quality Review of Irradiated Cellular Blood Product Orders

Matthew Grzywinski
*Sidney Kimmel Medical College, Thomas Jefferson University*

Vandy Ly, MD
*Thomas Jefferson University*

---

Follow this and additional works at: [https://jdc.jefferson.edu/patientsafetyposters](https://jdc.jefferson.edu/patientsafetyposters)

Part of the [Medicine and Health Sciences Commons](https://jdc.jefferson.edu/patientsafetyposters)

Let us know how access to this document benefits you

---

**Recommended Citation**


---

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning (CTL)](https://ctl.jefferson.edu). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in *House Staff Quality Improvement and Patient Safety Conference (2016-2019)* by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: JeffersonDigitalCommons@jefferson.edu.
Quality Review of Irradiated Cellular Blood Product Orders

Matthew Grzywinski, Vandi Ly, M.D.
1: Sidney Kimmel Medical College, 2: Thomas Jefferson University Department of Pathology

Background

Transfusion-associated graft-versus-host disease (TA-GVHD) is an immunological response between a donor’s transfused T cells and the recipient’s immune defense. The risk of TA-GVHD increases with relatively large transfusions of lymphocytes (e.g., transfusion in infants or granulocyte transfusion) or immunocompromised individuals. The risk of TA-GVHD is mitigated by irradiating cellular blood components to prevent donor T lymphocyte proliferation.

Irradiation of cellular blood components is managed differently amongst institutions. Factors to consider in the irradiation process include technologist time. Technologists prepare and perform irradiation of the cellular blood products. This can be a labor intensive process. Cost is another factor that includes the cost of the irradiation indicators that are placed on the units and the labor in providing this service. Irradiation also shortens the shelf life of the cellular blood component to 28 days. If the shelf life was less than 28 days then irradiation does not extend the shelf life to 28 days (e.g. shelf life 14 days, post-irradiation remains 14 days). At Thomas Jefferson University Hospital, the Blood Bank irradiates blood products only upon request, then reviews the initial orders to determine if irradiation is indeed indicated. The decision whether irradiation is appropriate is determined by having medical coverage review the requests.

Our goal is to educate house staff on the indications for irradiated blood products. We hope to reduce the number of inappropriate irradiation orders to less than 50% of the total orders for irradiated blood products and to be followed up over time.

Irradiated blood product orders flagged for medical coverage review from July 2016 to March 2017 revealed 34 of the 55 orders were inappropriate. For each incorrect order, clinician name, clinician service, hospital unit, transfusion indications, and reason for irradiation were recorded. The inappropriate orders were submitted by 31 clinicians (24 medicine residents, two anesthesia residents, two otolaryngology residents, two nurse practitioners, and one attending physician). Three clinicians submitted two inappropriate irradiation orders, provided them with a table of irradiation blood product indications, and additional resources. This email was sent on February 27, 2017.

Interventions to Decrease Inappropriate Orders

Two interventions were undertaken to decrease the number of inappropriate irradiation orders.

A polite and professional email was sent to the clinicians who submitted the inappropriate irradiation orders from July 2016 to March 2017. The email informed the clinicians that they submitted an inappropriate irradiation order, provided them with a table of irradiation blood product indications, and additional resources. This email was sent on February 27, 2017.

A pocket card was also created. The card contained a table of indications for irradiated cellular blood products and contact information for the Jefferson Blood Bank to encourage collaboration between house staff and the Blood Bank. The card will be distributed on June 13, 2017 to Internal Medicine house staff.

Discussion

Next Steps

• Dr. Julie Karp, Associate Director of the Thomas Jefferson University Blood Bank, will give an educational lecture to the Department of Medicine residents on blood products (including irradiated cellular blood products) on June 13, 2017.
• Irradiated cellular blood product orders will be reviewed to determine if the number of inappropriate orders decrease over time.

Possible Further Interventions

• Email all Jefferson residents informing them of the indications for irradiated cellular blood products.
• Email Jefferson faculty informing them of the indications for irradiated cellular blood products.
• Present the findings of this research and the indications for irradiated cellular blood products to Jefferson residents at seminars, conferences, or meetings.

Limitations

• Only the clinician who submitted the inappropriate irradiation order was contacted, not the entire care team.
• The preliminary post-intervention data may not be representative since residents gain experience during the year.
• Only one year of inappropriate orders were reviewed.

Review of Inappropriate Orders

Irradiated blood product orders flagged for medical coverage review from July 2016 to March 2017 revealed 34 of the 55 orders were inappropriate. For each incorrect order, clinician name, clinician service, hospital unit, transfusion indications, and reason for irradiation were recorded. The inappropriate orders were submitted by 31 clinicians (24 medicine residents, two anesthesia residents, two otolaryngology residents, two nurse practitioners, and one attending physician). Three clinicians submitted two inappropriate irradiation orders. The clinicians ordered the irradiated cellular blood products because the patient had a history of cancer or was on immunosuppressive therapy. Some clinicians accidentally requested irradiated cellular blood products.

Between March 1, 2017 and May 1, 2017, two orders for irradiated cellular blood products were flagged for medical coverage review. In one of those requests, irradiated blood products were flagged for medical coverage review. In one of those requests, irradiated blood products were not indicated.

Irradiated Blood Products

A polite and professional email was sent to the clinicians who submitted the inappropriate irradiation orders from July 2016 to March 2017. The email informed the clinicians that they submitted an inappropriate irradiation order, provided them with a table of irradiation blood product indications, and additional resources. This email was sent on February 27, 2017.

A pocket card was also created. The card contained a table of indications for irradiated cellular blood products and contact information for the Jefferson Blood Bank to encourage collaboration between house staff and the Blood Bank. The card will be distributed on June 13, 2017 to Internal Medicine house staff.

Next Steps

• Dr. Julie Karp, Associate Director of the Thomas Jefferson University Blood Bank, will give an educational lecture to the Department of Medicine residents on blood products (including irradiated cellular blood products) on June 13, 2017.

Possible Further Interventions

• Email all Jefferson residents informing them of the indications for irradiated cellular blood products.
• Email Jefferson faculty informing them of the indications for irradiated cellular blood products.
• Present the findings of this research and the indications for irradiated cellular blood products to Jefferson residents at seminars, conferences, or meetings.

Limitations

• Only the clinician who submitted the inappropriate irradiation order was contacted, not the entire care team.
• The preliminary post-intervention data may not be representative since residents gain experience during the year.
• Only one year of inappropriate orders were reviewed.

Interventions to Decrease Inappropriate Orders

Two interventions were undertaken to decrease the number of inappropriate irradiation orders.

A polite and professional email was sent to the clinicians who submitted the inappropriate irradiation orders from July 2016 to March 2017. The email informed the clinicians that they submitted an inappropriate irradiation order, provided them with a table of irradiation blood product indications, and additional resources. This email was sent on February 27, 2017.

A pocket card was also created. The card contained a table of indications for irradiated cellular blood products and contact information for the Jefferson Blood Bank to encourage collaboration between house staff and the Blood Bank. The card will be distributed on June 13, 2017 to Internal Medicine house staff.

References


Acknowledgements

The authors would like to acknowledge the help of Dr. Julie Karp and Mary Harach for their help on this project.