

The ORBCoN Report

Ontario Regional Blood Coordinating Network

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What's Next for ORBCoN? A Look Forward to the Next Three Years

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ORBCoN remains committed to 4 strategic goals identified in March 2007. Our goals are to promote and support improvement of utilization and inventory management of blood components and blood products, to improve patient safety through education and standardized best practices and to provide timely information to hospitals and receive feedback from hospitals on transfusion related issues. Over the next three years, we plan to:

- Provide guidelines for the use of

IVIg and FP in follow up to the provincial audits completed in our first funding cycle

- Develop a handbook on blood administration (companion to 'Bloody Easy for Nurses')
- Create a new tool in 'Audit Live' to support audits of the transfusion process at the bedside
- Develop a 'special blood needs card' for patients to carry to inform other facilities of their needs (irradiated, CMV negative, antigen negative)
- Update the handbook 'Bloody Easy 2'
- Develop standardized policies

and procedures for blood administration

- Develop strategies to reduce wastage due to outdating of platelets and establish benchmark targets
- Roll out red cell redistribution across the Province
- Create a blog on our website
- Provide French version of the patient pamphlet

The annual forum for Transfusion Committees, joint CBS / ORBCoN symposia in each region and University of Toronto Transfusion Medicine monthly rounds will be continuing and hospitals will

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continue to be encouraged to have their Contingency Plans for Blood Shortages in place. Get ready for the mock exercise in 2010! We are excited and eager to get to work to provide these tools and resources for you and to ensure blood is used as effectively as possible.

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IVIG Baseline Data Collection Audit

*Kathleen Gagliardi,
Regional Blood Coordinator*

In order to address the utilization management of IVIG in Ontario, the Ontario Regional Blood Coordinating Network (ORBCoN) was directed by the Blood Programs Coordinating Office (BPCO) to design and conduct a project to collect baseline data on Intravenous Immune Globulin use in Ontario. Canadian Blood Services (CBS) shipment data indicate that, at the time this audit was conducted, 20 Ontario hospitals used 70% of the IVIG in Ontario. Most of those 20 hospitals participated in the data collection. Prior to this project, investigators were unable to discern whether current usage in Ontario is clinically appropriate and supported by evidence-based literature. Over the 3-month period of the audit, approximately \$12 million dollars worth of IVIG was shipped to the participating hospitals (66% of total use in

Ontario during that time period). Use of IVIG for a typical 70 kg adult, using a dose of 1 g/kg, was reported in 2007 as approximately \$4,000 per single infusion. This audit process resulted in a standardized set of information on utilization practices for IVIG by 25 hospitals. The data elements were captured for all participating hospitals and then entered into a secure web-based system. Data elements included: hospital site (by code number), patient care area (specialty), date of infusion, patient identification by study code number, patient weight, primary diagnosis, indication for IVIG infusion, dose of IVIG ordered, ordering physician specialty, volume of product issued, total volume infused yes/no, if total volume not infused, indication of reason why not infused. In this audit, 1,345 patients received 4,234 infusions of IVIG. The total dose of IVIG administered was 199,405.6

grams. Of the total patients treated with IVIG, 1,181 were adult patients; 549 males and 632 females. Pediatric patients constituted 141 of the total number of patients, and 23 neonates were treated with IVIG during the audit. Clinical indications were assessed in two (2) ways. First, the list of indications was reviewed to identify which were 'labeled' indications and which were 'unlabeled'. Unlabeled indications were further categorized into 'unlabeled, potentially indicated', and 'unlabeled, not indicated or indeterminate'. All indications were also compared to the current British Columbia IVIG guidelines. For a full copy of the report, please contact the Southwestern Ontario Regional Blood Coordinating Network office. NOTE: We gratefully acknowledge the contributions of all hospital staff that assisted with data collection and data entry.

Central Region Platelet Task Force

*Debbie Lauzon,
Regional Blood Coordinator*

Equitable access and adequate supply of platelets were identified as key issues to be addressed by ORBCoN in the Central Region of Ontario in 2006. Subsequently, a working group meeting was held in September of 2007 for hospitals in Central Region transfusing >500 units of platelets per year. Attendees listened to the current evidence for the use of CMV Negative platelets, ABO incompatible platelets, HLA matched platelets as well as

discussions about the ethics of platelet transfusions, and the supply and demand challenges faced by CBS. During the afternoon, participants broke into groups to discuss and begin the development of recommendations related to these issues. Recognizing there was more work to be done, a task force was created and the first meeting was held in December 2007. In collaboration with all of the stakeholders, the task force developed recommendations and algorithms to guide decision

making around the use of CMV Negative platelets, non-ABO/Rh type specific platelets and HLA matched platelets. Their next task was to tackle the challenges related to inventory management and high wastage rates. Platelets by their characteristic 5 day shelf-life, room temperature storage and unpredictable demand, create inventory management challenges that are unique from that of other blood components. Members of the task force were undaunted and as a result of their

Central Region Platelet Task Force *continued*

determination, two models for optimizing platelet inventory evolved. The first, involves a number of strategies employed in a busy community hospital located in a rapidly growing urban centre 140km from the closest CBS production facility, whose outdate rate has plummeted from a high of 60% per month to a low of 2.3% in March 2009. The second model, currently being piloted at a large teaching/trauma centre involves the use of a modified engineering formula to calculate the daily stock order based on demand. At the pilot site, wastage rates have dropped from a high of 35% to an average of 12% since the new ordering process was put in place. Both sites report no adverse patient outcome, no increase in shortages and no increases in the number of off hour deliveries since initiating the new processes. The Central Region Platelet Task force looks forward to sharing these models with other hospitals in the province as the task force expands to a provincial scope in September 2009.

A Report on RBC Redistribution in Ontario

*Tracy Cameron,
Regional Field Officer*

Since April 2006 Canadian Blood Services (CBS) has been collecting monthly disposition data from hospitals receiving blood products through electronic form submission. CBS is sharing this data with ORBCoN and the Ministry of Health and Long Term Care to help hospitals assess utilization and inventory management.

Through this data it was recognized that some hospitals had very low wastage rates as a result of redistribution programs in place. ORBCoN incorporated redistribution into their goal of promoting best practices in inventory management, to target hospitals with higher outdate rates.

A new validated shipping container was introduced for the purposes of redistribution for the province of Ontario as part of an ORBCoN initiative. Keeping the workload simple and convenient

was the main driver for choosing the shipping container. These new containers are simple to use, have only one packing configuration, and there are no gel packs, cardboard, or paper requirements. There are only 2 scenarios that dictate the pre-conditioning of the packing material:

1. If traveling in an environment that is above 4°C then the component called the Thermal Insulated Chamber (TIC) is pre-conditioned in the freezer (-18 to -40°C) for at least 8 hours.
2. If the container will be shipped in an environment that is below 4°C then the TIC is preconditioned in the fridge (4-6°C) for at least 6 hours. Each container will hold up to 4 units of RBCs.

A 3 month pilot project was completed in North Eastern Ontario involving 10 hospital sites that did not have a redistribution program established in December 2008. The purpose of the project

was to demonstrate that hospitals could reduce the outdate rate by first assessing their current inventory and utilization and reduce where possible, then incorporate redistribution as part of the inventory management program. ORBCoN helped develop a standard operating procedure for redistribution using the new shipping containers, a training program to help train staff and a template of a memorandum of understanding for those hospitals that agree to a partnership in redistribution. The pilot demonstrated that with redistribution significant reduction in the overall regional outdate rate could be achieved. Moving forward, ORBCoN will be introducing the redistribution initiative to those hospitals that are involved with redistribution to use the new validated boxes, and also targeting those hospitals that are looking to reduce outdates by redistributing with other facilities.

Case Report: Hemolysis Associated with Intravenous Immunoglobulin Infusion

Setting:

A 52 year old female patient presented with severe muscle weakness, facial paralysis and difficulty breathing. Guillain-Barré syndrome was the differential diagnosis.

Background information:

Guillain-Barré syndrome is a disorder in which the immune system attacks part of the central nervous system. One of the treatments to alleviate the symptoms and provide patients better quality of life is high dose IVIG.

Description of event:

A request for type & screen was received in Transfusion Medicine (TM). The patient was grouped A Rh Positive and antibody screen test was negative. The patient's hemoglobin was 120 g/L. An order was placed for IVIG 2g/kg over 5 days. On the fourth day the patient hemoglobin had fallen to 100 g/L. The LD was 400 U/L and the TBIL was 22 mol/L. Anti-A was identified in the patient's plasma that interfered with the reverse grouping and caused difficulty with ABO group interpretation. The DAT was 2+ IgG only. An eluate prepared from the patient's red cells also showed anti-A. IVIG treatment was discontinued. Group O red blood cells (RBC) were crossmatched in case of possible transfusion requirement. The patient's Hgb recovered within 2 weeks without RBC transfusion.

Conclusion:

Hemolysis is a well documented adverse effect of IVIG therapy and is not limited to one specific brand. Most cases have been reported in group A patients receiving high doses ($\geq 2\text{g/kg}$) IVIG. Close monitoring of patient's Hgb, LD and TBIL is advised post infusion to prevent serious complications. In some cases support with red cell transfusions may be warranted to alleviate the symptoms of anemia.

Questions to Ponder:

1. Recognizing the reason for the ABO discrepancy (extra reaction with the A cell in the reverse grouping); can the ABO group be interpreted correctly and resulted?
2. Should patient be transfused if the Hgb is around 100 g/L and patient has no symptomatic anemia?
3. Why are O group RBCs a better choice than the patient's own A blood group RBC?

Please refer to our website www.transfusionontario.org September 1st for a posting of a discussion paper on this case study. Compare your answers to the questions posed.

Upcoming Educational Events Calendar

Event	Where	When
SABM	Kansas City, MO	Sept. 11-13, 2009
Commencement of University of Toronto	Live: Toronto	Sept. 24, 2009
Transfusion Rounds	Videoconference/Webcast	
CBS Scientific Symposium	Toronto, ON	Sept. 26, 2009
OSMT Symposium	Sudbury, ON	Sept. 24-26, 2009
GHEST	Welland, ON	Oct. 17, 2009
AABB Annual Meeting	New Orleans	Oct. 24-27, 2009
LLSG/ORBCoN/CBS Symposium	London, ON	Nov. 14, 2009

For a complete list of upcoming events please visit www.transfusionontario.org.

Quote

If you're not failing every now and again, it's a sign you're not doing anything very innovative. ~ Woody Allen