APRIL 2021

Provincial Redistribution Program for Transfusion Services in Ontario



Inspiring and facilitating best transfusion practice in Ontario.

**LEGAL DISCLAIMER**

**TOOLKITS, HANDBOOKS AND OTHER PUBLICATIONS**

The publisher, author(s)/general editor(s) and every person involved in the creation of this publication, whether directly or indirectly, shall not be liable for any loss, injury, claim, liability or damage of any kind resulting from the use of or reliance on any information or material contained in this publication. This publication is intended for information purposes only, without any warranties of any kind. Without limitation, the publication is not intended or designed to constitute or replace medical advice or to be used for diagnosis. If specific information on personal health matters is sought, advice from a physician or other appropriate health professional should be obtained. Any decision involving patient care should be based on the judgement of the attending physician according to the needs and condition of each individual patient. The publisher, author(s)/general editor(s) and every person involved in the creation of this publication disclaim all liability in respect of the results of any actions taken in reliance upon information contained in this publication and for any errors or omissions in the publication. They expressly disclaim liability to any user/reader of the publication.

## Provincial Redistribution Program for Transfusion Services in Ontario

The Provincial Redistribution Program was established to provide a mechanism for hospitals to redistribute blood components and plasma protein and related products(PPRP) with an aim of reducing the overall number of components and PPRP that outdate at Ontario hospitals.

The Ontario Regional Blood Coordinating Network (ORBCoN) and the Factor Concentration Redistribution Program (FCRP) worked with stakeholders in Ontario and other provincial blood offices to validate shipping containers used by hospitals for shipping blood components and PPRP between facilities for the purposes of redistribution and patient’s requiring blood components/products during transfers. Implementing these strategies can maximize utilization, minimize wastage and help ensure safe and equitable access to all products for all patients.

The processes for redistributing blood components and PPRP were evaluated by a provincial working group. Standardized procedures are available as part of this toolkit to ensure that the security and safety of the redistributed blood components and products are maintained during shipment. The process is validated to demonstrate that acceptable temperatures and traceability will be maintained when redistributing or transferring components or products between facilities.

Hospitals in Ontario were provided with validated shipping containers to use for redistribution in 2008 (MTS Golden Hour boxes). However, Hospitals also use shipping containers previously used by Canadian Blood services to pack and ship blood components and PPRP between sites. Canadian Blood Services continues to provide these containers for hospitals to use. To ensure safe shipment of blood components and PPRP occurs, In 2017, ORBCoN collaborated with two hospital sites to perform a validation of these shipping containers.

Results of the validation testing of the J82 and E38 shipping containers are summarized below The listed times are the shortest times that the containers demonstrated capability of maintaining acceptable temperature based on packing configuration in the validation protocol. The containers performed well at external (ambient) temperatures that were mild but not as well when exposed to more extreme temperatures.

Table 1- Shortest Time J82 Shipping Container Maintained Acceptable Temperature

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Product/Acceptable Shipping Temperature** | **Target Extreme Winter Temperature**  **(<-30°C)** | **Target Moderate Fall/Spring Temperature**  **( 1°C - 6°C)** | **Target Moderate Summer temperature**  **(19°C to 25°C)** | **Target Extreme Summer temperature**  **( > +30°C)** |
| 1-8 RBCs  (1°C -10°C) | 3 hours | 24 hours | 12 hours | 8 hours |
| 1 - 8 PPPs  (2°C -25°C) | 2 hours | 24 hours | 24 hours | 24 hours |

Table 2 – Shortest Time E38 Shipping Container Maintained Acceptable Temperature

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Product/Acceptable Shipping Temperature** | **Target Extreme Winter Temperature**  **(<-30°C)** | **Target Moderate Fall/Spring Temperature**  **( 1°C - 6°C)** | **Target Moderate Summer temperature**  **(19°C to 25°C)** | **Target Extreme Summer temperature**  **( > +30°C)** |
| 1 – 6 Plts  (20°C -24°C) | 2 hours | 5 hours | 24 hours | 9 hours |
| 1 – 8 PPPs  (19°C -25°C) | 24 hours | 24 hours | 24 hours | 6 hours |

A validated shipping container, procedures and a training package are provided for hospitals to use in implementing the provincial redistribution program in their area. To ensure the shipping container is performing as expected, an operational validation should be performed for each site that is shipping components to ensure variation in transport and personnel are tested.[[1]](#footnote-2) A template is provided to provide guidance on how to perform an operational

validation for redistribution of blood components and products.

[Operational Verification Protocol Template for Shipping Blood Components and PPRP for Redistribution](https://transfusionontario.org/en/operational-verification-protocol-template-for-shipping-blood-components-products-for-redistribution/)

ORBCoN will ensure that random [temperature verification checks](https://transfusionontario.org/en/annual-shipping-container-temperature-verification-report/) are completed annually on the MTS Golden Hour, J82, and E38 shipping containers to ensure the containers are performing as expected against the validation testing completed in September 2017.

Due to the shortened time the containers maintain acceptable temperatures in extreme ambient temperatures, it is recommended that the transportation of blood components and products be done within the confines of the vehicle's interior (passenger area of the vehicle where ambient temperatures are more adequately controlled without exposure to extremely high or low temperatures). Facilities should receive confirmation from their courier providers that the shipping container can be placed inside the vehicle’s passenger area. If couriers cannot place containers inside the cabin of the vehicle, then confirmation of ambient temperature where the container will be placed is needed and this confirmation should be documented.

NOTE: Implementation of some of the following may require prior consultation with the transfusion service Medical Director and/or hospital transfusion committee.

|  |  |  |  |
| --- | --- | --- | --- |
| **STEP** | **Description** | **Available Tools** |  |
| **ONE** | * **Reviewing Inventory Stock: *Setting target inventory levels based upon actual historical utilization***   When determining if your site will participate in the provincial redistribution program, the transfusion service (TS) must determine target inventory levels and maintain these levels by using an “order up to” policy. Please refer to section one of the [Inventory Management Toolkit.](https://transfusionontario.org/en/inventory-management-toolkit/)  Good inventory management principles are essential in ensuring that the supply of blood components and products will be sufficient to meet the transfusion needs of patients while minimizing wastage. Smaller hospitals should consider an arrangement to transfer “soon to outdate” blood components and products to a nearby larger hospital with a higher demand. Packing procedures must ensure the blood components/ products are maintained at the appropriate conditions during transport and that the appropriate documentation accompanies the transfer. | **Utilization Data Tools**   * [Calculating your blood inventory](https://transfusionontario.org/en/calculating-blood-inventory-levels/) * [Provincial Utilization Graphs](https://transfusionontario.org/en/category/blood-utilization-audits/blood-utilization-graphs/) * [PLT Inventory Calculator](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F10%2FInventory-Calculator-for-Platelets_Sep-2020.xlsx&wdOrigin=BROWSELINK) * [RBC Inventory Calculator](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F06%2FInventory-Calculator-for-Red-Cells_Site-transfused-by-ABORh_Dec2021.xlsx&wdOrigin=BROWSELINK) |  |
| **TWO** | * **Review Available Hospital Courier Systems: *Your hospital may already have an established courier***   For hospitals that are part of a corporation or consolidated organization, established courier systems can be utilized to support the redistribution of blood components and products. There may be pre-existing couriers transporting documents and/or samples to sites within the group that could be utilized to pick up shipping containers and transport them to another hospital on the route. If there is no courier system established for a group of hospitals that are considering redistribution, the cost of the courier could be shared by the group of hospitals. If a hospital must ship blood components or products for redistribution more than once per week, then it is recommended that the inventory of that particular hospital be reassessed to see if adjustments are needed.  ORBCoN and FCRP will work with hospitals to ensure that the courier costs are covered for the redistribution of plasma protein products, as often the products are redistributed outside of the hospital corporation or consolidated organizations.   * An operational validation should be performed for each site using the shipping containers provided by ORBCoN or CBS to ensure variation in transport and personnel are tested. * A procedure for disinfecting shipping containers used for redistribution/shipping with patients is also available to help facilities. | * [Operational Verification Protocol Template for Shipping Blood Components and PPRP for Redistribution](https://transfusionontario.org/en/operational-verification-protocol-template-for-shipping-blood-components-products-for-redistribution/) * [Disinfecting Shipping Containers used for Redistribution](https://transfusionontario.org/en/disinfecting-shipping-containers-used-for-redistribution-2/) * [CBS Customer Letter 2021-06](https://www.blood.ca/sites/default/files/2021-02/CL_2021-06.pdf) |  |
| **THREE** | * **Completing the Memorandum of Understanding: *this document identifies and documents the responsibilities of all parties involved in the redistribution process*** As there is a potential that hospitals will have to redistribute or ship components or products with a patient outside of the corporation or consolidated organization, it is requested that all hospitals within the province review and complete a memorandum of understanding (MOU).   Completed MOUs will be maintained by ORBCoN. The agreement will be understood between the signing facility and ORBCoN/FCRP. Once it is completed by the facilities that are participating in shipping blood between hospital sites , the MOU should be returned to ORBCoN and it will be made available upon request to any facility participating in the program if required for accreditation.   * + *If your facility cannot follow the recommendations listed in the validation reports for the J82 and E38 shipping containers, then you must validate the containers based on parameters set by your facility and results must be made available to share with any sites that your facility may be shipping to. Please contact your ORBCoN office for assistance.* | **MOU Tools:**   * [Memorandum of Understanding Template](https://transfusionontario.org/en/memorandum-of-understanding-template-2/) * [List of Signed MOUs](https://transfusionontario.org/en/list-of-completed-mous-for-provincial-redistribution-program/) * [Validation Report for J82 Shipping Container](http://transfusionontario.org/en/download/validation-report-for-j82-shipping-container/) * [Validation Report for E38 Shipping Container](http://transfusionontario.org/en/download/validation-report-for-e38-shipping-container/) * [Canadian Blood Services Validation Summary Report VSR-SPR-050](http://transfusionontario.org/en/download/canadian-blood-services-validation-summary-report-vsr-spr-050/) * [Canadian Blood Services Validation Summary Report VSR-SPR-051](http://transfusionontario.org/en/download/canadian-blood-services-validation-summary-report-vsr-spr-051/) * [Golden Hour MTS 24-2 Shipping Container Validation Report](https://transfusionontario.org/wp-content/uploads/2020/06/Golden-Hour-MTS-24-2-Shipping-Container-Validation-Report.pdf) |  |
| **FOUR** | * **Ensure Current Procedures for Redistribution of Blood Components Follow the Validated Process:**   Procedure templates have been developed and revised to aid facilities in the development and maintenance of their own policies and procedures when shipping blood components for redistribution. They have been revised to incorporate the steps required for the packing configurations used to validate the J82 and E38 shipping containers for the purposes of redistribution. The recommended forms ensure that all the information required by blood standards and accreditation will be documented. | **Redistribution of Blood Component Tools:**   * [IM.011F Materials/Devices Pre-Conditioning Log for Redistribution](https://transfusionontario.org/en/im-011f-materials-devices-pre-conditioning-log-for-redistribution/) * [IM.006 - Shipping Blood Components and Products Using the J82/E38 Shipping Containers](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F07%2FIM.006-Shipping-Blood-Components-Using-the-J82_E38-Shipping-Containers-SOP-3.docx&wdOrigin=BROWSELINK) * [Packing Configuration of J82/E38 Shipping Containers](https://transfusionontario.org/en/packing-configuration-of-j82-e38-shipping-containers/) * [IM.006F1 Inter-hospital Redistribution Form](https://transfusionontario.org/en/im-006f1-inter-hospital-redistribution-form-2/) * [IM.006F2 Shipping Address Labels](https://transfusionontario.org/en/im-006f2-shipping-address-labels-2/) * [IM.011 Shipping Blood Components/Products Using MTS Shipping Containers SOP](https://transfusionontario.org/en/im-011-shipping-blood-components-products-using-mts-shipping-containers/) * [IM.011F Materials/Devices Pre-Conditioning Log for Redistribution](https://transfusionontario.org/en/im-011f-materials-devices-pre-conditioning-log-for-redistribution/) * [Job aid Poster for Packing shipping containers](https://transfusionontario.org/en/how-to-pack-shipping-container-for-redistribution-patient-transfers-j82-shipping-containers/) |  |
| **FIVE** | * **Ensure Current Procedures for Redistribution of Frozen Components Follow the Recommended Process:**   A procedure template has been developed to aid facilities in the development and maintenance of their own policies and procedures when shipping frozen blood components revised to incorporate the steps required using the validated J82 shipping containers for the purposes of redistribution. | **Redistribution of Blood Component Tools:**   * [IM.012 - Shipping Frozen Blood Components using the J82 Shipping Container SOP](https://transfusionontario.org/en/im-012-shipping-frozen-blood-components-using-j82-shipping-containers-sop/) * [IM.006F1 - Inter-hospital Redistribution Form](https://transfusionontario.org/en/im-006f1-inter-hospital-redistribution-form-2/) * [IM.006F2 - Shipping Address Labels](https://transfusionontario.org/en/im-006f2-shipping-address-labels-2/) |  |
| **SIX** | * **Ensure Current Procedures for Shipping Blood Components and Products with a Patient Follow the Validated Process:**   Procedure templates have been developed and revised to aid facilities in the development and maintenance of their own policies and procedures when shipping blood components and products with a patient to an external facility. The recommended forms ensure that all the information required by blood standards and accreditation will be documented. | **Shipping Blood Components and Products with Patient Tools:**   * [IM.007 Shipment of Blood Components/Products Accompanying a Patient SOP](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F07%2FIM.007-Shipment-of-Blood-Components-Products-Accompanying-a-Patient.docx&wdOrigin=BROWSELINK) * [IM.007F1 Inter-hospital Transfer Form - Blood Components/Products Accompanying a Patient](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F07%2FIM-007F1-Inter-hospital-Transfer-Form-Blood-Components_Products-Accompanying-a-Patient-5.docx&wdOrigin=BROWSELINK) * [IM.007F2 Shipment of Blood Components/Products Accompanying a Patient Form](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F07%2FIM-007F2-Shipment-of-BloodComponents-Accompanying-a-Patient-1.docx&wdOrigin=BROWSELINK) |  |
| **SEVEN** | **Ensure Current Procedures for Reporting Blood Products for Redistribution are Used:**   * Procedure templates have been developed to aid facilities in the development of their own policies and procedures when reporting PPRP to be redistributed. * If the expiry date is adjusted due to increased storage temperatures, do not use the product past the new expiry date or manufacturer’s labelled expiry date, whichever comes first. The revised expiry date must be reported to ORBCoN on the PPP Redistribution reporting form * Any product issued for and returned from Homecare is not eligible for redistribution. | **Reporting Blood Products for Redistribution:**   * [IM.013 Reporting Blood Products for Redistribution SOP](http://transfusionontario.org/en/download/im-013-reporting-blood-products-for-redistribution/) * [Plasma Protein Product Acceptable Shipping and Storage Requirements](https://transfusionontario.org/en/plasma-protein-product-acceptable-shipping-and-storage-requirements/) |  |
| **EIGHT** | * **Ensure Current Procedures for Redistribution of Blood Products are Used:**   Procedure templates have been developed to incorporate the packing configuration steps used in the validation of the available shipping containers for the purposes of redistribution of blood products. | **Redistributing Blood Product Tools:**   * [IM.006 Shipping Blood Products using J82/E38 Shipping Containers](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F07%2FIM.006-Shipping-Blood-Components-Using-the-J82_E38-Shipping-Containers-SOP-3.docx&wdOrigin=BROWSELINK) * [Packing Configuration of J82/E38 Shipping Containers](http://transfusionontario.org/en/download/packing-configuration-of-j82e38-shipping-containers/) * [Plasma Protein Product Acceptable Shipping and Storage Requirements](http://transfusionontario.org/en/download/plasma-protein-product-acceptable-shipping-and-storage-requirements/) * [IM.006F1 Inter-hospital Redistribution Form](http://transfusionontario.org/en/download/im-006f1-inter-hospital-redistribution-form/) * [IM.011Shipping Blood Components/Products Using MTS Shipping Containers](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F07%2FIM011-Shipping-Blood-Component_Products-Using-MTS-Shipping-Containers-3.docx&wdOrigin=BROWSELINK) |  |
| **NINE** | * **Training your staff.**   Providing training to staff on the redistribution process will ensure that components and products are packed and shipped appropriately and reduce the wastage of the valuable resource due to errors in the redistribution process. | **Training Tools:**   * [Plasma Protein and Related Products Redistribution User Guide](https://transfusionontario.org/wp-content/uploads/2021/09/Plasma-Protein-and-Related-Products-PPRP-Redistribution-Hospital-User-Guide_Sept2021.pdf) * [Video - Redistribution Online Reporting Training](https://transfusionontario.org/en/redistribution-online-training/) * [Redistribution Training Presentation](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftransfusionontario.org%2Fwp-content%2Fuploads%2F2020%2F06%2FRedistribution-Training-Presentation.pptx&wdOrigin=BROWSELINK) * [Shipping Blood Components and Products Training Checklist](http://transfusionontario.org/en/download/shipping-blood-components-and-products-training-checklist/) * [Redistribution Training Quiz](http://transfusionontario.org/en/download/redistribution-training-quiz/) * PPP Interface User Guide |  |
| **TEN** | * **Process for Annual Verification**   Annual verification of the shipping containers is a requirement for accreditation[[2]](#footnote-3). ORBCoN will provide selected shipping hospitals with data loggers to include in their shipment to a receiving site. The data loggers will then be sent back to ORBCoN and the data will be downloaded, reviewed and posted to the ORBCoN website under the redistribution tab for facilities to access at any time.  It is recommended if there are any issues with shipping or receiving blood components or products that the process be reviewed internally.  If using the Pelican Golden Hour EMT shipping containers, replacement of vacuum insulated panels (VIP) is recommended when the container is not meeting the acceptable temperature range for shipping components and products or if it appears to be cracked or damaged. | **Annual Process Verification Tools:**   * [**Annual Verification Report**](https://transfusionontario.org/en/download/annual-process-verification/) |  |

## ACKNOWLEDGEMENTS

The Ontario Regional Blood Coordinating Network (ORBCoN) gratefully acknowledges funding support provided by the Ontario Ministry of Health. The views expressed in this resource are those of the authors and of ORBCoN and do not necessarily reflect those of the Ontario Ministry of Health or the Government of Ontario.

1. CSA 9.5.2.1, 9.5.2.4, IQMH v8 II.F12 TM183, (if despensaryII.H.1 TM193) [↑](#footnote-ref-2)
2. Institute for Quality Management in Healthcare Medical Laboratory Accreditation Requirements and Guidance Information, Version 8, Toronto, ON: Institute for Quality Management in Healthcare, 2019: IV 2 TM070 [↑](#footnote-ref-3)