Canadian Blood Services
BLOOD
PLASMA
STEM CELLS
ORGANS
& TISSUES

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INFORMATION ONLY

Exterior Cleansing of Shipping Containers and Blood Bags

Customer Letter # 2020-17

2020-04-28

Dear Colleagues:

Many hospital customers have inquired about how to clean or wipe products distributed by Canadian Blood Services. This letter contains

1) information about our shipping containers and
2) information provided by our bag and label manufacturers

Please note that the information is not specific to the efficiency of the cleansers in eliminating SARS-CoV-2 (the virus that causes COVID-19) but instead addresses the safety of cleansers on the materials themselves and their contents.

Shipping Containers

Canadian Blood Services *current* shipping containers may be wiped with:

- 70% isopropyl alcohol;
- soap and water; or,
- 0.5% hydrogen peroxide solution.

Solutions should be applied to the wipe and not applied directly to the surface of the container. If using soap and water, the container should be dried again with a separate wipe.

This information applies to:

- Spacing insulators
- Crates
- Expanded polystyrene insulators
- Polyurethane insulated containers
- Vacuum insulated panels
- Outer shells

Canadian Blood Services does not have information regarding exterior cleansing of our *previous* shipping containers (e.g. J82 and E38 boxes).

Manufacturer information regarding external cleansing of blood bags and labels

Canadian Blood Services requested blood bag manufacturers to provide data to support that washing /wiping of blood bags with soap and water or with 70% alcohol was not harmful to the plastic or cells inside the bag. We received the following responses:

Blood Bags

Red Blood Cells / Plasma Components made from Whole Blood

The manufacturer recommended the use of 70% alcohol. The manufacturer did not have data on soapy water.

Platelets, Pooled

The manufacturer has verified the use of a solution of 10% commercial bleach (1:10 dilution) or 70% isopropyl alcohol as acceptable cleaning agents.

- The cleaning procedure used with a 10% bleach solution consisted of submerging the unit in the solution, moving it with a washing motion, then rinsing with water and drying with paper towels.
- The cleaning procedure used with 70% isopropyl alcohol consisted of wiping the unit with up to 4 alcohol pads, then rinsing with water and drying with paper towels.

Either of these cleaning procedures are acceptable.

Apheresis Fresh Frozen Plasma (Sodium Citrate, 500 ml)

The manufacturer advised that you may cleanse units by using a solution of 500 ppm to 6500 ppm of sodium hypochlorite (bleach) in water to wipe down and clean any areas of the bag.
To prepare an approximately 500 ppm solution using a commercial bleach, use the following:

- 35.4 mL of commercial bleach and place into 4.5 litres (1 gallon) of water

Commercial cleaner disinfectant with bleach (e.g. Dispatch Hospital Cleaner) contains 6500 ppm sodium hypochlorite is acceptable to cleanse contaminated units.
Isopropyl alcohol / water (70/30) can be used.
The manufacturer did not have data on soapy water.
It would not be appropriate to immerse the blood bags into these solutions as a more limited exposure is prudent.

Platelets, Apheresis / Apheresis Fresh Frozen Plasma (ACD-A, 250 ml)

The manufacturer did not have a validated method for decontaminating the exterior of a bag containing a collected product. The manufacturer recommended that you follow your standard protocols for handling blood products during any activities where there is a risk of exposure. The following information was provided on plasma and RBC bags, which have similar materials as the platelet bags:

- Due to the permeable nature of the bag sheet surfaces, the manufacturer has advised that it is not recommended that a blood bag be immersed in a solution of disinfectant. It is appropriate to cleanse the surface with a nonvolatile disinfectant.

- Additionally, the manufacturer recommended wiping the bag sheet surface with an absorbent material wetted with the disinfectant. Caution should be exercised to remove any residual cleaner so as to avoid possible leaching of the disinfectant across the bag sheet. This can be accomplished either by assuring thorough drying of the disinfected area or by wiping the same area with saline or water after the disinfectant step.

Labels

Canadian Blood Services requested our end label manufacturer to provide data to support that washing / wiping of labels with soap and water or with 70% alcohol was not harmful to the label. We received the following response:

The manufacturer has tested with a variety of spray and foaming cleaners. The print stands up to all of them very well: spray and scrub. With using isopropyl alcohol, spraying and letting it soak and dry is fine. Scrubbing hard with an alcohol soaked rag will wear on the print past 10 or 14 touches. Although the manufacturer has tested with a variety of different disinfectants, they do recommend testing with specific soap to be sure, however soap and water is seemingly safer than alcohol.

Please note that the manufacturers did not provide information beyond what is included in this letter. In particular, information has not been provided on the type or concentration of soap, the temperature of the water or the type of wipe.

For information we are also sharing a related document at the request of the National Advisory Committee for Blood and Blood Products.

Please share a copy of this customer letter and its attachments with healthcare professionals at your hospital who might be interested in this information.

This customer letter can also be viewed at www.blood.ca in the "Hospitals Services" section. If you have questions about this letter, or if you require it in an accessible format, please contact your local hospital liaison specialist.

Sincerely,

David Howe
Director, Supply Chain Process Management

National Advisory Committee on Blood and Blood Products | Comité consultatif national sur le sang et les produits sanguins

Infection Prevention and Control Considerations for Return of Blood Components and Products to Inventory

Introduction

Concerns have been raised about the possibility of the external surfaces of blood components and products, and the containers in which they are transported, as potential vectors of infections diseases. To mitigate the potential for spread of infection, appropriate measures must be taken when handling blood components and products to ensure the potential for their return into inventory as a means of preserving supply. **This document was created to share infection prevention and control options in patient care and transfusion medicine laboratory environments, and includes suggestions from various health jurisdictions.** Determining the application of these options within institutions and/or in the context of specific outbreaks is beyond the scope of this document.

Best Practice and Considerations

Principles of infection prevention and control should be followed at all times. **Staff must be familiar with related institutional policies and procedures to inform protocols for managing blood component and product issue from and return to the transfusion medicine laboratory.** Notification of patient isolation or infectious disease outbreaks on specific wards may not always occur; therefore, handling of returned blood components and products requires a consistent practice. If not already in place, policies should be developed to manage the return of inventory issued in the setting of both routine and emergency need for transfusion.

The effectiveness of disease specific decontamination procedures may be difficult to establish or validate due to the numerous biologic (eg. infectious agent, mode of transmission, surface viability) and environmental (eg. temperature, surface material, chemical) factors which must be considered. Institutional infection prevention and control teams and/or medical microbiologists should be consulted as part of any policy creation to ensure consistency across the health care system.

General

- Laboratory staff should wear personal protective equipment (eg. gloves, gowns) as per policy when issuing blood components or products, and upon receiving returned product.
- Hand washing should be done frequently by all staff who may be handling blood components or products.
- Use of over-wrap plastic bags with a tamper-proof seal* at component or product issue could be implemented in either the setting of a known outbreak and/or issued to a patient with isolation precautions to ensure that any component or product returned to the laboratory will have a clean surface.
    - *Examples: plastic bag with a cable tie/zip tie placed below a tied knot; zip-lock bag with a cable tie/zip tie or staple placed through a punched hole near the zipper; use of coloured tamper-tape to seal the twisted end of a plastic bag or over the edge of a zip-lock seal.
- Application of a tamper-proof seal to blood transport containers at the time of issue will ensure a clean internal and component surfaces if returned unopened.

- Blood components and plasma protein products should not be requested from the transfusion medicine laboratory unless the following have been confirmed by the bedside care staff:
    - The order for transufusion is present on the chart, and
    - Consent to receive transfusion has been verified, and
    - Venous access is available and patent (if applicable).
- Only a single unit of blood component or vial of plasma protein product should be taken into the patient room at the time, and only immediately prior to transfusion administration.
- Pneumatic tube system carriers and associated materials should never enter the patient room.
- In the event of a transfusion reaction when return of blood components or products is required, the component bag or bottle should be clamped with the attached blood tubing and flush solution, with the end of the tubing capped to prevent leaking, and placed in a clean plastic bag prior to delivery to the transfusion medicine laboratory.

Blood components

- Local policies for cleansing the exterior surface of blood component bags must be developed in accordance with manufacturer recommendations (refer to Canadian Blood Services - Customer Letter # CL 2020-17).
- Upon return of untransfused blood components to the transfusion medicine laboratory, in addition to following usual local protocols pertaining to use of personal protective equipment:
    - If an over-wrap bag with a tamper-proof seal was used and the component is returned with the tamper-proof seal intact –
        - The external surface of the overwrap bag should be wiped clean before being accepted into the laboratory and placed on any surface within the laboratory, or
        - The over-wrap bag should be opened and the contents gently emptied onto a clean surface within the laboratory, with immediate discard of the plastic bag and gloves worn when handling received product.
    - If the component is returned in an open over-wrap bag or if no over-wrap bag is utilized, and the return is within the allowable time frame –
        - The external surface of blood component bags may be cleaned as recommended by the manufacturer for return to inventory, or
        - The component may be placed back into inventory if it passes visual inspection and the ward has confirmed it was not in the room with a patient on contact/droplet precautions, or
        - The component may be placed in a dedicated quarantine environment for a predefined timeline (dependent on the infectious agent and its viability on a plastic surface within the storage environment), or
        - The component may be discarded in accordance with usual protocol (least preferable option due to waste and potential impact on inventory).

- Coolers/transport containers containing blood components should:
  - Remain in the anteroom or outside of the patient care room or operating theatre, with the exception urgent/emergent transfusion need.
    - If required within the patient room, the container should be left in a 'clean' area at least 2 meters away from the patient with the lid closed.
  - Only be opened to remove units at the time of transfusion need (blood components should never be "pre-checked" and returned to the cooler).
  - Be cleaned on the exterior surface with a disinfectant wipe or other appropriate approach (as defined by institutional policy) by ward staff prior to return to the laboratory.
    - For containers that have an exterior surface other than hard plastic, consultation with the container manufacturer may be necessary to confirm external decontamination options.
  - Be placed in a separate "dirty area" upon return to the transfusion medicine laboratory until the external and internal surfaces of the cooler have been cleaned in accordance with local protocol to permit return to use.

Plasma Protein Products

- Limit the number of product vials issued to the ward at one time.
- Upon return of untransfused plasma protein products transfusion medicine laboratory, in addition to following usual local protocol as it pertains to personal protective equipment:
  - If an over-wrap bag with a tamper-proof seal was used and the component is returned with the tamper-proof seal intact –
    - The external surface of the overwrap bag should be wiped clean before being accepted into the laboratory and placed on any surface within the laboratory, or
    - The over-wrap bag should be opened and the contents gently emptied onto a clean surface within the laboratory, with immediate discard of the plastic bag and gloves worn when handling received product.
  - If the product is returned in an open over-wrap bag or if no over-wrap bag is utilized, and the return is within the allowable time frame –
    - The external box or bottle surface may be cleaned as recommended by the manufacturer and/or institutional infection prevention and control teams for return to inventory, as long as the cleaning agent does not adversely impact labelling on the box or bottle surfaces, or
    - The product may be placed back into inventory if it passes visual inspection and the ward has confirmed it was not in the room with a patient on contact/droplet precautions, or
    - The product may be placed in a dedicated quarantine environment for a predefined timeline (dependent on the infectious agent and its viability on cardboard or glass and within the storage environment), or
    - The product may be discarded in accordance with usual protocol (least preferable option due to waste and potential impact on inventory).

Attachment - Appendix A: SARS-CoV-2 (COVID-19) specific information

Infection Prevention and Control Considerations for Return of Blood Components and Products to Inventory

APPENDIX A: SARS-CoV-2 (COVID-19)

Infectious Organism: SARS-CoV-2, human coronavirus

Mechanism of Spread: Droplets, contaminated surfaces or hands

Surface Viability:

Material	Temperature	Persistence
Cardboard	Not specified (presumed room temp)	None detected at 24 hours[1]
Glass	22°C	None detected at 4 days[1,2]
Plastic	22°C	None detected at 7 days[2]
Stainless Steel	22°C	None detected at 7 days[2]

Refrigerator: Highly stable at 4°C, with persistence of detectable virus at 14 days[2]

The evidence as it pertains to SARS-CoV-2 survival and inactivation continues to evolve. A recently published literature review detailing the persistence of human and veterinary coronaviruses (other then SARS-CoV-2) on inanimate surfaces, as well as inactivation strategies with biocidal agents used for chemical disinfection provides valuable information about this virus family.[3]

References:

1 van Doremalen N, Bushmaker T, Morris DH et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *N Engl J Med.* Published online March 17, 2020. DOI: 10.1056/NEJMc2004973 https://www.nejm.org/doi/full/10.1056/NEJMc2004973

2 Chin AWH, Chu JTS, Perera MRA, et al. Stability of SARS-CoV-2 in different environmental conditions. *Lancet Infect Dis*. Published online 2 April 2020. https://doi.org/10.1016/S2666-5247(20)30003-3

3 Kampf G, Todt D, Pfaender S, et al. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. *J Hosp Infect*. Published online 6 February 2020. https://doi.org/10.1016/j.jhin.2020.01.022