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## Hospital Emergency Blood Management Plan

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### Emergency Blood Management Committee

#### Terms of Reference:

1. A City-Wide Emergency Blood Management Committee (EBMC) shall be maintained and will include the following members:
  - a. Blood Transfusion Medical Director
  - b. Blood Transfusion Lab Coordinator
  - c. Transfusion Safety Officer
  - d. Blood Conservation Coordinator
  - e. Chair of City-Wide Blood Transfusion Committee
  - f. Chief/Chair of:
    - i. Anesthesia
    - ii. Surgery
    - iii. Critical Care
    - iv. Medicine
    - v. Pediatrics
    - vi. Obstetrics /Gynecology
    - vii. Emergency Medicine
    - viii. Oncology
  - g. Vice President whose portfolio includes Laboratory Services
  - h. Director of Quality and Patient Safety
  - i. Clinical Ethicist
  - j. Directors of Communications (LHSC and St Joseph's Health Care)
  - k. Chair: City-Wide Perioperative Committee
2. The members of the EBMC shall be identified, contact information obtained and entered into the City-Wide Blood Transfusion Committee (CWBTC) 1<sup>st</sup> quarter meeting minutes, each calendar year. The CWBTC will appoint both the secretary and the chair of the EBMC. All members will be notified in writing that they are on the EBMC and the Terms of Reference will be forwarded. They must provide the name of a designate.
3. All members of the committee, or designate, must attend all meetings that are called.
4. EBMC reports to the City-Wide Blood Transfusion Committee
5. Role of EBMC is further explained in the Hospital Emergency Blood Management Plan.

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### Principle

1. Blood products are supplied directly to hospitals from Canadian Blood Services. In the event that Canadian Blood Services is unable to fill inventory requests for blood components or blood products at requested levels, hospitals shall have a policy and procedure in place to respond and adjust their usage. This will be dependant on the severity and expected length of the shortage. It is critical that stockpiling of the blood component or product in shortage DOES NOT OCCUR.

Note: a reduction in inventory may be limited to one blood group, one blood component, all blood components or a specific blood product supplied by Canadian Blood Services. (See Limitations)

2. Blood inventory shortages will be categorized into four phases to help define the required level of response / reduction:
  - a. **Green Phase:** No shortage of blood components or blood products exists. CBS is able to fill hospital requests to optimal inventory levels. Hospitals continue to practice routine strategies to ensure appropriate ordering of all blood transfusions and to minimize product wastage.
  - b. **Amber Phase:** Canadian Blood Services is unable to fill hospital requests as submitted to maintain an optimal inventory level. The shortage may result from a short term imbalance between the supply and demand. Hospital action will be required to reduce inventory levels on hand and may be required to reduce usage of blood component(s) / product(s) affected by the shortage in order to ensure conservation for use in urgent treatments.
  - c. **Red Phase:** Canadian Blood Services will call a Red phase when blood component / product inventory is at a critically low level and is not expected to improve for a prolonged period of time. In this situation, hospital demand continues to outpace available inventory. Hospital action is required to reduce inventory levels on hand to minimum levels and will be required to reduce usage of blood component(s) / product(s) affected by the shortage in order to conserve blood for use in critical and life threatening treatments only.

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- d. **Recovery Phase:** When inventory begins to rise again in relation to demand, Canadian Blood Services will communicate to hospitals. It is critical that hospital use does not resume at normal operating rates immediately. Blood use reductions in place should remain until Canadian Blood Services indicates that inventory has reached a stable level to allow for increased usage. Following this notification, hospitals must gradually increase usage in a controlled manner to ensure the improved inventory level can be maintained and a return to the shortage phase is avoided.

### Policy

#### Green Phase: Normal operations, preparation phase

1. Standard operating procedures under normal blood inventory (optimal) levels are followed by the Blood Transfusion Laboratory staff
2. All orders for blood products must meet London Health Sciences Centre / St Joseph's Health Care established transfusion guidelines
3. If the order (product or dosage) is suspected to be inappropriate, the BTL technologist will call for clarification or request hematology consult
4. On-hand red blood cell orders will not be accepted. Group and Reserve specimens should be in-date if blood may be required, but crossmatching will only be done when blood is required. (exception: patients with antibodies will have blood on hand)
5. Blood Order Guidelines for Adult Elective Surgeries (BOG) are reviewed with Chief/Chairs of each surgical division annually to determine which patients require Group and Reserve prior to surgery.
6. In non-urgent settings, RBCs should be administered one unit at a time.
7. All applicable blood conservation strategies should be employed to reduce the need for blood products.

#### Amber Phase (Level 1): Initiate internal communication

1. The Blood Transfusion Lab (BTL) is notified by the Canadian Blood Services (CBS) that the CBS inventory levels have dropped to below 50% targeted levels (or < 2 days inventory) and are not expected to return to normal within 24 hours.
2. The BTL technologist ensures that the BTL Medical Director and Coordinator have been notified of blood shortage.

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3. All further communication with the CBS regarding the blood shortage will involve the BTL Coordinator who will ensure the BTL Medical Director is kept informed.
4. The Emergency Blood Management Committee (EBMC) will be informed in writing that the Blood Inventory is in Amber Phase (level 1)
5. The secretary or chair of the EBMC will request that Medical Affairs send the Amber Phase (Level 1) email to all Medical Staff.
6. BTL inventory levels may also be reduced to 50% of optimal inventory levels at all sites. If necessary, blood products will be moved between London hospitals to ensure there is adequate product at each site. The BTL will not stockpile blood products in order to provide for their patients at the expense of patients in other Canadian hospitals.
7. If there is a request from regional hospitals for blood components, this request should be referred to the Canadian Blood Services who will coordinate any redistribution that may be required.

### **Amber Phase (Level 2): All orders will be reviewed; high blood loss surgeries may be deferred**

1. If the Amber Phase (level 1) escalates to a more severe or prolonged shortage, it may be necessary to initiate Level 2. This will be the decision of the BTL Medical Director.
2. The EBMC members are notified and if required a teleconference is convened to ensure communication regarding conservation strategies to be implemented are clear.
3. The secretary or chair of the EBMC will request that Medical Affairs send the Amber Phase (Level 2) email to all Medical Staff.
4. All orders for packed cell (RBC) transfusions will be reviewed by the BTL staff. Transfusion policies will be strictly enforced. That is, if Hemoglobin is  $<70\text{g/L}$ , RBCs will be released. If hemoglobin is  $>70\text{g/L}$  and  $<80\text{g/L}$ , only 1 unit will be issued. All other orders will need to be reviewed by the Blood Transfusion Medical Director.
5. All applicable blood conservation techniques should be implemented to reduce need for transfusion.
6. Clinical team should evaluate all elective surgical procedures associated with high probability of large blood use, and consider deferring the procedure until blood inventory levels increase.
7. BTL Medical Director may review the elective surgical procedure schedule and request specific deferrals.

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### **Red Phase : All orders will be reviewed; elective surgeries will be deferred**

1. The Blood Transfusion Lab (BTL) is notified by the Canadian Blood Services (CBS) that the CBS inventory levels have dropped to below 25% targeted levels (or < 1 day inventory) and are not expected to return to normal within 24 hours.
2. The EBMC members are notified and daily meetings (teleconference or in person) will be convened. According to the Terms of Reference, if a member cannot attend, s/he must appoint a designate.
3. The secretary or chair of the EBMC will request that the Red Phase email be sent to all Medical Staff.
4. All orders for packed cell (RBC) transfusions will be reviewed by the BTL staff. Transfusion policies will be strictly enforced. In a RED phase, if Hemoglobin is <70g/L, only 1 unit will be released. If hemoglobin is >70g/L, order will need to be reviewed by the Blood Transfusion Medical Director.
5. All applicable blood conservation techniques should be implemented to reduce need for transfusion.
6. All elective surgical procedures associated with probable blood use where patient safety will not be adversely affected will be deferred. If there are some blood groups that are not in critical supply, elective surgical procedures on these patients may be allowed to proceed. The management of the OR Schedule will be reviewed daily by the EBMC.
7. On-going updates on the blood shortage will be communicated by the EBMC.

### **Recovery Phase: Slow ramp-up to Normal Operations**

1. Upon notification of the recovery phase from the blood shortage by the CBS, the EBMC will be notified.
2. The secretary or chair of the EBMC will request that Medical Affairs send the Recovery Phase email to all Medical Staff.
3. Elective transfusions and elective surgical procedures deferred as a result of the blood inventory shortage may begin to be recalled in a controlled and gradual way in order to reduce the possibility of de-stabilizing the recovery of blood inventory levels. The EBMC will communicate specific strategies to achieve this, if required.
4. The BTL at all sites will work with the CBS to gradually increase blood inventory levels to normal in order to ensure that national blood inventory levels do not become depleted.
5. When BTL blood inventory levels are close to 100% of required inventory, all operations will proceed as described in the Green Phase.

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### Documentation

1. Requests for blood products made to the Blood Transfusion Lab that are deferred or cancelled due to blood shortages, will be documented internally and will be retained together with all the Canadian Blood Services correspondence regarding the shortage. Retention time of these documents is 2 years.
2. Any deferred or cancelled transfusions and/or procedures due to the blood shortages should be documented in the patient's health record, including the rationale for deferral or cancellation.

### Limitations

1. This plan is written specifically for red blood cell inventory shortages, although some parts of the plan may be applicable for other blood product shortages.
2. Platelet shortages occur more frequently than red blood cell shortages, but are usually short in duration. See communication plan and memo for platelet shortages attached.

## Email templates

### AMBER PHASE – LEVEL 1

We have received notification from the Canadian Blood Services (CBS) that they are currently experiencing a shortage of **[Enter name of blood component / product here]**.

At this time, this is an alert that there is a significantly reduced inventory level in the Blood Transfusion Labs at LHSC (both UH and VH) and St Joseph's Health Care, however there is currently no requirement to consider cancellation of elective surgeries.

To ensure that this shortage does not require cancellations of either surgeries or changes to transfusion protocols, we would request the following:

- All orders for RBC units should be evaluated, and if possible deferred or reduced to a single unit transfusion. Evaluation for need of additional transfusion should follow (repeat CBC)
- Clinical team should evaluate blood conservation techniques as an alternate to transfusion
- Any deferred or cancelled transfusion and/or procedure should be documented in the patient's health record, including rationale for deferral or cancellation

Note: This shortage is expected to remain for **[Enter the expected time frame for shortage]**. Until you receive further notification, you will be asked to follow the hospital procedure for Emergency Management of Blood – Amber Phase (Level 1). Once inventory levels have stabilized, you will receive further notification of entry into recovery phase procedures.

If you require additional information on the blood shortage, please contact the Blood Transfusion Laboratory Coordinator (pager 17076)

### AMBER PHASE – LEVEL 2

We have received notification from the Canadian Blood Services (CBS) that they are currently experiencing a shortage of **[Enter name of blood component / product here]**. As a result, blood inventory levels in the Blood Transfusion Labs at LHSC (both UH and VH) and St Joseph's Health Care are significantly reduced and it is necessary to conserve product for emergent and critical cases. Effective immediately, the following modifications to blood ordering will be implemented:

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- All orders for packed cell (RBC) transfusions will be reviewed by the BTL staff. Transfusion policies will be strictly enforced. That is, if Hemoglobin is <70g/L, RBCs will be released. If hemoglobin is >70g/L and <80g/L, only 1 unit will be issued. All other orders will need to be reviewed by the Blood Transfusion Medical Director.
- Clinical team should evaluate blood conservation techniques as an alternate to transfusion
- Clinical team should evaluate all elective surgical procedures associated with high probability of large blood use, and consider deferring the procedure until blood inventory levels increase
- Blood Transfusion Medical Director may review the elective surgical procedures scheduled and request specific deferrals.
- Any deferred or cancelled transfusion and/or procedure should be documented in the patient's health record, including rationale for deferral or cancellation

Note: This shortage is expected to remain for **[Enter the expected time frame for shortage]**. Until you receive further notification, you will be asked to follow the hospital procedure for Emergency Management of Blood – Amber Phase (Level 2). Once inventory levels have stabilized, you will receive further notification of entry into recovery phase procedures.

Should you experience a need for support in managing patients requiring blood during this period contact the Blood Transfusion Medical Director (pager 14330) If you require additional information on the blood shortage, please contact the Blood Transfusion Laboratory Coordinator (pager 17076)

### RED PHASE

We have received recent notification from Canadian Blood Services (CBS) that they are currently experiencing a severe shortage of **[ Enter name of blood component / product here ]**. The shortage is the result of **[Enter the reason for the shortage here]**. This shortage is anticipated to last for a prolonged period of time. As a result, blood inventory levels in the Blood Transfusion Labs at LHSC (both UH and VH) and St Joseph's Health Care are critically reduced to levels where it is necessary to conserve product for critical and life-threatening cases only. The City-Wide Emergency Blood Management Committee (EBMC) has been convened and will meet daily until the inventory levels increase, and the Recovery Phase is initiated.

Effective immediately, the following modifications to blood ordering will be implemented:

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Date effective: Sept 2009

Date Revised: Nov 2009

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- All orders for packed cell (RBC) transfusions will be reviewed by the BTL staff. Transfusion policies will be strictly enforced. In a RED phase, if Hemoglobin is <70g/L, only 1 unit will be released. If hemoglobin is >70g/L, order will need to be reviewed by the Blood Transfusion Medical Director.
- Clinical team should evaluate blood conservation techniques as an alternate to transfusion
- All elective surgical procedures associated with probable blood use where patient safety will not be adversely affected will be deferred. If there are some blood groups that are not in critical supply, elective surgical procedures on these patients may be allowed to proceed.
- Any deferred or cancelled transfusion and/or procedure should be documented in the patient's health record, including rationale for deferral or cancellation

Note: This shortage is being experienced across the country and it could possibly continue for a prolonged period of time. You will be asked to strictly follow the hospital procedure for Emergency Management of Blood – Red Phase. Communication between the Emergency Blood Management Committee (EBMC) and the Canadian Blood Services (CBS) will be ongoing. Once CBS inventories regain stability, you will receive further notification indicating when normal blood ordering practice may be resumed.

Should you experience a need for support in managing patients requiring blood during this period contact the Blood Transfusion Medical Director (pager 14330) If you require additional information on the CityWide Emergency Blood Management Plan, please contact the Chair of the EBMC (pager \_\_\_\_\_)

### RECOVERY PHASE

We have received recent notification from Canadian Blood Services (CBS) that inventory levels for **[Enter name of blood component / product here]** have steadily improved over the last week and have now reached a stable level. As a result, critical blood product conservation strategies may be lessened. Inventory levels on site will improve over the next few days back up to optimal levels.

- Elective transfusions and elective surgical procedures deferred as a result of the blood inventory shortage may begin to be recalled in a controlled and gradual way in order to reduce the possibility of de-stabilizing the recovery of blood inventory levels.

Note: We would like to take this opportunity to thank you for your support and collaboration during this difficult period. By working together, it was possible to

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use available blood inventory effectively to ensure the patients in most critical need received required products.

Should you experience a need for support in managing patients requiring blood during this period contact the Blood Transfusion Medical Director (pager 14330)

If you require additional information on the CityWide Emergency Blood Management Plan, please contact the Chair of the EBMC (pager \_\_\_\_\_)

## Platelet Shortages: Action Plan

### Amber Phase (Level 1):

**London CBS has <50% of required minimum stock**

**No communication is sent.**

Prophylactic Transfusion: All orders for prophylactic **platelet** transfusion will be reviewed by the BTL technologist and in consultation with the ordering physician the platelet transfusion may be deferred until CBS levels have improved

Scheduled Procedure (ie: line insertion, radiological procedure)

Platelets  $<50 \times 10^9/L$  platelets will be issued as requested

Platelets  $>50 \times 10^9/L$  requires BTL Medical Director's approval

Bleeding and/or in OR: Platelet requests will be filled.

### Amber Phase (Level 2):

**London CBS has <25% of required minimum stock**

**Memo is faxed to the ORs and pediatric and adult oncology areas.**

Prophylactic Transfusion: All orders for prophylactic **platelet** transfusion will be deferred until CBS levels have improved. BTL Medical Director must be consulted if ordering physician does not want transfusion deferred.

Scheduled Procedure (ie: line insertion, radiological procedure)

Where patient safety will not be adversely affected, scheduled procedures should be deferred until CBS levels have improved

All platelet orders pre-scheduled procedures will require BTL Medical Director's approval.

Bleeding and/or in OR: Platelet requests will be filled.

### Red Phase:

**London CBS has no platelets available**

**Memo is faxed and if shortage is anticipated to be >24 hours, Emergency Blood Management Committee is notified and email is sent to Medical Staff**

Only bleeding patients will receive platelets if any are available.

Consideration will be given to dropping the standard adult dosage to half of the current dose. Using the Sterile Connector, a Single Donor platelet or a BuffyCoat pool may be split for 2 patients. This will be at the BTL Medical Directors discretion.

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Consideration will be given to using platelets up to 7 days of storage (2 days post expiration). This will be at the BTL Medical Directors discretion.  
All elective surgical procedures associated with probable platelet transfusion where patient safety will not be adversely affected should be deferred.

### **Communication plan for platelet shortages**

Platelet shortages are usually short in duration, and most often more acute than red cell shortages therefore a different communication plan is required. A memo (see attached template) to the Operating Rooms and the Oncology inpatient areas will be faxed when a platelet shortage is identified. If the shortage is prolonged, or is also accompanied by red cell shortages, the communication will follow the Hospital Emergency Blood Management Plan. This will include notifying the Emergency Blood Management Committee and sending email notices to all Medical staff.

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PLEASE POST:

**CRITICAL SHORTAGE OF PLATELETS**

Date: \_\_\_\_\_

The London Centre of the Canadian Blood Services (CBS) has informed us that they are critically short of platelets. Every effort is being made to obtain platelets from other CBS centres.

ALL Prophylactic platelet transfusions have been postponed until \_\_\_\_\_, when it is expected that platelets will be in better supply.

**NOTE:** If you anticipate the need for platelets, please call the Blood Transfusion Laboratory immediately to determine availability.

Dr Chin-Yee, Medical Director, Blood Transfusion Laboratory  
Dr Cyrus Hsia, Associate Medical Director, Blood Transfusion Lab

**BTL instructions:**

As per BTL Medical Director's request, notify appropriate Medical and Clinical Staff regarding platelet shortages by **FAXING** the indicated locations at your site:

- |                       |                        |       |
|-----------------------|------------------------|-------|
| • SJHC                | O.R.                   | 66299 |
| • University Hospital | O.R.                   | 33127 |
| • Victoria Hospital   | O.R.                   | 58238 |
|                       | Adult Oncology         | 58469 |
|                       | Chemo Suite LRCP       | 53201 |
|                       | Pediatric Oncology     | 58512 |
|                       | Pediatric Med Day Unit | 58431 |

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### Email template for Platelet Shortage

NOTE: Email will only be sent if the platelet shortage is RED PHASE. In the AMBER PHASES – communication will be by FAX to Oncology and OR areas.

#### **RED PHASE: Platelet Shortage**

We have received notification from Canadian Blood Services (CBS) that they are currently experiencing a severe shortage of **PLATELETS**. This shortage is anticipated to last until ***[Enter the expected time frame for shortage]***. As a result, platelet inventory levels in the Blood Transfusion Labs at LHSC (both UH and VH) and St Joseph's Health Care are critically reduced to levels where it is necessary to conserve platelets for only critical and life-threatening cases. The City-Wide Emergency Blood Management Committee (EBMC) has been notified. Effective immediately, the following modifications to blood ordering will be implemented:

- Only bleeding patients will receive platelets.
- Consideration will be given to dropping the standard adult dosage to half of the current dose. This will be at the BTL Medical Directors discretion.
- Consideration will be given to using platelets up to 7 days of storage (2 days post expiration). This will be at the BTL Medical Directors discretion.
- Clinical team should evaluate blood conservation techniques as an alternate to transfusion
- All elective surgical procedures associated with probable platelet transfusion where patient safety will not be adversely affected should be deferred.
- Any deferred or cancelled transfusion and/or procedure should be documented in the patient's health record, including rationale for deferral or cancellation

Should you experience a need for support in managing patients requiring platelets during this period contact the Blood Transfusion Medical Director (pager 14330)

If you require additional information on the CityWide Emergency Blood Management Plan, please contact the Chair of the EBMC (pager \_\_\_\_\_)