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# PEI Provincial Emergency Blood Contingency Plan



**Health PEI**  
One Island Health System

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The PEI Provincial Emergency Blood Contingency Plan was written according to the principles introduced in The National Plan for the Management of Shortages of Labile Blood Components (The National Plan) which was developed by the National Advisory Committee (NAC) on Blood and Blood Products and Canadian Blood Services (CBS).

## EXECUTIVE SUMMARY

The purpose of the Prince Edward Island (PEI) Provincial Emergency Blood Contingency Plan (The Contingency Plan) is to provide a framework to ensure a coordinated response within the province to shortages of blood components or blood products. This plan delineates the roles and responsibilities of all the relevant blood-system stakeholders and is meant to ensure that response to a blood shortage crisis is consistent across the province, the region, and the nation.

This Contingency Plan is an evolving document, and will be amended as necessary. It is operationally congruent with other provincial and national emergency plans, specifically those plans of the other Maritime Provinces (New Brunswick and Nova Scotia). It also references ethical decision making documents developed at the national level.

The Contingency Plan assumes that four phases of inventory management exist, and describes the inventory management activities which may be required during each phase:

### GREEN PHASE

During Green Phase, blood component inventory is generally adequate to meet demand. This phase includes a broad range of inventory levels ranging from an ideal inventory to periodic localized shortages that can be managed cooperatively between the affected region and CBS.

- Green Phase Advisory implies that CBS inventory levels are low with respect to a particular blood component and that all hospitals need to determine their inventories and the likelihood of crossing into Amber or Red Phase

### AMBER PHASE

During Amber Phase, blood inventory is insufficient to support routine transfusion practices. Hospitals within the province that transfuse blood components will be required to implement specific measures, as outlined in this document, in order to reduce blood usage.

### RED PHASE

During Red Phase, blood inventory levels are insufficient to ensure that patients with non-elective indications for transfusion will receive the required transfusion(s). In the event of a Red Phase shortage, the Provincial Triage Team is responsible for providing case-by-case decision making around blood rationing.

### RECOVERY PHASE

In the Recovery Phase, blood component inventories have begun to increase and a return through Amber and subsequently to Green Phase is anticipated.

## DEFINITIONS / ACRONYMS

**AHP:** All Hazards Plan

**BERT:** Blood Emergency Response Team of Nova Scotia

**Blood Component:**

A therapeutic component of blood intended for transfusion (e.g. red cells, platelets, plasma, cryoprecipitate) that can be prepared using the equipment and techniques available in a blood centre. Note: Such equipment and techniques can include centrifugation, filtration, or freezing as per CSA Z902-10.

**Blood Product:**

Any therapeutic product derived from human blood or plasma and produced by a manufacturing process that pools multiple units (usually more than 12). Note: Examples of blood products are human serum albumin, immunoglobulin preparations, and coagulation products (factors VIII and IX, etc.) as per CSA Z902-10.

**BTS:** Blood Transfusion Service (may also be referred to as Blood Bank)

**CAO:** Chief Administrative Officer

**CEO:** Chief Executive Officer

**CBS:** Canadian Blood Services

**CNS:** Central Nervous System

**Cryo:** Cryoprecipitate. An extract rich in a blood clotting factor obtained as a residue when frozen blood plasma is thawed.

**CSCO:** Chief Supply Chain Officer

**CSP:** Cryosupernatant. Plasma from which cryoprecipitate has been removed.

**DOH:** Days on hand

**Emergent:**

An occurrence coming into view, existence or notice, often unexpectedly, with the potential to impact blood component inventories which thus demands prompt action (e.g. pandemic flu, labour disruption)

**FFPA:** Apheresis Fresh Frozen Plasma

**FP:** Frozen Plasma

**Hgb:** Hemoglobin

**HPEI:** Health PEI

**MERT:** Maritime Emergency Response Team

**NAC:** National Advisory Committee on Blood and Blood Products

**The National Plan:**

The National Plan for the Management of Shortages of Labile Blood Components

**NEBMC:** National Emergency Blood Management Committee

**PCH:** Prince County Hospital

**PEBMC:** Prince Edward Island Provincial Emergency Blood Management Committee. This is the equivalent of the Provincial/Territorial Emergency Blood Management Committee (P/T EBMC) referred to in the National Plan for the Management of Shortages of Labile Blood Components.

**PEI:** Prince Edward Island

**PLTS:** Platelets (includes Pooled Platelets LR (Leukocyte reduced) CPD (citrate, phosphate, dextrose) and Apheresis Platelets)

**P/T:** Provincial/Territorial

**P/T EBMC:** Provincial/Territorial Emergency Blood Management Committee

**QEH:** Queen Elizabeth Hospital

**RBC:** Red blood cell

**Urgent:** Needing immediate action to contain the impact on blood component/blood product inventories

**WOH:** Weeks on hand

## 1.0 OVERVIEW

The Contingency Plan consists of a series of sequential operation procedures:

1. Identification and communication of the blood issue
2. Assessment of the blood issue and development of a response plan
3. Communication of the response plan
4. Implementation of the response plan and
5. Recovery from the issue.

The Contingency Plan defines various groups of stakeholders at different levels within the health system who may be called upon to respond to blood component/product shortages, and outlines their roles and responsibilities:

**1. NEBMC**

The National Emergency Blood Management Committee coordinates activity at the national level in the event of a shortage affecting the entire country.

**2. MERT**

The Maritime Emergency Response Team is composed of the members of the Blood Emergency Response Team of Nova Scotia (known locally as BERT), and the Provincial Emergency Blood Management Committees of New Brunswick and PEI. MERT coordinates activity within the Maritime region in the event of a national/regional shortage.

**3. PEBMC**

The PEI Provincial Emergency Blood Management Committee receives and disseminates recommendations from NEBMC via MERT in the event of a large shortage, and serves as a means to communicate information on local shortages to provincial stakeholders.

### 1.1 IDENTIFICATION AND COMMUNICATION OF THE BLOOD ISSUE

Identification of an issue may occur at a national, regional, or provincial level and may or may not result in activation of the plan. All events that impact inventory are expected to be reported to the Hospital Liaison Specialist at CBS-Dartmouth, who shall evaluate the overall inventory impact.

An issue may result in activation of the plan at the same level or at a different level. For example, a provincial event may result in national activation, and a regional event may result in provincial activation.

There are three potential scenarios that would trigger the activation of the PEI Provincial Emergency Blood Contingency Plan:

- I. Provincial:** A minor, temporary shortage associated with normal fluctuations in blood component/blood product inventories. This shortage would be communicated to the Division Head or Chief Technologist of the PEI Blood Transfusion Service (BTS) Queen Elizabeth Hospital (QEH) site, or their designate. The Division Head or Chief Technologist (or designate) would then inform provincial stakeholders as necessary (for example, the Prince County Hospital (PCH) BTS Supervisor and/or individual clinicians if appropriate).



**II. Regional:** A real, perceived, or anticipated moderate or severe threat; such as severe weather, major disaster, or public health emergency, which could have implications to the blood supply. It may be first identified by a stakeholder other than CBS. Information about the shortage event is communicated to the BTS Division Head who may, at his/her discretion, inform the Chair of PEBMC (or his/her designate). At his/her discretion, the Chair of PEBMC may choose to:

1. Convene the PEBMC
2. Inform the Chair of MERT
3. Inform CBS

The Chair of MERT may choose, at his/her discretion, to convey this to the Chair of the NEBMC, who may in turn choose to activate the NEMBC.

**III. National:** The possibility of a significant blood component shortage is identified within CBS, or by another stakeholder. The Chair of the NEMBC may, at his/her discretion, convene the NEMBC. If the NEMBC is convened, any recommendations coming out of this group are conveyed to the PEBMC via MERT.

## 1.2 IMPLEMENTATION OF RESPONSE PLAN

- I. Provincial:** The Division Head (or his/her designate) will assess the situation and identify appropriate action(s) to maintain appropriate inventory.
- II. Regional:** Based on degree of threat or reduction of blood inventory levels, the Chair of PEBMC will decide whether to 1) convene PEBMC, 2) inform the Chair of MERT and/or 3) inform CBS (if necessary). If MERT is convened and recommendations to mitigate the shortage are made, these recommendations are conveyed to the relevant provincial stakeholders by the members of the PEBMC (who are also members of MERT). If only the PEBMC convenes, the committee will develop a response plan that will be communicated to the relevant provincial stakeholders by the members of the PEBMC.
- III. National:** The Chair of NAC is contacted by CBS, a provincial Health ministry or another stakeholder via the Lead Province regarding the possibility of a significant blood component shortage. During the NEMBC teleconference a response plan will be developed. Following the national meeting, the Chair of MERT will convene MERT in a timely manner. The decisions made during the NEBMC meeting will be communicated via MERT to the PEBMC, whose members are then responsible for implementing these recommendations at the local level.

## 1.3 HEALTH PEI ALL HAZARDS PLAN

The PEI Provincial Emergency Blood Contingency Plan has been developed as a stand-alone plan and has also been developed to be operationally congruent with the Health PEI All Hazards Plan (AHP). HPEI has developed an AHP to assist with guiding the organization, and particularly Senior Management, throughout an emergency or disaster response. At times, the PEI Blood Contingency Plan may be activated in conjunction with the HPEI AHP. In that case, reporting relationships and the chain of command may have to deviate from those laid out in this plan and reflect those outlined by the HPEI AHP.

## 2.0 SHORTAGE PHASES

### 2.1 GREEN PHASE DEFINITION

During Green Phase, blood component inventory is generally adequate to meet demand. This phase includes a broad range of inventory levels ranging from an ideal inventory to periodic localized shortages that can be managed cooperatively between the affected region and CBS.

Minor, temporary shortages associated with normal fluctuations in blood component/blood product inventories may occur. Responses to these minor shortages focus on PCH/QEH because these sites:

1. Store platelets and the largest inventories of red blood cells (RBCs)
2. Are provincially the high-end users of blood components/blood products and
3. Given 1) and 2) above, these sites will have the greatest immediate impact on utilization to assist with mitigating inventory shortages.

#### 2.1.1 GREEN ADVISORY PHASE (FROM THE NATIONAL PLAN)

There could be brief situations where, while the overall inventory is in Green Phase, a particular blood type or component may be in limited supply and require CBS to issue an Advisory. Most of these situations will be brief, and CBS will communicate temporary inventory adjustments to hospitals through “business-as-usual” channels. Should the situation persist, prior to going to a public media appeal for donors, or to discussing the potential of an Amber phase, the CBS Chief Supply Chain Officer (CSCO) will consult with the NEBMC Chair to convene the NEBMC (within 24- 48 hrs) to determine if there are any changes to hospital inventory management practice which could assist with and/or improve the situation internally. This state requires all hospital inventories to determine what the likelihood of crossing into Amber or Red phase would be. It would also be a warning for hospitals and provinces to look at any potential conservation strategies that could help avoid a shortage.

Approximate CBS national inventory levels that could constitute a Green Advisory Phase relative to the Normal Green Phase are described as follows:

**INVENTORY LEVELS- CBS- NORMAL GREEN PHASE AND GREEN ADVISORY PHASE**

	<b>NORMAL GREEN PHASE</b>	<b>GREEN ADVISORY PHASE</b> (serious but non-critical blood shortage)
<b>RBCs</b>	<ul style="list-style-type: none"> <li>• &gt; 4 DOH* for O Rh positive and A Rh positive blood groups, and</li> <li>• &gt;3 DOH for all Rh negative blood groups</li> </ul>	<ul style="list-style-type: none"> <li>• More than 3 successive days of 3-3.5 DOH for <b>EITHER</b> O Rh positive or A Rh positive blood groups</li> <li>• More than 3 successive days of 2-3 DOH for either O Rh negative or multiple other Rh negative groups</li> </ul>
<b>Transfusable Plasma (Type O, A, B only)</b>	> 2WOH**	1-2 WOH
<b>Transfusable Plasma (Type AB) or CSP or Cryoprecipitate</b>	> 3WOH	2-3 WOH
<b>Platelets</b>	CBS can provide > 90% of the national daily requirement May include seeing 80-90% unit/fill rates in a few sites but recovery must occur within 12-24 hours	CBS can provide 80-90% of the national daily requirement May include seeing lower unit/fill percentages in a few sites but recovery must occur within 12-24 hours

\* Refers to ‘days on hand’ defined as the average daily issues of red cells from CBS  
 \*\*Refers to ‘weeks on hand’ defined as the average weekly issues of plasma from CBS

## 2.2 GREEN PHASE INVENTORY

GREEN PHASE		
CBS-Dartmouth/PEI Inventories are sufficient to meet anticipated demand. No threat or perceived threat to blood component/product inventories.		
<b>CBS-Dartmouth RBCs (all blood groups)</b> >3 DOH (>390 units)	<b>CBS-Dartmouth PLTs</b> 50-100 % DOH (10-20 doses)	<b>CBS-Dartmouth FP/FFPA</b> >300 units

## 2.3 GREEN PHASE RESPONSIBILITIES

	COMMUNICATION	ACTIVITIES
<b>Individual stakeholders (e.g. Physicians, nurses, etc.)</b>	Report perceived threats to the blood supply to their local BTS, Department Head or Division Head of PEI BTS	Adhere to international, national and regional transfusion guidelines
<b>PEI Blood Transfusion Service</b>	Notify relevant stakeholders (i.e. department heads/designates of high-use departments) within their facilities of minor, temporary shortages and anticipated period of recovery, as appropriate	In the event of a minor, temporary shortage, assess current inventories and consider: <ol style="list-style-type: none"> <li>1. Allowing inventories to fall to minimum levels before making requests from CBS</li> <li>2. Redistributing component / products between PEI BTS sites</li> <li>3. Notification of PEBMC</li> </ol>
<b>CBS-Dartmouth</b>	Notifies PEI BTS Division Head/Chief Technologist or designate of minor, temporary shortages and anticipated period of recovery	Effectively manage both provincial and national blood component inventories
<b>All PEI Hospitals that transfuse blood components / products</b>		Include training on the PEI Provincial Emergency Blood Contingency Plan as part of health care professional orientation
<b>Health PEI- Provincial Emergency Blood Management Committee</b>		Maintain and update the PEI Provincial Emergency Blood Contingency Plan as necessary  Arrange provincial mock shortage exercises and evaluate outcomes  Establish and maintain the Triage Team as prescribed in the NAC Emergency Framework for Rationing of Blood for Massively Bleeding Patients During a Red Phase of a Blood Shortage

## 2.4 AMBER PHASE DEFINITION

During Amber Phase, the national blood inventory is insufficient to support routine transfusion practices. Hospitals within the province that transfuse blood components will be required to implement specific measures, as outlined in this document, in order to reduce blood usage.

## 2.5 AMBER PHASE INVENTORY

AMBER PHASE		
CBS-Dartmouth/PEI Inventories are not sufficient to meet demand, with a moderate shortage anticipated. There is moderate threat or perceived threat to blood component/product inventories.		
<b>CBS-Dartmouth RBCs</b> (all blood groups) 2-3 DOH (260-390 units)	<b>CBS-Dartmouth PLTs</b> 25-50% DOH (5-10 doses) Recovery expected within 12 hours	<b>CBS-Dartmouth FP/FFPA</b> 3-10 DOH 90-300 units

## 2.6 AMBER PHASE RESPONSIBILITIES

### 2.6.1 THREAT TO PEI BLOOD SUPPLY

	COMMUNICATION	ACTIVITIES
<b>Individual stakeholders (e.g. physicians, nurses, etc.)</b>	Report perceived threats to the blood supply to the Division Head of PEI BTS or designate. This may also be reported to any member of the PEBMC, if the Division Head is not available	Adhere to inventory management activities as required
<b>PEI Blood Transfusion Service</b>	The Division Head or designate may, at his/her discretion, choose to NOT 1) inform the Chair of PEBMC and/or 2) NOT inform CBS-Dartmouth Hospital Liaison Specialist of the report.  If PEBMC is not convened, the PEI BTS may, at its discretion, provide information to impacted stakeholders: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> </ul>	Assess current inventories and: <ol style="list-style-type: none"> <li>Allow inventories to fall to minimum levels before making requests from CBS</li> <li>Redistribute component / products between PEI BTS sites (as appropriate)</li> <li>Adhere to inventory management activities as required by PEBMC (if convened) or MERT</li> </ol>
		Provide Daily Hospital Inventory Worksheet to CBS-Dartmouth, if requested
<b>CBS-Dartmouth</b>	May, at their discretion, notify Chair of MERT and/ or chair of NEBMC of threat to PEI or Regional Blood Supply	May, at their discretion, request Daily Hospital Inventory Worksheet be completed

<b>PEBMC (if convened)</b>	The Chair of the PEBMC convenes PEBMC (as appropriate)	
	Chair of PEBMC notifies CBS-Dartmouth Hospital Liaison Specialist and chair of the MERT of initiation of Amber Phase (if not already done)	
	Members of PEBMC notify their stakeholders of: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	
	The PEBMC Chair reports to HPEI Chief Executive Officer (CEO) or designate: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	Maintain standard communications containing consistent key messages recommended by MERT or the NEBMC
<b>MERT (if convened)</b>	The Chair of MERT, at his/her discretion, may inform the Chair of NEBMC of threats to regional or PEI blood supply. The Chair of NEBMC may, at his/her discretion, convene the NEBMC.	MERT discusses which inventory management activities will be implemented in the Maritimes
<b>NEBMC (if convened)</b>	PEI NEBMC members inform Chair of PEBMC of decisions made by NEBMC	NEBMC discusses the impact of the inventory shortage at the national level
<b>All PEI Hospitals that transfuse blood components / products</b>		Adhere to inventory management activities as required by PEBMC or MERT
<b>Health PEI</b>	HPEI CEO or designate will ensure information from PEBMC is shared with members of SMG  HPEI CEO will notify Deputy Minister and Minister of Health of the implementation of inventory management activities as endorsed by PEBMC	Appropriate PEBMC members will monitor hospital compliance with and implementation of inventory management activities as required by PEBMC  Communications PEI (member of PEBMC) will control release of information about the shortage to the media, as appropriate.

**2.6.2 THREAT TO REGIONAL/NATIONAL BLOOD SUPPLY**

	<b>COMMUNICATION</b>	<b>ACTIVITIES</b>
<b>NEBMC (if convened)</b>	Notify CBS-Dartmouth Hospital Liaison Specialist of initiation of Amber Phase.  PEI NEBMC member(s) inform Chair of PEBMC of decisions made by NEBMC, if applicable, and may recommend activation of PEBMC, if necessary	NEBMC discusses the impact of the inventory shortage at the national level
<b>MERT (if convened)</b>	PEI MERT members inform chair of PEBMC of decisions made by MERT	MERT discusses which inventory management activities will be implemented in the Maritimes
<b>CBS-Dartmouth</b>	Notify PEI BTS (QEH site) by fax of initiation of Amber Phase, indicating: <ul style="list-style-type: none"> <li>affected blood component</li> <li>current inventories</li> <li>anticipated period of recovery</li> <li>potential for Red Phase</li> </ul>	May, at their discretion, request Daily Hospital Inventory Worksheet be completed
<b>PEI Blood Transfusion Service</b>	If PEBMC is not convened, the PEI BTS may, at its discretion, provide information to impacted stakeholders: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> </ul>	Assess current inventories and: <ol style="list-style-type: none"> <li>Allow inventories to fall to minimum levels before making requests from CBS</li> <li>Redistribute component / products between PEI BTS sites (as appropriate)</li> <li>Adhere to inventory management activities as required by PEBMC, NEBMC or MERT</li> </ol>

<b>PEBMC (if convened)</b>	The Chair of the PEBMC convenes PEBMC (as appropriate).	
	Members of PEBMC notify their stakeholders of: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	
<b>Health PEI</b>	PEBMC Chair reports to HPEI CEO or designate: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	Members of the PEBMC will maintain standard communications containing consistent key messages recommended by MERT or the NEBMC.
	HPEI CEO will notify Deputy Minister and Minister of Health of the implementation of inventory management activities as endorsed by PEBMC  HPEI CEO or designate will ensure information from PEBMC is shared with members of SMG	Appropriate PEBMC members will monitor hospital compliance with and implementation of inventory management activities as required by PEBMC  Communications PEI (member of PEBMC) will control release of information about the shortage to the media, as appropriate
<b>All PEI Hospitals that transfuse blood components /products</b>		Adhere to inventory management activities as required by PEBMC or MERT
<b>Individual stakeholders (e.g. physicians, nurses, etc.)</b>		Adhere to inventory management activities as required



## 2.7 AMBER PHASE INVENTORY MANAGEMENT ACTIVITIES

Inventory Management Activities which may be introduced during the Amber Phase include:

- RBCs**
- Defer elective medical and surgical procedures which are likely to require the affected blood components<sup>1</sup>
  - All requests for RBC transfusion in patients with non-surgical anemia and a Hgb level > 70 g/L must be reviewed by the PEI BTS Division Head (or designate)
  - Refer all requests for affected blood components that do not meet predetermined criteria to the PEI BTS Division Head (or designate) before issue of product
- PLTS**
- Defer elective medical and surgical procedures which are likely to require the affected blood components<sup>1</sup>
  - In presence of active bleeding or surgical procedure maintain a platelet count > 50 x 10<sup>9</sup>/L or if CNS trauma/surgery a platelet count > 100 x 10<sup>9</sup>/L
  - For non-surgical invasive procedures (other than bone marrow aspiration or biopsy) maintain a platelet count > 30 x 10<sup>9</sup>/L
  - In the context of bone marrow failure/hematopoietic stem cell transplantation /chemotherapy, adhere to a maximum threshold platelet count of 10 X 10<sup>9</sup>/L for prophylactic platelet transfusions; consider lowering this threshold for routine prophylactic transfusions to 5 x 10<sup>9</sup>/L
  - All requests for a platelet transfusion in non-bleeding patients with a platelet count >10 x 10<sup>9</sup>/L must be reviewed by the PEI BTS Division Head (or designate)

## 2.8 RED PHASE DEFINITION

During Red Phase, blood inventory levels are insufficient to ensure that patients with non-elective indications for transfusion will receive the required transfusion(s).

## 2.9 RED PHASE INVENTORY

RED PHASE		
CBS-Dartmouth/PEI Inventories are being affected by a long term and/or severe shortage.		
<b>CBS-Dartmouth RBCs</b> (all blood groups) <2 DOH (<230 units)	<b>CBS-Dartmouth PLTs</b> 25% of daily inventory (<5 doses) Recovery not expected within 12 hours	<b>CBS-Dartmouth FP/FFPA</b> <3 DOH <90 units

<sup>1</sup> As per The National Plan: "Elective procedures are considered to be all procedures which are not urgent or emergency procedures. Urgent procedures are those for which a patient is likely to have major morbidity if the procedure is not performed within the next one to 28 days. Emergency procedures are those that need to be performed within 24 hours in order to prevent the patient's death (or major morbidity such as paralysis)." Page 33

## 2.10 RED PHASE RESPONSIBILITIES

### 2.10.1 THREAT TO PEI BLOOD SUPPLY

	COMMUNICATION	ACTIVITIES
<b>Individual stakeholders (e.g. physicians, nurses, etc.)</b>	Report perceived threats to the blood supply to the Division Head of PEI BTS or designate. This may also be reported to any member of the PEBMC, if the Division Head is not available.	Adhere to inventory management activities as required
<b>PEI Blood Transfusion Service</b>	The Division Head or designate will inform CBS-Dartmouth Hospital Liaison Specialist of the threat to PEI's blood supply.  The Division Head or designate will inform the Chair of PEBMC and recommend activation of PEBMC.  PEI BTS may, at its discretion, provide information to impacted stakeholders: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> </ul>	Assess current inventories and: <ol style="list-style-type: none"> <li>Allow inventories to fall to minimum levels before making requests from CBS</li> <li>Redistribute component / products between PEI BTS sites (as appropriate)</li> <li>Adhere to inventory management activities as required by PEBMC (if convened) or MERT</li> </ol>
		Provide Daily Hospital Inventory Worksheet to CBS-Dartmouth, if requested
<b>CBS-Dartmouth</b>	Will notify Chair of MERT and/or chair of NEBMC of threat to PEI or Regional Blood Supply	May, at their discretion, request Daily Hospital Inventory Worksheet be completed
<b>PEBMC (if convened)</b>	The Chair of the PEBMC convenes PEBMC (as appropriate)	
	Chair of PEBMC notifies CBS-Dartmouth Hospital Liaison Specialist and chair of the MERT of initiation of red Phase (if not already done)	
	Members of PEBMC notify their stakeholders of: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	
	The PEBMC Chair reports to HPEI CEO or designate: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	Maintain standard communications containing consistent key messages recommended by MERT or the NEBMC

<b>MERT (if convened)</b>	The Chair of MERT, at his/her discretion, may inform the Chair of NEBMC of threats to regional or PEI blood supply. The Chair of NEBMC may, at his/her discretion, convene the NEBMC.	MERT discusses which inventory management activities will be implemented in the Maritimes
<b>NEBMC (if convened)</b>	PEI NEBMC members inform Chair of PEBMC of decisions made by NEBMC	NEBMC discusses the impact of the inventory shortage at the national level
<b>All PEI Hospitals that transfuse blood components / products</b>		Adhere to inventory management activities as required by PEBMC or MERT
<b>Health PEI</b>	HPEI CEO or designate will ensure information from PEBMC is shared with members of SMG HPEI CEO will notify Deputy Minister and Minister of Health of the implementation of inventory management activities as endorsed by PEBMC	Appropriate PEBMC members will monitor hospital compliance with and implementation of inventory management activities as required by PEBMC Communications PEI (member of PEBMC) will control release of information about the shortage to the media, as appropriate

**2.10.2 THREAT TO REGIONAL/NATIONAL BLOOD SUPPLY**

	<b>COMMUNICATION</b>	<b>ACTIVITIES</b>
<b>NEBMC</b>	Notify CBS-Dartmouth Hospital Liaison Specialist of initiation of Red Phase. PEI NEBMC members inform Chair of PEBMC of decisions made by NEBMC, if applicable, and may recommend activation of PEBMC, if necessary	NEBMC discusses the impact of the inventory shortage at the national level
<b>MERT</b>	PEI MERT members inform chair of PEBMC of decisions made by MERT	MERT discusses which inventory management activities will be implemented in the Maritimes Implement the predetermined communications plan
<b>CBS-Dartmouth</b>	Notify PEI BTS (QEH site) by fax of red phase status indicating: *affected blood components *current inventories *anticipated period of recovery	May, at their discretion, request Daily Hospital Inventory Worksheet be completed
<b>PEI Blood Transfusion Service</b>	The Division Head or designate will inform the Chair of PEBMC and recommend activation of PEBMC.	Adhere to inventory management activities as required by PEBMC, NEBMC, or MERT Provide Daily Hospital Inventory Worksheet to CBS-Dartmouth, if requested
<b>PEBMC</b>	The Chair of the PEBMC convenes PEBMC (as appropriate).	
	Members of PEBMC notify their stakeholders of: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	Members of PEBMC will maintain standard communications containing consistent key messages recommended by MERT or the NEBMC
	PEBMC Chair reports to HPEI CEO or designate: <ul style="list-style-type: none"> <li>affected blood component/blood product</li> <li>anticipated period of recovery</li> <li>inventory management activities which must be implemented in PEI</li> </ul>	PEBMC chair will activate the Provincial Triage Team and Hospital Services East and West Support Teams

<b>Health PEI</b>	HPEI CEO or designate will ensure information from PEBMC is shared with members of SMG	Appropriate PEBMC members will monitor hospital compliance with and implementation of inventory management activities as required by PEBMC
	HPEI CEO will notify DM and Minister of Health of the implementation of inventory management activities as endorsed by PEBMC	Communications PEI (member of PEBMC) will control release of information about the shortage to the media, as appropriate
<b>Triage Team</b>	Report triage decisions at least once daily to the PEBMC  Triage Team Leader will communicate Triage Team decisions to Hospitals East and West Support Teams through CAO and Chief or via channels outlined by the HPEI AHP	Evaluate massively bleeding patients and decide whether blood support will be provided or withheld
<b>All PEI Hospitals that transfuse blood components / products</b>		Adhere to inventory management activities as required by PEBMC
<b>Individual stakeholders (e.g. physicians, nurses, etc.)</b>		Cooperate with the Triage Team and Support Teams, as required
		Adhere to inventory management activities as required by PEBMC

### 2.11 RED PHASE INVENTORY MANAGEMENT ACTIVITIES

Inventory Management Activities which may be introduced during the Red Phase (or continued from the Amber Phase) include:

**RBCs**

- Defer elective medical and surgical procedures which are likely to require the affected blood components<sup>2</sup>
- RBC transfusion in massively bleeding patients requires evaluation and approval by Triage Team
- All requests for RBC transfusion in patients with non-surgical anemia and a Hgb level > 70 g/L must be reviewed by the PEI BTS Division Head (or designate)
- Refer all requests for affected blood components that do not meet predetermined criteria to the PEI BTS Division Head (or designate) before issue of product

<sup>2</sup> As per The National Plan: "Elective procedures are considered to be all procedures which are not urgent or emergency procedures. Urgent procedures are those for which a patient is likely to have major morbidity if the procedure is not performed within the next one to 28 days. Emergency procedures are those that need to be performed within 24 hours in order to prevent the patient's death (or major morbidity such as paralysis)." Page 33

**PLTS**

- Defer elective and urgent medical and surgical procedures which are likely to require the affected blood components<sup>3</sup>
- In the context of bone marrow failure/hematopoietic stem cell transplantation /chemotherapy, eliminate all prophylactic platelet transfusions
- All requests for a platelet transfusion must be reviewed by the PEI BTS Division Head (or designate)

### 2.12 RECOVERY PHASE DEFINITION

During Recovery Phase, the blood component / blood inventory has begun to increase and this increase is expected to continue at a rate which would enable the return from Red to Amber and subsequently to Green Phase. The increase in transfusions and scheduling of elective procedures should be slow and gradual so as to avoid plunging the system back into a shortage during this vulnerable period.

### 2.13 RECOVERY PHASE INVENTORY

RECOVERY PHASE
CBS-Dartmouth/PEI Inventories are improving and are anticipated to return to normal levels during this phase.

### 2.14 RECOVERY PHASE RESPONSIBILITIES

	COMMUNICATION	ACTIVITIES
<b>NEBMC (if convened)</b>	PEI NEBMC members inform Chair of PEBMC of decisions made by NEBMC	NEBMC discusses the initiation of the Recovery Phase at the national level
<b>MERT (if convened)</b>	The Chair of MERT may inform the Chair of NEBMC of initiation of Recovery Phase in the Maritimes.  PEI MERT members inform Chair of PEBMC of recommendations made by MERT	MERT discusses which inventory management activities will be continued throughout the Recovery Phase
<b>CBS-Dartmouth</b>	Notify PEI BTS (QEH Site) by fax of initiation of the Recovery Phase	
<b>PEI Blood Transfusion Service</b>	The BTS Division Head or designate will inform the Chair of PEBMC of initiation of Recovery Phase  PEI BTS may, at its discretion, notify relevant stakeholders of the initiation of the Recovery Phase	

<sup>3</sup> As per The National Plan: "Elective procedures are considered to be all procedures which are not urgent or emergency procedures. Urgent procedures are those for which a patient is likely to have major morbidity if the procedure is not performed within the next one to 28 days. Emergency procedures are those that need to be performed within 24 hours in order to prevent the patient's death (or major morbidity such as paralysis)." Page 33

<b>PEBMC (if convened)</b>	The Chair of the PEBMC notifies Chair of MERT of initiation of Recovery Phase (as appropriate)	
	Members of PEBMC notify their stakeholders of initiation of Recovery Phase	Members of PEBMC will participate in debriefing activities within 4-6 weeks following the event to review and revise The Contingency Plan as needed.
	Chair of PEBMC reports to HPEI CEO or designate, the initiation of the Recovery Phase	
<b>Health PEI</b>	HPEI CEO or designate will ensure information from PEBMC is shared with members of SMG	PEBMC members will communicate to stakeholders expectation of adherence to inventory management activities as required by PEBMC throughout the Recovery Phase
	HPEI CEO or notifies Minister of Health of initiation of the Recovery Phase	Communications PEI will maintain standard communications containing consistent key messages recommended by the NEBMC
<b>All PEI Hospitals that transfuse blood components / products</b>		Adhere to inventory management activities as required by PEBMC
<b>Individual stakeholders (e.g. physicians, nurses, etc.)</b>		Adhere to inventory management activities as required by PEBMC

### 3.0 FUNCTIONAL GROUPS

#### 3.1 THE NATIONAL EMERGENCY BLOOD MANAGEMENT COMMITTEE (NEBMC)

The NEBMC is charged with developing recommendations and providing advice to the P/T Ministries of Health, hospitals/Regional Health Authorities and CBS to support a consistent and coordinated response to critical blood shortages in Canada.

The members of the NEBMC are:

- CBS officials as determined by CBS and including the following
  - Chief Supply Chain Officer
  - Chief Medical & Scientific Officer
  - Director, Supply Chain Operations Planning
  - Regional Director, Supply Chain Operations
  - Director, Medical Utilization
  - Medical Officer(s)
  - Director, Government Relations
  - Director, Communications
- all National Advisory Committee for Blood and Blood Products (NAC) members
- all Provincial/Territorial Blood Representatives
- Québec Ministry representative (Ex-Officio)
- Hema-Québec representative (Ex-Officio)
- Health Canada Biologics and Genetic Therapies Directorate representative (Ex-Officio)
- Two blood transfusion recipient representatives, chosen jointly by CBS and NAC; one should be an actual blood transfusion recipient (present or past) and the other should be a representative of an appropriate patient society that receives blood components.

#### 3.2 THE MARITIME EMERGENCY RESPONSE TEAM (MERT)

The MERT serves as a conduit to convey information/instructions from the NEBMC to the level of the individual Maritime Provinces. It also functions as a regional decision-making body to deal with significant regional shortages. It is composed of representatives of CBS and all three Maritime Provinces, and functions to ensure that inventory management activities undertaken in the Maritime Provinces are coordinated and equitable.

The PEI members of the MERT are:

- Chair of the PEBMC
- PEI NAC representative
- PEI P/T Blood Representative
- Chief Technologist, PEI Blood Transfusion Service



### 3.3 THE PRINCE EDWARD ISLAND PROVINCIAL EMERGENCY BLOOD MANAGEMENT COMMITTEE (PEBMC)

The PEBMC serves as the decision-making body to deal with shortages affecting only PEI. It consists of the important clinical stakeholders, and serves as a forum to ensure that appropriate information is disseminated to the major end-users at the two major hospital sites within the province.

The members of the PEBMC are:

- Chair, Chief Administrative Officer (CAO) Emergency Health Services, Long Term Care & Hospital Services East
- Alternate Chair, Chief, Emergency Health Services, Long Term Care & Hospital Services East
- Co-Chair, Chief, Family and Community Medicine and Hospital Services West
- Alternate Co-Chair, CAO Family and Community Medicine and Hospital Services West
- P/T Blood Representative
- PEI NAC representative
- Medical Director, QEH
- Medical Director, PCH
- Chief Technologist, PEI Blood Transfusion Services (QEH)
- Supervisor, PEI Blood Transfusion Services (PCH)
- Team Leader PEI Triage Team
- Representation from the Communications Department of Health PEI
- Representation from Risk Management

Other individuals who may be asked to attend the meeting by the Chair include:

- CBS Regional Medical Director(s)
- CBS Regional Director(s) of Product and Hospital Services
- CBS Regional Hospital Liaison Specialist(s)

The members of the PEBMC have two important responsibilities:

1. Ensuring that their stakeholders are aware of and in compliance with the recommended inventory management activities.
 

For example, the CAO Emergency Health Services, Long Term Care & Hospital Services East would be responsible for disseminating the information to the physicians and nurses of the QEH and community hospitals in the eastern part of the province, aided by the Department Heads at QEH (who would be educating the members of their specific departments).
2. Ensuring that required data around the impact of the shortage is collected.
 

For example, data collected during an amber/red shortage includes 1) the number/nature of surgeries cancelled owing to this shortage, and the impact that this cancellation had on the patients and 2) the number/nature of blood products that were requested but not available for patients, and the impact that this had on the patients (refer to Appendices B and D). The Department Heads of the relevant departments would be responsible for designating a staff member to collect this data.

There will be no requirement for quorum; the decisions will be made by consensus. Consensus is defined as 80% (or greater) agreement of the members present.

### 3.4 PROVINCIAL TRIAGE TEAM

In the event of a Red Phase shortage, the Provincial Triage Team is responsible to provide case-by-case decision making around blood rationing. The Triage Team is guided by the [Emergency Framework for Rationing of Blood for Massively Bleeding Patients During a Red Phase of a Blood Shortage \(Appendix E\)](#) and a truncated Synopsis for Triage Teams. Careful record-keeping of decisions made during a Red Phase shortage will be of paramount importance. It is recommended that preparations be undertaken to make the recording of such decisions, in the event of a crisis, as easy and efficient as possible. Examples of triage forms can be found in Appendix G of The National Plan. These forms may be adapted by hospitals for use during a Red phase blood shortage.

The members of the Triage Team, appointed by Health PEI, are:

- Triage Team Leader<sup>4</sup>
- Chiefs of staff from the following departments at Prince County Hospital and Queen Elizabeth Hospital to provide updates on demand, impact and assist in decision making
  - emergency room (team leader and alternate)
  - general surgery
  - internal medicine, and
  - obstetrics
- Representative from Risk Management
- Medical Director of Laboratory Medicine<sup>5</sup>
- One representative from each Support Team to serve as a liaison between the support teams and the triage teams

The Triage Team would be aided by Hospital Services East and West Support Teams. The members of these teams would be responsible for supporting the patients who do not receive blood and their families.

- Management Representative<sup>6</sup>
- A nursing supervisor to provide direction on alternate care
- Palliative care nurse or physician
- Social worker
- Chaplain
- Representative from Community Hospitals

<sup>4</sup> The triage team leader should be an experienced physician with familiarity in triaging critically ill patients, with a broad based knowledge of resources and capabilities of healthcare organizations. The triage team leader will have final responsibility and authority over clinical decisions.

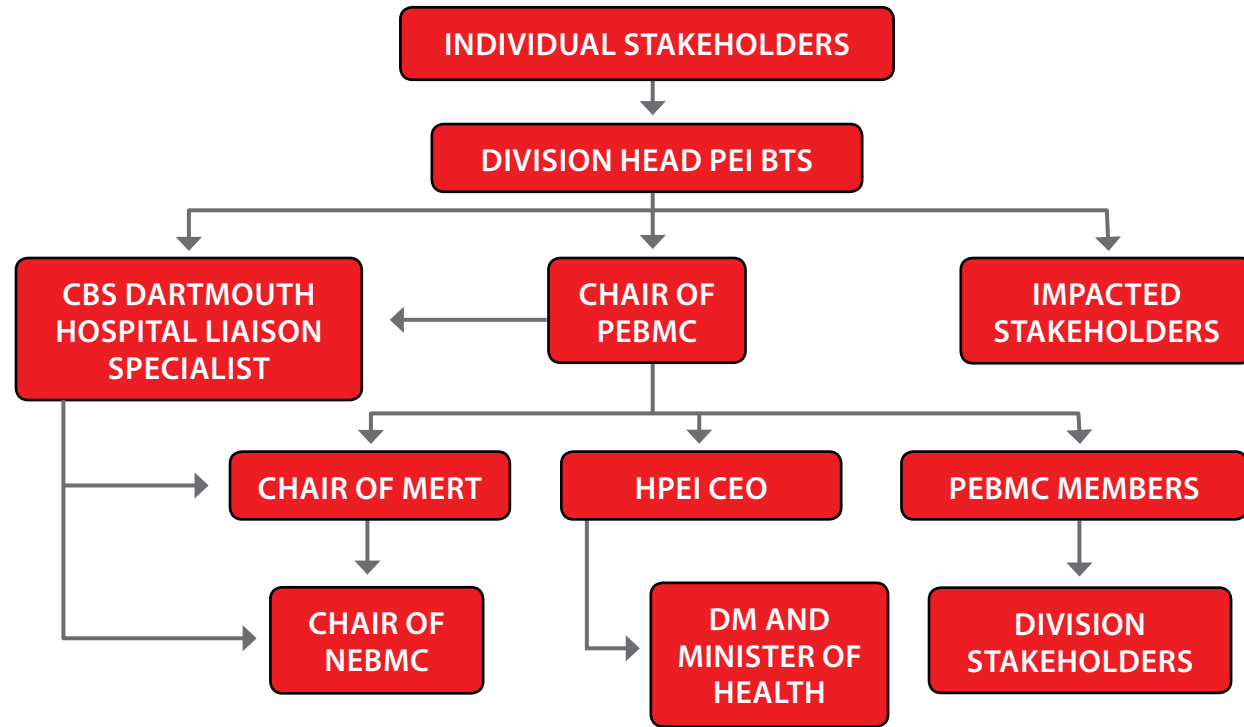
<sup>5</sup> The Medical Director of Laboratory Services will be a resource to the Triage Team to provide guidance on alternatives to blood products, but would not be involved in triaging patients.

<sup>6</sup> A management representative is required to provide guidance on the capability of the organization regarding resources, personnel, external support, and internal and external communications.

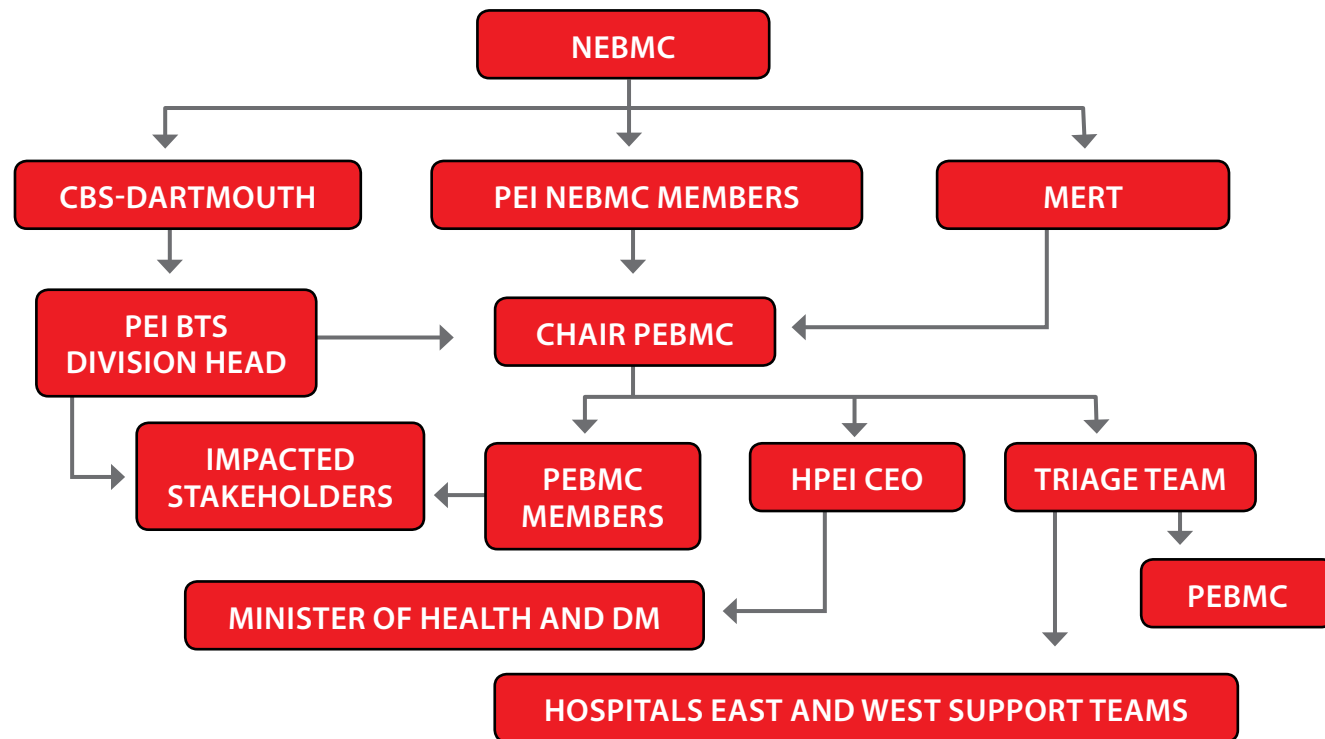




**Internal Threat to PEI/Regional Blood Supply- Red Phase**



**Threat to National Blood Supply- Red Phase**



**APPENDIX E –  
EMERGENCY FRAMEWORK FOR  
RATIONING OF BLOOD FOR MASSIVELY  
BLEEDING PATIENTS DURING A RED  
PHASE OF A BLOOD SHORTAGE-  
SYNOPSIS FOR TRIAGE TEAM**

**Emergency framework for rationing of blood for  
massively bleeding patients during a red phase of a  
blood shortage Synopsis for Triage Team**

**Purpose and Scope**

The National Advisory Committee on Blood and Blood Products (NAC—an advisory committee, composed of hospital-based transfusion medicine experts chosen by their respective Provincial Ministries of Health and Canadian Blood Services representatives that report to a joint Canadian Blood Services/Provincial and Territorial Ministries of Health committee) developed the National Plan for the Management of Shortages of Labile Blood Components (The National Shortages Plan). The National Shortages Plan required further expansion for dealing with patients who require massive blood transfusion during a red phase blood shortage. This document has been developed as an adjunct to the National Shortages Plan (available at [www.nacblood.ca](http://www.nacblood.ca)) to address these massively hemorrhaging patients as they can consume up to 25% of the national blood supply and urgent decisions are needed to ration blood to these patients during a red phase blood shortage.

The document for the rationing of blood for massive hemorrhage (defined as expected blood loss of one blood volume over less than a 24 hour period; 0.5 blood volume in 3 hours; or four or more units of red blood cells in one hour) is a guide for the management of patients in need of massive transfusion (trauma patients, patients undergoing liver/lung/heart transplantation, patients requiring ventricular assist devices or extracorporeal membrane oxygenation, patients with ruptured aortic aneurysms or gastrointestinal bleeding and obstetrical patients) during a red phase blood shortage. A red phase blood shortage is defined as the availability of less than 48 hours of red blood cell units in Canada where it is not foreseeable that

a shortage will be averted by increasing the collection of blood or by reducing elective surgical procedures. In other words, the blood inventory levels are insufficient to ensure that patients with non-elective indications for transfusion will receive the required transfusion.

This document has been developed to ensure that blood transfusions are provided to Canadians during a red phase blood shortage in an ethical, fair, and transparent way to ensure that the greatest numbers of lives are saved and to minimize the suffering and maximize the use of alternatives for those who may not survive due to insufficient availability of blood.

**Target Audience**

This emergency framework is intended to be used by key blood system participants who are defined to be Canadian Blood Services, hospitals and regional health authorities, the Provincial and Territorial Ministries of Health and the National Emergency Blood Management Committee (NEBMC) as per the National Shortages Plan.

**Summary of the Development Process**

In 2009, a working group of experts was convened to develop an emergency framework. The working group members were from large tertiary care centres in Canada and had expertise in transfusion medicine, trauma, anesthesiology, gastroenterology heart/lung/liver transplantation, obstetrics, cardiovascular surgery, allied health, medical ethics, law and methodology. The working group also included members of the National Advisory Committee on Blood and Blood Products. The working group did not include patient representatives, although widespread lay consultation was sought during the development process. A systematic search was conducted of the literature to identify predictors of massive blood loss and mortality to guide the working group members in determining which patients would be the most likely to benefit from blood transfusion.

An extensive literature search was also conducted for ethical frameworks and allocation protocols dealing with the allocation of scarce resources as the allocation of any scarce



resource is one of the most challenging ethical issues faced in health care. This emergency framework was developed to ensure a fair, transparent and just distribution of blood when the demand for transfusion will exceed the available resources. This framework may transcend the needs of a single patient, health care professional or institution but represents a focus on the 'greater good'.

The working group through an iterative process developed recommendations that were assigned a level of evidence and grade of recommendation according to the Canadian Task Force ([www.canadiantaskforce.ca](http://www.canadiantaskforce.ca)). In addition to the recommendations, the working group also adapted a previously published Canadian critical care triage protocol developed for pandemic influenza planning. Recommendations for the patients who are massively hemorrhaging do not address comorbidities that may impact on the survival of patients. National experts including professional societies, the blood provider and lay groups reviewed the final recommendations to provide input on the recommendations. Their agreement to all recommendations and the overall document review was elicited and all comments were subsequently addressed in the final document.

### **The Triage Team**

It is recommended that triage teams be established in advance of a shortage. The role of the triage team is to provide a structure that formally oversees the triage process be it provincial /regional or at the hospital level during a crisis. The triage team should receive comprehensive information on the triage framework in advance of a blood shortage being declared. The triage team must be a multidisciplinary team with adequate background knowledge in terms of patient triage and managing patients under a 'crisis standard of care'.

### **Membership**

The triage team should be comprised of any of the following and be appointed by the regional/hospital transfusion committee or regional/hospital emergency blood management committee (the number of team members

should be proportional to the transfusion volume of the institution or region):

1. Triage Team Leader. The triage team leader should be an experienced physician with familiarity in triaging critically ill patients, broad based knowledge of resources and capabilities of healthcare organizations. Will have final responsibility and authority over clinical decisions
2. A Management Representative. A management representative is required to provide guidance on the capability of the organization regarding resources, personnel, external support, and internal and external communications.
3. An ethicist.
4. A nursing supervisor to provide direction on alternate care
5. Representative from the emergency room, trauma, transplantation, cardiovascular surgery, gastroenterology, and obstetrics to provide updates on demand, impact and assist in decision making.
6. Palliative care nurse or physician for patients not triaged to receive blood.
7. Social worker
8. Chaplain
9. Medical laboratory technologist

In addition, the triage team leader should have another triage physician available to them for assistance with decision making for difficult cases. The regional/hospital transfusion committee or Regional/Hospital Emergency Blood Management Committee should appoint members of the triage teams with the number of individuals proportional to the transfusion volume of the institution or region. It will be the responsibility of the triage teams to report back to the transfusion committee or emergency blood management committee all triage decisions made.

The triage teams must be educated on the background information and how to apply the triage tool in advance of a blood shortage. The responsibility for education

of physicians and triage teams rests with the Regional Emergency Blood Management Committee in collaboration with the Hospital/Regional/District Health Authority. Specific training at dedicated intervals is difficult to achieve as there is varying frequency with which simulation exercises occur, the level of involvement of various medical services during a simulation and a large turnover of physicians throughout the system. However, through simulation exercises, continuous education, and dissemination of the National Blood Shortages Plan and this emergency framework, physicians would be more inclined to align with the National Blood Shortages Plan to ensure all patients receive quality levels of care during a shortage. Post simulation reporting may provide the best training opportunities in that lessons learned can be addressed at the Medical Advisory Committee level. Training and development modules should occur in collaboration with Canadian Blood Services as they will be instrumental in invoking the National Blood Shortages Plan. A core part of this pre-shortage education should clearly focus the triage team on their role in ensuring the best care for the community of patients that they serve, rather than the needs of individual patients.

### **Responsibilities**

The responsibilities of the triage team are to ensure

- documentation of the state of emergency (i.e., that an emergency has been activated, that all existing resources are exhausted, the rationale for withholding transfusion, and that all supportive care and blood conservation strategies will be instituted);
- documentation of inclusion/exclusion criteria;
- adherence to decisions and alternate levels of care;
- efficient and regular re-evaluation of patients;
- reevaluation of triaged patients daily and every 10th red blood cell transfusion;
- physicians receive the required assistance; and,
- the public receive information about the status of the emergency and where to obtain further information.

### **Implications**

The triage team should not be directly involved in the care of the patient. The triage team assigned to allocate blood components needs to be clearly cognizant that their duty is to the population, not just to the individual patient. The triage teams should be blinded to identifying patient information when presented with clinical information in determining if a patient is eligible to receive transfusion as per the triage criteria. It is suggested that the triage team convene in an area not within the immediate vicinity of the patient bedside. Typically given the acute and emergent nature of the presenting cases, it is anticipated that there will be no ability to manage an appeals process in the middle of the mass casualty situation or other disaster. In addition, decisions during a massive hemorrhage must be made within minutes and therefore a formal appeals process is not clinically feasible as such the triage decisions must be final with no appeal process. The triage teams should be offered adequate administrative and psychological support.

There must be sufficient coverage of the triage team to allow for 24 hour coverage. The triage team decisions need to be reported daily to the Regional/Hospital Emergency Blood Management Committee to ensure 'over triage' and 'under triage' errors are minimized. Consideration needs to be given by the hospital of having a joint intensive care and transfusion triage teams, where possible, to maximize the use of resources. The triage decisions need to be transparently communicated to the patient, the patient's family, the clinical team caring for the patient and recorded clearly in the patient's chart. Patients should be re-assessed at a minimum of daily, every 10th unit of red blood cells, or sooner if their clinical status improves or deteriorates substantially prior to 24 hours.

In the setting of a scarcity of multiple hospital resources, the blood triage tool should be utilized sequentially with the other rationing tools. It is possible that a blood shortage may occur as an isolated event or in the setting of multiple resource scarcity (e.g., ventilators or critical care beds). In the setting of an isolated blood shortage, all other available therapies, including blood conservation strategies, should be offered to all patients. In addition, ensuring pain and symptom management should be a core part of the triage team's oversight responsibility so that patients and their families do not feel abandoned.

**Documentation**

Clear and complete documentation will be essential for a complete patient record and for evaluation after the red phase. In the patient chart, the triage team shall document the following: phase of blood shortage, triage decision, reason for exclusion if applicable, date/time of next planned re-evaluation, a copy of the triage documentation tool, and the number to page if the clinical status of the patient substantially improves or deteriorates before the next planned re-assessment. Extensive clinical notes will not be possible, or appropriate, as the triage team will be required to triage multiple patients. Documentation can be delegated to any member of the triage team and need not be done by the triage physician. Documentation on the triage documents should include a triage tracking log of all cases and a triage sheet for each patient. Efforts should be made to be as complete as possible to allow for the best possible review of triage decisions after the resolution of the red phase. At the end of each shift, a copy of the documents should be given to the chair of the Regional/Hospital Emergency Blood Management Committee, or their designate, and the original documents given to the next triage team with appropriate verbal handover. At the completion of the red phase, copies of all triage tools should be forwarded to the Provincial Emergency Blood Management Committee for review and analysis.

**The Framework**

**Patient Population:** This framework applies only to patients experiencing massive hemorrhage (defined as expected blood loss of one blood volume over less than 24 hours; 0.5 blood volume in three hours; or four or more units of red blood cells in 1 hour) during a red phase blood shortage.

In general all patients should receive access to all available blood conservation strategies including but not limited to: erythropoiesis-stimulating agents, intravenous iron, oral iron, antifibrinolytics, intraoperative cell salvage, interventional radiologic procedures, rapid access to endoscopy, and non-invasive surgeries.

**Specific Exclusion Criteria for Massively Bleeding****Patients:****Trauma**

- During a red phase, do not administer transfusions to children or adults with non survivable brain injury.**  
Level of evidence: III  
Grade of recommendation: A  
Clinical Consideration: CT scanning should be done as soon as possible to confirm the diagnosis of a non survivable brain injury.
- During a red phase, do not administer transfusion to children or adults with a Glasgow Coma Scale =3 who have hypotension not attributable to reversible factors and who have fixed and dilated pupils.**  
Level of evidence: III  
Grade of recommendation: A
- During a red phase, do not transfuse patients after the declaration of brain death for the purpose of deceased organ donation.**  
Level of evidence: III  
Grade of recommendation: A
- During a red phase, do not administer transfusions to adults or children with penetrating cranial trauma and a Glasgow coma scale =3 that is not attributable to reversible factors.**  
Level of evidence: III  
Grade of recommendation: B
- During a red phase, do not administer transfusions to adults or children with penetrating cranial trauma, a Glasgow coma scale <8 that is not attributable to reversible factors, hypotension and severe thoracoabdominal trauma.**  
Level of evidence: III  
Grade of recommendation: B
- During a red phase, do not administer transfusions to adults or children with blunt trauma, and a Glasgow Coma Scale =3 that is not attributable to reversible factors.**  
Level of evidence: III  
Grade of recommendation: B

- During a red phase, do not administer transfusions to adults or children with blunt trauma who have lost vital signs pre-hospitalization.**

Level of evidence: III

Grade of recommendation: A

- During a red phase, do not administer transfusions to patients with transcranial gunshot injuries.**

Level of evidence: III

Grade of recommendation: A

- During a red phase, do not administer transfusions to patients >65 years with severe brain injury and profound shock and severe thoracic or abdominal trauma.**

Level of evidence: III

Grade of recommendation: B

- During a red phase, do not administer transfusions to patients >75 years with moderate brain injury, a Glasgow Coma scale of <12, who are in profound shock and who have thoracoabdominal injury.**

Level of evidence: III

Grade of recommendation: B

**Ruptured Abdominal Aortic Aneurysm**

- During a critical blood shortage, do not transfuse patients who have a cardiac arrest preoperatively.**  
Level of evidence: III  
Grade of recommendation: B
- During a critical blood shortage, do not transfuse patients with a systolic blood pressure less than 70mmHg who are unresponsive to fluid resuscitation and have lost consciousness.**  
Level of evidence: III  
Grade of recommendation: B
- During a critical blood shortage, do not transfuse patients with RAAA that do not meet criteria for emergent vascular repair.**  
Level of evidence: III  
Grade of recommendation: I

**ECMO/VAD**

- During a red phase, do not transfuse patients who require ECMO/VAD and who have multi-organ (> 1 organ) failure.**  
Level of evidence: III  
Grade of recommendation: B
- During a red phase, inform patients/families that patients receiving ECMO/VAD support who have multi-organ failure may not receive transfusion support if massively bleeding.**  
Level of evidence: III  
Grade of recommendation: B

**Heart, Lung, Liver Transplantation**

- Deceased Donor Organ Recovery - During a red phase, deceased donor organ recovery for transplantation should proceed, with the understanding that the deceased donor will not be transfused in the process of deceased donor stabilization.**  
Level of evidence: III  
Grade of recommendation: B
- Deceased Donor Transplantation - During a red phase, deceased donor solid organ transplants may proceed with informed consent regarding increased risk from restriction of blood transfusion, and with the understanding (among patient and all involved physicians) that blood may not be available for transfusion.**  
Level of evidence: III  
Grade of recommendation: B
- Living Donor Transplantation – During a red phase, living donor transplantation should be deferred.**  
Level of evidence: III  
Grade of recommendation: B

**Gastroenterology** (refer to Section 8 of the expanded emergency framework for further information)

- During a red phase do not administer transfusions to patients with gastrointestinal bleeding and a Rockall score > 8.**  
Level of evidence: III  
Grade of recommendation: B

2. **During a red phase do not administer transfusion to patients with liver cirrhosis and gastrointestinal (i.e. variceal) bleeding who have a Child Pugh score more than 10 (MELD score of more than 18) and who are not on the list for transplantation.**

Level of evidence: III

Grade of recommendation: B

3. **During a red phase, triage patients with gastrointestinal bleeding to centers with endoscopy to minimize the use of blood products.**

Level of evidence: III

Grade of recommendation: B

**Obstetrics**

1. **In a red phase, red cell transfusion should not be withheld from the bleeding obstetrical patient.**

Level of evidence: II-2-III

Grade of recommendation: B

**Other massively bleeding situations not listed above**

1. **In a red phase, for patients massively bleeding for reasons not listed above, do not transfuse patients for whom the triage team believes the mortality rate exceeds 80%**

**Reassessment for Triaged Patients**

1. Patients triaged to no blood components:  
Patients triaged to no transfusion care will be re-assessed at a minimum of every 24 hours. The triage team will review requests from the most responsible physician if an improvement in a patient’s status would now qualify them to be triaged to active transfusion management. In addition, the triage team will assure that the patient and their family are given adequate access to psychological support and that adequate symptom management is given to minimize pain and distress.

2. Patients triaged to blood components:  
For patients triaged to active transfusion care, they will be re-assessed at a minimum of every 10 units of red blood cells (including pediatrics) or every 24 hours for patients receiving less than 10 units of blood or until cessation of hemorrhage(or more frequently – e.g. every 5 units - if deemed necessary by the NEBMC). At each assessment, the triage team will utilize the following variables to guide their decisions regarding the value of continued transfusions: SOFA score, total blood products used, need for ongoing transfusion support and ability to control bleeding with either surgery or other procedure (e.g. interventional radiology, endoscopy). Patients with a SOFA score >11, continued need for large amounts of blood components, and with no foreseeable ability to control blood loss will be triaged to palliative care.

**Documentation for Transfusion Decisions**

Transfusion decisions should be documented on a patient tracking tool. An example of a patient tracking tool is available in the appendix of this document.

**Competing Patients Triaged to Active Transfusion Care**

In the event of two or more patients requiring blood components at the same hospital for whom both qualify for active transfusion management by the triage team, the following principles (in order) are suggested to prioritize transfusion resources:

1. Administer blood to the youngest patients first i.e. pediatric patients first
2. Administer blood to patients who have the highest likelihood of hemostasis control
3. Administer blood according to the first-come, first-served principle.

In the event that two or more patients are competing for blood components at different hospitals and the blood still resides at the local blood centre, the same aforementioned principles will be applied jointly by the blood centre physician and the triage team leader from the hospitals involved.

**APPENDIX F – PROVINCIAL EMERGENCY BLOOD MANAGEMENT COMMITTEE TERMS OF REFERENCE**

<p><b>1. BACKGROUND</b></p>
<p>Labile blood components, i.e. those blood components collected, produced and distributed by Canadian Blood Services are a vital resource supporting health care in Canada. The supply of these resources could be compromised by a number of external threats such as labour disruptions, endemic disease outbreaks, extreme weather disturbances or disruptions in transportation systems. In times of severe shortages, the allocation of blood components could present a significant challenge to the provision of health care. To prepare for such a challenge, the National Advisory Committee on Blood and Blood Products (NAC), in collaboration with Canadian Blood Services, produced a document, the National Plan for the Management of Shortages of Labile Blood Components (hereafter called the Plan).</p> <p>The Plan provides a framework which will enable Provincial/Territorial (P/T) Ministries of Health and hospitals/Regional Health Authorities to develop their own blood shortage management plans in a manner that is congruent with the national Plan, and states that it is the responsibility of the Ministries of Health of each province or territory to establish a Provincial (or Territorial) Emergency Blood Management Committee (PEBMC) to facilitate communication between the National Emergency Blood Management Committee (NEBMC) and the provincial health care team and to ensure the actions recommended in the National and Provincial Plans are carried out.</p>
<p><b>2. PURPOSE OF COMMITTEE</b></p>
<p>The PEBMC serves as the decision-making body to deal with shortages affecting only PEI. It consists of the impacted clinical stakeholders, and serves as a forum to ensure that appropriate information is disseminated to the major end-users at the two major hospital sites within the province.</p>
<p><b>3. COMMITTEE RESPONSIBILITIES</b></p>
<p>The members of the PEBMC have two important responsibilities:</p> <ol style="list-style-type: none"> <li>1. Ensuring that their stakeholders are aware of and in compliance with the recommended inventory management activities.</li> <li>2. Ensuring that required data around the impact of the shortage is collected.</li> </ol> <p>In addition:</p> <ul style="list-style-type: none"> <li>• develop a response plan to minimize the provincial/territorial impact of blood shortages;</li> <li>• work in accordance with the guidelines outlined in the National and Provincial Plans;</li> <li>• ensure that the recommendations of the NEBMC and resulting national decisions are appropriately communicated within its jurisdiction;</li> <li>• solicit feedback on implementation of the Plan from the Hospital/Regional Emergency Blood Management Committees (H/REBMC);</li> <li>• provide the conduit for communications/feedback between the NEBCM and H/REBMCs;</li> <li>• establish a process to monitor adherence to the Plan in times of blood shortages;</li> <li>• establish recommendations to manage non-adherence to the Plan in times of blood shortages.</li> </ul>



#### 4. MEMBER ROLES

<p>Chairperson</p> <ul style="list-style-type: none"> <li>Convenes PEMBC as appropriate (on the recommendation of the Division Head of PEI Blood Transfusion Services)</li> <li>Notify Chair of Maritime Emergency Response Team (MERT) of initiation of Amber, Red, or Recovery Phase (if not already aware)</li> <li>Report to Health PEI: affected blood component/blood product, anticipated period of recovery, and inventory management activities which must be implemented in PEI.</li> </ul>
<p>Committee Members</p> <ul style="list-style-type: none"> <li>Notify impacted stakeholders of affected blood component/blood product, anticipated period of recovery, and inventory management activities which must be implemented in PEI.</li> </ul>

#### 5. DECISION MAKING PROCESS

There will be no requirement for quorum; the decisions will be made by consensus. Consensus is defined as 80% (or greater) agreement of the members present.

#### 6. MEETING LOGISTICS

It is anticipated that the Provincial Emergency Blood Management Committee will meet annually and as recommended by the Division Head of the PEI Blood Transfusion Services. Due to the emergent nature of this committee, meetings will usually be called on short notice, and will be conducted via teleconference. If a committee member is unable to attend, they are expected to identify an appropriate alternate. Minutes will be recorded for each meeting and circulated by the chair as soon as possible after each meeting.

#### 7. MEMBERSHIP

Co-Chairs	Chief Administrative Officer Emergency Health Services, Long Term Care & Hospital Services East Chief, Family and Community Medicine & Hospital Services West	
Members	<ul style="list-style-type: none"> <li>Provincial/Territorial Blood Representative</li> <li>PEI National Advisory Committee on Blood and Blood Products representative</li> <li>Chief, Emergency Health Services, Long Term Care &amp; Hospital Services East</li> <li>Chief Administrative Officer, Family and Community Medicine &amp; Hospital Services West</li> <li>Medical Director, QEH</li> </ul>	<ul style="list-style-type: none"> <li>Medical Director, PCH</li> <li>Chief Technologist, PEI Blood Transfusion Services (QEH)</li> <li>Supervisor, PEI Blood Transfusion Services (PCH)</li> <li>Team Leader, PEI Triage Team</li> <li>Representation from the Communications Department of Health PEI</li> <li>Representation from Risk Management</li> </ul>
Others:	Other individuals who may be asked to attend the meeting by the Chair include: <ul style="list-style-type: none"> <li>CBS Regional Medical Director(s)</li> <li>CBS Regional Hospital Liaison Specialist(s)</li> <li>CBS Regional Director(s) of Product and Hospital Services</li> </ul>	

## APPENDIX G – PROVINCIAL TRIAGE TEAM TERMS OF REFERENCE

### 1. BACKGROUND

Labile blood components, i.e. those blood components collected, produced and distributed by Canadian Blood Services, are a vital resource supporting health care in Canada. The supply of these resources could be compromised by a number of external threats such as labour disruptions, endemic disease outbreaks, extreme weather disturbances or disruptions in transportation systems. In times of severe shortages, the allocation of blood components could present a significant challenge to the provision of health care. To prepare for such a challenge, the National Advisory Committee on Blood and Blood Products (NAC), in collaboration with Canadian Blood Services, produced a document, the National Plan for the Management of Shortages of Labile Blood Components (hereafter called the Plan).

The Plan describes four phases of inventory management that could occur in Canada and the inventory management activities which may be required during each phase. The phases are: Green, Amber, Red, and Recovery Phases. A red phase blood shortage is defined as the availability of less than 48 hours of red blood cell units in Canada where it is not foreseeable that a shortage will be averted by increasing the collection of blood or by reducing elective surgical procedures. In other words, the blood inventory levels are insufficient to ensure that patients with non-elective indications for transfusion will receive the required transfusion.

### 2. PURPOSE

In the event of a Red Phase shortage, the Provincial Triage Team is responsible to provide case-by-case decision making around blood rationing. The Triage Team is activated by the Chair of the Provincial Emergency Blood Management Committee and guided by the **Emergency Framework for Rationing of Blood for Massively Bleeding Patients During a Red Phase of a Blood Shortage** (Appendix E) and a truncated Synopsis for Triage Teams. Careful record-keeping of decisions made during a Red Phase shortage will be of paramount importance. The Provincial Triage Team will be aided by Hospital Services East and Hospital Services West Support Teams.

### 3. COMMITTEE RESPONSIBILITIES

During a Red Phase:

- document the state of emergency (i.e., that an emergency has been activated, that all existing resources are exhausted, the rationale for withholding transfusion, and that all supportive care and blood conservation strategies will be instituted);
- document inclusion/exclusion criteria;
- ensure adherence to decisions and alternate levels of care;
- provide efficient and regular re-evaluation of patients;
- reevaluate triaged patients daily and every 10th red blood cell transfusion;
- ensure physicians receive the required assistance; and,
- ensure the public receive information about the status of the emergency and where to obtain further information.

In addition, Triage Team members: \*should not be directly involved in the care of the patient.

- should be clearly cognizant that their duty is to the population, not just to the individual patient.
- will report to the Provincial Emergency Blood Management Committee (PEBMC) all triage decisions made.



**4. MEMBER ROLES**

It is recommended that a triage team be established in advance of a shortage. The role of the triage team is to provide a structure that formally oversees the triage process be it provincial /regional or at the hospital level during a crisis. The triage team should receive comprehensive information on the triage framework in advance of a blood shortage being declared. The triage team must be a multidisciplinary team with adequate background knowledge in terms of patient triage and managing patients under a 'crisis standard of care'.

The triage teams must be educated on the background information and how to apply the triage tool in advance of a blood shortage. This can be accomplished through simulation exercises, continuous education, and dissemination of the National Blood Shortages Plan and the Emergency Framework.

**5. DECISION MAKING PROCESS**

The triage team should be blinded to identifying patient information when presented with clinical information in determining if a patient is eligible to receive transfusion as per the triage criteria. It is suggested that the triage team convene in an area not within the immediate vicinity of the patient bedside. Typically, given the acute and emergent nature of the presenting cases, it is anticipated that there will be no ability to manage an appeals process in the middle of the mass casualty situation or other disaster. In addition, decisions during a massive hemorrhage must be made within minutes and therefore a formal appeals process is not clinically feasible as such the triage decisions must be final with no appeal process. The triage team should be offered adequate administrative and psychological support during and after the triage phase. This should include an operational and Critical Incident stress debrief, Employee Assistance Program, and spiritual support. Critical Incident Staff Support can be accessed by contacting the Chair of the PEI Critical Incident Stress Management Network.

The Provincial Triage Team will communicate the triage decisions to the Co-Chairs of the Provincial Emergency Blood Management Committee, who will ensure that the Hospital Support Teams are aware of the decisions and the rationale for the decisions. The triage decisions need to be transparently communicated to the patient, the patient's family, the clinical team caring for the patient and recorded clearly in the patient's chart by the relevant Hospital Support Team member.

**6. MEETING LOGISTICS**

Quorum is defined as 50% of members plus one; the decisions will be made by consensus. Consensus is defined as 80% (or greater) agreement of the members present.

The Triage Team must be convened as soon as a red phase is declared. The team will remain on standby ready to deal with any patients that arrive for the duration of the Red Phase. During a Red Phase shortage, the Triage Team will meet daily and more often if required. Patients should be re-assessed at a minimum of daily, every 10th unit of red blood cells, or sooner if their clinical status improves or deteriorates substantially prior to 24 hours. There must be sufficient coverage of the triage team to allow for 24 hour coverage. The triage team decisions need to be reported daily to the Provincial Emergency Blood Management Committee to ensure 'over triage' and 'under triage' errors are minimized.

Meetings should be held annually to review the National Blood Shortages Plan and the Emergency Framework, as well as any other documents pertinent to the teams. The Triage Team should also be involved in any simulation exercises planned by the PEBMC.

**7. MEMBERSHIP**

*COMPOSITION OF PROVINCIAL TRIAGE TEAM*

Triage Team Leader	<ul style="list-style-type: none"> <li>Chief of Emergency at QEH and PCH (one would be the team leader, the other would be the alternate)</li> <li>The triage team leader should have another triage physician available to them for assistance with decision making for difficult cases.</li> <li>The triage team leader should be an experienced physician with familiarity in triaging critically ill patients, broad based knowledge of resources and capabilities of healthcare organizations.</li> <li>Will have final responsibility and authority over clinical decisions</li> </ul>
Members	<ul style="list-style-type: none"> <li>Chiefs of staff from the following departments at Prince County Hospital and Queen Elizabeth Hospital to provide updates on demand, impact and assist in decision making                         <ul style="list-style-type: none"> <li>emergency room (team leader and alternate)</li> <li>general surgery</li> <li>internal medicine, and</li> <li>obstetrics</li> </ul> </li> <li>Representative from Risk Management</li> <li>Medical Director of Laboratory Medicine would be a resource to the Triage Team to provide guidance on alternatives to blood products, but would not be involved in triaging patients</li> <li>One representative from each Support Team to serve as a liaison between the support teams and the triage teams</li> </ul>

*COMPOSITION OF HOSPITAL SERVICES EAST AND HOSPITAL SERVICES WEST SUPPORT TEAMS*

	<ul style="list-style-type: none"> <li>A Management Representative is required to provide guidance on the capability of the organization regarding resources, personnel, external support, and internal and external communications.</li> <li>A nursing supervisor, or if there is no nursing supervisor on duty, the Director of Nursing will provide direction on alternate care</li> <li>Palliative care nurse or physician to support patients who do not receive blood, and their families.</li> <li>Social worker</li> <li>Chaplain</li> <li>Representative from Community Hospitals</li> </ul>
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# Health PEI

One Island Health System

For Additional Information Please Contact:

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