Saskatchewan Health Authority

Saskatchewan Blood Contingency Plan

Release Date: March 2020

Ministry of Health

Saskatchewan Health Authority –

Provincial Transfusion Medicine Discipline Committee

INTERIM

Intent

The *Saskatchewan Blood Contingency Plan* (hereinafter known as the *SK Provincial Plan)* is modelled after the *National Plan for the Management of Shortages of Labile Blood Components* (hereinafter known as the *National Plan*), initially developed by the National Advisory Council for Blood and Blood Products - Blood Shortage Working Group (NAC-BSWG) of the Provincial/Territorial Ministries of Health and Canadian Blood Services (CBS). The specific purpose of the *National Plan* is to maximize the effectiveness of a national, provincial or regional response to any crisis which impacts the adequacy of the blood supply in Canada and has been endorsed by the provinces/territories and CBS. The intent of this document is to provide the Saskatchewan Ministry of Health (MOH), the Saskatchewan Health Authority (SHA), and Integrated Service Areas (ISA)/healthcare facilities within SHA with a framework contingency plan for the management of blood components and/or blood products in the event of a localized or widespread blood shortage in Saskatchewan.

Policy Direction

The first publication of the *National Plan* was released in December 2009. Endorsed by the provincial/territorial deputy ministers, health officials were subsequently directed to align provincial blood shortage response plans with the *National Plan*. The *National Plan* outlines roles and responsibilities to be undertaken by CBS, Provincial and Territorial Ministries of Health, Provincial/Territorial Blood Representatives and the SHA healthcare facilities in a blood shortage situation. The NAC-BSWG is responsible for ongoing review and revisions of The *National Plan*.

In 2010, Saskatchewan's Transfusion Medicine Working Group (TMWG) developed the first version of this plan to assist regional health authorities and healthcare facilities with the development of their own blood shortage management plans in a manner that is consistent with the National Plan. With the amalgamation of 12 regional health authorities (note that the Athabasca Health Authority retains its unique structure) and formation of the Saskatchewan Health Authority on December 4, 2017, organizational changes led to the creation of the Saskatchewan Transfusion Medicine Discipline Committee (TMDC) under the leadership the Department of Pathology within the Saskatchewan Health Authority.

With input from Ministry of Health (MoH) representatives, members of the TMDC have led this revision of the *SK Provincial Plan*, which shall serve as an interimdocument to ensure the coordinated efforts extending from the provincial level through to local facilities during the COVID-19 pandemic. When circumstances permit, it will be subjected to more thorough, wide-ranging stakeholder review and revision for future use based on lessons learned.

Related Guidelines

The current version of the *National Plan for the Management of Shortages of Labile Blood Components* and the *Red Phase Emergency Framework* can be found on the NAC website at www.nacblood.ca. Other relevant material may be found at the CBS website https://professionaleducation.blood.ca/en/transfusion/clinical-guide-transfusion.

General Information

Web address for this document: http://saskblood.ca/resources/blood-shortage-plan/

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Acknowledgements

The Ministry of Health and Saskatchewan Health Authority acknowledge the contributions of the SaskBlood Office and Transfusion Medicine Discipline Committee in the development, maintenance and dissemination of this document.

Abbreviations

CBS	Canadian Blood Services
CSA	Canadian Standards Association
ISA	Integrated Service Area(s)
EBMC	Emergency Blood Management Committee
EBMP	Emergency Blood Management Plan
EOC	Emergency Operations Centre
MOH	Ministry of Health
NAC	National Advisory Committee on Blood and Blood Components
NAC-BSWG	National Advisory Committee Blood Shortages Working Group
NEBMC	National Emergency Blood Management Committee
PEBMC	Provincial Emergency Blood Management Committee
P/T	Provincial/Territorial
P/T-BR	Provincial/Territorial Blood Representative
RBC	Red Blood Cell(s)
RHA	Regional Health Authority
SCA	Saskatchewan Cancer Agency
SHA	Saskatchewan Health Authority
TMC	Transfusion Medicine Consultants
TSL	Transfusion Service/Laboratory
TMDC	Transfusion Medicine Discipline Committee
TMWG	Transfusion Medicine Working Group

Definitions

Adverse Event – an undesirable and unintended occurrence before, during, or after the administration of blood components or blood products, whether or not considered to be related to the administration of the blood component or blood product. CSA Z902-15, 3.1

Average Daily Red Cell Demand (ADRD) – ADRD is a calculation determined from the CBS web-based hospital disposition reporting system, the Blood Component and Product Disposition System, as follows:

ADRD = annual red cell demand*/365 days (*red cell demand = transfused + outdated + wasted)

Blood Component – whole blood or a therapeutic component of blood intended for transfusion (e.g., red cells, granulocytes, platelets, plasma, etc.) that can be prepared using the equipment and techniques available in a blood centre. CSA Z902-15, 3.1

Blood Product – can be referred to as Plasma Protein Products (PPPs) or fractionation products. Any therapeutic product, derived from blood or plasma, and produced by a manufacturing process that pools multiple units (usually more than 12).

Notes: examples of blood products are human serum albumin, immunoglobulin preparations, and coagulation products (factors VIII and IX, fibrinogen, anti-thrombin III, etc.). CSA Z902-15, 3.1

Elective/Urgent/Emergency Surgical Procedures – 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). National Plan 2020 March 16

National Plan – refers to the *National Plan for the Management of Shortages of Labile Blood Components* which was developed by the National Advisory Council for Blood and Blood Products (NAC) and Canadian Blood Services (CBS). The *National Plan* provides guidance to provincial and hospital decision makers on how to manage and allocate resources during a blood shortage. The *National Plan* is based on established ethical principles.

Provincial Transfusion Medicine Consultants/Physicians (TMPs) – doctors who provide medical and technical consultation to clinicians, nurses and Saskatchewan Health Authority transfusion/service laboratories. SK Clinical Guideline 1 – Transfusion Medicine Consultation Protocol

Recognizing that the transition from twelve (12) former Regional Health Authorities (RHAs) to six (6) Integrated Service Areas (ISAs) within the single SHA is a gradual process, the Provincial Transfusion Medicine Physicians (TMPs) continue to provide consultation along former functional alignments, as follows (see Appendix 1):

- Northern TMPs – provide consultation to the formerly delineated eight (8) RHAs/Northern Regional Authority (NHA)/facilities in Northern Saskatchewan including: Athabasca Health Authority, Heartland, Keewatin Yatthé, Kelsey Trail, Mamawetan Churchill River, Prairie North, Prince Albert Parkland and Saskatoon Health Regions, and to the Saskatoon Cancer Centre.
- Southern TMPs – provide consultancy services to the formerly delineated five (5) RHAs/facilities in Southern Saskatchewan including: Cypress, Five Hills, Regina Qu'Appelle, Sun Country and Sunrise Health Regions, and to the Allen Blair Cancer Centre.

Transfusion Service/Laboratory (TSL) – an entity that performs pre-transfusion serological testing or is involved in the provision of blood components or plasma protein products and their transfusion or administration. SK Transfusion Resource Manual, Appendix 2 – Glossary of Terms.

1.0 Introduction

The supply of labile blood components could be compromised by a number of threats such as natural or man-made disasters, endemic disease outbreaks, terrorism, labour disruptions, extreme weather disturbances or disruptions in the transportation system. In times of severe shortages, the allocation of blood components could present a significant challenge to the provision of health care.

1.1 Purpose

The *SK Provincial Plan* provides a framework to ensure a rapid and effective response to a widespread shortage of blood within Saskatchewan. To ensure that allocation of blood is not dependent solely on geographical location and is grounded in the ethical principle of justice in situations of blood shortage, it is critical to have a means to enable equitable allocation on the basis of clinical need.

The purpose of the *SK Provincial Plan* is to:

- Outline the provincial response to a blood shortage.
- Describe communication processes, including how national recommendations are communicated and monitored during a blood shortage.
- Ensure that the Saskatchewan response is consistent and integrated with the *National Plan* prepared by the NAC and CBS.
- Ensure a standardized and equitable approach to managing low blood inventory throughout the province, consistent with the *National Plan.*
- Provide a means to enable the equitable allocation of blood during a blood shortage.
- Provide strategies for medical and technical deviations that may need to be initiated when extreme blood shortages occur.
- Ensure that access to safe and adequate blood transfusion is maintained for as many patients as possible during a blood shortage.
- Integrate the blood contingency plan into existing provincial emergency preparedness plans to ensure that blood-related activities are part of a coordinated response in the event of an emergency.
- Formalize guidelines for activation of blood redistribution amongst facilities and identify transportation partners that may be used in the setting of critical or severe shortages.
- Provide tools that Integrated Service Areas (ISAs) and healthcare facilities can use for decision-making and documentation during a blood shortage.
- Provide guidance to ISAs and/or healthcare facilities within SHA for elements that should be included during the development of their own blood contingency plans.

    - There remains – at the time of this revision – a dependence on Transfusion Medicine Committees that continue to function within former RHA jurisdictional borders; the establishment of such committees within the new ISA borders has not yet taken place. However, the transition of the executive leadership structure to govern these six territorial ISAs has occurred. Borders of the former RHAs and new ISAs are pictured in Appendix 1. References to both types of jurisdictional borders will intentionally appear throughout this document, as appropriate.

1.2 Scope

Although the *SK Provincial Plan* has been developed with blood components in mind (red blood cells, platelets, plasma), a similar approach can be taken to address shortages of plasma products (i.e. immune globulin, albumin). Therefore, reference will be made to both blood components and blood products throughout the document.

1.3 Plan Development

A document entitled *Saskatchewan Regional Health Facilities Blood Shortage Management Plan*; Version 1.1 was developed by the Saskatchewan Transfusion Medicine Working Group (TMWG) and was released in January 2010. It was based on the Ontario and Nova Scotia Provincial Contingency Plans for Management of Blood Shortages. Revisions to this document commenced in 2016 by the TMWG, and ultimately evolved into the writing of this document.

The *SK Provincial Plan* is based chiefly on the *Alberta Blood Contingency Plan, January 2015*, the *Ontario Contingency Plan for the Management of Blood Shortages - Version 3, October 31, 2016* and *The National Plan for Management of Shortages of Labile Blood Components October 7, 2015, updated March 2020*. Revisions were completed by members of the Saskatchewan Transfusion Medicine Discipline Committee (TMDC; the successor to the TMWG) of the Saskatchewan Health Authority (SHA), in collaboration with the Ministry of Health (MOH), in March 2020.

1.4 Key Participants and Stakeholders

It is intended that the *SK Provincial Plan* will be used by key blood system participants including the MOH, the SHA, the Saskatchewan Cancer Agency (SCA) and CBS. The TMDC will play a key role in the implementation of the *SK Provincial Plan*.

2.0 Overview of Plan Structure

2.1 Principles

Planning principles and ethical considerations are sentinel to blood shortage plan development and implementation. Adherence to these considerations and principles will promote the most effective use of provincial health resources and lead to ethical patient-centered care in the event of a blood shortage. These include, but are not limited to:

- All patients in Saskatchewan will have equal access to the available blood on the basis of need. No Integrated Service Area or healthcare facility will stockpile blood for their patients when there is a greater need elsewhere.
- When demand exceeds available resources, the focus must shift to the public health goal of doing the greatest good for the greatest number while balancing obligations to the individual.
- Transparency in managing blood inventory is critical. The Saskatchewan Provincial Emergency Blood Management Committee (PEBMC) and decision makers provincially and nationally need to know what inventory is available in each jurisdiction, regardless of whether it is stocked at the blood supplier or in a hospital laboratory. In order to support transparency, healthcare facilities will be asked to report daily inventory levels using the CBS Inventory Level webpage within the Blood Component and Product Disposition System.

- All affected healthcare facilities are accountable for taking a consistent and transparent approach to blood utilization management during a shortage. Decision makers must be able to trust that others in similar positions are adhering to the same ground rules.
- NAC's *Emergency framework for rationing of blood for massively bleeding patients during a red phase of a blood shortage* shall be followed at the provincial and jurisdictional level for triaging recommendations during a red phase blood shortage.
- The rationale behind these principles and the ethical framework used to create them are provided in more detail in the *National Plan* (www.nacblood.ca).

2.2 Assumptions

The *SK Provincial Plan* is based on the following assumptions:

- The *SK Provincial Plan* is reviewed and revised as needed, following each actual event or simulation exercise.
- Facilities/ISAs comply with recommendations and guidance provided by the PEBMC.
- Several small rural hospitals maintain minimum stock to support emergent local transfusion needs. During a blood shortage, evaluation of the need for redistribution of this inventory may be required. A decision for redistribution would be dependent on the blood shortage severity and guided by processes established by the PEBMC.
- During a blood shortage, heightened efforts would be made to redistribute any components to avoid discards due to outdating.
- The ability to deliver transfusion services may be impacted by human resources at every level, depending on the reason for the shortage event (i.e., a pandemic).
- TMPS who typically oversee either Northern or Southern Saskatchewan (urban and rural) will collaborate provincially to provide consultation and oversight as needed.

3.0 Emergency Blood Management Committees

This section describes the emergency blood management committees (EBMC) at the national, provincial and Facility/ISA levels that are necessary to facilitate information flow and decision making.

3.1 National Emergency Blood Management Committee (NEBMC)

The NEBMC is necessary to ensure the implementation of the *National Plan*. It is this committee that declares the phase of the shortage and determines how the national inventory will be allocated between the various jurisdictions.

Further information on the membership, mandate and terms of reference for this committee can be found in the *National Plan*.

3.2 Provincial Emergency Blood Management Committee (PEBMC)

The *National Plan* states that it is the responsibility of the MOH of each province or territory to establish a PEBMC and its Terms of Reference (TOR), which should include responsibilities of the PEBMC. In Saskatchewan, the MOH and SHA's TMDC will work collaboratively to review and maintain the PEBMC Terms of Reference. The Ministry of Health will provide secretariat support and maintain the membership list for the PEBMC.

The PEBMC's mandate is to develop a Blood Shortages Management Plan in accordance with the guidelines outlined in this *SK Provincial Plan* and to ensure that these plans are appropriately communicated and adhered to in times of blood shortages. The PEBMC membership and function may be served by the MOH's Provincial/Territorial Blood Representatives (P/T-BR), the SHA's NAC representatives, the TMDC and other ad-hoc participants as required.

Refer to section 8.0 for the PEBMC membership and Terms of Reference.

3.3 Facility/ISA Emergency Blood Management Committee (EBMC)

It will be incumbent on each ISA to establish a Transfusion Medicine Committee. Facility/ISA EBMCs will need to be established with the same mandate as the PEBMC and will serve as the communication conduit to the PEBMC. Refer to Section 9.0 for a list of recommended Facility/ISA EBMC membership.

During this time of structural transition within Saskatchewan, established former RHA Transfusion Medicine Committees will have responsibilities for collaboratively participating in decisions which relate to blood management decisions within the borders of their existing ISA, functioning as *de facto* members of the ISA EMBC. Where former RHAs had not previously established a Transfusion Medicine Committee, representation from affected facilities should be included in the work of existing committees, at the direction of the senior ISA Laboratory and Clinical Leadership.

Note: In preparation for the COVI-19 Pandemic, the SHA has established an emergency command structure that includes four Integrated Health Incident Command Centres (IHICCs). It is the recommendation of the provincial TMDC that the responsibilities of the facility/ISA EMBCs outlined below be embedded in these IHICCs through engagement of select members of the PEBMC, rather than creating a parallel system of committees addressing only blood management for this event. Please see Appendix 5 for details.

The Facility/ISA EBMC is responsible for:

- Defining which staff members will participate in the Facility/ISA EBMC and, in consultation with Transfusion Medicine Leadership from Saskatoon (Northern ISAs) or Regina (Southern ISAs), how a reduction in blood component usage will be achieved.
- Developing and maintaining an EBMP that identifies lines of local responsibility, decision-making processes, and effective lines of communication to enable appropriate response during a blood shortage. The plan should be guided by the framework provided in this *SK Provincial Plan.*
- Ensuring that all facilities within the ISA are aware of/compliant with the internal Facility/ISA EBMP and participate in the development of the plan.
- Ensuring that the internal Facility/ISA EBMP is integrated with the Facility/ISA emergency plans, that the local health authority emergency management personnel are kept informed about blood shortages when they happen.
- Implementing recommendations of the PEBMC as appropriate.
- Ensuring that communications with staff, the public and media are consistent with the communications of CBS, the PEBMC and the MOH/SHA.

4.0 Phases and Inventory Levels

4.1 Phases of Inventory Availability

Consistent with the *National Plan,* the *SK Provincial Plan* considers four phases of inventory availability – green, amber, red and recovery. An inventory availability or shortage phase could apply to a single component (e.g., platelets), a particular blood group of a component (e.g., O Negative red blood cells), or multiple blood components. As well, different components could be in different phases (e.g., at one given time, inventory availability for red blood cells could be at Amber Phase while that of platelets could be at Red Phase).

The four phases of inventory availability are:

1.	**Green:** Normal blood component inventory levels exist and supply generally meets demand. This phase includes a broad range of inventory levels ranging from an ideal inventory to shortages that occur periodically and can be managed with existing CBS and Facility/ISA actions.
	Green Advisory Phase: There is a serious but non-critical blood shortage. There could be brief situations where a particular blood type or component may be in limited supply while the overall inventory is in Green Phase and CBS will issue an Advisory. It serves as a warning for provinces and hospitals to look at any potential conservation strategies that could help avoid a shortage. The Green Advisory Phase requires review of all Facility/ISA inventories to determine what the likelihood of progression to an Amber or Red Phase.
2.	**Amber:** Blood inventory is not sufficient to continue with routine transfusion practices and Facilities/ISAs will be required to implement specific measures, as outlined in this plan, to reduce blood use.
3.	**Red:** Blood inventory is insufficient to ensure that patients with non-elective indications for transfusion will receive the required transfusion(s).
4.	**Recovery:** Blood inventory has begun to increase and is expected to be maintained at a level that would enable the return from a Red to an Amber phase and subsequently to a Green phase, or from Amber to a Green phase.

4.2 CBS Inventory Levels at Green, Amber and Red Phases

Critical levels are determined based on the actual component availability within CBS and the predicted ability of CBS to increase blood inventory. The critical level threshold varies according to component (and in particular, in relationship to the component's acceptable storage period), component blood group, and the anticipated length of a given shortage.

The NEBMC, together with CBS, has a key role in notifying and communicating blood shortage phases with hospital transfusion services in the event of a blood shortage regarding change in inventory phase and ongoing inventory status.

Approximate CBS inventory levels that, if sustained, could lead to the declaration of Amber or Red Phase are shown in the following table. Updated CBS inventory data is available at: \http://www.nacblood.ca/resources/shortages-plan/index.html.

Phase	CBS Inventory Levels (hours/days on-hand)				
	RBCS	**Platelets***	**Frozen Plasma (Groups O, A & B only)**	**Group AB Frozen Plasma**	**Cryoprecipitate**
Green	> 72 hours	80-100% of daily national inventory	> 7 days	> 14 days on hand	> 14 days on hand
Amber	48 – 72 hours	25-79% of daily national inventory, recovery NOT expected within 12-24 hours	3 –7 days	6 –14 days	6 –14 days
Red	< 48 hours	< 25% of daily national inventory, recovery NOT expected within 12-24 hours	< 3 days	< 6 days	< 6 days

* Platelet inventory levels are expressed as a percentage of daily national inventory rather than "days on hand" (DOH), since platelets have a limited shelf life of 7 days.

4.3 **Total Inventory Levels**

CBS inventory levels represent only a part of the total inventory within the blood system, as the majority of the total inventory at any one time is already in storage in hospital transfusion service laboratories.

Optimal management of blood shortages requires information on total blood inventories, which includes the combined inventory of CBS and the ISA/facilities. The national total blood product inventories (CBS and Facility/ISA combined) are derived from ISA/facilities reporting their inventory levels by blood group and component in near to real time using the CBS Inventory Level webpage within the Blood Component and Product Disposition System.

Reporting daily inventory enables CBS and the NEBMC to assess the total blood inventories (CBS and Hospital) across all jurisdictions served by CBS.

Calculation of the inventory index is useful to understand local red blood cell transfusion demand. This index enables meaningful use of national inventory data for equitable distribution of products in a shortage situation. To calculate the inventory index, the transfusion service/laboratory must collect standard data elements. The minimum necessary data elements that should be captured for the Facility/ISA are:

a) Average daily red cell demand (ADRD) - for hospital, province and national
   Red cell demand annually/ 365 days (or quarterly demand/90 days)
   Red cell demand = transfused + outdated + wasted
b) Actual inventory broken down by group (hospital and provincial)
c) Inventory Index = Inventory (Group specific or total)/ADRD

The following are approximations of red blood cell Inventory Indices and the associated Shortage Phases:

- **Green Phase:** greater than 8.0
- **Green Advisory Phase:** 7.0-8.0
- **Amber Phase:** 6.0-7.0
- **Red Phase:** less than 6.0

4.4 **Actual Allocation of Blood Components in Times of Shortages**

The actual allocation of blood components to ISA/facilities in times of severe shortages will be determined by inventory availability at CBS and in consultation with the NEBMC and Provincial/Territorial (P/T) EBMCs. Allocation will take into consideration usual requirements, the nature of the situation leading to the shortage, utilization data, and distances from CBS or hub-site facilities (see Appendix 4 for an example). Data gathered from ISA/facility audits during Green Phase Advisories will be consulted to inform decisions during a blood shortage event.

Depending on the severity of the blood shortage event, in consultation with the NEBMC and P/T EBMCs, CBS will be involved in decisions regarding allocation of actual blood inventory to hospitals on the basis of their inventory indices and average daily red cell demand (ADRD) to allow "leveling" of the inventory across the country in times of supply restraint. Healthcare facilities will participate in daily *Blood Component and Product Disposition and Inventory* reporting to CBS and ensure that the inventory index is optimized by implementing best practices in transfusion medicine, as recommended by NAC and the SK TMDC. (See *Transfusion Best Practice Recommendations in Adult Patients – Saskatchewan*.)

4.5 **Determination of the Allocation of Blood Components from CBS to SHA healthcare facilities in Amber and Red Phases**

In accordance with the *National Plan* it is recommended that healthcare facilities served by CBS pre-determine the amount of blood required to support the restricted activities permitted in Amber and Red Phases.

In the event that minimum blood levels have not been determined for specific facilities or health jurisdictions, actual blood component allocations during times of severe shortage will be determined in consultation with CBS together with the NEBMC, and where appropriate (e.g. in the case of a regional disaster), Core (see section 8.0) and other situation-specific members of the PEBMC, using either one or a combination of the following three methods.

1) Determination of blood component issue reduction from CBS based on the percentage of blood normally going to each province.
2) Decreasing blood component issues from CBS to an equivalent number of units per capita in all provinces.
3) "Levelling" of blood component issues from CBS by the inventory index with NEBMC recommendations across the country.
    - In conversation with the co-chairs of the PEBMC (as committee representatives), direction would be provided to CBS regarding the specific distribution of components within the province (e.g. an equivalent decrease to all hospitals or relatively smaller or larger decreases to selected institutions such as hospitals in

remote areas or hospitals performing relatively more emergency procedures, which might be subject to relatively smaller decreases).

- In consultation with Transfusion Medicine Leadership from Saskatoon (Northern ISAs) or Regina (Southern ISAs), each Facility/ISA would determine the distribution of components to individual patients or categories of patients within its institution(s), while respecting the transfusion guidelines in Tables 1 and 2 outlined in Section 10.0 and 11.0 within this plan.

5.0 Actions According to Phases

5.1 GREEN PHASE ACTIONS

Normal blood component inventory levels exist and supply generally meets demand. This phase includes a broad range of inventory levels ranging from an ideal inventory to shortages that occur periodically and can be managed with existing CBS/Facility/ISA actions. There should be no interruption of transfusion services during the Green Phase.

Actions focus on ensuring that plans to address potential shortages are developed, and that blood is used safely and appropriately.

a. CBS Actions:

- Confirm support for the *SK Provincial Plan* at CBS and ensure its compatibility with the CBS's internal business continuity plan.
- Provide ongoing linkage between CBS and the PEBMC by participating on the PEBMC.
- Collaborate with NEBMC to review and revise the National Plan as needed.
- Manage the inventory nationally and fill hospital orders as requested except for the times when CBS experiences unusual low inventory, e.g. Green Phase Advisory.
- Notify hospitals of Green Phase Advisory level, if determined that the situation cannot be improved internally.
- Notify MOH and the SHA should inventory reach Green Phase Advisory level or a level that may require MOH's attention (i.e. approaching Green Phase Advisory).

b. MOH and SHA Actions:

- Confirm support for the *National Plan* and the *SK Provincial Plan,* including the policy, legal and ethical implications of the plans.
- Ensure standardized equipment, policies and protocols across the ISAs for the transportation of blood components to enable redistribution of products.
- Identify and empower a program or committee to maintain the *SK Provincial Plan*.
- Provide secretariat support for the PEBMC and ensure PEBMC meets as per Terms of Reference.
- Provide the conduit for communications between NEBMC/PEBMC/Facility/ISA EBMCs and the public.

c. PEBMC Actions:

- Develop and maintain the *SK Provincial Plan*.
- Develop and maintain the communication strategies and templates that will be used during activation of the plan.

- Actively encourage all healthcare facilities and ISAs to follow the *SK Provincial Plan's* guidelines and monitor their compliance in doing so, particularly with respect to the following activities:
  - Some healthcare facilities/ISAs may use their Transfusion Committee to serve as their EBMC.
  - Implement transfusion guidelines – national, provincial and local
  - Participate in blood component disposition and inventory reporting to CBS
  - Establish systems for transparent sharing of hospital blood component inventories and utilization with healthcare facilities/ISAs and CBS
  - Further develop redistribution programs and other methods/programs to minimize outdating in rural and urban settings
  - Assist in developing and maintaining Facility/ISA EBMC.
- Ensure that other relevant branches of the provincial government are aware of the *SK Provincial Plan* and its implications for their areas of responsibilities.
- Develop policies and procedures for transportation of blood products *with* patients to other facilities in consultation with SHA provincial trauma and SHA emergency medical services (air and ground).
- Work with the rural sites to determine the "red line" inventory. Considerations include:
  - How rural sites with emergency stock would be managed in Green Advisory, Amber and Red Phase scenarios
  - Risk of holding units for "just in case" scenarios versus refusing blood to a patient in another facility because no units are available there
- Develop medical/technical recommendations to healthcare facilities/ISAs, the MOH and CBS as appropriate, when the PEBMC is convened.
- Develop and implement simulation exercises to test and improve the *SK Provincial Plan*.

d. Facility/ISA Actions:

- Fill inventory requests as per routine practice.
- Submission of available inventory by all facilities to CBS, as required.
- Establish/maintain a Facility/ISA EBMC with a mandate to develop, implement and maintain a blood shortage plan that encompasses all four phases of this *SK Provincial Plan*.
- Define lines of responsibility, decision-making processes and effective communication to enable the Facility/ISA EBMC to respond appropriately during a blood shortage.
- Other activities should proceed to:
  - Develop processes for inventory management including guidelines for efficient inventory utilization and acceptable levels of outdating blood components.
  - In collaboration with CBS, determine the facility inventory levels for green, amber and red levels, by both blood group and component.
  - Develop and implement transfusion guidelines which address both appropriate indications and dosing of blood components, including guidelines for situations when components for patients with special requirements are not available, (e.g., product switching, washing, irradiation).
  - Exercise scrutiny of orders that are outside established transfusion guidelines.
  - Ensure that the inventory index is optimized by implementing or sharing best practices from other healthcare facilities.
- Monitor adherence to transfusion guidelines, including the performance of transfusion audits.
- Ensure application of available blood conservation methodologies.

- Develop and implement a strategy for perioperative blood inventory management (e.g., a maximal surgical blood ordering schedule (MSBOS) or an alternate strategy).
- Maintain, or develop, mechanisms for the redistribution of product between facilities/ISAs.
  - Consider designating one or more "hubs" for the purposes of inventory management and distribution during a blood shortage.
- Develop a documentation process for release or non-release of blood components in Amber or Red Phase.
- Notify CBS of situations that could result in increased demand or reduced availability of blood components.
- Develop inter-facility agreements to support redistribution of blood components, should it become necessary. These agreements should outline the policies and procedures for the transfer of blood components and ensure that they are consistent and acceptable in maintaining blood components at appropriate storage conditions and with appropriate documentation.

5.2 AMBER PHASE ACTIONS

Blood inventory levels are not sufficient to continue with routine transfusion practice and ISA/facilities are required to implement specific measures to reduce blood use.

a. CBS Actions:

- Notify the MOH and all ISA/facilities when an Amber Phase of the emergency plan is activated. The notification should include the nature of the shortage and anticipated timeframe for inventory to return to normal levels.
- Distribute components between distribution sites to ensure fair, equitable and transparent distribution to hospitals across the country.
- Communicate regularly with the MOH (via P/T-BR) to provide status reports of inventory levels and the anticipated recovery time.
- Provide linkage between NEBMC and PEBMC through a common CBS representative on both committees.
- Coordinate and oversee all media announcements regarding the blood supply and any call for donations should they deem this necessary and appropriate.
- Provide any other appropriate/necessary information to the MOH to assist the province to coordinate their communications to Facilities/ISAs and the public.
- Once the inventory has returned to normal desired levels (Green Phase), CBS will notify all ISA/facilities and the MOH.

b. MOH and SHA Actions:

- Confirm support for the *National Plan* and the *SK Provincial Plan,* including the policy, legal and ethical implications of the plans.
- The P/T or NAC provincial representatives shall convene the PEBMC within 48 hours of a NEBMC call and at regular intervals during the shortage situation.
- Implement the communications plan in collaboration with CBS.
- Notify senior management of facilities/ISAs of the requirement to defer elective medical and surgical procedures which are likely to require the affected blood components.
  - Elective surgical procedures are considered to be all surgical procedures which are not urgent or emergency procedures.

  - Urgent surgical procedures are those for which a patient is likely to have major morbidity if surgery is not performed within the next one to 28 days.
  - Emergency surgical 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).
- Monitor hospital compliance with and implementation of the actions required in Amber Phase.
- Review logistical process changes that may alleviate impact of shortage while in Amber Phase.
- Liaise with other ministry branches, departments and agencies as needed.
- Work with CBS, PEBMC and ISAs to coordinate communication (to staff and public/media) as required.

c. PEBMC Actions:

- Review and discuss recommendations, key messages and strategies from the NEBMC.
- If the contingency arises in or is specific to Saskatchewan, collaborate with CBS to make the decision to declare an Amber phase.
- Provide recommendations to CBS regarding the distribution of blood components within Saskatchewan.
- Review regular updates from CBS on inventory status (both CBS and hospitals) and from hospital representatives the status of hospital responses in Saskatchewan.
- Provide medical and technical advice as necessary.
- Make recommendations as necessary regarding other issues related to the blood shortage and communicate these to the relevant parties.
- Work with the MOH to coordinate and oversee all media announcements regarding implications of the blood contingency on patient care.

d. Facility/ISA Actions:

- Convene the Facility/ISA EBMC to monitor and control utilization of the affected blood components.
- Implement pre-established communications plans.
- Report ALL blood component inventories on the CBS Blood Component and Product Disposition System daily or as requested.
- Participate in CBS production/distribution site coordinated teleconferences as scheduled.
- Adjust inventory levels of affected components to levels consistent with those previously determined appropriate for Amber Phase.
- Recall emergency stocks in non-laboratory satellite refrigerators to transfusion service.
- Evaluate inventory to determine excess that could be shared with other affected sites within the province.
- Heighten vigilance to avoid any wastage of components due to outdating.
- Request inventory from CBS based on Amber Phase requirements.
- Increase use of blood conservation strategies and blood alternatives to decrease demand for blood.
- Defer/cancel elective surgical procedures requiring the affected blood components.
- For RBC transfusions, follow guidelines for Amber Phase as outlined in Table 2 (section 10.0).
- For platelet transfusions, follow guidelines for Amber Phase as outlined in Table 3 (section 11.0)
- For frozen plasma and cryoprecipitate transfusions, ensure strict adherence to guidelines established in Green Phase.

- Refer all requests for the affected blood components that do not fulfill pre-determined acceptance criteria to the Transfusion Medicine Physician on call from Saskatoon (Northern ISAs) or Regina (Southern ISAs) prior to issuing product.
- Implement the documentation process for release or non-release of blood components.
- Review logistical process changes that may alleviate impact of shortage.
- Provide input to the PEBMC on implications of the blood contingency for patient care.

5.3 RED PHASE ACTIONS

Blood inventory levels are not sufficient to ensure that patients with non-elective indications for transfusion will receive the required transfusion(s).

a. CBS Actions:

- Notify the MOH and all ISA/facilities when the Red Phase of the emergency plan is activated.
- Distribute components between distribution sites to ensure fair, equitable and transparent distribution to hospitals across the country.
- Communicate regularly with the MOH (via P/T-BR) to provide status reports of inventory levels and the anticipated recovery time.
- Provide linkage between NEBMC and PEBMC through a common CBS representative on both committees.
- Provide any other appropriate/necessary information to the MOH to assist them to coordinate their communications to ISA/facilities and the public.
- Coordinate and oversee media announcements on the blood inventory status and any call for donors.

b. MOH and SHA Actions:

- Reiterate support for this Plan including the policy, legal and ethical implications of the *SK Provincial Plan*.
- The P/T or NAC provincial representatives shall convene the PEBMC within 48 hours of a NEBMC call and at regular intervals during the shortage situation.
- Implement the communications plan in collaboration with CBS.
- Notify senior management of facilities/ISAs of the requirement to defer all medical and surgical procedures likely to require the affected blood components with the exception of emergency procedures.
    - Emergency surgical 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).
- Monitor facility compliance with and implementation of the actions required in Red Phase.
- Ensure that Provincial Trauma, Critical Care, Transplant and Emergency services are aware of the National Plan appendix: *The Allocation of Blood for Massive Transfusion during Critical Blood Shortages.*
- Work with CBS, PEBMC and ISAs to coordinate communication (to staff and public/media) as required.

c. PEBMC Actions:

- Review and discuss recommendations, key messages and strategies from the NEBMC.

- If the contingency arises in or is specific to Saskatchewan, collaborate with CBS to make the decision to declare a Red Phase.
- Review regular updates from CBS on inventory status (both CBS and hospitals) and from hospital representatives the status of hospital responses in Saskatchewan.
- Provide medical and technical advice as necessary.
- Make recommendations as necessary regarding other issues related to the blood shortage and communicate these to the relevant parties.
- Work with the MOH to coordinate and oversee all media announcements regarding implications of the blood contingency on patient care.

d. Facility/ISA Actions:

- Convene the Facility/ISA EBMC to monitor and control utilization of the affected blood components.
- Implement pre-established communications plans.
- Adjust inventory levels of affected components to levels consistent with those previously determined appropriate for Red Phase.
- It is critical in this phase, that all facilities report their daily blood product inventory levels to CBS.
- Recall all emergency stocks not held in laboratory. Evaluate inventory that can be redistributed to sites of higher need.
- Request inventory from CBS based on Red Phase requirements.
- Defer/cancel all surgical procedures requiring the affected components -- with the exception of emergency surgical procedures.
- To the extent possible, defer haematopoietic stem cell transplantation and chemotherapy treatments and any other medical treatments requiring ongoing need for the affected blood components.
- For RBC transfusions, follow guidelines for Red Phase as outlined in Table 2.
- For platelet transfusions, follow guidelines for Red Phase as outlined in Table 3.
- For frozen plasma and cryoprecipitate transfusions, ensure strict adherence to guidelines established in Green Phase.
- Refer all requests for the affected blood components that do not fulfill pre-determined acceptance criteria to the Transfusion Medicine Physician on call from Saskatoon (Northern ISAs) or Regina (Southern ISAs) prior to issuing product.
- Implement the documentation process for release or non-release of blood components.
- Provide input to the PEBMC on implications of the blood contingency for patient care.

5.4 RECOVERY PHASE ACTIONS

The Recovery Phase implies that blood inventory levels has begun to increase and are expected to be maintained at a level that would facilitate resumption of transfusion activities through a graded return from a Red to Amber and subsequently to a Green Phase, or from an Amber to a Green Phase.

Recovery of Facility/ISA blood inventory and return to normal activities (transfusions) should be slow and gradual to ensure the overall blood inventory level does not return to shortage levels. The scheduling of elective medical and surgical procedures should be gradual as the blood inventory levels may be vulnerable to returning to shortage during the recovery period.

a. CBS Actions:

- Notify MOH of move to Recovery Phase.
- Coordinate and oversee media announcements regarding the recovery of the blood supply, manage donor response and return to normal operations as they deem appropriate.
- Communicate regularly with the MOH to provide status reports of inventory levels.
- Once the Green Phase has been announced, within 4-6 weeks, convene relevant personnel to debrief and identify recommendations to improve the response

b. MOH and SHA Actions:

- The P/T or NAC provincial representatives shall convene the PEBMC within 48 hours of a NEBMC call and at regular intervals during the recovery process.
- Continuation of the communications plan with CBS.
- Notify senior management of facilities/ISAs of the requirement to gradually increase medical and surgical procedures that were deferred during the shortage situation.
- Ongoing monitoring of facility compliance with and implementation of the actions recommended by the NEBMC and PEBMC to prevent lapse back to Red or Amber Phase.
- Debrief, review and revise Provincial Blood Contingency Plan.

c. PEBMC Actions:

- Maintain standard communications with consistent key messages at all levels/stages of the recovery – containing key messages recommended by the NEBMC.
- Facilitate restoration of internal activity through continued communication with ISA/facilities.
- Participate in debriefing activities within 4-6 weeks following the event to review and revise internal policies and procedures of CBS as well as the various National, Provincial and Hospital plans as a process of continued improvement.

d. Facility/ISA Actions:

- Convene the Facility/ISA EBMC to monitor and control utilization of the affected blood components to protect vulnerable inventory.
- Implement pre-established communications plans.
- Adjust inventory levels of affected components to levels consistent with those previously determined appropriate for effective recovery.
- Slowly redistribute emergency stocks not held in laboratory.
- Request inventory from CBS based on criteria set forth by the PEBMC.
- Slowly reinstitute surgical / medical procedures that were deferred or cancelled due to the blood product shortage.
- Refer all requests for the affected blood components that do not fulfill pre-determined acceptance criteria to the Transfusion Medicine Physician from Saskatoon (Northern ISAs) or Regina (Southern ISAs) prior to issuing product.
- Implement the documentation process for release or non-release of blood components
- Debrief, review and revise Blood Shortage Plan, Policies and Procedures.

6.0 Communication

Strong communication coordination will be necessary to achieve optimal management of a severe blood shortage. Two distinct types of communications need to be considered:

6.1 **Operational Communication with Facilities/ISAs**

Communication with the Facilities/ISAs will occur via two routes:

- CBS will disseminate Customer Letters and/or NEBMC Notifications directly with the Facilities/ISAs regarding logistics and supply issues using their standard communication channels; and
- The PEBMC will communicate directly with Facilities/ISAs regarding its recommendations, in accordance with established SHA communications protocols for any given situation.

6.2 **Informational Communication with the Public and Media**

- Communications with the public and media should be timely, accurate and consistent.
- CBS will take the lead on communications regarding donor and supply issues.
- SHA communications staff will take the lead on communications regarding implications for patient care. The PEBMC will provide input to the SHA regarding such communications.
- MOH, PEBMC, CBS, SHA and healthcare facilities will work together to facilitate the consistency of external messaging and to ensure a coordinated approach to media relations.

This section provides a basic overview of the communications flow from the NEBMC to the PEBMC and the Facility/ISA EBMC. (See Appendix 3.)

All P/T-BRs and all NAC member(s) (or their respective designates) are members of both the NEBMC and their respective PEBMC, and provide the communication links between the national and their provincial committee. Following a meeting of the NEBMC, each P/T-BR would then immediately (or in an appropriately timely manner) convene a meeting of their PEBMC in order to ensure that timely and accurate communications and actions occur in each province or territory. If a decision is made to move to an Amber or Red Phase (or recovery from such a phase) this would be communicated to the PEBMC and decisions made as to how best to communicate this information to hospitals in their jurisdictions, preferably according to a predetermined plan. Each Facility/ISA EBMC would be convened according to the pre-established provincial or territorial plan.

6.3 **Blood Shortages Identified by CBS National and/or Originating Outside of Saskatchewan**

When the possibility of an emergency blood shortage that could lead to the declaration of a national Amber or Red Phase is first identified within CBS National and/or outside Saskatchewan, the NEBMC will meet in accordance with the process outlined in the *National Plan*. Final decisions as to the measures to be taken will be made by the CBS Chief Operating Officer using knowledge of current and future inventories and considering advice received from the NEBMC. These decisions will include:

- Determination of the phase, i.e. a declaration of Amber or Red Phase or a decision to remain in the Green Phase;
- The level of inventory CBS will distribute to each province or territory;
- The timing and mode of communications to Facilities/ISAs; and
- Determination of the frequency of future meetings with the NEBMC.

The Saskatchewan P/T-BR on the NEBMC will then immediately (or in an appropriately timely manner) convene a meeting of the PEBMC to ensure appropriate communications and actions in Saskatchewan.

6.4 Blood Shortages Identified within Saskatchewan

In cases where the possibility of a blood shortage is first identified by the SHA, Facility/ISA, or other stakeholder outside of CBS, the stakeholder should contact the Transfusion Medicine physician on-call for consultation, with subsequent contact of the on-call CBS Medical Officer as soon as possible.

If CBS determines there is a potential for the blood shortage to affect more than one Facility/ISA, CBS will alert the PEBMC, which will meet and, in consultation with CBS, will make decisions regarding the measures to be taken, including determination of the phase. The PEBMC will communicate with the NEBMC.

If CBS determines the blood shortage is localized, CBS and the relevant Facility/ISA will manage the situation.

7.0 Transportation

It is essential for CBS and ISA/facilities to consider the availability and dependability of existing transportation modes and routes and to identify alternatives that could be used in a blood shortage. All available modes (road, water, air and rail) should be considered when looking at alternatives. In some cases, because of disaster-related effects on local infrastructure, the local CBS supply centre may not offer the most rapid means of transporting blood. In addition, it is important to consider that fuel may not be readily available.

CBS and ISA/facilities should establish and maintain collaborative relationships with local law enforcement and emergency response organizations, as their assistance may be needed to transport (or allow CBS to transport) blood to facilities in affected areas. This transportation option should be considered a backup-up option, as emergency vehicles may be unavailable during a disaster. Provincial and regional emergency operation centers will be able to identify what resources are available and facilitate access to disaster routes.

These relationships should be established before a contingency occurs. It may be helpful to educate local authorities about the following:

- Critical lifesaving nature of blood;
- High priority to get blood to hospitals;
- Perishable nature of blood;
- Temperature issues related to transporting blood;
- Storage capacity issues – if refrigeration capacity is limited, blood may have to be transported to multiple locations for storage, and
- Hazardous materials issues – blood components intended for transfusion are not considered biohazards.

Facilities should also have back-up plans for storage in case of sustained power outages (i.e. agreements with other facilities to store products, commercial refrigeration or mobile refrigeration with generator back-up and fuel).

8.0 Saskatchewan PEBMC Terms of Reference and Membership

The Saskatchewan PEBMC shall work collaboratively with the NEBMC and Facility/ISA EBMCs.

Mandate:

- Lead and coordinate the response to potential and actual blood shortages in or affecting Saskatchewan.
- Develop and maintain the *SK Provincial Plan* in order to minimize the provincial impact of blood shortages.
- Work in accordance with the guidelines outlined in the *National Plan* and the *Emergency Framework for Rationing of Blood for Massively Bleeding Patients during a Red Phase of a Blood Shortage – Synopsis for Triage Team*.
- Ensure that the PEBMC recommendations and those of the NEBMC are appropriately communicated to all key provincial stakeholders to allow activation of the plan.
- Provide the conduit for communications/feedback between the NEBMC, the PEBMCs, and Facility/ISA EBMCs.
- Ensure the *SK Provincial Plan* is integrated with provincial emergency plans and that provincial emergency response teams understand the response phases of the *Provincial Plan*.
- Establish a process to monitor adherence to the *National Plan* and *SK Provincial Plan* in times of blood shortages.
- Establish recommendations to manage non-adherence to the *National Plan* and *SK Provincial Plan* in times of blood shortages.
- Conduct periodic reviews of blood contingency events (real or mock) and report findings to the SHA, NAC and CBS.
- Ensure that the Facility/ISA EBMPs are congruent with the *National Plan* and *SK Provincial Plan*.
- Identify risks which hinder transfusion service emergency blood management, and work to develop mitigation strategies.
- Identify and share learning opportunities to promote blood shortage preparedness and encourage collaboration with other emergency/contingency planning groups.
- Advise on the transfusion service component of public communications during Red, Amber and Recovery Phases.
- Prepare resources/templates which can be used across ISAs for different stakeholders including the public.
- Review and update the *SK Provincial Plan* where required, at least every two (2) years.

Membership:

To provide a link with the NEBMC, the following individuals shall be included as Core PEBMC members (see Appendix 2 for current membership and contact information):

- Saskatchewan PT-BR(s)
- Provincial NAC member(s)
- SHA Transfusion Medicine -- Clinical and Administrative Dyad Leadership (TMDC Co-Chairs)
- Provincial Transfusion Safety Managers – North and South

In addition to Core PEBMC membership, the PEBMC Committee should include invited representation from:

- Executive Director, Laboratory Medicine
- Provincial Head, Pathology and Laboratory
- Provincial Transfusion Medicine Consultants – North and South
- Transfusion Medicine Division Heads – Regina and Saskatoon
- Transfusion Medicine/Laboratory Managers – Regina and Saskatoon
- Directors Pathology and Laboratory Services – Regina, Saskatoon, North (which includes rural sites) and Rural (which includes representation from the South)
- Physician and Nursing representatives from high use areas such as surgery, anesthesia, critical care, emergency and internal medicine
- Facility/ISA Transfusion Committee representatives
- Medical Officer, CBS Medical Services
- Hospital Liaison Specialist, CBS Saskatchewan
- Production Manager, CBS Saskatchewan
- Saskatchewan Cancer Agency Representative
- Ethics Committee representative
- Patient representative
- Communications Branch representative, MOH and SHA
- EOC representative, MOH and SHA

Chair:
The committee will be co-chaired by the TMDC Co-Chairs or their assigned delegate(s).

Meetings:
- Meetings will be scheduled as necessary at the call of the Chair(s), and at least three times each year. Meetings will take place by video conferencing and/or face-to-face.
- Agenda items will be determined by the Chair(s) with input from the members.
- Efforts will be made by members or their delegate to all attend meetings.
- The quorum is the number of members that are present.
- Decisions will be made by those present.
- A Record of Decision/Actions of meetings and teleconferences will be prepared and distributed to the membership. The Record of Decision/Actions will be kept by the Chair. This information will be shared with others as appropriate.

Secretariat:
The MOH will provide secretariat services to the PEBMC, including:
- Scheduling meetings
- Developing an agenda in conjunction with the chair
- Circulating the agenda, meeting materials and any other relevant information
- Following up on action items resulting from the meetings
- Facilitating the revision and approval of the *SK Provincial Plan*

9.0 Facility/ISA Emergency Blood Management Committee and Plan

9.1 Plan Development

During the Green Phase, the Facility/ISA must develop, implement and maintain an internal Facility/ISA EBMP that is consistent with the NEBMC and the *SK Provincial Plan* to address blood shortages.

Essential elements of a Facility/ISA EBMP include:

a. Establishment of Facility/ISA EBMC to plan for and respond to blood shortages.
   - Terms of reference, which should include responsibilities for the Facility/ISA EBMC shall also be established.
   - Membership will vary based on Facility/ISA size and may include representatives from:
     - Senior Leadership Team
     - Senior Medical Officer(s)
     - Clinical Department Heads for Anesthesia, Surgery, Critical Care, ICU, Emergency, Trauma, Hematology, Medicine, Obstetrics/Gynecology and Oncology
     - Directors of Nursing
     - Transfusion Service / Laboratory Medical Director
     - Chairperson of Transfusion Committee
     - Directors/Managers of Transfusion Service / Laboratories
     - Transfusion Services / Laboratory Technical Supervisor(s)
     - Transfusion Safety Officer
     - Risk Management
     - Chairperson of Emergency Preparedness Planning Committee
     - Communications/Public Relations
     - Ethics Committee
     - Quality Care Coordinator
     - Patient Relations Officer
     - Board member/Member of Public
       - It is recommended that consideration be given to identifying patient groups who have had high reliance on transfusion of labile blood components as opposed to blood product.
     - Other members as deemed appropriate by the Facility/ISA
   - The Facility/ISA EBMC is to be activated during the Amber Phase. The PEBMC Co-Chairs are responsible for contacting the Facility/ISA EBMC Chairs.
   - The Facility/ISA EBMC is recommended to meet annually at minimum, or more frequently as required.

b. Definition of Phases and List of Phase-Specific Activities

c. Defined Facility/ISA Target Inventory Levels
   - Ideal or optimal inventory levels for all blood components should be defined as part of the Facility/ISA EBMP

d. Defined Facility/ISA Inventory Levels at Green, Amber and Red Phases

e. Defined Roles and Responsibilities of Key Stakeholders:
   - Documented responsibilities and actions for key individuals.
   - Plans for cross-training and staff redeployment and plans for possible modification of best practice standards.
   - Plans for documenting decisions made and actions taken during a contingency.

f. A Communication Plan to include:

- Providing CBS with timely notice of potential and actual regional blood shortages.
- Providing CBS with timely updates on facility blood inventory levels and requirements.
- Informing physicians and staff of the limits in blood availability and consequence for medical and surgical activity (appropriate to the phase).
- Advanced notification of any waiting lists potentially impacting blood inventories (e.g. operating room wait lists, chronic transfusion patients waiting for transfusion).
- Communicating with patients and families directly affected by the blood shortage and plans for counseling families affected by termination of treatment.
- Communicating with the Facility/ISA Director of Emergency Management and EOC.
- Communicating with the PEBMC for both operational and informational purposes.
- A communication template and list of contact names to be notified in Amber, Red and Recovery Phases and a defined communications fan-out.
- Defined notifications and actions for Amber, Red and Recovery phases.
- Contact information for nearby facilities and a list of available transportation options, including contact numbers and billing/payment information for inter-hospital transfer of blood.
- Ensuring transfusion medicine input into local and regional communications with the public and media.

g. Transfusion Guidelines:
   - Work with provincial partners and TMDC to develop/adopt and implement evidence-based clinical transfusion guidelines. (See *Transfusion Best Practice Recommendations in Adult Patients – Saskatchewan*.)
   - Utilization and adherence to widely accepted transfusion triggers.
   - Develop and implement Maximum Surgical Blood Ordering Schedule (MSBOS).
   - Develop criteria for delay of elective medical and surgical procedures/transfusions.
   - Categorization of patients for prioritizing blood product needs (life threatening to urgent to supportive to elective needs).
   - Develop and implement patient blood management protocols.
   - Adoption of a massive blood transfusion policy/algorithm to manage situations where large blood loss and blood needs may exist.

h. Inventory Management Strategies:
   - Reduce inventory held on site to defined minimum phase levels.
   - Reduce number of components given per treatment (e.g. number of platelet units and single unit red cell transfusions).
   - Limit the number of units that are held in 'reserve' inventory.
     - Use electronic or immediate spin crossmatch techniques to reduce the length of time units remain 'on hold' for a patient.
     - Establishing 24-hour or 12-hour reservation periods for crossmatched blood components.

- Redistribute affected component(s) to avoid outdating.
- Ensure use of available transfusion guidelines.
- Develop agreements with Facilities/ISAs in close proximity to support redistribution of blood components should it become necessary.
- Consider designating one or more 'hubs' for the purposes of inventory management and distribution during a blood shortage.
- Consider retaining date-expired components/products (exceptional release).
- Monitor and review blood product utilization.

i. Facility/ISA Triage Committee:
- Multidisciplinary committee tasked with rationing of a scarce blood product.
- Usually activated by EBMC during the Red Phase.
- Membership should include representatives from Anesthesia, Hematology, Nursing and Ethics.

j. Training and Competency Assessments:
- Provide staff training on the contents of the plan.
- Create job aids.
- Plans for cross-training and staff deployment.

k. Periodic Test of the Facility/ISA EBMP:
- Participate in periodic simulation exercises to practice and test the plan.

9.2 Role of the Facility/ISA Transfusion Committees with Blood Shortage Planning and Preparation

Some Facilities/ISAs may elect to create an EBMC to specifically manage communication and triage orders for blood during a blood shortage. Other Facilities/ISAs may use an existing committee such as the Transfusion Committee, Emergency Operations Centre, or the ISA Incident Management System to serve this purpose. Regardless of which committee is tasked with managing a blood shortage situation, the Transfusion Committee members should be familiar with the Facility/ISA plans that relate to the management of blood resources in a disaster or critical shortage situation.

In addition to the role the Transfusion Committee serves in the Facility/ISA, the fundamental responsibilities of the Transfusion Committee for blood shortage planning include:

- Develop and implement a Facility/ISA EBMP.
- Establish an EBMC and Triage Committee.
- Develop/adopt and implement transfusion guidelines.
- Increase use of blood conservation strategies and blood alternatives to decrease demand for blood.
- Establish inventory levels for each labile product for each phase of the shortage. Take into account average daily use plus emergency buffer.
- Develop process for redistribution of products between facilities.
- Develop a process for prospective review of all orders for a scarce blood component or product and its documentation during shortage.

- Develop a documented process for release or non-release of blood components in Amber or Red phase. This should include a record of who requested the product, why it was requested, the patient's medical condition (pre-transfusion hemoglobin or platelet count), the reason for release/non-release, documentation of the conversations with the ordering physician, and what the inventory level was at the time.
- Develop a physical and electronic quarantine procedure for expired blood components and a documentation process for use of components past their expiry date, including an informed consent step.
- Collaborate with CBS to develop alternative transportation plans in the event of a disruption to regular blood transportation routes.

10.0 Table 1: Guidelines for RBC Transfusions in Children and Adults in Shortages[1]

Green Phase	Amber Phase	Red Phase
Major Hemorrhage	**Major Hemorrhage**	**Major Hemorrhage**
Follow Facility/ISA guidelines.	Follow Facility/ISA guidelines.	• Triage all urgent blood order requests based on prioritization of need. • Follow triage/emergency framework if instructed by NEBMC[1]
Surgery/Obstetrics	**Surgery/Obstetrics**	**Surgery/Obstetrics**
Follow Facility/ISA guidelines.	• Urgent [2] and emergency [3] surgery in consultation with the Facility/ISA EBMC. • Peri/postpartum hemorrhage. • Consider use of alternatives to minimize RBC requirements • The minimal number of units to stabilize patient should be used.	• Emergency situations in consultation with the Facility/ISA EBMC. • Follow triage/emergency framework if instructed by NEBMC [1]
Non-Surgical Anemias [4]	**Non-Surgical Anemias [4]**	**Non-Surgical Anemias [4]**
Follow *'Transfusion Best Practice Recommendations in Adult Patients - SK*. http://saskblood.ca/transfusion-best-practice-recommendations/	• All requests for RBC transfusion in a non-bleeding patient with a Hb level > 70 g/L must be reviewed by designated medical personnel. • For patients with hypoproliferative anemia, single unit transfusion should be provided if alternatives to RBC are unsuccessful and significant anemia symptoms are present. Reassessment of severity of symptoms after each unit is required.	• All requests for RBC transfusion in a non-bleeding patient with a Hb level > 60 g/L must be reviewed by designated medical personnel. • For patients with hypoproliferative anemia, single unit transfusion should be provided if alternatives to RBC are unsuccessful and significant anemia symptoms are present. Reassessment of severity of symptoms after each unit is required.

1. These guidelines are available on http://www.nacblood.ca/resources/shortages-plan/index.html
2. Urgent surgery – patient likely to have major morbidity if surgery not performed within the next one to 28 days
3. Emergency surgery – patient likely to die (have major morbidity) with 24 hours without surgery
4. Includes anemia following trauma, surgery and delivery

Notes:

- Given the relatively small volumes/numbers of units required, transfusions for neonates (i.e. patients less that 4 months of age) would be given according to usual guidelines (i.e. would not be restricted even in times of shortage). However, measures to share units among neonates or between neonates and larger patients should be used to the extent possible.
- In Red or Amber phases, the Facility/ISA blood bank director, in consultation with the patient's physician, may consider the use of a blood component which has passed its Health Canada approved storage period. In such cases the justification for the use of an outdated product must be documented by the responsible physician in the patient's chart, and every effort must be made to obtain, specific patient consent.

11.0 Table 2: Guidelines for Platelet Transfusion in Children and Adults in Shortages[1]

Green Phase	Amber Phase[2]	Red Phase[2]
Major Hemorrhage	**Major Hemorrhage**	**Major Hemorrhage**
• Immune thrombocytopenia and life- or limb-threatening bleeding maintain PC >10 x 10^9/L. • For head trauma or CNS bleeding maintain a PC >100 x 10^9/L • Other significant bleeding, or acute promyelocytic leukemia at acute presentation, maintain a PC >50 x 10^9/L.	For head trauma or CNS bleeding maintain a PC > 80 x 10^9/L. Withhold routine platelet issue from the first MHP/MTP box in the absence of a confirmed indication for platelet transfusion (i.e., platelet dysfunction, PC <50)	Same as Amber phase.
Invasive Procedures/Surgery	**Invasive Procedures/Surgery**	**Invasive Procedures/Surgery**
• For non-surgical invasive procedures maintain a PC >20 x 10^9/L (central venous catheter insertion, paracentesis, thoracentesis) • For lumbar maintain a PC >50 x 10^9/L • For CNS surgery maintain a PC >100 x 10^9/L	• Urgent [2] and emergency [3] surgery in consultation with Facility/ISA EBMC. • In presence of active bleeding or surgical procedure maintain a PC > 50 x 10^9/L or if CNS trauma/surgery a PC > 80 x 10^9/L. • For non-surgical invasive procedures (other than bone marrow aspiration or biopsy) maintain a PC > 10 x 10^9/L with image guidance. • For lumbar puncture, maintain a PC >20 x 10^9/L.	• Emergency surgery in consultation with H/RBEMC • All requests for platelet transfusion must be reviewed by designated medical personnel

Table continues on next page

Bone Marrow Failure/ Hematopoietic Stem Cell Transplantation/ Chemotherapy	Bone Marrow Failure/ Hematopoietic Stem Cell Transplantation/ Chemotherapy	Bone Marrow Failure/ Hematopoietic Stem Cell Transplantation/ Chemotherapy
• Adhere to a maximum threshold PC of 10 x 10^9/L for prophylactic platelet transfusions.	• Adhere to a maximum threshold PC of 10 x 10^9/L for prophylactic transfusions; consider lowering this threshold to 5 x 10^9/L • Transfuse patients undergoing autologous stem cell transplantation only if symptoms of bleeding. • All requests for platelet transfusion in non-bleeding patients with a platelet count > 10 x 10^9/L must be reviewed by designated medical personnel. • Consideration issuing half-doses of platelets for all non-bleeding/prophylactic transfusions.	• Eliminate all prophylactic transfusions. • All requests for platelet transfusion must be reviewed by designated medical personnel.

1. These guidelines are available on http://www.nacblood.ca/resources/shortages-plan/index.html
2. Urgent surgery – patient likely to have major morbidity if surgery not performed within the next one to 28 days
3. Emergency surgery – patient likely to die (have major morbidity) with 24 hours without surgery
4. Includes anemia following trauma, surgery and delivery

Notes:

- PC = Platelet Count; MHP/MTP = Massive Hemorrhage Protocol/Massive Transfusion Protocol
- Given the relatively small volumes/numbers of units required, transfusions for neonates (i.e. patients less that 4 months of age) and intrauterine transfusions would be given according to usual guidelines (i.e. would not be restricted even in times of shortage). However, measures to share units among neonates or between neonates and larger patients should be used to the extent possible
- Follow the same guidelines for cancelling/performing surgery as described in Table 1
- Split doses of platelets (apheresis or buffy coat) should be considered if available. Health Canada advises that splitting doses of platelets is considered aliquoting and is not a processing activity which requires registration. Sample aliquoting procedures are available on the NAC website.
- Lower PC thresholds for platelet transfusions for surgical bleeding or special procedures (such as ECMO) should be used.
- In Red or Amber phases, the Facility/ISA Transfusion Medicine Medical Director, in consultation with the patient's physician, may consider the use of a blood component which has passed its Health Canada approved storage period. In such cases the justification for the use of an outdated product must be documented by the responsible physician in the patient's chart, and every effort must be made to obtain, specific patient consent.

12.0 Exceptional Release Process during a Red Phase Blood Shortage

Blood Component/Product Recalls and Withdrawals
Blood component/product recalls and withdrawals are initiated when a suspect blood component or product has the potential to cause harm to a patient.

Health Canada's, *Health Products and Foods Branch*, numerically classifies the level of risk associated with the cause of the recall/withdrawal recalls into three types, from the most serious, Type I, to the least serious, Type III.

Risk Classifications - Recalls/Withdrawals	
Type I	Reasonable probability of serious adverse health consequence or death
Type II	Temporary adverse health consequence or remote probability of serious adverse health consequence
Type III	Not likely to cause any adverse health consequences

Recalls and withdrawals of blood components/products are initiated by CBS in accordance with Health Canada regulations and standard operating procedures. Once CBS makes the decision to recall or withdraw blood components/products from inventory, the required notification to Facilities/ISAs is conducted as per standard procedure.

Date-Expired Blood Components/Products

Health Canada's *Food and Drugs Act & Regulations* sets conditions under which an expiration date must be listed on blood component and plasma protein product labels. The expiration date placed on blood components/products is the date to which the blood supplier or the manufacturer guarantees complete potency and efficacy.

Exceptional Release Circumstances during Red Phase Blood Shortage
It may be necessary for the Facility/ISA to consider retaining date-expired, recall or withdrawal blood components/products during a Red phase blood shortage.

The Facility/ISA in consultation with PEBMC will evaluate the following when considering the need to retain date-expired or recall/withdrawal blood components/products for possible exceptional release during a Red phase blood shortage:

- Inventory level of the affected blood component/product
- Risk classification of recall or manufacturer withdrawal
- Length of time blood component/product has been retained beyond expiry date. Consideration may be given to using platelets up to 8 days of storage (24 hrs post expiration). Approval will be at the ISA TM Medical Director's discretion. The risk associated with lack of a validated and Health Canada approved test to detect bacterial contamination should be explained to the treating physician.
- Recipient risk

Exceptional release of date-expired, recall, or withdrawal blood components/products may be considered when the patient's clinical situation is justified. Exceptional release can only take place with the approval of the Facility/ISA Medical Director or designate in close consultation with the patient's treating physician/authorized health practitioner.

Exceptional Release Criteria

In order for a date-expired, recall or withdrawal blood component or plasma protein product to be "exceptionally released", all of the following criteria must be applied:

1. A blood component or plasma protein product that has been determined safe for transfusion is not available, or is not available within the time necessary for treatment to occur; and
2. The patient has been clinically assessed by the treating physician/authorized health practitioner to require the blood component or plasma protein product urgently to treat a serious condition; and
3. Only a date-expired, recall or withdrawal blood component or plasma protein product is available; and
4. No other treatment option is suitable for the patient; and
5. The date-expired, recall or withdrawal blood component or plasma protein product is assessed as the most suitable treatment for the patient; and
6. The date-expired, recall or withdrawal blood component or plasma protein product is to be used only for the treatment of one patient; and
7. Informed consent of date-expired, recall or withdrawal blood components or blood products shall be obtained from the patient or substitute decision-maker by the treating physician.

Conditions of Exceptional Release:

For exceptional release of date-expired, recall or withdrawal blood components and/or blood products all of the following conditions must be met:

1. All the circumstances mentioned above in "Exceptional Release Criteria" have occurred; and
2. The treating physician/authorized health practitioner must provide a written request to the ISA Medical Director with the following information:
   - Patient details – patient's last and first name, HSN/MRN, DOB, sex, ward/location;
   - Diagnosis - the indication/condition that the quarantined blood component/product(s) will be used to treat;
   - Name, address and contact phone number for the treating physician/authorized health practitioner;
   - The clinical need to use the date-expired, recall or withdrawal blood component/plasma protein product;
   - A copy of the written informed consent verifying the patient or guardian has been told about the likely risks and benefits from the use of the date-expired, recall or withdrawal blood component/plasma protein product; and
3. The transfusion service/laboratory shall provide the following information on the written request:
   - A summary of the reason for the recall or withdrawal of the blood component/plasma protein
   - Blood component/product(s) issue details – blood component/product type, unit or lot number;
   - The date that the date-expired, recall or withdrawal blood component/product(s) was released by the facility; and
4. The ISA Medical Director shall authorize exceptional release of date-expired, recall or withdrawal blood components/products under extenuating circumstances after

consultation and agreement with the Northern or Southern Saskatchewan Transfusion Medicine Consultant; or

5. In absence of the ISA Medical Director or designate, the Saskatchewan Transfusion Medical Consultant shall authorize exceptional release of date-expired, recall or withdrawal blood components/products under extenuating circumstances; and
6. The written informed consent and the exceptional release approval must be placed in the patient's medical record.
7. "Exceptional release" component/product information must be documented in the recipient's medical record.

Submitting the Completed Form to the ISA Medical Director or designate

1. A completed copy of the Exceptional Release of Blood Components/Products Form must be forwarded to the ISA Medical Director or designate.
2. A copy of the written informed consent from the patient/legal guardian or a statement from the treating physician/authorized health practitioner explaining why the patient/guardian cannot give consent must accompany the form.
3. When possible, the form should be submitted to the ISA Medical Director or designate prior to the release of the date-expired, recall or withdrawal blood component or plasma protein product.

Labeling Exceptionally Released Blood Component/Product(s) Prior to Issue

1. The transfusion service/laboratory shall prepare and attach an approved label to the exceptionally released blood component/product(s) unit label indicating the unit was issued under "exceptional release".
2. When labeling units, the following criteria should be met whenever possible:
   - Use only labels with adhesive approved for use on blood component/product bags
   - Do not use scotch tape, masking tape or other adhesives that are not approved
   - Do not use felt pen on bag labels; use pen only

Results of Completed Testing/Screening (when applicable)

1. CBS must notify the ISA transfusion service/laboratory when infectious disease testing or other additional testing has been completed with the results.
2. The transfusion service/laboratory must notify the ISA Medical Director when infectious disease testing or other additional testing has been received with the results.
3. Should the units subsequently prove to be harmful to the recipient, the ISA Medical Director, the treating physician/authorized health practitioner and the recipient must be informed.
4. Results of the infectious disease testing or other additional testing must be included in the recipient's medical record.

Reporting Associated Adverse Events

The Saskatchewan Transfusion Medicine Consultants must provide the ISA Medical Director with any adverse events reports relating to the use of the exceptionally released blood component or plasma protein product.

Specifically, the report must include the following information:

- initials, gender and date of birth of patient;
- name and address of the treating physician/authorized health practitioner to whom the blood component/plasma protein product was exceptionally released;

- product identification details;
- date of exceptional release;
- any adverse events relating to the use of the exceptionally released blood component/plasma protein product.

12.1 Template for Facility/ISA Medical Director Approval for Exceptional Release

MEDICAL DIRECTOR APPROVAL FORM FOR EXCEPTIONAL RELEASE		
Health Care Provider Use Only		
Section A - Patient Information		
Last name:	First name:	HSN/MRN:
Date of birth: (dd/mm/yy)	☐ Male ☐ Female	Ward/Location:
Diagnosis:		# of Units Required:
Section B – Requesting Physician/Authorized Health Practitioner Information		
Name:	Location/Address:	
Telephone:	Cell Phone:	
Section C – Reason for Exceptional Release Distribution Request (to be completed by Physician/Authorized Health Practitioner)		
Section D – Sections A, B and C Completed By		
Name:	Position:	
Date: (dd/mm/yy)	Time: (24 hr)	
Transfusion Service / Laboratory Use Only		
1. Conforming ABO compatible blood components/products: a. Not available: □ Yes □ No b. Not available within the time necessary for treatment: □ Yes □ No 2. Only retained/quarantined blood component/s/products are available: □ Yes □ No		
Section E – Approval from Facility/ISA Medical Director or Hematopathologist on call		
Name:	Date: (dd/mm/yy)	Time: (24 hr)
Telephone:	Cell Phone:	
Section F – In absence of Facility/ISA Medical Director: Approval from SK Transfusion Medicine Consultant		
Name:	Date: (dd/mm/yy)	Time: (24 hr)
Telephone:	Cell Phone:	
Section G – Issued Blood Component/Product(s)		
Blood Component/Product Type:	**Unit or Lot Number:**	
Issuing TS Lab Location:	Technologist Name:	
Date: (dd/mm/yy)	Time: (24 hr)	
Section H – Results of Completed Testing/Screening (when applicable)		
Section I – Reviewed By:		
Signature:	Designation:	

12.2 Template for Exceptional Release Informed Consent Form

EXCEPTIONAL RELEASE INFORMED CONSENT FORM

To be completed by the Patient/Substitute Decision Maker:

1. My physician/authorized health practitioner has informed me:
   a. That a blood component or plasma protein product that has been determined safe for transfusion is not available or is not available within the time necessary for my treatment to occur; and
   b. A blood component or plasma protein product is urgently needed to treat my serious medical condition; and
   c. Only a non-conforming blood component or plasma protein product is available; and
   d. No other treatment option is available for me; and
   e. The non-conforming component or plasma protein product is assessed as the most appropriate treatment for me.
2. The reason for the cause of the non-conforming blood component(s) and/or plasma protein product(s) (including tests not completed or conditions not met), the risks associated with this reason(s) and the extenuating circumstance requiring exceptional release has been explained to me.
3. I have been informed of and understand the benefits associated with transfusion.
4. The risks of having or not having the blood components and/or blood products have been discussed with me.
5. I have been given the opportunity to discuss my questions and concerns, and they have been answered to my satisfaction.
6. I understand that I have the right to change my mind at any time, including after I have signed this form. If I withdraw my consent, I understand that I am required to sign my refusal of transfusion.
7. My physician/authorized health practitioner has advised me that if the non-conforming blood component(s) and/or plasma protein product(s) subsequently proves to be harmful to me, s/he will inform me.

_____ _____ _____

(Name of Patient or substitute decision maker) (Signature) (Date and Time)

To be completed by the Physician/Authorized Health Practitioner:

Reason for Non-Conforming Blood Component and/or Plasma Protein Product:

☐ Date/Time-expired → Length of Time Post Expiry Date/Time: *(hrs/min)* _____

☐ Recall or withdrawal → Risk Classification of Recall:

- ☐ Type I - Reasonable probability of serious adverse health consequence or death
- ☐ Type II - Temporary adverse health consequence or remote probability of serious adverse health consequence
- ☐ Type III - Not likely to cause any adverse health consequences

☐ Infectious disease testing not complete

☐ Other:

Extenuating Circumstance for Exceptional Release of Non-Conforming Blood Component and/or Plasma Protein Product:

☐ Activated Emergency Blood Shortage – Red Phase

☐ Other:

I acknowledge that I have explained to the patient all the points under exceptional release criteria for blood components and plasma products. I have explained the reason for the cause of the non-conforming blood component(s) and/or plasma protein product(s) (including tests not completed or conditions not met), the risks associated with this reason(s) and the extenuating circumstance requiring exceptional release. I will inform the patient should the components/products subsequently prove harmful. It is my opinion that the patient/substitute decision maker understood the decision.

_____ _____ _____

(Name of Physician/authorized health practitioner) (Signature) (Date and Time)

Retain in Patient's Health Record

13.0 Notification Memos for Blood Shortage Phases

13.1 Amber Phase Notification Memo

MEMO

To: {Enter – as applicable – name of Department Heads for Anesthesia, Surgery, Critical Care, ICU, Emergency, Trauma, Hematology, Medicine, Obstetrics/Gynecology and Oncology, Directors of Laboratories, Nursing, Risk Management, Emergency Management, Communications / Public Relations, Patient Relations Officer, Chair of Transfusion Committee, Chair of Emergency Blood Management Committee, CEO}

From: {Enter name of Transfusion Service Medical Director}
Cc: {Enter name of Transfusion Service Chief/Charge Technologist}
Date: {Enter date}
Time: {Enter time}

Re: Notification of Blood Shortage – Amber Phase

We have received notification from Canadian Blood Services (CBS) that they are currently experiencing a shortage of **{enter name of blood component}.** The shortage is the result of **{enter the reason for the shortage}.** As a result, blood inventory levels may be reduced to conserve product for critically ill patients. **The following modifications to blood ordering will be implemented:**

- Elective medical and surgical procedures which have a greater than 10% chance of requiring the affected blood component(s) will be screened.
- Ordering will be expected to comply with the Saskatchewan Emergency Blood Management Plan guidelines provided with this communication **{attach, as applicable, Guidelines for Red Blood Cell Transfusion and/or Guidelines for Platelet Transfusion and/or Guidelines for Frozen Plasma Transfusion and/or Guidelines for Cryoprecipitate Transfusion}**.
- **{If an RBC shortage}** For non-surgical anemias (includes anemia following trauma, surgery and delivery), all requests for transfusion of the affected component in a non-bleeding patient with a hemoglobin level > 70 g/L will be reviewed.
- **{If a platelet shortage}** For bone marrow failure, hematopoietic stem cell transplantation or chemotherapy, all requests for platelet transfusion in non-bleeding patients with a platelet count > 10 x 10^9/L will be reviewed.
- Use of the affected component(s) may be prioritized according to patient need.
- Transfusions for neonates (patients <4 months old) and intrauterine transfusions can be given according to the usual guidelines.

This shortage **{include following clause if applicable: is being experienced across the province/country and}** is expected to continue for **{enter the expected length of shortage, or say: a prolonged period}.** Until you receive further notice, you will be asked to follow the Facility/ISA procedure for **Emergency Management of Blood – Amber Phase**.

If you need support in managing patients requiring blood during this period, please contact the Transfusion Service at {enter the contact number}.

13.2 Red Phase Notification Memo

MEMO

To: {Enter – as applicable – name of Department Heads for Anesthesia, Surgery, Critical Care, ICU, Emergency, Trauma, Hematology, Medicine, Obstetrics/Gynecology and Oncology, Directors of Laboratories, Nursing, Risk Management, Emergency Management, Communications / Public Relations, Patient Relations Officer, Chair of Transfusion Committee, Chair of Emergency Blood Management Committee, CEO}

From: {Enter name of Transfusion Service Medical Director}
Cc: {Enter name of Transfusion Service Chief/Charge Technologist}
Date: {Enter date}
Time: {Enter time}

Re: Notification of Blood Shortage – Red Phase

We have received notification from Canadian Blood Services (CBS) that they are currently experiencing a severe shortage of **{enter name of blood component}.** The shortage is the result of **{enter the reason for the shortage}.** As a result, blood inventory levels will be reduced to conserve product for critically ill patients. **The following modifications to blood ordering will be implemented:**

- All medical and surgical procedures requiring the affected component(s) will be screened with the exception of emergency surgical procedures.
- Use of the affected component(s) will be prioritized according to patient need, **{if an RBC shortage, include following clause and attach Priorities for Red Blood Cell Transfusion in a Blood Shortage}** in accordance with the priority levels provided with this communication
- **{If an RBC shortage}** For non-surgical anemias (includes anemia following trauma, surgery and delivery), all requests for transfusion of the affected component in a non-bleeding patient with a hemoglobin level > 60 g/L will be reviewed.
- **{If a platelet shortage}** All prophylactic platelet transfusions will be cancelled and requests for platelet transfusions in non-bleeding patients will be screened.
- Guidelines limiting the use of the affected component(s) for an individual patient will be implemented.
- Transfusions for neonates (patients <4 months old) and intrauterine transfusions can be given according to the usual guidelines.

This shortage **{include following clause if applicable: is being experienced across the province/country and}** is expected to continue for **{enter the expected length of shortage, or say: a prolonged period}.** Until you receive further notice, you will be asked to follow the Facility/ISA procedure for **Emergency Management of Blood – Red Phase**.

If you need support in managing patients requiring blood during this period, please contact the Transfusion Service at **{enter the contact number}**.

13.3 Recovery Phase Notification Memo

MEMO

To: {Enter – as applicable – name of Department Heads for Anesthesia, Surgery, Critical Care, ICU, Emergency, Trauma, Hematology, Medicine, Obstetrics/Gynecology and Oncology, Directors of Laboratories, Nursing, Risk Management, Emergency Management, Communications / Public Relations, Patient Relations Officer, Chair of Transfusion Committee, Chair of Emergency Blood Management Committee, CEO}

From: {Enter name of Transfusion Service Medical Director}
Cc: {Enter name of Transfusion Service Chief/Charge Technologist}
Date: {Enter date}
Time: {Enter time}

Re: Notification of Blood Shortage – Recovery Phase

We have received notification from Canadian Blood Services (CBS) that inventory levels for **{enter name of blood component/product}** have improved. As a result, critical blood conservation strategies may be lessened. Inventory levels on site will improve over the next few days back up to optimal levels.

Elective medical and surgical procedures/transfusions deferred as a result of the blood shortage may be slowly reinstituted on the basis of urgency. Requests for the affected component(s) will continue to be screened to reduce the possibility of a rapid increase in demand destabilizing the recovery of blood inventory levels.

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

If you need support in managing patients requiring blood during this period, or if you have any questions/comments regarding the recent shortage and how it was managed, please contact the Transfusion Service/Laboratory at **{enter the contact number}**.

13.4 Patient Notification of Blood Shortage Memo

MEMO

To: {Enter name of patient}
{Enter name of Ordering Physician}
{Enter name of Charge Nurse}

From: {Enter name of Transfusion Service Medical Director}

Cc: {Enter name of Transfusion Service Chief/Charge Technologist}
{Enter name of Risk Management contact}
Date: {Enter date}
Time: {Enter time}

Re: Blood Shortage – {Enter component name and group}

We have received notification from Canadian Blood Services (CBS) that they are currently experiencing a **{enter type of shortage: serious shortage (Amber Phase) or critical shortage (Red Phase)}** of **{enter name of blood component}.** The shortage is the result of **{enter the reason for the shortage}.** Hospital Transfusion Medicine Services in Saskatchewan have been required to reduce their inventory levels of **{enter name of blood component}** and to prioritize use according to patient need, with urgent and life-threatening cases having first priority.

As a result your scheduled **{enter one of the following, as applicable: medical procedure/surgical procedure/blood transfusion}** will be postponed based on current insufficient blood inventory levels.

This shortage **{include following clause if applicable: is being experienced across the country and}** is expected to continue for **{enter the expected length of shortage, or say: a prolonged period}.** Once blood inventory levels have improved, you will receive notice regarding your rescheduled **{enter one of the following, as applicable: medical procedure/surgical procedure/blood transfusion}.**

If you would like more information, please contact your nearest Transfusion Service/Laboratory at **{enter the contact number}**.

14.0 Patient Record for Non-Surgical Screening/Triage during Amber, Red and Recovery Phases

Section A: To be completed by the Transfusion Service/Laboratory:		
Phase: □ **Amber** □ **Red** □ **Recovery**	**# of Units Required:**	**Date/Time Needed:**
Patient Name:	**HSN:**	**Date of Birth:**
Patient Triage Tracking #:	**Facility:**	**Ordering Physician:**
Patient Diagnosis:		
Has patient received blood component(s) in the previous 24 hr? □ Yes □ No	Age:	PTT:
	Blood Group:	Fibrinogen:
	Hemoglobin:	pH:
	Platelet:	Lactate:
	INR:	Temp:
Section B: Forward to TSL Medical Director/Triage Team to Complete		
□ **Blood Access Priority 1** - Life threatening anemia from any cause (major trauma, obstetric hemorrhage) and transfusion is required within 24h to prevent patient death (or major morbidity). - Cannot delay stem cell transplantation or chemotherapy. - Cannot defer organ transplantation.	□ **Blood Access Priority 2** - Symptomatic but not life-threatening anemia that cannot be deferred without patient risk.	□ **Blood Access Priority 3** - Other non-urgent medical indications for transfusion.
Decision made to administer? □ Yes □ No	Date/Time:	# of units & products transfused:
Patient Outcome at 24 hrs:	Date/Time:	Re-assessment Decision:
Comments by Triage Team regarding patient and family concerns:		
Triage Documentation Completed by:	Name:	Signature:
Screening/Triage Officer:	Name:	Signature:
Follow-up:		
Patient Outcome at Discharge:		
Patient Outcome at 6 months:		

15.0 Patient Record for Surgical Screening/Triage during Amber, Red and Recovery Phases

Section A: To be completed by the Transfusion Service/Laboratory:		
Phase: □ **Amber** □ **Red** □ **Recovery**	**# of Units Required:**	**Date/Time Needed:**
Patient Name:	**HSN:**	**Date of Birth:**
Patient Triage Tracking #:	**Facility:**	**Ordering Physician:**
Patient Diagnosis:		**Date/Time Triage Request:**
Has patient received blood component(s) in the previous 24 hr? □ Yes □ No	Age:	PTT:
	Blood Group:	Fibrinogen:
	Hemoglobin:	pH:
	Platelet:	Lactate:
	INR:	Temp:
Section B: Forward to TSL Medical Director/Triage Team to Complete		
□ **Blood Access Priority 1** - Emergency surgery. Patient likely to die (have major morbidity) within 24 hours without surgery. - Urgent surgery. Major morbidity if surgery not performed within the next one to 28 days. - Cannot defer organ transplantation.	□ **Blood Access Priority 2** - Semi-urgent surgery. Minor morbidity if surgery deferred. - Cannot defer cancer surgery without risk to patient. - Symptomatic, but not life-threatening, postoperative or postpartum anemia.	□ **Blood Access Priority 3** - Elective surgery requiring cross-matched RBC support of 2 or more units of allogeneic blood.
Decision made to administer? □ Yes □ No	Date/Time:	# of units & products transfused:
Patient Outcome at 24 hrs:	Date/Time:	Re-assessment Decision:
Comments by Triage Team regarding patient and family concerns:		
Triage Documentation Completed by:	Name:	Signature:
Screening/Triage Officer:	Name:	Signature:
Follow-up:		
Patient Outcome at Discharge:		
Patient Outcome at 6 months:		

16.0 Patient Record for Major Hemorrhage Screening/Triage during Red Phase

Section A: To be completed by TSL Technologist		
Phase: □ **Red**	**# of Units Required:**	**Date/Time Needed:**
Patient Name:	**HSN:**	**Date of Birth:**
Patient Triage Tracking #:	**Facility:**	**Ordering Physician:**
Reason for Massive Hemorrhage:		**Date/Time Triage Request:**
Predicted to need >10 units in the next 24 hrs: □ Yes □ No	Age:	PTT:
	Blood Group:	Fibrinogen:
	Hemoglobin:	pH:
	Platelet:	Lactate:
	INR:	Temp:
Has patient received blood component(s) in the previous 24 hr? □ Yes □ No	Product Requested:	
Section B: Forward to TSL Medical Director/Triage Team to complete		
Follow the *Algorithm for the Triage Team* from NAC's *Red Phase Emergency Framework*		
Meets any exclusion criteria? □ Yes □ No If yes, which one(s)?	Date/Time of Assessment:	SOFA score:
Meets any <u>specific</u> exclusion criteria? □ Yes □ No If yes, which one(s)?	Date/Time of Assessment:	SOFA score:
Decision made to administer: □ Yes □ No	Date/Time:	# of units & products transfused:
Patient outcome at 24 hrs:	Date/Time:	Re-assessment Decision:
Comments by Triage Team regarding patient and family concerns:		
Triage Documentation Completed by:	Name:	Signature:
Screening/Triage Officer:	Name:	Signature:
Follow-up:		
Patient Outcome at Discharge:		
Patient Outcome at 6 months:		

17.0 Patient Record for Platelet Screening/Triage during Inventory Shortage

Phase: □ **Amber** □ **Red** □ **Recovery**		**Facility:**
Physician / Authorized Health Practitioner Use Only		
Patient Name:	HSN/MRN:	Date of Birth:
# of Platelet Components Required:		Date and Time Required: (dd/mm/yy) (hr)
Patient Clinical Setting: □ ITP – Immune thrombocytopenia □ Non-immune thrombocytopenia □ Procedures not associated with significant blood loss (vaginal delivery, central venous catheter insertion, paracentesis, thoracentesis) □ Therapeutic anticoagulation that cannot be stopped □ Significant Bleeding Major surgery Pre invasive procedure associated with significant blood loss Lumbar puncture Acute promyelocytic leukemia (for acute presentation) □ Peri-neurosurgery Head trauma or CNS bleeding Extreme life-threatening hemorrhage □ Platelet dysfunction (antiplatelet agents (e.g. clopidogrel), post cardiopulmonary bypass pump) AND marked bleeding		**Patient Platelet Count:** _____
Patient received platelet(s) in the previous 24 hr? □ Yes □ No		Patient ABO/Rh
Printed Name of Requesting Physician:		Signature of Requesting Physician:
Transfusion Service / Laboratory Use Only		
# of ABO/Rh compatible units available:		# of alternate ABO/Rh compatible units available:
ABO/Rh of units issued:		# of units issued:
Split doses of platelets issued: □ Yes □ No		Post-transfusion treatment with RhIG required: □ Yes □ No
Facility/ISA Screening/Triage Committee / EBMC / Transfusion Committee		
Patient Triage Tracking #:		**Date and Time of Triage:** (dd/mm/yy) (hr)
Rationale for approval/denial:		
Name of Physician notified:		Date/Time:
Patient outcome at 24 hrs:	Date/Time:	Re-assessment decision:
Comments by Screening/Triage Officer/Team:		Comments regarding patient and family concerns:
Screening/Triage Documentation Completed by:		Signature:
Screening/Triage Officer Name		Signature:
Follow-up:		
Patient Outcome at Discharge:		

18.0 Screening/Triage Tracking Log

Triage Tracking Number	HSN/MRN	Patient Last Name	Patient First Name	Product & Number Requested	Blood Group	MD Requesting	Clinical Indication	Products Available	Decision	MD Reviewing
1)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
2)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
3)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
4)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
5)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
6)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
7)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
8)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
9)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	
10)				□ RBCs, # □ Plts, # □ Plasma, #				□ RBCs, # □ Plts, # □ Plasma, #	□ Delay □ Cancel □ Transfuse	

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