



NOVA SCOTIA PROVINCIAL BLOOD COORDINATING PROGRAM

Nova Scotia Blood Shortage Simulation Report

June 2011

A silhouette of a lighthouse with a glowing light inside, set against a sunset sky over the ocean.

NOVA SCOTIA

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Acknowledgements

The enactment of a provincial blood shortage simulation is a substantive undertaking and was successful due to the ongoing support of various Nova Scotia healthcare professionals and stakeholders. On January 11, 2011, as a result of collaborative efforts, the simulation was held and provided an understanding of Nova Scotia's preparedness to respond to an actual blood shortage. The exercise would not have been possible without the participation of the Canadian Blood Services Halifax office who liaised with the NSPBCP every step of the way.

The following groups are recognized for their on-going support and in particular the support to perform and participate in this exercise:

The Department of Health and Wellness
The Nova Scotia Transfusion Medicine Quality Specialist Working Group (NSTMQSWG)
The Nova Scotia Association of Clinical Laboratory Managers (NSACLM)
The Blood Transfusion Medicine/Laboratory Medical Directors
Senior Leadership of the DHAs/IWK
Emergency Health Services

Special Thanks to

Wendy Owens and the members of Ontario Provincial Blood Coordinating Network (ORBCoN), for the provision of Ontario's simulation exercise template and acting as a resource for the Nova Scotia project.

Executive Summary

The release and distribution of the Nova Scotia Provincial Blood Contingency Plan occurred in April 2010, soon after the September 2009 release of the National Plan for the Management of Shortages of Labile Blood Components by Canadian Blood Services.

The purpose of the *Contingency Plan* is to maximize the effectiveness of a provincial response to a crisis that impacts the blood supply in Nova Scotia; it provides a framework to ensure a consistent, coordinated response within the province. It is provincial in scope, and is intended to provide guidance to Nova Scotia's District Health Authorities and the IWK Health Centre enabling the development of facility specific Blood Emergency Management Plans. It delineates roles and responsibilities for all the relevant blood-system stakeholders and induces the activation of provincial networks that will respond to a crisis based on blood product/blood component inventory levels.

Exercise planning began summer 2010, with meetings occurring between the NSPBCP and CBS. The Program Advisory Council (PAC) supported the development of the exercise by the NSPBCP and CBS with the caveat that we build upon the lessons learned by other jurisdictions that conducted a simulation. Nova Scotia enjoyed the benefits of the work of ORBCoN, who performed a similar exercise in March of 2010. PAC approved the approach to exercise planning and supported the following as exercise objectives:

- Increase awareness of the possibility of blood shortages
- Encourage hospital preparedness
- Evaluate Nova Scotia's level of preparedness to respond to blood shortages

The exercise was supported provincially by the Program Advisory Council (PAC), the Transfusion Medicine Advisory Group (TMAG), by Senior Leadership at the DHAs/IWK and during a fall meeting of the Nova Scotia Association of Clinical Laboratory Managers (NSACLM).

Informing Nova Scotia Hospitals in advance of the exercise promoted an increased awareness of the upcoming exercise and possibility of blood shortages as well as encouraged preparedness amongst the facilities. Submission of exercise evaluation documents provided a mechanism to measure Nova Scotia's preparedness in relation to the *Contingency Plan* and a mechanism to document areas of improvement.

Although several key lessons were learned, all stakeholders identified communication as an area to improve upon and all participants identified areas to improve upon within their scope of practice. The report includes a summary of participant findings, NSPBCP recommendations and conclusions. Feedback from participants indicated that the exercise was beneficial to their organization. An overview of the exercise evaluations indicates the exercise objectives were met.

Acronyms

The following are provided to ensure consistency in interpretation of this document.

BEMP	Blood Emergency Management Plan
BEMG	Blood Emergency Management Group
BERT	Blood Emergency Response Team
BTC	Blood Transfusion Committee
BTS	Blood Transfusion Service (may also be referred to as Blood Bank)
CBS	Canadian Blood Services
DHA	District Health Authority
DoHW	Department of Health and Wellness
EHS	Emergency Health Services
HLS	Hospital Liaison Specialist
IMSC	Inventory Management Sub Committee
IMT	Inventory Management Tool
IWK	Isaak Walton Killam Health Science Centre
MLT	Medical Laboratory Technologist
NEBMC	National Emergency Blood Management Committee
NSACLM	Nova Scotia Association of Clinical Laboratory Managers
NSPBCP	Nova Scotia Provincial Blood Coordinating Program
ORBCoN	Ontario Regional Blood Coordinating Network
PAC	Program Advisory Committee (of the NSPBCP)
PBCO	Provincial Blood Coordinating Office
TMQSWG	Transfusion Medicine Quality Specialist Working Group

1.0 Background

In 2004 the Nova Scotia Provincial Blood Coordinating Program (NSPBCP) established the Blood Emergency Response Team (BERT) as a mechanism to review emergent threats to the blood supply and to develop a response plan in order to minimise the impact to Nova Scotia's health system. This team has representatives from Canadian Blood Services (CBS), the District Health Authorities (DHAs)/IWK, the Department of Health and Wellness and the Provincial Blood Coordinating Program (PBCP).

BERT and the DHAs/IWK requested the NSPBCP develop a provincial blood contingency plan to ensure a consistent and coordinated response to blood shortages within Nova Scotia. The NSPBCP established a provincial blood contingency working group and the Nova Scotia Blood Contingency Plan was published in April 2010.

The Transfusion Medicine Quality Specialist Working Group (TMQSWG); a group of Medical Laboratory Technology representatives from the DHAs/IWK, was a vital resource for the implementation of the plan at the DHA/IWK level. Each DHA/IWK was provided a copy of a provincial Blood Emergency Management Plan (BEMP) template which serves to transition the contingency plan into documented laboratory process. The actions of the TMQSWG enabled uptake of the contingency plan through implementation of BEMPs.

The NSPBCP Program Advisory Council (PAC) recommends annual program goals to be achieved in accordance with the NSPBCP's guiding principles. In May 2010, the NSPBCP sought PAC's advice as to whether a mock exercise should be performed on the Provincial Blood Contingency Plan. PAC supported conducting a shortage exercise and recommended that the NSPBCP and CBS liaise to conduct this. It was also recommended that the NSPBCP obtain the report of the simulation performed in Ontario in order to benefit from the lessons learned in Ontario. National activation was not felt to be necessary. PEI expressed an interest to participate as an observer.

An exercise date of January 11, 2011 was selected and disclosed to Nova Scotia hospitals as the date of the exercise. The date was disclosed in an effort to minimize any negative impact to service delivery as requested by the NSACLM; disclosure of the date was supported by the Department of Health and Wellness emergency planning office.

1.1 Support

The Program's Advisory Council supported conducting a blood shortage exercise be performed. Support was sought and received from the Transfusion Medicine Advisory Group (TMAG), the DHA/IWK Vice President's Clinical and the DHA/IWK Vice President's of Medicine and the DHA/IWK Laboratory Managers.

1.2 Purpose/Goals

The objectives of the simulation exercise were to; increase awareness of the possibility of blood shortages; encourage hospital preparedness and to evaluate Nova Scotia's level of preparedness to respond to blood shortages.

1.3 Scope and Key Stakeholders

With the support of TMAG and PAC, it was decided the simulation exercise would remain provincial in scope. The National Emergency Blood Management Committee (NEBMC) was advised of Nova Scotia's exercise prior to the event and the Chair of NEBMC was notified on the day of the exercise.

All hospitals within Nova Scotia's DHAs and the IWK were included in the exercise as Nova Scotia is a small province; information is streamlined through the parent facility at each DHA/IWK providing an opportunity to test plans while at the same time increasing awareness of inter-hospital transport opportunities.

In addition to the DHAs/IWK, other key stakeholders identified within the contingency plan were invited to participate in the exercise. This included representatives from DHW Health Services Emergency Management, Emergency Health Services Medical Communication Centre office, the Blood Emergency Response Team (BERT); the CBS Halifax office and the NSPBCP.

2.0 Simulation Exercise

2.1 Simulation Planning

The planning committee met in August of 2010 to define the exercise structure. At that time meeting dates and the assignment of tasks began. Both parties committed to monthly meetings, in person and via teleconference as required to meet the ambitious timeline of January 2011.

Communication of the simulation exercise began in September 2010 at the TMQSWG meeting and through informal communication. Early communication to this group was vital to contribute to achieving the following goals:

- Increase awareness of the possibility of blood shortages
- Encourage Hospital Preparedness

A formal notification (Appendix A) was faxed by the NSPBCP on December 15, 2010 to all CBS customers, using the CBS customer fax list as the source. Recipients were asked to confirm receipt of the fax and non-confirmed sites were contacted by telephone until a faxed response was received. Approximately 2

hours was required in order to send the faxes to all sites on the CBS distribution list.

Planning members suggested the simulation exercise would be of an Amber phase RBC shortage with an undetermined recovery period; the description of the simulated event was supported by both PAC and TMAG members. The event details were communicated on the day of the exercise as per Appendices B and C; by fax and by electronic mail.

It was established participants would be all Nova Scotia hospitals as per CBS's customer distribution list. A mechanism to simplify reporting and to optimize Nova Scotia hospital inventory reporting to the NSPBCP and CBS was established through the support of the TMQSWG. The NSPBCP proposed each DHA assign a parent facility who would take responsibility to collect inventory from the children facilities. The same parent facility confirms intermittent communication and recommendations from CBS, BERT and/or the NSPBCP would be shared with the children facilities within each district. The IWK Health Centre is a stand alone facility and is considered outside of the parent/child reporting patterns adopted by all Nova Scotia DHAs. Adoption of parent/child reporting required modifications to the Inventory Management Tool (IMT) previously created by NSPBCP.

DHA/IWK specific IMT templates were developed and distributed to the parent blood transfusion service facilities. TMQSWG members and Inventory Management Sub Committee members attended a teleconference in December to test run the templates with the expectation they would be trialed during the simulation exercise for inventory submission.

At the time of the exercise, Nova Scotia was fortunate to benefit from various templates and experiences reported by the Ontario Regional Blood Coordinating Network; also known as "ORBCoN". The Ontario simulation exercise took place in March of 2010. As a result of Ontario's sharing, N.S. was able to identify and act upon deficiencies and challenges prior to performing the provincial exercise.

ORBCoN had identified faxing issues which enabled Nova Scotia to optimize faxing in advance of the exercise simply by using separate fax numbers to send and receive information. With a heightened awareness of fax traffic, CBS was able to expand the number of fax machines equipped with customer distribution lists. The NSPBCP office also built a CBS customer fax list to enable communication to the CBS distribution list from the program office. ORBCoN's exercise identified a gap in communication between their office and EHS; sharing this gap the NSPBCP established a relationship with EHS and invited them to participate in our exercise.

CBS communicates with hospital customers through the blood banks via fax and maintains a customer distribution fax list. The simulation event messaging from CBS followed their usual process. Event messaging from the NSPBCP followed current mechanisms based on the group to be contacted. NSPBCP provides a secretariat function to BERT and communication to this group is usually via electronic mail and followed up by a telephone call as required. Combined

CBS/NSPBCP communications sent from the program were faxed to the CBS distribution lists as per CBS practice.

To aid in the documentation of events, some provincial programs such as Ontario and British Columbia, developed a tool kit to support their blood shortage plans. The development of a tool-kit was commissioned to support documentation of the exercise. Ideas and templates from pre-existing documents were helpful in the design of the Nova Scotia tool-kit. The Nova Scotia tool-kit was developed and distributed to the TMQSWG during a meeting held in December 2010. Various templates were included in the tool-kit to promote consistent reporting and documentation of the exercise. Advanced distribution of the tool kit allowed participants to familiarise themselves with templates prior to the exercise. Additionally a word format compact disc containing the templates was included in the manual for ease of access to templates. All templates used throughout the exercise were developed during the planning phase and are included in this report as appendices.

The NSACLM group supported the exercise however requested disclosure of the exercise date. Emergency planning at the Department of Health and Wellness was consulted and approved of sharing the date with participants.

The first official communication was issued by the NSPBCP office on December 17, 2010 (Appendix A) announcing the exercise date as January 11, 2011. It was discovered the NSPBCP fax machine would have limited application in messaging urgent information as the timeframe to fax was approximately 2 hrs. As the program has two machines, the original fax distribution list became two lists and added to each fax machine to enable a more efficient fax time frame.

2.2 Exercise Day January 11, 2011

The following template lists the flow of the exercise.

Simulation Activity Schedule

Date	Time	Activity	Target	Responsibility	Complete by, Date & Time
Mon Jan 10, 2011	1:30-2:00pm	Pre- Simulation Teleconference (phone number) passcode	Planning committee members	NSPBCP	
Tue Jan 11, 2011	8:00am	Telephone Chair of BERT Dr. Anderson and notify him simulation exercise is about to begin	Chair of BERT	CBS production manager	
	8:05am	Fax Amber Alert Fax & NSPBCP memo	All NS hospitals , NSPBCP & PEI Transfusion Service & EHS	CBS admin	
	8:05am	Email Amber Alert	All NS hospitals, NSPBCP & PEI Transfusion Service	CBS production manager	
	9:00am	BERT Convening, email agenda	BERT members	NSPBCP	
	9:00am	Email IMSC / PEI teleconference agenda	IMSC, NSPBCP committee/PEI Transfusion	CBS HLS	
	9:00am-11:00am	Inventory Management Tool	NS Districts & IWK submit	NSPBCP	
	Approx 9:00am	CBS Daily Inventory	NSPBCP	CBS production manager	
	11:00am	IMSC Teleconference (phone number) passcode	IMSC committee/PEI Transfusion	CBS HLS/ NSPBCP	
	2:00pm	BERT Teleconference (phone number) passcode	BERT	NSPBCP	
	Approx 3:30pm	BERT recommendations & Simulation Complete Fax	All NS hospitals & CEO, VP's, DOH, CBS and PEI Transfusion	NSPBCP	
Thur Jan 13, 2011	2:00-3:00pm	Debrief Teleconference (phone number) passcode	BERT TMAG/QS/CBS/NSPBCP	NSPBCP	

Exercise day began with CBS informing the chair of BERT the exercise was beginning, followed by the faxing of Appendices C and D to their customer distribution list. Two pages were faxed in a one hour time frame. In keeping with current CBS processes the production manager also emailed the advisory alert as per CBS established processes.

Several concurrent activities began at 0900 hrs including communication of the associated CBS alert/advisory notice to BERT and Appendix F by email. The

IMSC agenda was emailed to the target audience. The DHAs and IWK received an email request to submit their IMT sheet to the NSPBCP and the CBS daily inventory was shared with DHAs/IWK via email as per usual distribution.

The IMSC teleconference was initiated at 1100 as per Appendix E. The call lasted for approximately 30 minutes and there was representation from each of the DHAs, the IWK, NSPBCP and CBS. There were 27 participants in total and 100% provincial representation; including PEI as an observer. The IMSC agenda (Appendix E) was followed and attendees were reminded to submit copies of two of the tool kit templates: the Amber phase checklist and the Event Log.

By 1120 hrs all individual IMT sheets had been received by the NSPBCP, as sheets were received the summary was updated to reflect facility inventory information. The IMT summary was emailed to the target audience at 1314 hrs and discussed during the 1400hr BERT teleconference.

The BERT teleconference began at 1400hrs as per Appendix F. As inventory levels were reported as per actual inventory (not simulated) the process and how the IMT displays inventory information became the focus of the discussion as opposed to a lack of inventory. Consideration was given to the format of the IMT inventory information display and if the present format supports inventory management decision making during blood shortages. The opportunity to discuss the IMT with inventory decision maker's prompted a few recommendations for improvement, and is discussed in Section 5.

Once the BERT team reviews the IMT and considers the event, recommendations are prepared to distribute to hospitals and stakeholders. For the purpose of this simulation exercise it was agreed to distribute Appendix G in lieu of an actual recommendation. The BERT teleconference ended at 1500 hrs and a letter of explanation (Appendix G) was emailed to the target audience at 1532 hrs.

3.0 Evaluation Summary

Each parent facility of the DHAs and the IWK were asked to complete an Evaluation Exercise form (Appendix J) on behalf of their facility (ies). Responses were received from all 10 parent facilities therefore 100% reporting was achieved.

CBS/EHS/DHW were also provided with the opportunity to evaluate the exercise and provide feedback on their experience related to their business needs.

3.1 Approach to creating the evaluation document

The evaluation was created to provide a measure of exercise goals and an opportunity for participants to document suggestions for improvement.

The document is structured to measure goals 1 and 2 by having participants rate the exercise. The strategy to provide a measure for Goal 3 is two parts, having a

BEMP in place and then understanding the ability to respond to potential BERT recommendations.

Prior to performing the exercise, the NSPBCP was well informed of the status of each DHAs/IWK BEMP as this is a reportable element of the NSPBCP strategic plan. Prior to the simulation the NSPBCP did not gather information on the presence of processes in the DHAs/IWK to respond to BERT recommendations. The provincial Blood Contingency Plan provides phase specific actions to consider as possible BERT recommendations during shortages and threats. To provide a measure of Goal 3; “Evaluate Nova Scotia’s level of preparedness to respond to blood shortages” participants were asked to provide an answer to their ability to respond to various actions which match the considerations listed in Nova Scotia’s plan.

3.2 Results

The first section of the evaluation asks participants to rate their experience providing a measure for Goal’s 1 and 2.

1. Increase awareness of the possibility of blood shortages
2. Encourage Hospital Preparedness

Goal 1 statements

The exercise positively impacted BTS awareness of a possible blood shortage. The exercise positively impacted BTS emergency preparedness related to blood shortages.

- 60% Strongly agree (6 of 10)
- 30% Somewhat agree (3 of 10)
- 10% Somewhat disagree (1 of 10)

Goal 2 statement

The exercise overall positively impacted facility awareness of a possible blood shortage

- 30% Strongly agree (3 of 10)
- 50% Somewhat agree (5 of 10)
- 20% Neutral (2 of 10)

Goal 3 statement

Evaluate Nova Scotia’s level of preparedness to respond to blood shortages

- 90% (9 of 10) respondents have Blood Emergency Management Plans (BEMPs)
- 100% (9 of 9) of plans address notifying internal stakeholders
- 44 % (4 of 9) address notifying patients

Note: Prior to the exercise, participants established the level of BEMP activation to occur in their facilities. Some maintained the exercise in the BTS while others expanded the exercise throughout the organization. Evaluation responses indicate 7 of 9 participants activated their plans during the shortage.

The following section was designed to measure actions as per the N.S plan

Does your facility have a process in place to:	Process in place Possible N=10	Activated during the exercise
1. Cut MSBOs and provide communication to stakeholders?	3 yes, 2 no ,2 n/a	1
2. Reduce blood reservation period?	7yes, 2 no	2
3. Reduce transfusion triggers?	7 yes, 1 no	3
4. Review requests and determine requirement, case by case basis?	9 yes	5
5. Receive Medical Director Approval for transfusion requests not meeting predetermined approval (Table 1 pg 6 of toolkit)?	8yes, 1 no	4
6. Document and implement BERT’s recommendations?	8yes, 1 no	2
7. Reduce minimum inventory level requirements?	8yes, 1 no	2
8. Delay elective surgeries requiring blood component support?	7yes, 2 no	2
9. Delay the initiation of chemotherapy treatment and BMT?	5yes, 3 no	0
10. Delay liver transplantation?	*1yes, 5 no, 1 n/a	0
11. Extend expiry dates for components: RBC, PLT, FP/ aFFP?	5yes, 4 no	0
12. Expand use of alternatives such as erythropoietin?	2 yes, 7 no	0
13. Document transfusion decision making? Please send in Documentation and Transfusion log sheets with patient names and identifiers removed)	6yes, 2 no	4
14. Review the event?	7 yes, 1 no	6
15. Other actions taken (please attach details and Label as #15)	None submitted	
* Only one district performs liver transplantation.		

With a possible N=10, it is clear not all participants responded to each question, nor activated the process; level of activation was determined individually. Accepting actions 1 thru 13 as possible "expected" BERT recommendations, most of the time more than 50% of the DHAs/IWK are able to respond.

4.0 Lessons Learned - Overview

A Hot Wash-Initial Thoughts and Findings debriefing teleconference was held January 13, 2011. Representatives from the Department of Health and Wellness, Emergency Health Services, CBS, BERT, IWK and DHAs (70%) participated in the call. A few common themes, echoing messages heard throughout the exercise are as follows:

Communication

- Concerns expressed regarding one way communication by fax/email. Recommendations to include read receipt notification for emails and in absence of evidence of receipt within one hour to confirm receipt by telephone
- It was noted challenges exist with dissemination of information especially to physicians, several DHAs recognized work to be done in this area such as the development of email distribution lists etc
- Recommendation to explore using the LIS/HIS to display an alert message so that when users log on they are advised of a shortage
- Follow up phone calls would be appreciated if messaging by fax especially if meetings are to occur within 1-2 hrs post faxing
- Build fax and email distribution lists
- Review fax lists for accuracy and changing numbers or fax machine location
- Verify date and time on fax machines is current

Visibility of the alert

- Enhance CBS template messaging to stand out, too similar to non-emergent faxes (CBS templates are national so the request will be brought forward)
- Recommended increasing the size of checkmark

Event Documentation

- Toolkit useful
- IMT easy to use
- Optimal Inventory reported by users did not represent 5 days in all cases
 - Action review optimal inventory definition
- Add a PEI specific page since Halifax Centre provides inventory to NS and PEI
- Work to be done with DHAs on definition of optimum inventory
- Include platelet inventory, work in progress to optimise platelet inventory definitions

Convening BERT

- Recommendation to convene BERT as soon as possible
- Confirmed that the Chair should determine if the participation on the BERT call would be the core group or be expanded

Summary of participant's lessons learned /feedback as per the exercise evaluation form

DHAs /IWK

- Lab SOP and staff training has to be developed, modify SOP to incorporate the toolkit
- Communication within sites to be improved, consider creating group fax and email lists
- Need to improve communications, internal stakeholders and sites
- Need better defined communication methods to notify physicians and nursing staff at 8 sites
- The exercise identified a fax number on the CBS distribution list required modification
- Fax machines need updated times at all sites
- Review and modify BEMP and train staff on modifications prior to next BTC meeting
- BEMP procedure being revised based on lessons learned
- Need all technologists and pathologists to be made aware of procedure
- Identified need for more detailed instructions
- All staff need to be aware, additional details for staff required

CBS

- Approx 1 hour to fax the two pages to all facilities in NS, if notification was greater than 2 pages would suggest we use multiple fax machines
 - (This would require us to set up two new mail lists)
- When IMSC agenda was sent it would also be beneficial to send meeting invite for participants calendars
- Make sure when you send a group email you set return receipt to ensure you receive mail route delivery failure notices immediately
- Customize fax notices for Amber/Red announcements to be more eye catching for the event and that immediate action is required
- Consider confirmation of receipt for faxes and emails that are announcing meetings in a short time frame
- Need to set up system for checking contact lists are up to date on a regular basis

EHS

- The role of EHS Communication Centre was limited
- Upon receipt of the faxed notification, staff in the communication centre forwarded the notification to the Senior Management Team
- One suggestion for improvement is that upon receipt of the faxed notification, staff should provide a receipt confirmation to the sender of the faxed notification
- It should also be noted that our communication centre received a follow-up email at 1532 hrs from NSPBCP; subject line was "Simulated BERT Recommendations"

NSPBCP

- Develop more templates for BERT recommendations
- Increase group email lists and review/test lists annually
- Include read receipts on communication, phone if response not received in a timely fashion
- Consider ways to minimise amount of communication and meetings
- Enhance inventory collection tool, finalize platelet parameters
- Convene BERT as early as possible
- Noted duplication within teleconferences/meetings, possibly related to trialing processes; increased involvement of expanded member groups
- NSPBCP fax is slow, 2 hours to fax initial communication in December to 40 sites

5.0 Recommendations

Although Nova Scotia's hospitals continue to improve on emergency preparedness, the exercise offered an opportunity to test plans and identify areas for improvement. Each participant group provided feedback and recognized areas of improvement within their processes. The group feedback and Hot Wash findings resulted in the following recommendations to N.S.'s blood supply stakeholders:

DHAs/ IWK

- Finalize BEMPs and modify areas recognized as areas to improve upon during the exercise
 - Once complete consider testing the modified BEMP
- Train staff on the plan
- Hospitals should adopt toolkit templates relevant to their facility(ies)
 - Make patient notification templates available to physicians
- Improve internal and inter-district communication paths
- Continue to assess/evaluate average daily inventory usage to establish accurate business needs in times of shortages
 - Inform NSPBCP of changes as the IMT should be updated to reflect optimal inventory
- Maintain ability to participate in inter-hospital transport
- Develop processes to enable a response to BERT recommendations (see chart on page 11)
- Review internal communication mechanisms, fax, email, and test annually
 - Discuss at BTC meeting and become creative with what is available to the organization such as smart phones/applications

CBS

- Enhance communication pathways
 - Several participants find faxing ineffective
 - Consider follow up with phone calls
 - Work with national to highlight the urgency of the fax message, present template too similar to routine notification
- Maintain early notification to hospitals

- Include PEI
- Review distribution lists

NSPBCP

- Create an SOP template to support DHAs/IWK's ability to respond to BERT recommendations
- Evolve provincial blood contingency plan to include
 - Notification to EHS
 - Notification to Department of Health and Wellness duty officer after hours
 - Tool-kit
- Develop internal templates to support and document an event
 - Log sheets to track communication, document timelines, challenges and feedback
- Evolve Communication plans
 - Consider creating applications for smart phones and messaging
- Continue to support DHAs/IWK with BEMPs until 100% is reached

6.0 Conclusion

The Nova Scotia Blood Shortage Simulation Exercise provided NS's blood supply stakeholders with an opportunity to test their emergency preparedness plans. Comments received from participants indicate a positive experience; the exercise has highlighted areas to improve upon which will positively impact preparedness at all levels.

With 90% of respondents having BEMPs in place and the majority of participants able to respond to the "common" BERT recommendations as per the Nova Scotia Contingency Plan for blood shortages, it is reasonable to rate Nova Scotia's preparedness as high.

Introduction of the Toolkit in December provided supportive templates for the DHAs/IWK to adopt. Although the toolkit templates exceed the needs of some participants, overall it was well received and provided structure enhancing responsiveness to the exercise as quoted by one of the participating districts; "*Since I was busy, the toolkit and template kept me in line to do the things that had to be done.*"

In conclusion

- the exercise met its' objectives
- all levels of participation identified areas of improvement
 - Communication was "the" common theme to improve upon

Participants were appreciative of the opportunity to participate. A participant quote "*The exercise stimulated a lot of work, but the lessons were excellent, prompted discussions and identified areas to improve upon*".

As with all emergency preparedness the desired situation is to never have to activate the emergency preparedness plan! However should the need arise, the experience and progress gained by performing the Blood Simulation Exercise will enhance Nova Scotia's ability to ensure a consistent and coordinated response to blood shortages.

7.0 References

- 1.** British Columbia Toolkit for Blood Shortages; October 30, 2009
- 2.** National Plan for the Management of Shortages of Labile Components
NAC/CBS; September 28, 2009
- 3.** Nova Scotia Contingency Plan for Blood Shortages. NSPBCP; April-2010
- 4.** Ontario Blood Shortage Simulation Exercise Final Report; August 25, 2010
- 5.** British Columbia Toolkit for Blood Shortages; October 30, 2009

Appendix A Notification Letter



Department of Health and Wellness

Nova Scotia Provincial Blood Coordinating Program

Room 7 – 130 Centennial Building

1276 South Park Street

Halifax, NS B3H 2Y9

www.gov.ns.ca/health/nspbcp/



December 17, 2010

Dear CEO,

With the support of the DHA/IWK Vice Presidents of Medicine, Vice Presidents of Patient Care, Medical Laboratory Directors and Laboratory Managers, the Nova Scotia Provincial Blood Coordinating Program (NSPBCP) is pleased to advise that an exercise to simulate a national blood shortage is scheduled to occur January 11, 2011.

The *Nova Scotia Provincial Contingency Plan for Management of Blood Shortages* was finalized and distributed in February 2010 and DHAs/IWK were provided with a template for developing Blood Emergency Management Plans. As DHAs/IWK are at various stages in the development of these plans and are best suited to determine their capacity for participating in a simulation, each DHA/IWK will set their own objectives for the simulation. Objectives may range from receipt of the shortage notification to receipt and simulated communication to clinicians and patients.

The NSPBCP and Canadian Blood Services (CBS) have collaborated to develop the simulation exercise. Communication between the NSPBCP, CBS and Blood Transfusion Services (BTS) will continue as planning evolves. A Blood Shortages Toolkit will be provided to DHA/IWK Blood Transfusion Services prior to the simulation. The toolkit provides work aids to assist in the response to a shortage as well as tools for documenting actions.

Communications will emphasize that surgery should not be cancelled nor should blood issuing be restricted as part of this exercise. It is anticipated that this exercise will identify areas for improvement in the Nova Scotia Provincial Contingency Plan for Management of Blood Shortages and Toolkit and identify process improvements to assist Nova Scotia hospitals in their preparedness in the event of a real blood shortage. The NSPBCP will develop a post-simulation report identifying lessons learned and recommendations for change as required.

Sincerely,

A handwritten signature in blue ink that reads "Marina Hamilton".

Marina Hamilton

Program Manager, NSPCBP

cc. Vice President of Medicine, DHA 1-9/IWK
Vice President of Patient Care, DHA 1-9/IWK
Laboratory Managers DHA 1-9/IWK
Laboratory Medical Directors DHA 1-9/IWK
Katherine Fraser, Director, Acute and Tertiary Care, DoH
Russell Stuart, Director, Health Services Emergency Management
Dr. Blaine Kent, Medical Director, Perioperative Blood Management Program
Dr. Lucinda Whitman, Chair, National Advisory Committee
Dr. David Anderson, Clinical Advisor, NSPBCP
Blood Emergency Response Team Members
Dr. Eiad Kahwash, Medical Director, CBS Halifax
Ms. Michelle Rogerson, Director, Product and Hospital Services, CBS Halifax



Blood Shortage SIMULATION Exercise Reminder



FAXED TO: Nova Scotia Hospitals Blood Transfusion Services Departments

FROM: Nova Scotia Provincial Blood Coordinating Program and Canadian Blood Services

DATE: 2010-December -16

SUBJECT: Blood Shortage SIMULATION Exercise scheduled for 11-January- 2011

The Nova Scotia Provincial Blood Coordinating Program (NSPBCP), in partnership with Canadian Blood Services (CBS), wishes to remind you of the simulation exercise scheduled for **11- January -2011**. Each DHA/IWK will be asked to complete and return various documents provided in the Contingency Plan Tool-kit. Documentation during the event is critical to evaluate processes, so please become familiar with the toolkit provided by the NSPCBP to lead facilities of each DHA /IWK on December 10, 2010. On the day of the Simulation Exercise, CBS will send an early morning fax and email to all hospitals in Nova Scotia, informing them of the phase alert and the associated event. As the event is declared various activities will occur:

- ◆ **The Inventory Management Subcommittee will be convened at 1100 on January 11, 2011** by Dorothy Harris, CBS Hospital Liaison Specialist, inventory levels will be requested
- ◆ **The Blood Emergency Response Team will be convened by the NSPBCP 1400 to 1500 on January 11, 2011**
- ◆ **A debriefing call will occur from 1400 to 1500 on January 13, 2011**

“BUSINESS AS USUAL”
Do not cancel surgery or restrict blood product issuing as part of this Exercise!

If you have any questions regarding this communication, please contact: Wendy Varrence, Laboratory Standards Coordinator, NSPBCP wendy.varrence@cdha.nshealth.ca or (902) 473-6459.

____ I / we have reviewed this communication with:

Medical Director/Designate	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Laboratory Manager/Designate	<input type="checkbox"/> No	<input type="checkbox"/> Yes

and have confirmed they understand the purpose of this simulation exercise as well as the actions required to participate in this simulation exercise.

Name (please print)
Date: _____

Signature
Time: _____



FAX NOTIFICATION
(Please note - this notification will not be mailed)

TO: Director, Hospital Blood Bank, All NS/PEI Hospitals

FROM: Cindy Stimson, Production

DATE: 2011-01-11

SUBJECT: SIMULATION EXERCISE
Inventory Alert- Red Cell inventory
[] Green Phase [✓] Amber Phase [] Red Phase [] Recovery Phase

THIS IS NOT A REAL BLOOD SHORTAGE IT IS A SIMULATED SHORTAGE TO TEST HOSPITAL EMERGENCY PLANS ONLY.

Please include your **Hospital Inventory Levels** by blood group for **ALL** requests; this will greatly assist our Blood Product Management Staff in processing and triaging all requests to our hospitals.

A teleconference for the NS Inventory Management Sub Committee and PEI is scheduled for today at 11:00am call in number 1-866-752-7690 passcode 1026108#

The Nova Scotia Blood Emergency Response Team (BERT) will be convening and recommendations will be forthcoming to the DHAs/IWK.

As per the National Plan for Management of Shortages of Labile Blood Products

Amber Phase implies that blood inventory levels are insufficient to continue with routine practice and hospitals/DHAs will be required to implement specific measures to reduce blood usage.

If you have any concerns please feel free to contact me.

Cindy Stimson, Manager, Production
Canadian Blood Services
cindy.stimson@blood.ca 902-474-8302

cc. Dorothy Harris, Hospital Liaison Specialist
Dr. Kahwash, Medical Director
Marina Hamilton, Program Manager, Provincial Blood Coordinating Program, NS Dept. Health
Michelle Rogerson, Director, Product & Hospital Services, Atlantic
Dr. David Anderson, Clinical Advisor for Provincial Blood Coordinating Program, NS Dept. Health



Blood Shortage Phase Alert Communication

FAXED TO: Nova Scotia Hospitals Blood Transfusion Services Departments
FROM: Nova Scotia Provincial Blood Coordinating Program
DATE: 2011-January -11
SUBJECT: NSPBCP Simulated Inventory Alert Amber Phase Memo

You are receiving this memo as you have been identified as a CBS customer participating in the Blood Shortage Simulation Exercise. CBS has communicated a **Simulated Inventory Alert Amber Phase** as a result of the on-going simulated airline cargo strike limiting national blood transport which is further complicated as land transport is unavailable due to weather related to highway closures. CBS anticipates the event will last a minimum of one week and is not able to provide a Recovery timeframe.

As part of this exercise the Blood Emergency Response Team (BERT) will convene and simulate the development of recommendations. The main objective at this time is to test communication processes and the processes you would use to respond to a shortage.

BERT is scheduled to **convene today January 11, 2011 at 1400**. All members should participate and communications will be distributed following the discussion.

“Business as Usual”

Do not cancel surgery or restrict any requests for blood products, during this exercise.

Please document all notifications and facility actions using the forms provided in the Contingency Plan Toolkit. As part of the exercise, an evaluation form will be emailed to Quality Specialist members following completion of the simulation exercise. You will be asked to provide copies of any templates you used during the simulation; please assure **all patient identifiers are removed** by striking through the information with a black marker. The NSPBCP recognizes the level of Blood Emergency Management Plan activation will vary, but it would be greatly appreciated if at a minimum all sites complete the Amber Phase checklist (page 11) and Event Log (page 25) templates provided in the Blood Contingency Toolkit.

A handwritten signature in blue ink that reads "Marina Hamilton".

Marina Hamilton
NSPBCP Program Manager

Inventory Teleconference Agenda

Meeting:	Blood Shortage Simulation Exercise – Red cell Inventory in Amber Phase	Date:	2011-01-11
Teleconference:	Toll Free # Pass code: #	Time:	11:00am

Attendees:

- DHA1
- DHA2
- DHA3
- DHA4
- DHA5

- DHA6
- DHA7
- DHA8
- DHA9
- IWK

- PEI

- CBS

- NSPBCP

- Other

Time	Item and Details	Lead
10 min	1. Situation Update <ul style="list-style-type: none"> • Reminder that this is a Simulation only, blood orders and surgeries should not be cancelled • Instructions • Tool Kit, Event Log, 	DH NSPBCP
10 min	2. Selected Site Update <ul style="list-style-type: none"> • Current inventory levels, include all inventory (i.e. reserved, crossmatched units) • NS Report inventory using Inventory Management Tool (Parent report all for DHA) • What actions taken, if any (i.e. redistribution, reduction of target inventory levels) 	Sites
10 min	3. Next Steps <ul style="list-style-type: none"> ○ Notification of BERT Convening ○ Evaluation Document • Attend follow up teleconference Thursday, January 13, 2011 2:00pm • Questions/Comments 	NSPBCP
	4. Adjourn Meeting	

BERT Teleconference Call
January 11, 2011
14:00-15:00

Teleconferencing Information
1-866-218-3342
Chair Code-6109232#
Participant Code-610923#

PLEASE NOTE: BLOOD SHORTAGE SIMULATION EXERCISE IN PROGRESS

- | | |
|--|---------------|
| 1. Welcome and Introductions | Dr. Anderson |
| 2. Overview of Blood Shortage Simulation | Anderson/ CBS |
| 3. NEBMC Recommendations | Anderson |
| 4. Review of Nova Scotia Inventory | Varrence |
| 5. DHA/IWK Perspectives/Actions | All |
| 6. Development of BERT Recommendations | All |
| 7. Next steps | All |
| 8. Closure | Dr. Anderson |

Attachments:

- IMT Results

**Nova Scotia Provincial Blood Coordinating Program**

Room 7 – 130 Centennial Building

1278 Tower Road

Halifax, NS B3H 2Y9

www.gov.ns.ca/health/nspbc/p/

January 11, 2011

CEO DHAs 1-9/IWK

Dear CEO:

RE: EXERCISE UNDERWAY- BLOOD SHORTAGE SIMULATION

An exercise to simulate a blood shortage is currently underway. The Nova Scotia Provincial Blood Coordinating Program (NSPBCP), in collaboration with Canadian Blood Services Halifax Centre, developed the exercise and all DHAs/IWK chose to participate.

In the event of a national shortage, a committee known as the National Emergency Blood Management Committee (NEBMC) will be convened. This committee has representation from each of the Provinces and Territories (P/T) and these P/T members are also members of their respective provincial emergency blood management committees. The national committee identifies the phase that we are in (amber or red) and provides advice and recommendations to the P/Ts to support a consistent national response.

Subsequently, Nova Scotia's emergency blood management committee, known as the Blood Emergency Response Team (BERT), will be convened. BERT members will be informed of the discussions that occurred at the national level and will make recommendations on how to proceed in order to minimize impact to Nova Scotians. BERT's recommendations are communicated by the NSPBCP to the DHAs/IWK to support a consistent provincial response. Each DHA/IWK will then communicate and simultaneously implement BERT's recommendations using the processes outlined in their respective Blood Emergency Management Plan.

BERT was convened on January 11, 2011 at 1400 to discuss the simulated amber alert levels and simulate the development of recommendations. This letter simulates the process that would be implemented in the event of a real shortage as this letter would contain BERT's recommendations.

The simulation is being evaluated on various measures including the timeliness of the receipt of information and the existence of processes to communicate and implement BERT's recommendations. The NSPBCP will develop a post-simulation report identifying lessons learned and recommendations for change as required which will be shared with the DHAs/IWK.

If you have any questions or concerns please feel free to contact us.

Sincerely,

Dr. David Anderson

NSPBCP Clinical Advisor

david.anderson@cdha.nshealth.ca

473-2222 pager 2154

cc: Vice President of Medicine, DHA 1-9/IWK
Vice President of Patient Care, DHA 1-9/IWK
Laboratory Managers DHA 1-9/IWK
Laboratory Medical Directors DHA 1-9/IWK
Katherine Fraser, Director, Acute and Tertiary Care, DoH
Russell Stuart, Director, Health Services Emergency Management
Perioperative Blood Management Program
Dr. Lucinda Whitman, Chair, National Advisory Committee
Blood Emergency Response Team Members
Dr. Eiad Kahwash, Medical Director, CBS Halifax
Michelle Rogerson, Director, Product and Hospital Services, CBS Halifax
Transfusion Medicine Quality Specialists Working Group
Jeffery Fraser, Director Provincial Ambulance Operations, EHS

Marina Hamilton

NSPBCP Program Manager

marina.hamilton@cdha.nshealth.ca

(Cell) 902-222-7824



G Response required

X New

X No response required

G Replacement (discard previous)
(add to previous)

TOPIC

BLOOD SHORTAGE SIMULATION - JANUARY 2011

BACKGROUND AND HISTORY

- Canadian Blood Services (CBS) is a not-for-profit organization established in 1998 pursuant to a Memorandum of Understanding between the Federal, Provincial and Territorial Governments (excluding Quebec) for the purpose of being the arms length operator of Canada's blood system.
- Provincial and Territorial Ministers of Health serve as the Corporate Members of CBS, are responsible for appointing the Board of Directors and approving the three year Corporate Plan including the annual budget.
- All provinces and territories, except for Quebec, obtain their blood and blood products from Canadian Blood Services (CBS)

CURRENT SITUATION:

National Perspective

CBS Contingency Planning includes:

- The distribution of a hospital customer letter and a press release
- CBS is continuing to build their inventory levels from.
- Reduction of fill rates by XXX%
- CBS will activate daily communication to determine inventory levels and distribution
- NEBMC has convened

Provincial Response

- The Nova Scotia Provincial Blood Coordinating Program (NSPBCP) established the Blood Emergency Response Team (BERT) in 2004 as a mechanism to review emergent threats to the blood supply and to develop a response plan in order to minimize the impact to the health system. This team is comprised of members from Canadian Blood Services, the DHAs/IWK Health Centre, the Department of Health and the Provincial Blood Coordinating Program.
- BERT convened
- In order to minimize the impact to Nova Scotians, BERT recommends that institutions consider the following:
 - Xxx
 - XXXx
 - XXXX

BERT will meet on a regular basis and planned activities include:

BERT will meet on a regular basis and planned activities include:

- < Informing DHA/IWK CEOs at CEO Council meeting
- < Distribution of letter from NSPBCP to Blood Transfusion Services and DHA/IWK CEOs regarding potential impact and BERT recommendations
- < Ongoing communication with the DHAs.

Nova Scotia will continue to receive information on this issue from CBS through the P/T CBS Liaison Committee which will be brought forward to the appropriate individuals.

ADVICE AND RECOMMENDATIONS:

Nova Scotia is developing a response plan through the Blood Emergency Response Team and discussion with CEOs and relevant district health professional staff. Depending on the type of industrial action taken, the impact of a strike could vary from minor to significant particularly for patients requiring products with a short shelf life e.g. platelets.

DOCUMENT PREPARED BY: (Name)

DATE: Month, DD, YYYY

CONTACT PERSON WITHIN DEPARTMENT: (Name)

PH#: (902) ###-####

ALTERNATE CONTACT PERSON: (Name)

PH#: (902) ###-####



Blood Shortage SIMULATION Exercise is Complete



FAXED TO:	All Nova Scotia Hospitals
FROM:	Canadian Blood Services (CBS) and the Nova Scotia Provincial Blood Coordinating Program (NSPBCP)
DATE:	Month,dd, yyyy @ xxxx hrs
SUBJECT:	Nova Scotia's Blood Shortage <u>SIMULATION</u> exercise is now complete.

On behalf of Canadian Blood Services (CBS) and the Nova Scotia Provincial Blood Coordinating Program (NSPBCP) we would like to thank the DHAs and the IWK for your participation in the simulation exercise held today. Your time and commitment is greatly appreciated.

Participating in simulation exercises such as this one increases awareness of roles and responsibilities during a crisis situation and identifies opportunities for improvement. Your feedback is critical to the success of this exercise; an evaluation document will be provided to Quality Specialist members in each DHA and the IWK; please verify feedback from all participants is captured. The NSPBCP will develop a post-simulation report identifying lessons learned and recommendations for change as required.

Should you have any questions or additional comments regarding the exercise please contact:
(NAME), Laboratory Standards Coordinator, NSPBCP:
Email (email address) Tel: (902) ###-####

Thank you on behalf of CBS and the NSPBCP!



Evaluation of the Nova Scotia Blood Shortage Simulation Exercise



On January 11, 2011 a Blood shortage simulation exercise occurred in N.S. and all Hospitals/ DHAs were invited to participate. Exercise participants are being asked to provide feedback.

The information you provide will assist with establishing N.S.'s level of preparedness and identify areas to improve upon.

Instructions: Please complete the following table, additional comments are welcomed!

Site and Event Information					
Name of facility:					
The CBS Fax notification of the Simulated Amber Phase Alert was received					
Date: _____ Time: _____ By: _____					
<i>Please provide a copy of the event log, page 25 of the NSPBCP Blood Contingency Toolkit, if used.</i>					
Exercise impact on facility preparedness:					
Please circle the number which best describes your experience with the simulation exercise based on the following.					
The Simulation Exercise :					
	strongly disagree	somewhat disagree	neutral	somewhat agree	strongly agree
	1	2	3	4	5
a) Positively impacted BTS awareness of the possibility of a blood shortage.					
Please comment/ describe impact:					

b) Positively impacted BTS emergency preparedness related to blood shortages.					
	strongly disagree	somewhat disagree	neutral	somewhat agree	strongly agree
	1	2	3	4	5
Please comment/ describe impact:					

c) Overall positively impacted facility awareness of a blood shortage.					
	strongly disagree	somewhat disagree	neutral	somewhat agree	strongly agree
	1	2	3	4	5
Please comment/ describe impact:					

This section is related to BEMP activities	
Did you activate your facility Blood Emergency Management Plan (BEMP)? Did you notify/convene the BEMG? If yes, please indicate: <ul style="list-style-type: none"> # of members on BEMG _____ # of members confirming receipt of notification _____ # of members able to participate in a meeting _____ 	Circle: Yes or No Circle: Yes or No
Internal Communication Does your plan address notifying internal stakeholders? • If yes, did you do so as part of the simulation exercise? Does your plan address notifying patients? • If yes, did you do so as part of the simulation exercise?	
Comments: _____ _____ _____	
This section is to evaluate the N.S. Provincial Blood Contingency Plan (April 2010) and Tool Kit	
Based on this exercise, do you have any suggestions for improvement or changes to the N.S. Provincial Blood Contingency Plan? The blood contingency tool kit? Or the BEMP template? Comments _____ _____ _____ _____	
Ability to Respond: This section is to assist with evaluating a facility's ability to respond to inventory management strategies and communicate actions during an Inventory Phase Alert.	
Does your facility have a process in place to:	Did you activate/test this process during the simulation exercise?
16. Cut MSBOs and provide communication to stakeholders? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Reduce blood reservation period? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. Reduce transfusion triggers? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Review requests and determine requirement, case by case basis? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. Receive Medical Director Approval for transfusion requests not meeting predetermined approval (Table 1 pg 6 of toolkit)? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. Document and implement BERT's recommendations? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
22. Reduce minimum inventory level requirements? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
23. Delay elective surgeries requiring blood component support? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No

24. Delay the initiation of chemotherapy treatment and BMT? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
25. Delay liver transplantation? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
26. Extend expiry dates for components: RBC, PLT, FP/ aFFP? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
27. Expand use of alternatives such as erythropoietin? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
28. Document transfusion decision making? Please send in Documentation and Transfusion log sheets with patient names and identifiers removed) <input type="checkbox"/> Yes <input type="checkbox"/> No Comment:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
29. Review the event? <input type="checkbox"/> Yes <input type="checkbox"/> No Comment:_____	<input type="checkbox"/> Yes <input type="checkbox"/> No
30. Other actions taken (please attach details and Label as #15)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Information Gathering:	
Please submit copies of templates/documents used to document the event by your facility, and remove all patient identifiers by striking through the copy with black marker.	
Please describe: Key lessons learned, suggestions for improvement....	

Thank –you for your participation, on behalf of CBS and the NSPBCP!

Appendix K

Participating NS Hospitals (**parent facility)

	DHA	Hospital	Address
1	1	Fisherman's Memorial	Lunenburg
2	1	Queen's General Hospital	Liverpool
3	1**	South Shore Health	Bridgewater
4	2	Digby General Hospital	Digby
5	2	Roseway Hospital	Shelburne
6	2**	Yarmouth Regional Hospital	Yarmouth
7	3	Annapolis General Hospital	Annapolis Royal
8	3	Soldier's Memorial	Middleton
9	3**	Valley Regional Hospital	Kentville
10	4	Colchester Regional Hospital	Truro
11	4	Lillian Fraser Memorial	Tatamagouche
12	5	All Saints Hospital	Springhill
13	5**	Cumberland Regional Health Care Centre	Amherst
14	5	North Cumberland Memorial Hospital	Pugwash
15	5	South Cumberland Comm. Care Centre	Parrsboro
16	6**	Aberdeen Hospital	New Glasgow
17	7	Eastern Memorial	Canso
18	7	Eastern Shore Memorial	Sheet Harbour
19	7	Guysborough Memorial	Guysborough
20	7	Strait Richmond Hospital	Richmond Co
21	7	St. Anne Comm & Nursing Care Ctr.	Arichat
22	7	St. Martha's Regional Hospital	Antigonish
23	7**	St. Mary's Hospital	Sherbrooke
24	8	Buchanan Memorial Community	Neil's Harbour
25	8**	Cape Breton Regional Hospital	Sydney
26	8	Glace Bay Healthcare Corp.	Glace Bay
27	8	Inverness Consolidated Hospital	Inverness
28	8	New Waterford Consolidated Hospital	New Waterford
29	8	Northside General Hospital	North Sydney

30	8	Sacred Heart Hospital	Cheticamp
31	8	Victoria Co. Memorial	Baddeck
32	9	Cobequid Community Health Centre	Sackville
33	9	Dartmouth General Hospital	Dartmouth
34	9	Eastern Shore Memorial	Sheet Harbour
35	9	Hants Community Hospital	Windsor
36	9	Musquodoboit Valley Memorial	Middle Musquodoboit
37	9**	Queen Elizabeth II Health Sciences Centre	Halifax
38	9	Twin Oaks Memorial Hospital	Musquodoboit Hrb
39	9	CF Health Services Centre	Stadacona (Forces) Halifax
40	IWK**	IWK Health Centre	Halifax

Blood Emergency Response Team (BERT) Terms of Reference

1.0 Mandate:

BERT reviews urgent and emergent threats to the blood supply in Nova Scotia and develops a response plan in order to minimize the impact to the health system.

1.1 Key objectives:

- BERT reviews all available current information collected and determines what further information is required
- Completes analysis of information
- Initiates control measures based on findings
- Liaises with the relevant working groups on key messages to be communicated related to the blood supply.

2.0 Membership:

The team functions as a subcommittee of the Nova Scotia Provincial Blood Coordinating Program Advisory Council. In the event of an emergent situation, the core BERT team will convene at the discretion of the Chair. The core team members include:

- Director, Acute and Tertiary Care, NS Department of Health
- Chief Medical Officer of Health (or delegate), NS Department of Health Promotion and Protection
- Clinical Advisor, Nova Scotia Provincial Blood Coordinating Program
- Program Manager, Nova Scotia Provincial Blood Coordinating Program
- DHA 9 Laboratory Medical Director, Blood Transfusion Service
- IWK Laboratory Medical Director, Blood Transfusion Service
- Director Product & Hospital Services, Canadian Blood Services Halifax
- Hospital Liaison Specialist, Canadian Blood Services, Halifax
- Medical Director, Canadian Blood Services, Halifax

If the emergent situation includes PEI, CBS representation from PEI will be included

If the situation warrants, the expanded BERT team members will be assembled. The members would include:

- Medical Director, Canadian Blood Services, National
- DHA 1-9 & IWK CEO
- DHA 1-9 & IWK Designates
 - VP
 - Medical Director
 - Lab Manager
 - Quality Specialist
 - Nursing
- Representative, Perioperative Blood Conservation Program
- Other individuals as designated by the group

- 2.1** The Nova Scotia Provincial Blood Coordinating Program will serve as the Secretariat. Activities include:
- Maintain contact list of members, arrange meetings/teleconferences
 - Circulate the agenda (as available) and relevant information to all team members
 - Record and distribute minutes of the meeting
 - Distribute communications on behalf of the team
- 3.0 Chair**
- The Chair will be the Clinical Advisor of the Nova Scotia Provincial Blood Coordinating Program.
- 4.0 Quorum:**
- Decisions are made by those present.
- 5.0 Meetings:**
- BERT shall meet on an ad hoc basis by the call of any member, upon approval from the Chair.
- 6.0 Responsibility:**
- Advises the Department of Health & Department of Health Promotion & Protection on issues related to the blood



Contingency Planning Toolkit

PROMOTING EXCELLENCE IN TRANSFUSION MEDICINE

Nova Scotia Provincial Blood Coordinating Program Blood Contingency Toolkit

**December 8, 2010
Version 1.0**



To be used in conjunction with

” The Nova Scotia Provincial Blood Contingency Plan”
February 2010. Ver 1.0

PREAMBLE

This document has been developed to support enacting the Nova Scotia Provincial Blood Contingency Plan. As described in the Plan, the blood supply is a national commodity and the potential scenarios that could compromise the national blood inventory are almost unlimited. Both the Provincial and National plans categorize Blood shortages by phases: **Green; Amber, Red and Recovery** all of which are defined by CBS- inventory levels. During times of shortage the Blood Transfusion Service department will be required to make difficult decisions on how to ration the supply. Decisions during such times are guided by both individual hospital Blood Emergency Management Groups (BEMGs) which provide executive authority over their Blood Emergency Management Plans (BEMPs) and / or by recommendations put forth by the Provincial Blood Emergency Response Team (BERT). Documentation of such decisions and transparency of actions satisfy the *Nova Scotia Health Services Pandemic Influenza Plan*; dated April 2007.

This document is divided into sections according to phases of the plan. Documents common to various phases are located at the back of the toolkit. The toolkit is expected to:

- Standardize documentation of an event
- List contact information
- List associated documents/ SOPs
- Provide templates for
 - Phase checklists
 - communication cascades
 - communication memos
 - contact information
 - event log
 - transfusion logs: request / decision making
 - inventory reporting
 - event review
- Evolve as indicated

This toolkit, although designed to support the management of a blood shortage and / or imminent threat; may be used by facilities to document events unique to their BTS. The document is designed to provide transparency of activities throughout an entire shortage and is to be maintained by the BTS as evidence of their decision making processes.

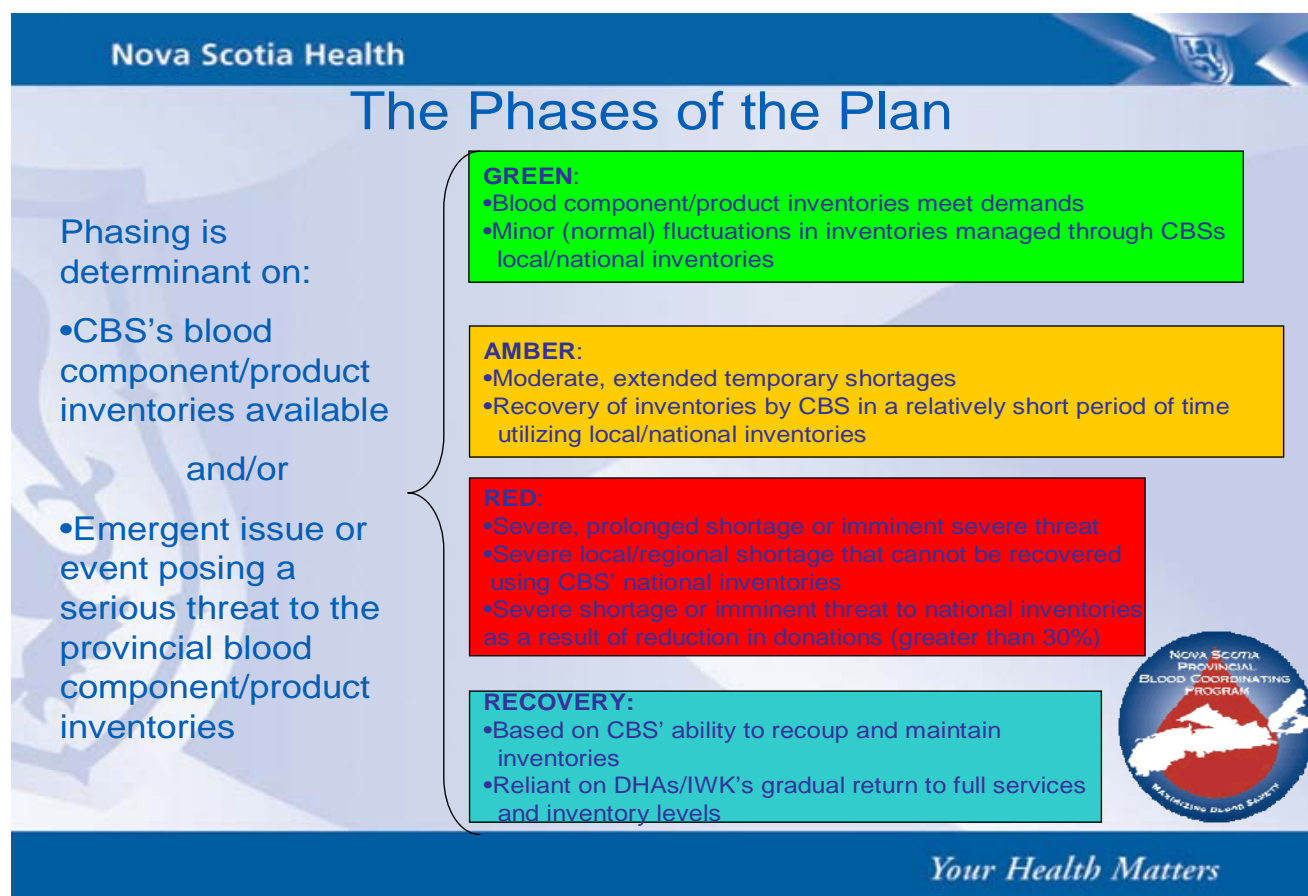
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ACRONYMS

BEMP	Blood Emergency Management Plan
BEMG	Blood Emergency Management Group
BERT	Blood Emergency Response Team
BTC	Blood Transfusion Committee
BTS	Blood Transfusion Service (may also be referred to as Blood Bank)
CBS	Canadian Blood Services
CBRH	Cape Breton Regional Hospital
DHA	District Health Authority
DoH	Department of Health
aFFP	Apheresed Fresh Frozen Plasma
FFP/FP	Fresh Frozen Plasma/ Frozen Plasma
H/REMBC	Hospital / Regional Health Authority Emergency Blood Management Committee
IMSC	Inventory Management Sub Committee
IWK	Isaac Walton Killam Health Centre
MSBOS	Maximum Surgical Blood Ordering Schedule
NAC	National Advisory Council
National Plan	National Plan for the Management of Shortages of Labile Blood Components (developed by the NAC and CBS)
NEMBC	National Emergency Blood Management Committee
NSPBCP	Nova Scotia Provincial Blood Coordinating Program
PAC	Program Advisory Committee (of the NSPBCP)
PLTS	Platelets (includes single donor platelets, apheresed platelets and Buffy coat platelets)
P/T	Provincial/ Territorial
P/TEBMC	Provincial/ Territorial Emergency Blood Management Committee
TMAG	Transfusion Medicine Advisory Group

A Summary of Phases and Associated Inventory Levels



Inventory detailed as Days on Hand based on the National Plan 2009-09-28

PHASE	COMPONENT	CBS Days On Hand	CBS# Units on Hand
GREEN Phase (Minimal decrease to Optimal levels)	RBCs	Greater than 72 hours	Greater than 8,900 units
	PLATELETS	50 to 100% of daily national requirement	
	FFP	Greater than 10 days	8,900 units
	CRYOPRECIPITATE	Greater than 20 days	2,800units
AMBER Phase (Serious)	RBCs	48 to 72 hours	6,000 to 8,899units
	PLATELETS	25 to 50% of daily national requirement, recovery expected within 12hours	
	FFP	3 to 10 days	2,700 to 8,899 units
	CRYOPRECIPITATE	6 to 20 days	800 to 2,799 units
RED Phase (Critical)	RBCs	Less than 48 hours	Less than 5,999 units
	PLATELETS	Less than 25% of daily national requirement, NO recovery expected within 12hours	
	FFP	Less than 3 days	Less than 2,699 units
	CRYOPRECIPITATE	Less than 6 days	Less than 799 units

***Table 1: Guideline for the use of RBC transfusions in children and adults in shortage situations**

<i>Green Phase</i>	<i>Amber Phase</i>	<i>Red Phase</i>
Major Hemorrhage	Major Hemorrhage	Major Hemorrhage
Follow your hospital/DHA guidelines	Follow your hospital/DHA guidelines	Follow your hospital/DHA guidelines. ¹
Surgery/Obstetrics	Surgery/Obstetrics	Surgery/Obstetrics
Follow your hospital/DHA guidelines	Urgent ² and emergency ³ surgery in consultation with BEMG	Urgent & Emergency surgery in consultation with BEMG
Non-Surgical Anemias ⁴	Non-Surgical Anemias ⁴	Non-Surgical Anemias ⁴
Follow your hospital/DHA guidelines	All requests for RBC transfusion in patients with a Hgb level > 70 g/L must be reviewed by designated medical personnel	Consideration should be given to lowering the RBC transfusion triggers established for the amber phase All requests for RBC transfusion in patients with a Hgb level > 70 g/L must be reviewed by designated medical personnel

*N.S. Provincial Blood Contingency Plan April 2010

¹ Guidelines to determine stopping principles to be developed by NAC

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 than 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.
- In red or amber phases, the hospital/DHA blood transfusion services 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.

***Table 2: Guideline for the use of platelet transfusions in children and adults in shortage situations**

<i>Green Phase</i>	<i>Amber Phase</i>	<i>Red Phase</i>
Major Hemorrhage	Major Hemorrhage	Major Hemorrhage
Follow your hospital/DHA guidelines	Follow your hospital/DHA guidelines	Follow your hospital/DHA guidelines
Invasive procedures/ surgery	Invasive procedures/ surgery	Invasive procedures/ surgery
Follow your hospital/DHA guidelines	Urgent ² and emergency ³ surgery in consultation with BEMG In presence of active bleeding or surgical procedure maintain a PC > 50 x 10 ⁹ /L or if CNS trauma/surgery a PC > 100 x 10 ⁹ /L For non-surgical invasive procedures (other than bone marrow aspiration or biopsy) maintain a PC > 30 x 10 ⁹ /L	Emergency surgery in consultation with BEMG All requests for platelet transfusion must be reviewed by designated medical personnel
Bone marrow failure/ hematopoietic stem cell transplantation/ chemotherapy	Bone marrow failure/ hematopoietic stem cell transplantation/ chemotherapy	Bone marrow failure/ hematopoietic stem cell transplantation/ chemotherapy
Follow your hospital/DHA guidelines	Adhere to a maximum threshold PC of 10 X 10 ⁹ /L for prophylactic platelet transfusions; consider lowering this threshold for routine prophylactic transfusions to 5 x 10 ⁹ /L All requests for a platelet transfusion in non-bleeding patients with a PC > 10 x 10 ⁹ /L must be reviewed by designated medical personnel	Eliminate all prophylactic transfusions. All requests for platelet transfusions in non-bleeding patients must be reviewed by designated medical personnel

*N.S. Provincial Blood Contingency Plan April 2010

Notes

- PC = Platelet Count
- Given the relatively small volumes/numbers of units required, transfusions for neonates (i.e. patients less than 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
- Issuing of lower doses of platelets may be used (i.e. 1-2 units) or split doses of Buffy Coat platelets. Lower PC thresholds for platelet transfusions for surgical bleeding or special procedures (such as ECMO) should be used.
- In red or amber phases, the hospital/DHA 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.

This Section is to be used to reflect Green Phase Activities

Please refer to DHA / hospital BEMP and the Nova Scotia Provincial Blood Contingency Plan for more detailed instructions.

Green Phase

Green phase implies 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 temporary shortages that occur periodically and can be managed with existing CBS/hospital actions.

Actions during the Green Phase

Items	DHA/IWK Actions during Green Phase	Reference Document
<i>example</i>	<i>Review of daily inventory levels email from CBS</i>	<i>SOP123.Review of Daily Records.</i>
1.	Develop, implement and maintain a BEMP for the organization include communication pathways	
2.	Implement NSPBCP guidelines and agreed transfusion protocols / triggers for all transfusions.	<i>Indications for Transfusion Guideline under development</i>
3.	Include transfusion guidelines, step 2, in health care professional orientation.	
4.	Define minimum and maximum blood inventory levels, review annually.	<i>List SOP</i>
5.	Implement/ review blood component/ product utilization management strategies.	
6.	Assess and review current utilization patterns for elective surgeries performed within the DHA.	
7.	Initiate as appropriate to services, Maximum Surgical Blood Ordering Schedules, review annually and intermittently when indicated.	
8.	Facilitate blood transport mechanisms as per NSPBCP transport guidelines and Redistribution Agreement.	<i>Pkging/transport Redistribution SOP</i>
9.	Establish mechanisms to enable: <ul style="list-style-type: none"> ○ Reduced reservation periods for cross-matched blood components ○ Advance notification of any waiting lists potentially impacting blood inventories (e.g. operating room wait lists, chronic transfusion patients waiting for transfusion). ○ Physical and electronic quarantine of expired blood components past their expiry date, include an informed consent step. ○ all hospitals in the health authority are aware of and compliant with the health authority/hospital plan ○ integration of the plan with local and hospital all hazards plans ○ training on the contents of the plan and the communication strategy related to blood contingencies ○ participation in periodic mock drills to practice and test the plan 	<i>List SOPs</i>
10.	Develop, facility specific templates to support communication <ul style="list-style-type: none"> ● Patient Notification ● Amber Phase Alert ● Red Phase Alert ● Recovery Phase Alert 	<i>See document section</i>



This Section is to be used to support an Amber Phase Notification

Templates located at the common tab, apply to this section as they are indicated for all CBS phase alerts.

Please refer to DHA / hospital BEMP and the Nova Scotia Provincial Blood Contingency Plan for more detailed instructions.

Amber Phase

Implies blood inventory levels insufficient to continue with routine Transfusion practice and hospitals/ DHAs will be required to implement specific measures to reduce blood usage.

Amber Phase Transfusion Medicine Service Condensed Checklist

-BERT may or may not convene during an Amber Phase Alert-

- ☐ Notify the BTS Medical Director or designate of the Phase Alert Notification
 - Discuss whether additional communications and/or actions are required as per BEMP (see strategy chart pg. 12)

By: _____ on _____ at _____ hrs

- ☐ Notify the BTS Medical Director or designate of BERT's
 - Decision to convene or not to convene
 - recommendations as available

By: _____ on _____ at _____ hrs

- ☐ Be prepared to report DHA/ hospital blood inventory levels to the NSPBCP using the DHA / facility specific IMT spreadsheet. The Lead hospital :
 - is to confirm all DHA facilities are informed of communications
 - is to collect all DHA facilities inventory levels

By: _____ on _____ at _____ hrs

- ☐ Allow inventory to reach minimum levels before placing routine blood orders with CBS

- ☐ Recognize that routine blood orders with CBS may be filled at reduced levels

- ☐ Notify CBS of any local situation that could further affect the blood supply, e.g. multiple trauma, difficult surgical case, equipment failure

By: _____ on _____ at _____ hrs

- ☐ Be prepared to redistribute affected blood components/ products to avoid outdating and / or as directed by BERT.
 - Redistribution SOP _____
 - Packing and Transport SOP _____

- ☐ Refer all requests for the affected component(s) /product(s) that do not fulfill predetermined acceptance criteria to the BTS Medical Director or designate prior to issuing.

By: _____ on _____ at _____ hrs

Strategies for Inventory Management during an Amber Phase

Affected Component / Strategies	SOP####	Approval Signature(s)	Implementation Date/Time
RBC's	Corresponding Memo		
1) Cut MSBOs to 50% of normal reservations amount or group and screen with cross match on demand. a) Communication to surgeons/anesthetists essential	1.	1.	1.
	a).Memo_____	a)	a)
2. Reservation period for cross matched blood reduced 12 hours, as appropriate to the extent of the shortage	2.	2.	2.
	a).Memo_____	a).	a).
3. Reduce transfusion triggers on routine transfusions, as appropriate. Determine on a case-by-case basis.	3.	3.	3.
	a).Memo_____	a)	a).
4. Review all transfusion requests and determine transfusion requirement on a case-by-case basis.	4.	4.	4.
	a).Memo_____	a)	a)
5. Require Medical Director approval of all transfusions outside of criteria • Delay transfusions as appropriate through discussion with the Medical Director and the treating physician to determine clinical need and patient management	5.	5.	5.
	a)Memo_____	a)	a)
Platelets			
6. Delay elective transfusions as appropriate through discussion with the Medical Director and the treating physician.	6.	6.	6.
	a)Memo_____	a)	a)
7. Require Medical Director Authorization of all transfusions to prioritize according to clinical need.	7.	7.	7.
	a)Memo_____	a)	a)
8. Initiate emergency issue only, if required.	8.	8.	8.
	a)Memo_____	a)	a)
Plasma (FP/FFP)			
9. If less than (<) 2 day supply available within the facility, release only on approval of the Medical Director.	9.	9.	9.
	a)Memo_____	a)	a)
PBMP?			

Notification of Blood Component/ Blood Product Shortage ~Amber

Hospital Name Here

Memo

To: [Enter name of Chiefs of Surgery, Anaesthesia, Critical Care, Trauma, Emergency, Hematology, Medicine, Directors of Laboratories, Nursing and Risk Management, Chairpersons of Transfusion Committee, Emergency Blood Management Committee]

From: [Enter name of BTS Medical Director or Designate]

Cc: [Enter name of BTS Manager / Chief Technologist/Charge Technologist]

Date: [Enter date and Time]

Re: **Notification of Blood Shortage – *Amber Phase***

Blood Transfusion Services (BTS) has received notification from Canadian Blood Services (CBS) that they are currently experiencing a shortage of [Enter name of blood component / product here]. The shortage is the result of [Enter the reason for the shortage here]. As a result, blood inventory levels may be reduced in order to conserve inventory for critical cases. During the shortage you may experience delays with orders as the BTS triages requests for [Enter name of blood component / product here]; we thank you in advance for your patience and support. Additional communication will be shared with you as it is available, please review this notification with staff in your area. The following may occur due to the shortage:

- BTS processes will be modified during a shortage ~ see page2
- CBS may reduce order fill rate
- NSPBCP will advise on the provincial Blood Emergency Response Team's (BERT's) recommendations, as available
 - BERT may or may not convene in Amber phase, as per Contingency Plan.

Note: This shortage is expected to remain for [Enter the expected time frame for shortage]. Until you receive further notification, you will be asked to follow the hospital procedure for Emergency Management of Blood – Amber Phase. Should you experience a need for support in managing patients requiring blood during this period, please **contact the Transfusion Service** at [Enter the contact number].

Notification of BTS Strategies
~ Amber Phase

Hospital Name Here

In response to the present blood shortage, the BTS has adopted the following modifications to practice **[check all that applies]**. **BTS actions will evolve as directed by BERT and CBS.**

_____ Medical procedures and elective surgical procedures requiring the affected Component(s) will be reviewed on a case by case basis.

_____ MSBOs will be reduced to 50% of normal reservations

_____ Group and screen with cross match on demand.

_____ The reservation period for cross matched blood is reduced from ((X hrs to X- 12) hours.
(Enter hrs as appropriate to facility and the extent of the shortage.)

_____ Transfusion triggers on routine transfusions may be reduced; as appropriate; to be determined on a case-by-case basis.

_____ All transfusion requests will be reviewed, transfusion decisions will be determined on a case-by-case basis.

_____ Medical Director Approval is required for transfusions outside of criteria.

_____ Transfusion delays may occur when appropriate, as determined by the Medical Director and the treating physician, based on clinical need and patient management.

_____ Patient Notification Memo's are available for deferred transfusions

_____ BERT's recommendation is:
_____ attached or _____ to follow.

_____ Other _____

Exceptions: 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.

Date _____ Time _____ hrs Signature _____

This Section is to be used to support a RED Phase Notification

Templates located at the common tab, apply to this section as they are indicated for all CBS phase alerts.

Please refer to DHA / hospital BEMP and the Nova Scotia Provincial Blood Contingency Plan for more detailed instructions.

RED Phase

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

RED Phase Transfusion Medicine Service Condensed Checklist -BERT convenes and advises during RED phase alerts-

- ☐ Immediately notify the BTS Medical Director or designate of the Phase Alert Notification
- ☐ Notify the BTS Medical Director or designate of BERT's recommendations
 - Above should be done simultaneously when possible.

By: _____ on _____ at _____ hrs

- ☐ The BTS Medical Director or designate convenes the BEMG (Meeting log page 28)
- ☐ The BEMG, on an on-going basis throughout the shortage :
 - assesses the specifics of the Red Phase
 - reviews BERT's recommendations and determines a plan for implementation
 - Communicates information throughout the organization and provides updates
- ☐ Issue the internal hospital memo "Notification of Blood Component Shortage – Red Phase" to the listed departments
 - For all blood components assure Hematology Specialists, Bone Marrow Transplant, Liver Transplant, Surgeons/Anaesthesiologists and any other applicable disciplines of the shortage. Use memo page 18.
- ☐ Assess current inventories. It may be necessary to move all blood inventories to the lead facility within the DHA to control accessibility, as applicable.
- ☐ Monitor blood component inventories and participate in IMSC teleconferences when initiated.
 - Report hospital blood inventory levels to CBS
 - Report DHA/ hospital blood inventory levels to the NSPBCP using the DHA / facility specific IMT spreadsheet.

The Lead hospital:

- is to confirm all DHA facilities are informed of communications
- is to collect all DHA facilities inventory levels

By: _____ on _____ at _____ hrs

- ☐ Do not issue blood to stock fridges, such as operating room or trauma room.
- ☐ Notify CBS of any local situation that could further affect the blood supply, e.g. multiple trauma, difficult surgical case, equipment failure
- ☐ Refer all requests for the affected component to the BTS Medical Director or designate prior to issuing product
- ☐ Be prepared to redistribute affected blood components/ products to avoid outdating and / or as directed by BERT. Redistribution SOP _____
- ☐ Initiate Medical Director Authorization for all transfusions in consultation with attending physician to prioritize according to clinical need and likelihood of survival on a case-by-case basis
- ☐ Reduce transfusion triggers as advised. Determine on a case-by-case basis.
- ☐ Initiate BTS Medical Director Consult prior to performing emergency surgery to ensure blood component inventory levels are sustainable.

Strategies for Inventory Management during a RED Phase

	SOP###	Approval Signature(s)	Implementation Date/Time
RBC's- As per BERT's recommendation	Corresponding Memo		
1. Reductions in minimum inventory levels	1.	1.	1.
	a).Memo_____	a)	a)
2. Delay of elective surgeries requiring blood component support	2.	2.	2.
	a).Memo_____	a).	a).
3. Delay in the initiation of treatment of chemotherapy and bone marrow transplant.	3.	3.	3.
	a).Memo_____	a)	a).
4. Delay of liver transplantation.	4.	4.	4.
	a).Memo_____	a)	a)
5. Reductions in transfusion triggers	5.	5.	5.
	a)Memo_____	a)	a)
6. Extension of expiry dates for RBCs	6.	6.	6.
	a)Memo_____	a)	a)
7. Expanded use of erythropoietin, as appropriate.	7.	7.	7.
	a)Memo_____	a)	a)
Platelets As per BERT's recommendation			
8. Extension of expiry dates for platelets	8.	8.	8.
	a)Memo_____	a)	a)
9. Utilization of antifibrinolytic agents, as appropriate	9.	9.	9.
	a)Memo_____	a).	a).
Plasma (FP/FFP) As per BERT's recommendation			
10. Extension of expiry dates for FP/ FFP/aFFP	10.	10.	10.
	a)Memo_____	a)	a)
<i>BERT may consult and enact Perioperative Blood Management Program (PBMP) strategies to assist with recovery.</i>			

**Urgent Notification Of Blood
Component/Blood Product Shortage
Red Phase**

Hospital Name Here

Memo

To: [Enter name of Chiefs of Surgery, Anesthesia, Critical Care, Trauma, Emergency, Hematology, Medicine, Directors of Laboratories, Nursing and Risk Management, Chairpersons of Transfusion Committee, Emergency Blood Management Committee, CEO, Public affairs / Communications]

From: [Enter name of BTS Medical Director or Designate]

Cc: [Enter name of BTS Manager/ Chief Technologist/Charge Technologist]

Date: [Enter date and Time]

Re: **RED Phase Alert ~ Critical [RBC] Shortage**

Blood Transfusion Services (BTS) has received notification from Canadian Blood Services (CBS) that they are currently experiencing a severe shortage of [Enter name of blood component / product here]. The shortage is the result of [Enter the reason for the shortage here]. This shortage is anticipated to last for a prolonged period of time. As a result, blood inventory conservation efforts are necessary to conserve inventory for critical and life-threatening cases; denial and /or reduction of some requests may occur. Transfusion requests will be reviewed on a case by case basis. The provincial Blood Emergency Response Team (BERT) convenes during a Red Phase and provides recommendations to support inventory management throughout the shortage to the DHAs/ IWK. Additional communication(S) from BERT and/ or CBS will be shared with you as available, please review this notification with staff in your area.

- NSPBCP will advise on BERT's recommendations, as soon as they are available.
- BTS processes will be modified during a shortage ~ see page2
- CBS will reduce order fill rate for affected product

Note: You will be asked to strictly follow the hospital procedure for Emergency Management of Blood – Red Phase. Communication will be ongoing with Canadian Blood Services and BERT. Once CBS inventories regain stability, you will receive further notification indicating when normal blood ordering practice may be resumed. Should you experience need for support in managing patients requiring blood during this period, please contact the Transfusion Service at [Enter the contact number desired].

Notification of BTS Strategies for
Transfusion Management ~ RED

Hospital Name Here

In response to the present blood shortage, the BTS has adopted the following modifications to practice **[check all that applies]**. **BTS actions will evolve as directed by BERT and CBS.**

- _____ Medical procedures and elective surgical procedures requiring the affected Component(s) will be reviewed on a case by case basis.
- _____ MSBOs will be reduced to 50% of normal reservations
- _____ Group and screen only with cross match on demand.
- _____ The reservation period for cross matched blood is reduced from (X hrs to X- 24) hours.
(Enter hrs as appropriate to facility and the extent of the shortage.)
- _____ Transfusion triggers on routine transfusions to be reduced; as appropriate; to be determined on a case-by-case basis.
- _____ All transfusion requests will be reviewed, transfusion decisions will be determined on a case-by-case basis.
- _____ Patient Notification Memo's are available for deferred transfusions.
- _____ Medical Director Approval is required for transfusions outside of criteria.
- _____ Transfusion delays may occur, when determined appropriate by the Medical Director and the treating physician, based on clinical need and patient management.
- _____ BERT's recommendation is:
_____ attached or _____ to follow.

_____ Other _____

*Exceptions: 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.*

Date _____ Time _____ hrs Signature _____

This Section is to be used to support a Recovery Phase Notification

Templates located at the common tab, apply to this section as they are indicated for all CBS phase alerts.

Please refer to DHA / hospital BEMP and the Nova Scotia Provincial Blood Contingency Plan for more detailed instructions.

Recovery Phase

Recovery Phase implies that blood component inventories have begun to increase and are expected to be maintained at a level which would enable the return from Red to Amber and subsequently to Green Phase

Recovery Phase

Transfusion Medicine Service Condensed Checklist

- ☐ Immediately notify the BTS Medical Director or designate of the Phase Alert Notification

By: _____ on _____ at _____ hrs

- ☐ The BTS Medical Director or designate convenes the BEMG (Meeting log page 28)
- ☐ The BEMG develop action plan for graduated recovery and return to full services:
 - ☐ Review DHA/IWK and provincial inventories to determine anticipated recovery period within the DHA/IWK, see IMT.
 - ☐ Review historical blood utilization patterns for elective surgeries to manage fragile inventories.
 - ☐ Review chronic transfusion, OR deferral/cancellation lists and current OR waiting lists to determine surgery reintegration plan.
 - ☐ Do not compress elective surgery back logs during recovery period, as this may result in a secondary inventory shortage.
 - ☐ Delay surgeries most likely to require blood component support until inventories have stabilized and are maintaining Green Phase status.
- ☐ Issue the internal hospital memo "Notification Regarding Blood Component/Blood Product Shortage Situation" See Memo page 23.
- ☐ Continue to assess current inventories.
- ☐ Continue to Require Medical Director authorization of all transfusions until CBS inventories have stabilized and are maintaining Green Phase status
- ☐ Accommodate patients requiring CMV negative and irradiated blood components, if possible.

☐ Other _____

By: _____ on _____ at _____ hrs

Memo

To: [Enter name of Chiefs of Surgery, Anaesthesia, Critical Care, Trauma, Emergency, Hematology, Medicine, Directors of Laboratories, Nursing and Risk Management, Chairpersons of Transfusion Committee, Emergency Blood Management Committee]

From: [Enter name of BTS Medical Director or Designate]

Cc: [Enter name of BTS Manager/ Chief Technologist/Charge Technologist]

Date: [Enter date and Time]

Re: **Notification of Blood Shortage –
*Recovery Phase***

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

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

Note: We would like to take this opportunity to thank you for your support and collaboration during this difficult period. By working together, it was possible to use available blood inventory effectively to ensure the patients in most critical need received required products.

Should you experience the need for support in managing patients requiring blood during this recovery period or if you have any questions/comments regarding this recent shortage and how it was managed, please contact the Manager of Transfusion Services at [Enter the contact number desired].

**This SECTION contains Common TEMPLATES, applicable to
ALL phase alerts (Amber, Red and Recovery), used to support
Documentation
During a
Blood Shortage Event**

*Please refer to DHA / hospital BEMP and the Nova Scotia Provincial Blood
Contingency Plan for more detailed instructions.*

Document Templates

Please refer to DHA / hospital BEMP and the Nova Scotia Provincial Blood Contingency Plan for more detailed instructions.

Communication

Event Log A log sheet designed to document internal / external notification(s)/ communication(s) sent / received during an event; it is also able to serve as an event summary and provide time frames. Maintain copies of notifications / communications that you list on the log and number them in such a way they are easily linked (1- 10), to the event log. It is important to document method and time, on the log to assist with process evaluation.

Lead Facility Communication Chart: The lead facility within a DHA assists with event messaging to all facilities within the DHA and collects inventory information from each facility using the district IMT sheet. This chart provides a standardized template to document communication within the DHA.

Critical Communication Contact Information: You may choose to list information on this sheet or refer to BEMP.

BEMG Meeting Log: A log sheet designed to document BEMG meeting dates and members in attendance.

Patient Notification Memo: This memo is created to provide a communication mechanism to patients whose treatment is delayed or affected by the shortage.

Forms

Surgical Request Screening Log: Use to document decision making for surgical transfusion cases delayed/ cancelled during the shortage. Upon notification of Recovery phase and / or as advised by BERT, this form can also be used for rescheduling / prioritizing patients that were delayed or cancelled.

Summary of Surgical Request Screening Log: Using the above document create a summary of surgery delays / cancellations associated with the blood shortage. Surgery cancellation should be associated / traceable to a BERT recommendation. This form provides a manner to assess the impact on service related to the blood shortage.

Non-Surgical Request Screening Log: Use to document decision making for transfusion requests other than surgical; during the shortage. Upon notification of Recovery phase and / or as advised by BERT, this form can also be used for rescheduling / prioritizing patients that were delayed or cancelled

Summary of Non-Surgical Request Screening Log: Using the above document create a summary of transfusion delays / cancellations associated with the blood shortage. This form provides a manner to assess the impact on service related to the blood shortage.

Requests for Blood Components during a Blood Shortage: This form may be used to replace or supplement transfusion requests during a shortage. Should your facility choose to maintain its' current request practice during a shortage, it is advisable to supplement current practice with a mechanism to document decision making, such as above screening logs.

Inventory Management Tool (IMT): The IMT is an excel spreadsheet designed to assist with gathering DHA/IWK inventory levels during shortages. Screen shots of various pages of the IMT have been included for training purposes. Data can be entered electronically and emailed to the NSPBCP during shortages, in the absence of e-access a manual printout can be submitted via fax.

Event Log

Document Receipt and Sending of Notification(s) / Communication(s)

Event Log <i>*(When a Phase Alert is received, document the details and go to the corresponding phase section of this toolkit.)</i>									
Date: dd/mm/yy	External from: a)CBS b)NSPBCP c)Other____ Internal: To: _____ _____	Method: a)Fax b)e-Mail c)Other _____	Time in hrs		Phase Alert* a)Amber b)Red c)Recovery d) BERT e)other____ —	Affected Product and Group(s) a)RBC b) PLTS c) FFP d)Other	Event Description (i.e. Pandemic / storm)	Receipt verification required?	
			Sent	Rec'd				Yes / No	Done by initials
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

Observations /Comments:

Lead Facility Communication Chart

Created by: _____ on _____
 Reviewed By: _____ on _____

List Facility(ies) in DHA _____	Contact Person(s) Numbers /email	Informed of		
		Notification (List # from log)	Inventory Levels Requested at ____ hrs Received at ____ hrs	By: Initials Date/ Time
[Enter Lead Facility]				
#1				
#2				
#3				
#4				
#5				
#6				
#7				
#8				

Critical Communication Contact Information

Use the following grid as a guide to organize and store emergency contact numbers:

Organization Name	Contact Persons	Contact Numbers	Verified Current By/Date
<enter name of your health authority/hospital/facility>		Land Line: Cell Phone: Email: Text Message: Satellite Phone:	
Local Emergency Services:			
Police			
Fire			
Ambulance			
Taxi(s)			
Facility Security			
Shuttle /Courier			
Hospital Emergency Management Team	Lead:		
Quality and Risk			
Canadian Blood Services			
NSPBCP			
Pharmacy			

BEMG Meeting Log Sheet

BEMG Meeting Log Sheet

[illegible]

Patient Notification Of Blood
Component/Blood Product Shortage

Hospital Name Here

Memo

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

From: {Enter name of BTS Medical Director or Designate}

Cc: {Enter name of BTS Chief Technologist/Charge Technologist, Risk Management}

Date: {Enter date}

Time: {Enter time}

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

Blood Transfusion Services received notification from Canadian Blood Services (CBS) that they are currently experiencing a severe shortage of **{enter name of blood component here}**. The shortage is the result of **{enter the reason for the shortage here}**. Hospital Transfusion Medicine Services in NS have been required to reduce their inventory levels of **{enter name of blood component here}** 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: blood transfusion / surgery}** will be postponed based on current 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 time frame of shortage, or say: a prolonged period}**. Once blood inventory levels have improved, you will receive further notice regarding your rescheduled **{enter one of the following, as applicable: transfusion / surgery}**.

If you would like more information, please contact the Transfusion Medicine Service at **{enter the contact number}**.

We regret this deferral and thank you for your understanding and patience during this difficult situation.

Form: Surgical Request Screening Log for Shortages
Facility: North Pole

Phase:	<input type="checkbox"/> Amber	<input type="checkbox"/> Red	<input type="checkbox"/> Recovery	Notification from BERT to cancel/ delay surgery received: 20 10 / Dec / 03 at 1200 hrs 20 / / / at hrs Notification(s): <u>See Event log # 3</u>	Notification from BERT to enable surgery received: 2010/ Dec / 07 at 1200 hrs 20 / / / at hrs Notification(s): <u>See Event log # 6</u>
Start Date:	2010 / Dec / 03 at 1100 hrs	20 / / hrs	at 2010 / Dec / 07 at 1100 hrs		
End Date:	2010 / Dec / 07 at 1100 hrs	20 / / hrs	at 2010 / Dec / 09 at 1200 hrs		

Patient Identifier(s) MRN/HCN/Acc# Name: Last, First Blood Group:	Physician/ Surgeon Procedure	Date / Time	D h E o L u A r Y s	Relevant Laboratory Results	Transfusion Request: RBCs, PLT, Plasma, Other	Inventory Levels	Decision/ Physician	Adverse Outcome	NOTES
Santa Clause O neg	Dr. Kilt Total hip	Original: Dec 3 1159	120 hrs	Hgb=12	4 units of RBC	12 units (3 days)	Delay Dr. Bill		CBS ↓ 25% No recovery identified
		Revised: Dec 8 1200		Hgb=12	4 units of RBC	20 units (5days)	Yes Dr. Bill		Recovery 48 hrs Unlikely to bleed Christmas is coming!
		Original:							
		Revised:							
<i>Example</i>									
		Original:							
		Revised:							

Adapted (modified) from N.S. Provincial Blood Contingency plan April 2010.

Form: Summary of Surgical Request Decisions during Blood Shortages
Facility_____

Phase: ☐ **Amber** ☐ **Red** ☐ **Recovery**
Associated Notification/ Communication(s)
Start Date: 20 / / 20 / / 20 / /
 at _____ hrs at _____ hrs at _____ hrs

End Date: 20 / / 20 / / 20 / /
 at _____ hrs at _____ hrs at _____ hrs

Type of Surgery	Number of Procedures		Number of Units				Average delay (hrs) (Total hrs / # procedures)	Percent of Adverse Patient Outcomes (# of events/ # of procedures)
	Cancelled	Deferred	RBC	PLT	Plasma	Other		

Adapted (modified) from Nova Scotia Provincial Blood Contingency Plan.

Form: Non-Surgical Request Screening Log for Shortages

 Facility: **North Pole**

Phase:	<input type="checkbox"/> Amber	<input type="checkbox"/> Red	<input type="checkbox"/> Recovery	Associated Notification/ Communication(s) See Event Log #3 and 6.
Start Date:	2010 / Dec / 03 at 1100 hrs	20 / / at _____ hrs	2010 / Dec / 07 at 1100 hrs	
End Date:	2010 / Dec / 07 at 1100 hrs	20 / / at _____ hrs	2010 / Dec / 09 at 1200 hrs	

Patient Identifier(s) MRN/HCN/Acc# Name: Last, First Blood Group: _____	Physician/ Diagnosis / Indication	Date / Time	D h E o L u A r Y s	Relevant Laboratory Results	Transfusion Request: RBCs, PLT, Plasma, Other	Inventory Levels	Decision/ Physician	Adverse Outcome	NOTES
Elf, Sleepy AB	Diplastic anemia	Original: Dec 3 1159	n/a	Hgb 80	2RBC	5 units 7 days	Yes Dr.Snow	n/a	AB not affected
		Revised:							
Elf, Chilly O neg	Lymphoma	Original: Dec 3 1159	96 hrs	Hgb 80	2 units RBC	12 units- 2.7 days	no		Asymptomatic and no known recovery phase
		Revised: Dec 7 1200		Hgb 70	2 units RBC	18 units- 4days	yes		Symptomatic SOB Recovery 48hrs
		Original:							
<i>Example</i>									
		Original:							
		Revised:							

Summary of Non-Surgical Decisions during Blood Shortages

Facility_____

Phase: ☐ Amber ☐ Red ☐ Recovery

Start Date: 20 / / 20 / / 20 / /
 at _____ hrs at _____ hrs at _____ hrs

End Date: 20 / / 20 / / 20 / /
 at _____ hrs at _____ hrs at _____ hrs

Associated Notification/ Communication(s)

Diagnosis / Indication / Type/Location i.e. Oncology / RDU / OBGYN	Number of Procedures		Number of Units				Average delay (hrs) (Total hrs / # procedures)	Adverse Patient Outcome (describe any occurrences)
	Cancelled	Deferred	RBC	PLT	Plasma	Other		

2010-11-12 Adapted (and Revised) from Nova Scotia Provincial Blood Contingency Plan.

Requests for Blood Components during a Blood Shortage

REQUESTS FOR BLOOD COMPONENTS DURING A BLOOD SHORTAGE

Date: _____

Time: _____

Facility Name: _____

Patient Name: _____

Patient MRN#: _____

Ordering Physician: _____

Screening Physician Name: _____

Component Requested: _____

Reason for Request: _____

Component Availability: _____ **Amber Phase** _____ **Red Phase**

Clinical Presentation:

Pre transfusion Laboratory Data:

Hgb: _____

Plt: _____

INR: _____

Comment on Release or Nonrelease of Blood Component(s) and Outcomes:

Ordering Physician notified: _____

Follow up date and time: _____

Memo

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

From: {Enter name of BTS Medical Director or Designate}

Cc: {Enter name of BTS Chief Technologist/Charge Technologist, Risk Management}

Date: {Enter date}

Time: {Enter time}

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

Blood Transfusion Services received notification from Canadian Blood Services (CBS) that they are currently experiencing a severe shortage of **{enter name of blood component here}**. The shortage is the result of **{enter the reason for the shortage here}**. Hospital Transfusion Medicine Services in NS have been required to reduce their inventory levels of **{enter name of blood component here}** 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: blood transfusion / surgery}** will be postponed based on current 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 time frame of shortage, or say: a prolonged period}**. Once blood inventory levels have improved, you will receive further notice regarding your rescheduled **{enter one of the following, as applicable: transfusion / surgery}**.

If you would like more information, please contact the Transfusion Medicine Service at **{enter the contact number}**.

We regret this deferral and thank you for your understanding and patience during this difficult situation



Inventory Management Sub-Committee (IMSC) Agenda Template

IMSC Teleconference Information*

Meeting:	Blood Shortage IMSC Teleconference	Date/Time:	
Teleconference: *(see CBS phase alert for meeting details)	*Toll Free # *Pass code: #	Event: (Reference notification memo(s))	

Attendees:	
<ul style="list-style-type: none"> • DHA1 • DHA2 • DHA3 • DHA4 • DHA5 	<ul style="list-style-type: none"> • DHA6 • DHA7 • DHA8 • DHA9 • IWK
<ul style="list-style-type: none"> • PEI 	<ul style="list-style-type: none"> • CBS
<ul style="list-style-type: none"> • NSPBCP 	<ul style="list-style-type: none"> • Other

Time	Item and Details	Lead
10 min	1. Situation Update <ul style="list-style-type: none"> • <i>Reminder that this is a Simulation only, blood orders and surgeries should not be cancelled</i> • <i>Instructions</i> 	CBS HLS NSPBCP
10 min	2. Selected Site Update <ul style="list-style-type: none"> • <i>Current inventory levels, include all inventory (i.e. reserved, crossmatched units)</i> • <i>NS Report inventory using Inventory Management Tool (Parent report all for DHA)</i> • <i>What actions taken, if any (i.e. redistribution, reduction of target inventory levels)</i> 	
10 min	3. Next Steps <ul style="list-style-type: none"> ○ <i>Notification of BERT Convening</i> • <i>Attend follow up teleconference (next day) for a debriefing</i> • <i>Questions/Comments</i> 	NSPBCP
	4. Adjourn Meeting	

Examples of IMT Sheets for Training Purposes

Red Cell Concentrate Worksheet

Data current as of 2010-11-02 at 16:13hrs

	Target DHA	Target Hospital	Inventory	X-Matched	Total	Optimal Inventory	# Units Expiring on 2010-11-09	Days on Hand	Lock Date
O Pos	1 (SSDHA)	(0114) Fisherman's Memorial Hospital			0			0.0	
		(0038) Queens General Hospital			0			0.0	
		(0019) South Shore Regional			0			0.0	
	Total		0	0	0	0	0	0.0	
A Pos	1 (SSDHA)	(0114) Fisherman's Memorial Hospital			0			0.0	
		(0038) Queens General Hospital			0			0.0	
		(0019) South Shore Regional			0			0.0	
	Total		0	0	0	0	0	0.0	
B Pos	1 (SSDHA)	(0114) Fisherman's Memorial Hospital			0			0.0	
		(0038) Queens General Hospital			0			0.0	
		(0019) South Shore Regional			0			0.0	
	Total		0	0	0	0	0	0.0	
AB Pos	1 (SSDHA)	(0114) Fisherman's Memorial Hospital			0			0.0	
		(0038) Queens General Hospital			0			0.0	
		(0019) South Shore Regional			0			0.0	
	Total		0	0	0	0	0	0.0	

Red Cells - DHA View / Platelets - DHA View

DHA Totals - Red Cell Concentrate Worksheet

Data current as of 2010-11-26 at 09:10hrs

	Target DHA	Inventory	X-Matched	Total	Optimal Inventory	# Units Expiring on 2010-12-16	Days on Hand	Lock Date
O Pos	1 (SSDHA)			0			0.0	
	2 (SWNDHA)			0			0.0	
	3 (AVDHA)			0			0.0	
	4 (CEHHA)			0			0.0	
	5 (CHA)			0			0.0	
	6 (PCHA)			0			0.0	
	7 (GASHA)			0			0.0	
	8 (CBDHA)			0			0.0	
	9 (CDHA)			0			0.0	
	IWK			0			0.0	
	Total	0	0	0	0	0	0.0	
A Pos	1 (SSDHA)			0			0.0	
	2 (SWNDHA)			0			0.0	
	3 (AVDHA)			0			0.0	
	4 (CEHHA)			0			0.0	
	5 (CHA)			0			0.0	
	6 (PCHA)			0			0.0	
	7 (GASHA)			0			0.0	
	8 (CBDHA)			0			0.0	
	9 (CDHA)			0			0.0	
	IWK			0			0.0	
	Total	0	0	0	0	0	0.0	
B Pos	1 (SSDHA)			0			0.0	
	2 (SWNDHA)			0			0.0	
	3 (AVDHA)			0			0.0	
	4 (CEHHA)			0			0.0	
	5 (CHA)			0			0.0	
	6 (PCHA)			0			0.0	
	7 (GASHA)			0			0.0	
	8 (CBDHA)			0			0.0	
	9 (CDHA)			0			0.0	
	IWK			0			0.0	
	Total	0	0	0	0	0	0.0	
<div> <div>Red Cells - DHA Totals</div> <div>Platelets - DHA Totals</div> <div>Red Cells - Provincial Totals</div> <div>Platelets - Provincial Totals</div> <div>Red Cells, Platelets - CBS View</div> </div>								

Provincial Totals - Red Cells Worksheet

Data current as of 2010-11-26 at 09:10hrs

Fictional Data

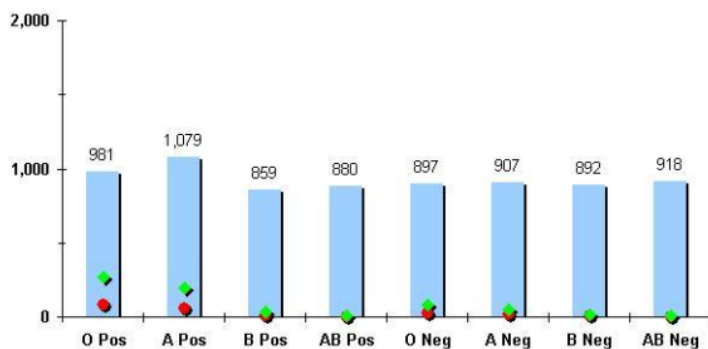
Daily Statistics									
Product	Inventory			Optimal Inventory			Days on Hand		
	NS	CBS	Total (CBS + NS)	NS	CBS	Total (CBS + NS)	NS	CBS	(CBS + NS)
O Pos	621	360	981		267	267	43.5	6.7	50.2
A Pos	788	291	1,079		196	196	48.7	7.4	56.1
B Pos	808	51	859		34	34	48.8	7.5	56.3
AB Pos	828	52	880		12	12	48.9	21.7	70.6
O Neg	848	49	897		83	83	49.0	3.0	52.0
A Neg	868	39	907		49	49	49.1	4.0	53.1
B Neg	888	4	892		14	14	49.1	1.4	50.6
AB Neg	908	10	918		5	5	49.2	10.0	59.2
	6,557	856	7,413	0	660	660	386.3	61.7	448.0

Lock Date

Emergency (1.5 Days)

80
59
10
4
25
15
4
2

Inventory Emergency (1.5 Days) Optimal Inventory



CBS Site:

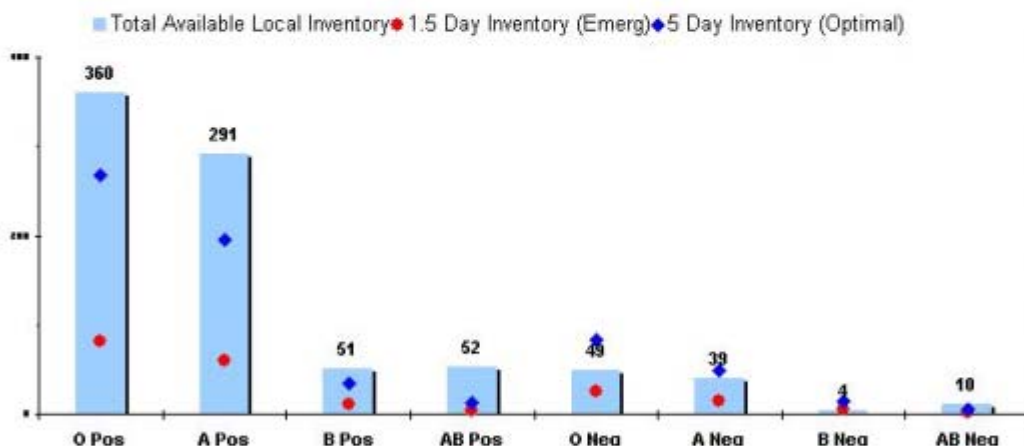
Data current as of 2010-12-08 at 09:10hrs

Lock Date

		O Pos	A Pos	B Pos	AB Pos	O Neg	A Neg	B Neg	AB Neg		Total
Total Available Local Inventory		360	291	51	52	49	39	4	10		856
Days on Hand (Local)		6.7	7.4	7.5	21.7	3.0	4.0	1.4	10.0		

		O Pos	A Pos	B Pos	AB Pos	O Neg	A Neg	B Neg	AB Neg		Total
1.5 Day Inventory (Emerg)		81	59	11	4	25	15	5	2		202
5 Day Inventory (Optimal)		267	196	34	12	83	49	14	5		660

		O Pos	A Pos	B Pos	AB Pos	O Neg	A Neg	B Neg	AB Neg		Total
Total National Inventory		7,220	6,736	3,293	1,534	1,201	946	287	288		21,505
Days On Hand NATIONAL		6.2	7.2	12.6	19.5	3.4	4.6	4.5	13.6		

[illegible]

Comments:	We have 26 platelets in our inventory.
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Note: Inventory levels reflect Canadian Blood Services local inventory status at time of reporting. Inventory levels will fluctuate throughout the day as a result of hospital orders and imports/exports from the Canadian Blood Services national inventory.

References:

British Columbia Provincial Blood Contingency Plan December 21, 2009

British Columbia: The Hospital Emergency Blood Management Plan Template for the Transfusion Medicine Service
October 30, 2009

Exercise Design and Evaluation Guidelines, Nova Scotia Department of Health, Draft February 20, 2009

National Plan for the Management of Shortages of Labile Blood Components, September 28, 2009

Nova Scotia Provincial Blood Contingency Plan, March 2010

Ontario Contingency Plan for Management of Blood Shortages - 2008-01-28

Ontario Report on the Simulated Blood Shortage Exercise - 2010-10-15