EMERGENCY MANAGEMENT MANUAL/PLAN

Emergency Blood Management Plan

SCOPE (Area): Ballarat Base Hospital Campus
SCOPE (Staff): All Staff

BALLARAT HEALTH SERVICES

EMERGENCY BLOOD MANAGEMENT PLAN

The Ballarat Health Services (BHS) Emergency Management Plan is a sub plan of the National Blood Supply Contingency Plan (NBSCP) and integrates best Emergency Management and Transfusion practices. It is in-line with BHS Emergency Management Policies, Procedures, Manuals and Plans. The plan has been reviewed and approved by the BHS Emergency Planning Committees and the Blood Management Committee.

THIS PLAN DESCRIBES THE ACTIONS THAT BHS AND DOREVITCH PATHOLOGY STAFF MEMBERS SHOULD TAKE IN THE EVENT OF A THREAT TO BLOOD SUPPLIES

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Acknowledgements

The BHS Emergency Blood Management Plan was developed by Wendy McLeod (CNC – Blood Management/Transfusion) & Don Garlick (Manager: Emergency Management).

Ballarat Health Services gratefully acknowledges the use of the following documents in developing this plan.

- BloodSafe SA Draft Model EMBP, 2006
- Melbourne Health Draft Emergency Blood Management Plan, 2009
- National Blood Supply Contingency Plan (NBSCP) Version 1, as endorsed by AHMC in April 2008 (Current version as of July 2019)
- NHS- Tameside and Glossop Acute service – Emergency Blood Management Policy, 2005
- NHS- North Bristol NHS Trust plan for management of blood during times of shortage, 2007
- NHS – Draft, Isle of Wight Emergency Blood Management Arrangements, 2005
- Western Health Emergency Blood Management Plan (EBMP) Draft V2, 2009

Introduction

The use of blood and blood products is a frequently used lifesaving treatment modality that has improved mortality and morbidity in some of the most vulnerable patient groups. Its use in managing anaemia of differing aetiology is a keystone of clinical management. The loss of blood supplies can therefore be seen to be a critical emergency for patients and health care providers.

In 2008 the National Blood Supply Contingency Plan (NBSCP) was released. This plan was developed to provide a national framework to manage the consequences of blood supply shortages. The Ballarat Health Services Emergency Blood Management Plan is a sub plan of the NBSCP and details the emergency management arrangements and actions for Ballarat Health Services and Dorevitch Pathology to take in the event that the National Blood Supply Contingency Plan is activated.

National Blood Supply Contingency Plan Summary

Background

The National Blood Authority (NBA) developed a National Blood Supply Contingency Plan (NBSCP) in 2008 to facilitate and coordinate a rapid national response in the event of a domestic threat or disaster that affects the provision of safe and adequate blood supply in Australia.

The need for an agreed local contingency plan has been identified by the NBA as part of the wider plan aimed at ensuring that actions taken at a local level will be swift and effective enough to enable a national pool of blood to be available for all essential transfusions to all patients equally across the country, should the need arise.

The NBA will be responsible for the activation and deactivation of the NBSCP, as well as escalating or de-escalating the plan between the phases. This process will be based on the information and data supplied by suppliers, jurisdictional representatives and advice from relevant advisory bodies. A complete copy of the National Blood Supply Contingency Plan can be found at
https://www.blood.gov.au/system/files/documents/nba-nbscp.pdf

Definition of a crisis

A crisis for the blood sector is defined as an event that causes a significant threat to the supply or demand for blood and blood products in Australia (or both), or an event that threatens the safety of patients. Supply failure, demand surge or a risk to public health may require the plan to be invoked. These events may occur in isolation, in tandem or sequentially.

Supply failure

Based on the risk threat assessment undertaken to guide this plan, supply failures could arise from:

- Significant decrease in the volume or quality of fresh blood components, or plasma-derived or recombinant products
- Manufacturer unable to produce a significant amount of product
- Significant loss of product through storage or distribution issue
- Significant batch failure or batch recall
- Contamination, or suspected contamination of products, has a significant impact on ability to supply products

Demand surge

Based on the risk threat assessment undertaken to guide this plan, demand failures could arise from:

- Multiple trauma patients
- Multiple burns patients
- Significant acute radiation or chemical incident
- Significant biological health incident

Public health risk

As identified by the risk threat assessment, a supply failure may also be triggered by a possible public health risk to patients arising from a transfusion-transmitted infection (TTI), because the product is withdrawn or recalled to prevent further contamination. A management response specific to these circumstances is required. To be effective, it must integrate the interdependencies of other contingency arrangements.

Acute versus chronic shortage

A supply failure, demand surge or a public health situation may create an acute or a chronic shortage. An acute crisis may, after time, become a chronic shortage. In extreme circumstances, Australia may face a chronic blood supply shortage while concurrently managing an acute crisis.

Red cell response process

To meet clinical demand of fresh blood components in the event of a crisis, there is an escalation and a de-escalation process to guide the blood sector's response. The red blood cell response process comprises four operational phases, in line with the framework established under the NBSCP.

The four phases are:

WHITE ALERT	YELLOW ACTIVATE
RED ACTIVATE	GREEN DE-ACTIVATE

Acronyms and abbreviations

AHMAC	Australian Health Ministers' Advisory Council
AHMC	Australian Health Ministers' Conference
ANZSBT	Australian and New Zealand Society of Blood Transfusion
ARCBS	ARCBS Australian Red Cross Blood Service (The Blood Service)
CEO	Chief Executive Officer
DHHS	Department of Health & Human Services
DHS	Department of Human Services
DHHSA	Department of Health & Aging
EBMT	Emergency Blood Management Team
EBMP	Emergency Blood Management Plan
HTC	Hospital Transfusion Committee
MBOS	Maximum Blood Order Schedule
NBA	National Blood Authority
NBSCP	National Blood Supply Contingency Plan
NHMRC	National Health and Medical Research Council
PBMC	Patient Blood Management Committee

Objective of BHS Emergency Blood Management Plan

The Emergency Blood Management Plan (EBMP) outlines the process to be followed at Ballarat Health Services should the NBSCP be activated. The plan complies with the traffic light system of the NBSCP and describes actions required during each phase.

The objective of this plan is to ensure the appropriate use of blood at all times but especially when local blood stocks have fallen to very low levels.

This plan enacted by the BHS Emergency Blood Management Team, aims to work in line with the National Blood Supply Contingency Plan (NBSCP) to ensure that;

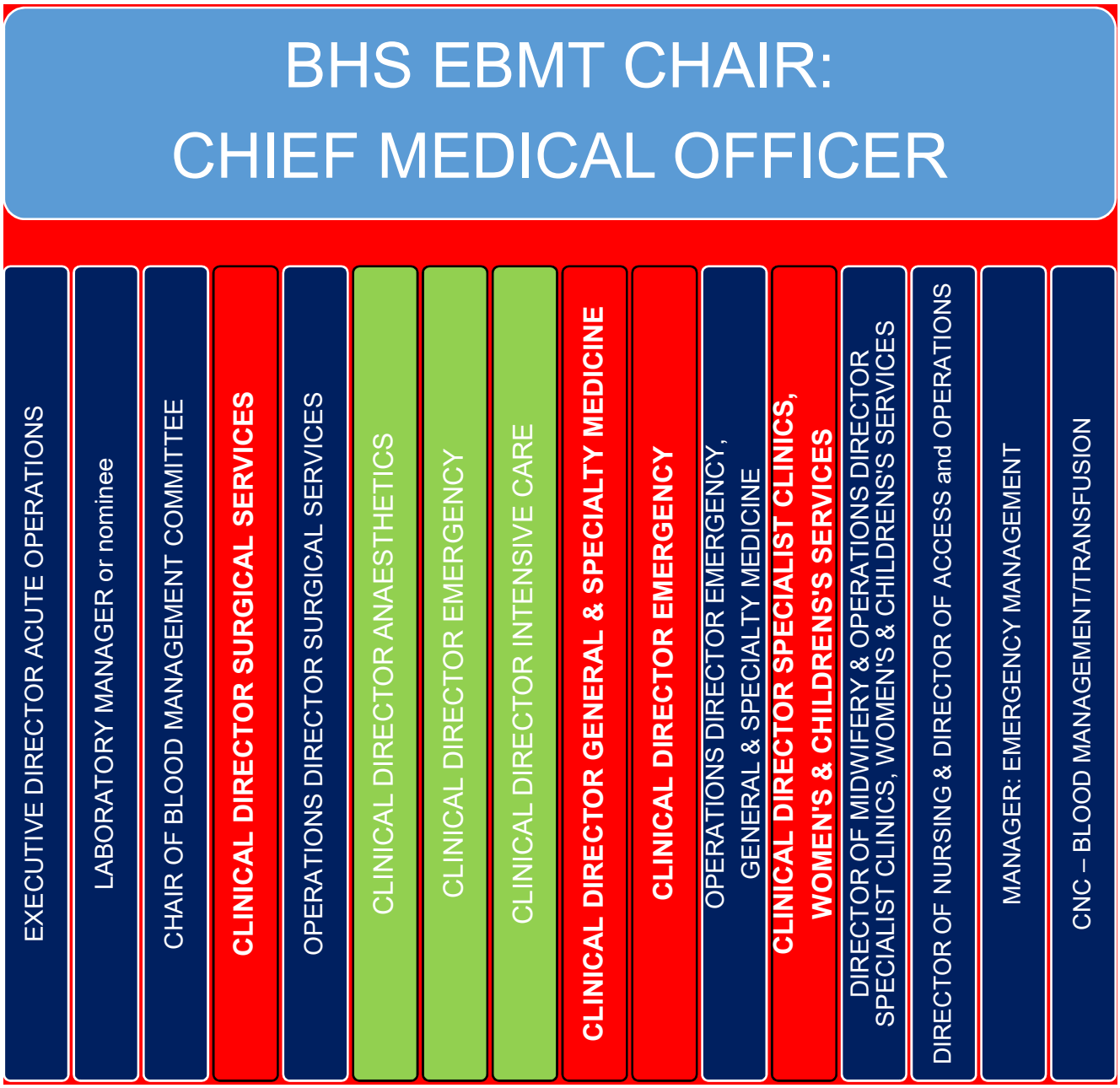
- Overall blood usage is reduced
- Blood is available for essential transfusions to all patients across the country
- The most urgent cases receives available supply

BHS Emergency Blood Management Team

The purpose of the Emergency Blood Management Team (EBMT) is to:

- Review the Ballarat Health Services Emergency Blood Management Plan
- Review blood access priorities
- With the Divisional Directors of clinical areas review planned elective admissions / procedures that will or are likely to require transfusion
- Review the blood shortage and its impact on patient care at regular intervals
- Ensure changes to planned patient admissions are communicated effectively throughout the organization and to the patients affected

The membership of the BHS Emergency Blood Management Team (EBMT)



Summary of BHS EBMT roles and responsibilities

Chief Medical Officer

- Chair the EBMT
- Authorize the immediate implementation of the appropriate action plan (yellow/red)
- Use executive powers to make decisions where necessary
- Provide the necessary information for all members of the EBMT
- Provide the necessary information for all lead consultants and Divisions Directors
- Arrange the meetings of the EBMT (agendas, venues etc)
- Inform all members of the time and venue of meetings of the EBMT, ensuring that a deputy is sent if members are unable to attend
- Produce minutes of the EBMT
- Provide advice and support to clinicians

Laboratory Manager / Senior blood bank scientist

- Be the first point of contact for laboratory staff receiving the initial communication from the Blood Service informing hospitals of a move to white alert, yellow or red activate phase
- Immediately inform the Chief Executive Officer and EBMT of such a move. Out of normal working hours, the initial communication will be with the most senior executive on-call
- Implement the appropriate action plan (white / yellow / red) as authorized by the EBMT chair or representative
- Be a member of EBMT
- Provide information on current blood stocks and request for blood as required by the EBMT and the Blood Service
- Be responsible for the management and ordering of blood stocks in the health service and establishing links with other hospitals
- Liaise with the BS as necessary
- Provide advice to clinicians and transfusion laboratory staff on the implementation of the EBMP

Clinical Directors, Operational Directors and Directors of Nursing

- Keep members of the EBMT informed of how the actions taken are affecting patient care in their clinical areas
- Highlight areas or individual cases of concern
- Disseminate information to their relevant teams as required by the EBMT

CNC – Blood Management/Transfusion

- Member of the EBMT
- Assist the Laboratory Manager and Senior blood bank scientist with the communication between clinicians, Blood Bank and the EBMT
- Provide information to staff on all aspects of the plans and current situation

Flow Chart A: BHS Response to Activation of the National Blood Supply Contingency Plan

As Outlined in Annexe A: Red Cell Response, NBSCP 2008.

Organisational and Clinicians Flow Chart

White alert phase – acute shortage in more than one jurisdiction or a shortage in one jurisdiction will impact on more than one jurisdiction

- Review emergency blood management arrangements to ensure currency
- Places the institution on alert
- Provides inventory levels to the Blood Service , and specific batch details as required
- Increases interhospital transfers to ensure equity of access nationally

National stocks are between 3-5 days

Yellow activate – continues activities from white alert plus:

- Activates emergency blood management arrangements
- Increases blood minimisation strategies (e.g. cell salvage) and blood alternatives (e.g. erythropoietin, oral/IV iron therapy)
- Considers prioritising surgery to minimise blood use
- Begins centralised vetting process for all requests for red blood cells

National stocks are < 3 days

Red Activate – continue activities from white and yellow activate, plus:

- Implements national strategies agreed by AHPC and AHMC such as cancellation of elective surgery requiring blood
- Transfer product as directed by the Blood Service

Situation resolved, stocks have returned to a pre white alert level

De-activate

- Participates in debriefing if appropriate
- HTCs &/or EBMTs to undertake internal debrief and evaluation of their processes and amend as necessary

Flow Chart B: Dorevitch Pathology Response to Activation of the National Blood Supply Contingency Plan

As Outlined in Annexe a: Red Cell Response, NBSCP 2008.

Pathology Provider Flow Chart

White alert phase – acute shortage in more than one jurisdiction or a shortage in one jurisdiction will impact on more than one jurisdiction

- Implements optimal inventory management practices such as reducing cross-matching hold time
- Complies with MBOS-refer to ANZSBT guidelines (Appendix 9, page 21)
- Notifies the CEO and hospital management via EDMS so that alert can be communicated
- Provides inventory levels and details of specific batches held to the Blood Service as required
- Increases interhospital transfers to ensure equity of access nationally

National stocks are between 3-5 days

Yellow activate – continues activities from white alert plus:

- Participates with institutions in emergency blood management arrangements
- Begins centralised coordination of request to all affiliated institutions

National stocks are < 3 days

Red Activate – continues activities from white and yellow activate, plus:

- Implements strategies agreed to assist in the implementation approach agreed by AHPC and AHMC
- Transfers product as directed by the Blood Service

Situation resolved, stocks have returned to a pre white alert level

De-activate

- Participates in debriefing, if appropriate
- Participates in Ballarat Health Services debriefing arrangements, as necessary

Ballarat Health Services Emergency Blood Management Plan

Normal Business Phase

During this phase, blood stocks are meeting demand and there is no imminent threat to supply.

Course of action required

1. Establishment of the Emergency Blood Management Team (EBMT) with executive power and a remit to produce and manage emergency blood management arrangements to cover all four phases
   - Including the development of the BHS Emergency Blood Management Plan and revisions as required

2. Define which members of staff will participate in the shortage management

3. The Ballarat Health Services Patient Blood Management Committee will promote and support everyday best transfusion practice that will include:
   - Following the Patient Blood Management (PBM) Guidelines for the appropriate use of blood products
   - Every request for transfusion should at all times state the indication for transfusion
   - Optimise pre-operative assessment and action to correct anaemia and defects in haemostasis
   - Promotion of blood conservation strategies including the use of cell salvage techniques
   - Use of pharmacological methods to minimize bleeding and maximize haemoglobin
   - Advance notification to the transfusion laboratory of elective admissions that could impact on the blood supply
   - Education/training sessions for staff of all levels on both the EBMP and transfusion best practice

Laboratory response

- Maintain ideal inventory levels
- Ongoing monitoring of stock and wastage figures
- Liaise with the Blood Service
- Use of electronic blood issue to reduce the stock of blood held in hospital, if available
- Decrease cross match availability to 48 hours instead of 72 hours, if electronic blood issue available

White Alert Phase

This is invoked by the Blood Service when:

- An acute shortage has occurred in more than one jurisdiction
- A shortage in one jurisdiction will impact on more than one jurisdiction (ie. initiating jurisdiction has < five (5) days stock for eight (8) days)

Notification of white alert phase

The Blood Service will communicate a move to the white alert by normal communication channels (fax, email and/or telephone) to the manager of the transfusion laboratory, or senior blood bank scientist. The shortage may apply to a single or multiple blood groups.

Course of action required

As for normal business plus:

1. EBMT reviews emergency blood management arrangements to ensure currency and places the health service on alert
2. EBMT reviews blood access priorities (*See Appendix 4: Prioritisation of red blood cell transfusions*)
3. Consider alternatives to blood transfusions (e.g. EPO, iron infusions, cell salvage)
4. In cases of actual or potential massive blood loss the chair of the EBMT (or delegate) must be contacted by the referring clinical team to allow discussion and planning of patient management and blood product provision

Laboratory response

- The laboratory manager shall alert the EBMT Chair and CEO of a White Alert notification
- Implement optimal inventory management practices such as reducing cross-matching holding time, ie. blood is only reserved for a patient for 24 hours
- Comply with the ANZSBT Maximum Blood Order Schedule (MBOS) (*See Appendix 7*)
- Liaise with the Blood Service regarding inventory and expected need.
- The laboratory manager shall alert the EBMT in case of further escalation to Yellow Activate
- Issues only two (2) units of red cells at a time unless there is actual or potential massive blood loss and this has been communicated to the transfusion laboratory
- Liaise with St John of God transfusion laboratory to enable inter-hospital transfer to ensure equity of access across both sites

Yellow Activation Phase

Yellow Activation is invoked when actions in the white alert phase have not rectified the situation so that the plan can be deactivated. The initiating jurisdiction has < three (3) days of stock, or national stock levels are between three (3) to five (5) days.

During this phase prioritization of access to blood will occur to ensure the patients with the greatest clinical need receive therapy. Access is prioritized in the range blood access priority 3 (lowest priority) to blood access priority 1 (highest priority) as described in detail in *Appendix 4: Prioritisation of red blood cell transfusions.*

Notification of yellow alert phase

- The Blood Service will communicate a move to the Yellow Activation phase by normal communication channels (fax, email and/or telephone) to the manager of the transfusion laboratory or senior blood bank scientist
    - The shortage may apply to a single or multiple blood groups
- The laboratory manager or deputy will immediately inform the EBMT Chair and CEO

Course of action required

As for white alert plus:

1. Consider calling a Code Yellow: Emergency Blood Management Plan activation
2. The Chair of the EBMT will authorize the implementation of the BHS EBMP: Yellow Activation Phase actions
3. Clinical Directors will be informed immediately from the Executive Director of Medical Services office that the BHS EBMP: Yellow Activation Phase has been implemented and will then disseminate the information to all medical staff
4. The core members of the EBMT will meet within two (2) working days to review the actions taken and any additional measures which it deems necessary.
    a. This may include deferral of transfusions in patients in priority category 3, and in some circumstances, priority category 2
5. Information following the meeting of the EBMT will be disseminated via;
    a. Emergency Management Alert on the Emergency Management Intranet Portal
    b. An All Users notification
    c. Hard copies of Emergency Management Alert delivered to impacted staff groups
    d. Team meetings if required
6. The EBMT will determine, based on the circumstances, the need for and frequency of future meetings.
    a. It is anticipated that this will be at least weekly during a yellow activation phase
    b. *Agenda template for the EBMT initial meeting during a yellow / red activation phase – Appendix 3.*
7. Once authorized by the EBMT Chair or designated representative, the following actions will be implemented with immediate effect and will be subject to review by the EBMT. *Note: The action plan might only be applicable to certain blood groups as indicated by the Blood Service.*
    a. The BS will state the level of stockholding that Dorevitch Pathology will be reduced to
    b. The BS will state the reduction in usage that is necessary. The health service in conjunction with the DHHS may need to consider prioritising surgery to minimize blood use
    c. The BS will state whether any further restrictions on the use of platelets or plasma products is necessary
    d. Consultants will be asked to reduce their transfusion triggers (e.g. to maintain Hb levels post-operatively above 70 g/L instead of 80 g/L) and to consider the use of oral or intravenous iron and erythropoietin wherever possible
    e. Blood minimization strategies such as cell salvage and use of non-blood therapies should be implemented to avoid the need for allogenic transfusion
    f. All new requests for blood products must be categorized as per *Patient categories to assist in prioritization of red cell transfusions during critical red cell shortages (see Appendix 4)* and documented by the requesting physician on the Blood Product Request Form
    g. Only one (1) unit of blood to be ordered unless patients are classified as being priority 1 category
    h. Theatre list will be reviewed by the lead clinicians for their specialties and each operation will be categorized as per the *Patient categories to assist in prioritization of red cell transfusions during critical red cell shortages – Appendix 4.*

i. The surgical assessment team (Operational Performance, DON: Surgical Services, etc.) will meet daily to review the following day's theatre lists to determine which elective surgeries in blood access priority 3 patients may be supported or deferred, depending on the nature of the shortage of stock levels and categorization / blood group of patients *See Appendix 6:Worksheet of the surgical triage team*
j. The surgical assessment team will be responsible for notification of decisions to affected patients and clinical teams
k. Clinicians and ward staff to inform the laboratory if blood that was requested will no longer be required
l. If the required reduction in usage is not achieved, the EBMT will consider the postponement of all operations in category 3 (if not already required by the NBA) *(Refer to Appendix 4: Prioritisation of red blood cell transfusions)*
m. If the required reduction in usage is not achieved by the above measures, the EBMT may decide to review all cross match requests in category 2 before authorising transfusion *(Refer to Appendix 4: Prioritisation of red blood cell transfusions)*
n. If the required reduction in usage is still not achieved, the EBMT may consider invoking some or all of the measures in the red activation phase plan

Laboratory response

- All new requests for blood will only be accepted if made by a consultant, with the exception of requests on priority 1 category, where requests by a Registrar can be accepted
- All outstanding cross match requests and all cross matched blood in the blood fridge will be reviewed as per the prioritisation categories
    - This review will be carried out by the laboratory manager together with the consultants or registrars of the patients involved
    - Once categorised, these will all be treated in the same way as new requests
- In most circumstances, blood will be de-reserved after 12 hours of being issued
- Platelets will only be issued in alignment with the NHMRC guidelines on the use of platelets

As instructed by the NBA and DHHS, progression to the next category will occur if the shortage is prolonged. This will have a significant impact on waiting time targets.

Red Activation Phase

The NBA will declare a Red activation phase when actions from white and yellow activation have not rectified the situation and national stock levels are < three (3) days. This may apply to a single blood group or to all blood groups. The NBA may communicate a move directly to the Red phase of the plan (from any preceding phase).

As for yellow activation phase prioritization of access to blood will occur to ensure the patients with the greatest clinical need receive therapy. Access is prioritized in the range blood access priority 3 (lowest priority) to blood access priority 1 (highest priority) as described in detail in *Appendix 4: Prioritisation of red blood cell transfusions*

Notification of red alert phase

- The Blood Service will communicate a move to Red Activation via normal communication channels (fax, email and/or telephone) to the Laboratory Manager and the DH will communicate with the health service via the Chief Executive office
- The Laboratory Manager or deputy will immediately inform the EBMT Chair and CEO

Course of action required

As for Yellow Activation Phase plus:

1. Consider calling a Code Yellow: Emergency Blood Management Plan activation
2. The Chair of the EBMT will authorize the implementation of the BHS EBMP: Red Activation Phase actions
    a. The Chair will notify the Grampians Region Department of Health of Red Activation Phase implementation
3. Clinical Directors will be informed immediately from the Executive Director of Medical Services office that the BHS EBMP: Red Activation Phase has been implemented and will then disseminate the information to all medical staff
4. The EBMT will meet as soon as possible within 24 hours to review the actions taken and any additional measures which it deems necessary
    a. *Agenda template for the EBMT meeting during a yellow / red activation phase – Appendix 3.*
5. The EBMT will meet at least daily to review the blood shortage and its impact on patient care
6. Information following the meeting of the EBMT will be disseminated via;
    a. Emergency Management Alert on the Emergency Management Intranet Portal
    b. An All Users notification
    c. Hard copies of Emergency Management Alert delivered to impacted staff groups
    d. Team meetings if required
7. Postponement/cancellation of elective surgery requiring blood in line with AHPC/AHMC advice
8. All transfusion requests will be put in order of priority, based on clinical need
    a. As determined by a team designated by the EBMT
    b. The EBMT will review the order of priority at every meeting.
9. All cross match requests outside priority category 1 will be denied
    a. All issues with requests will be dealt with by the EBMT
10. All blood kept in the issue fridge will be removed by Laboratory staff and returned to the Laboratory for priority distribution
11. All outstanding cross match requests, and all cross matched blood previously issued, will be reviewed and categorized according to priority.
    a. This review will be carried out by the Laboratory Manager or deputy in conjunction with Chair EBMT (EDMS)
    b. Once categorized, those falling outside the agreed limits of the action plan will be cancelled and the requesting clinician informed
12. In cases of patients suffering actual or potential massive blood loss it may be necessary to discuss the criteria for withdrawing blood component support
    a. This decision will be made by a team headed by the Chair EBMT, the clinical care team and Laboratory Manager

Laboratory response

- Reassess inventory / stock levels
- Remove blood from the issue fridge
- Liaise with EBMT regarding elective admissions / procedures that will or are likely to require blood transfusion.
- Liaise with the Blood Service regarding inventory and expected need.
- Transfer blood products to other organizations as directed by ARCBS.

Green De-activation Phase

The Blood Service will inform the transfusion laboratory that stocks have raised to a level where the health service can move to Normal Business status.

To ensure that the immediate demand does not return the stocks to below critical levels, a return to normal activity levels should be phased in, in particular, elective surgery backlogs should not be compressed into the immediate post recovery period.

The EBMT will convene at the earliest opportunity to review the effectiveness of the EBMP and amend the EBMP as necessary. Any recommendations will be fed back to the Patient Blood Management Committee.

RELATED DOCUMENTS

Key Aligned Documents

BHS EM Manuals

MAP0006 BHS Emergency Procedures Manual
MAP0026 Health Services Incident Management Team (HoIMT) Plan

BHS Blood Management Protocols

CID0004 Blood Transfusion Discharge Information
CID0115 Patient Blood Management
CPP0097 Massive Transfusion
CPP0209 Blood and Blood Product Transfusion
CPP0602 Patient Blood Management in the Pre-Operative and Obstetric Setting

BHS Blood Management Policy

POL0012 Blood Components – Cross Matching for Transfusion

BHS Other Related Governance Documents

MAP0025 Occupational Health and Safety Management System Procedure
NCP0031 Occupational Health and Safety Responsibilities
POL0116 Mandatory and Organisation Specific Requirements For Education And Training

Key Legislation, Acts & Standards

Aged Care Quality and Safety Commission (2019, May 16). *Aged Care Quality Standards*. Retrieved June 29, 2019 from https://www.agedcarequality.gov.au/resources/aged-care-quality-standards

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BHS Emergency Management Plan Revisions

Date	Version	Details	Author	Title
February 2010	1	Original plan developed	Don Garlick Wendy McLeod	Manager: Emergency Management Transfusion Nurse Consultant
May 2013	2	3 yearly revision. No change in the National Plan.	Don Garlick Wendy McLeod	Manager: Emergency Management Transfusion Nurse Consultant
March 2016	3	3 yearly revision. No change in the National Plan. Replace Transfusion Committee with renamed Patient Blood Management Committee. Change Memo (App 8)	Don Garlick Wendy McLeod	Manager: Emergency Management Transfusion Nurse Consultant
July 2019	4	Triennial Review • Update EBMT role titles • Review information and update references • Review NBSCP • Reviewed by Blood Management Committee	Don Garlick Wendy McLeod	Manager: Emergency Management CNC – Blood Management/Transfusion

Appendix 1: Escalation process for red blood cell products

Phases	Red Blood Cell Definition	Desired Outcome
WHITE ALERT	Invoked when: • An acute shortage has occurred in more than one jurisdiction OR • A shortage in one jurisdiction will impact on more than one jurisdiction (i.e. initiating jurisdiction has had < five (5) days stock for eight (8) days).	To increase the collection and production to build stock levels while meeting demand for emergency services and the majority of other clinical requirements.
YELLOW ACTIVATE	Invoked when: • Actions in white alert phase have not rectified the situation so that the plan can be deactivated • The initiating jurisdiction has < three (3) days stocks • National stock levels are between three (3) – five (5) days	Decrease non-urgent product use so that available products can be redirected to meet life threatening and/or other agreed priorities based on appropriate clinical assessment Consider prioritising surgery to minimise blood use. If chronic shortage, consider triage of medical indications for transfusion.
RED ACTIVATE	Invoked when: • Actions from white alert and yellow activated have not rectified the situation • National stock levels are < three (3) days	Blood use is triaged for life-threatening and other clinically assessed priorities. Blood use in elective surgery is not allowed and procedures are compliant with jurisdictional emergency arrangements. If chronic shortage, implement national consistency in triage of medical and surgical blood use.
DE-ACTIVATE	Fresh blood stocks have returned to a pre-white alert level that is acceptable on a national level.	NBSCP is improved for possible future crises and, if possible, new measures are introduced to decrease the likelihood or impact of a similar situation.

National Blood Supply Contingency Plan https://www.blood.gov.au/system/files/documents/nba-nbscp.pdf

Note: All references to stock for red blood cells denotes the combined available product of both the Blood Service and approved health providers (ie. hospitals)

Appendix 2: BHS Emergency Blood Management Team – Terms of Reference

The EBMT will review emergency blood management arrangements to ensure currency as part of the white alert action plan and place the health service on alert.

The EBMT will meet as part of the yellow or red action plan, which is implemented in response to a communication from the Blood Service, stating that a significant reduction in available blood has occurred or is imminent.

The necessary functions of the EBMT, during a yellow or red activation phase are:

1. Review the communications from the Blood Service and the Department of Health to determine the actions necessary to manage the period of shortage
2. Ensure that available blood is administered to those who are most in need first
3. Ensure that the reduction in usage of blood occurs across all clinical areas and that the necessary amount and types of operations are cancelled
4. Define further actions necessary
5. Evaluate the effectiveness of measures taken to reduce blood usage as required
6. Evaluate the effects of shortage on patient care
7. Use executive powers to make decisions where necessary during a shortage
8. Make recommendations for future contingency plans based on lessons learnt

Minutes

Minutes will be taken, produced and distributed by the Chief Medical Officer's PA at the discretion of the Chair of the EBMT.

Appendix 3: Agenda template for the EBMT Initial meeting during a Yellow/Red Activation phase

Emergency Blood Management Team Meeting
Agenda

Date:
Time:
Venue:

1. Apologies	(Chair)
2. Review of communications from the Blood Service and the current situation	(Chair)
3. Current health service blood stocks report	(Laboratory Manager or designated scientist))
4. Review of the yellow/red action plan	(Chair)
5. Review of all cases requiring transfusion and order of priority	(Chair)
6. Continued action required until next meeting (or change of phase)	(Chair)
7. Cascade of information	(Chair)
8. Date and time of next meeting	(Chair)
9. Any other business	(Chair)

Appendix 4: Prioritisation of red blood cell transfusions

In some situations, it may be necessary to restrict transfusions to patients with the greatest need. In descending order of urgency, patients can be classified in Blood Access Priority 1-3. The patients in Blood Access Priority 1 have the highest priority for transfusion.

(Note: These categories are suggestions only and are not mandated, it is the responsibility of the treating clinician and institution to determine the appropriate treatment of the patient based on available blood products. NBSCP-National Blood Authority, 2008)

Blood Access Priority 1 (Highest Priority)

Resuscitation

- Resuscitation from life-threatening or ongoing blood loss from any cause, including major trauma and obstetric haemorrhage.

Surgical support

- Emergency surgery (defined as patient likely to die within 24 hours without surgery), including cardiac and vascular procedures.
- Urgent surgery (defined as patient likely to have major morbidity if surgery not carried out)
- Organ transplantation that cannot be deferred.

Non-surgical anaemia

- Life-threatening anaemia, including patients requiring in-utero support or in neonatal intensive care.
- Support for stem cell transplantation or chemotherapy that cannot be delayed.
- Patients with severe bone marrow failure, haemoglobinopathies or other conditions who cannot tolerate any delay in transfusion.

Blood Access Priority 2

Surgery and obstetrics

- Semi-urgent surgery (defined as patient likely to have minor morbidity if surgery not carried out).
- Cancer surgery that cannot be deferred without risk to the patient.
- Symptomatic, but not life-threatening, postoperative or postpartum anaemia.

Non-surgical anaemia

- Symptomatic, but not life-threatening, anaemia (including postoperative) of any cause that cannot be managed by other means.

Blood Access Priority 3

Surgery

- Elective surgery requiring cross-matched red blood cell support of two or more units of homologous donor blood (refer to ANZSBT Maximum Blood Order Schedule).

Non-surgical anaemia

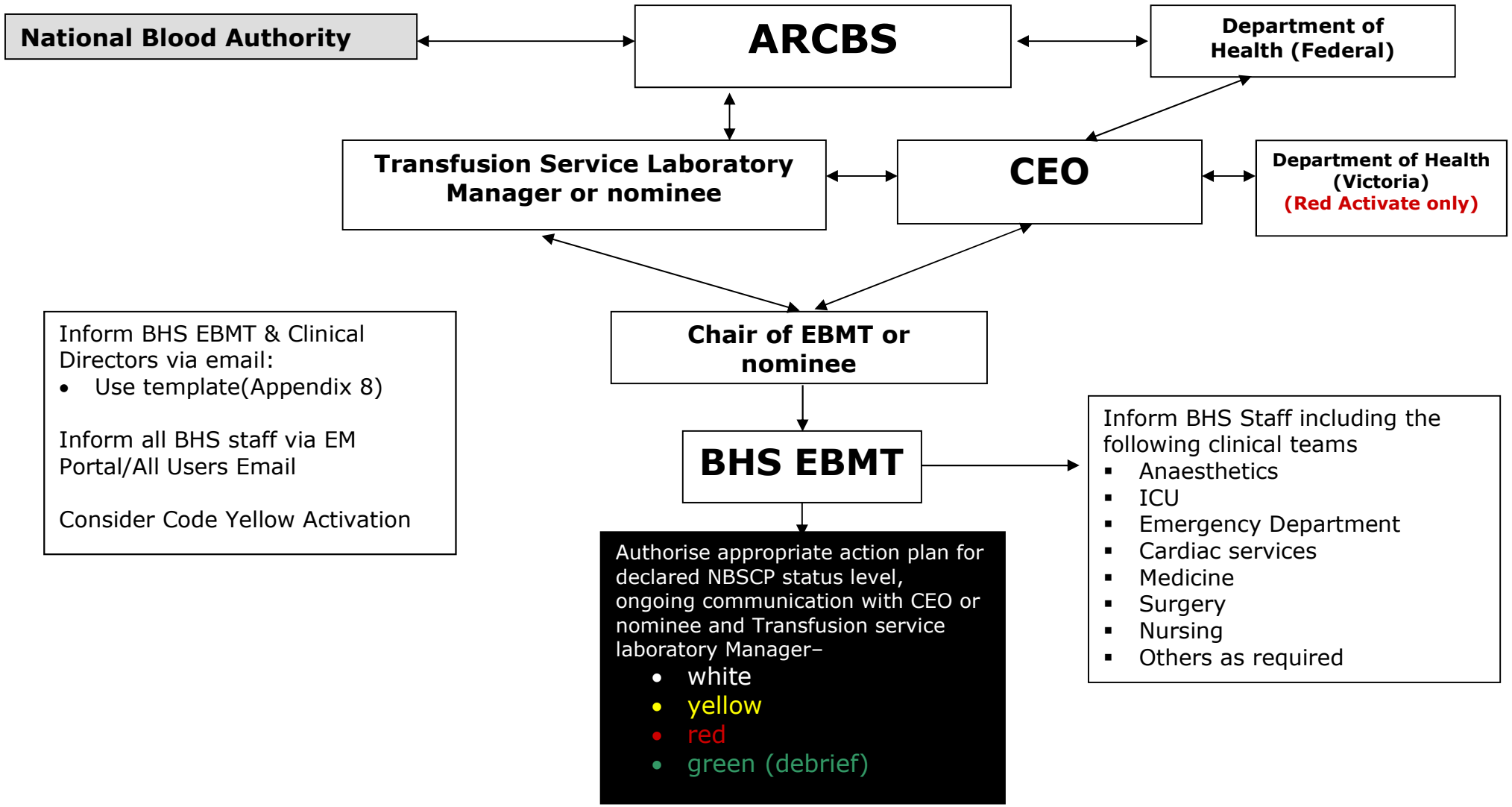
- Other non-urgent medical indications for transfusion.

Notes for all priority levels

For all priority levels consider the following:

- Alternatives to transfusion (eg. erythropoietin, iron therapy, red cell salvage).
- A reduction in target post-transfusion haemoglobin.

Appendix 5: BHS EBMP Communication Plan



Appendix 6: Worksheet of surgical triage team

Patient ID and details	Type of Surgery	Surgeon/ Anaesthetist	Blood group	EBMP blood access priority status	Autologous blood available Yes / No	Remarks	Decision to Proceed / Defer	Surgeon / Unit informed	Patient informed / Date rescheduled

Appendix 7: Maximum Surgical Blood Order Schedule (ANZSBT)

General Surgery Procedure Cross Match Requirements

Abdomino-perineal resection	2
Amputation (below or above knee)	G&S (Group and Save)
Anterior resection	2
Appendectomy	Nil
Apronectomy (mini-abdominoplasty)	G&S
Bowel resection	2
Breast surgery (lumpectomy)	G&S
Burns debridement	Individual Assessment
Cholecystectomy	G&S
Colectomy (formation or closure)	G&S
Ethmoidectomy	Nil
Gastrectomy	2
Gastric stapling	G&S
Haemorrhoidectomy	Nil
Hiatus hernia repair (abdominal)	G&S
Hiatus hernia repair (transthoracic)	2
Incisional hernia repair	Nil
Laparotomy	G&S
Lipectomy	G&S
Lumbar sympathectomy	G&S
Mastectomy (simple)	G&S
Mastectomy (radical)	G&S
Mastoidectomy	G&S
Pancreatectomy	2
Parotidectomy	G&S
Rhinoplasty	G&S
Splenectomy	2
Thyroidectomy	G&S
Tonsillectomy	G&S
Tracheostomy	G&S
Vagotomy and drainage	G&S
Varicose veins stripping	Nil

Gynaecological Surgery Procedure Cross Match Requirements

Caesarean section	G&S
Colposuspension	G&S
Cone biopsy	Nil
D & C	Nil
Ectopic pregnancy	G&S
Hysterectomy	G&S
Laparoscopy	Nil
Myomectomy	G&S
Ovarian cystectomy	G&S
Termination of pregnancy	G&S
Tubal ligation	Nil
Vaginal repair	G&S
Vulvectomy	G&S

Orthopaedic Surgery Procedure Cross Match Requirements

Arthroscopy	Nil
Arthrotomy	Nil
Femoral nail removal	Nil
Fractured femur	2
Harrington's rods	4
Hip replacement	3
Knee replacement	G&S
Laminectomy	G&S
Menisectomy	Nil
Putti-Platt	G&S
Spinal fusion	2
Synovectomy (knee)	G&S

Thoracic Surgery Procedure Cross Match Requirements

Lobectomy	2
Pleurectomy	2
Pneumonectomy	4
Thymectomy	2

Urological Surgery Procedure Cross Match Requirements

Cystectomy	4
Cystoscopy or cystotomy (vesicotomy)	Nil
Nephrectomy	G&S
Nephrolithotomy	G&S
Prostatectomy (open)	2
Prostatectomy (transurethral resection; TURP)	G&S
Pyelolithotomy	G&S
Ureterolithotomy	G&S

Vascular Surgery Procedure Cross Match Requirements

Aortic aneurysm (elective)	4
Aorto-femoral bypass graft	4
Aorto-iliac bypass graft	4
AV Fistula/Graft or Vascular Access Device	Nil
Carotid endarterectomy	G&S
Femoro-popliteal bypass graft	2
Ilio-femoral bypass graft	4
Sympathectomy lumbar	G&S

Appendix 8: All Users Email/EBMT Electronic Notification

Ballarat Health Services Putting your health first	**INTERNAL MEMORANDUM**
TO :	All Staff
FROM :	Chief Medical Officer
SUBJECT:	**SHORTAGE OF BLOOD STOCK: WHITE/ YELLOW/RED ALERT**
DATE :	DD MM YYYY

Dear Colleagues

The hospital has been notified of a _____ alert phase for red blood cells and the emergency blood management plan (MAP0009) has been invoked.

Blood transfusion must only be considered according to the 'Guidance for prioritisation of red blood cell transfusions' (attached).

Cross match holding time shall be limited to 24hours only.

Only one (1) unit of red cells shall be issued at a time unless there is actual or potential massive blood loss and this has been communicated with the laboratory.

Yours Sincerely,

Name
Chief Medical Officer