Alberta Health Services

Laboratory Bulletin

Date: October 14, 2015
To: CRH Physicians, Nurses, Unit Clerks, Transfusion Medicine Laboratory Staff
From: AHS Laboratory Services – South Zone
Re: Changes to CRH Massive Transfusion Protocol Packs

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Key Messages:

- The Chinook Regional Hospital (CRH) Massive Transfusion Protocol (MTP) supports 1:1:1 blood component resuscitation.[1,2] When the MTP is activated, the Transfusion Medicine (TM) laboratory provides a pack of 6 units of red blood cells (RBC), 6 units of plasma, and 1 platelet pool to the ordering location.
- If the MTP is activated on a patient without a current ABO group, the MTP pack currently contains 6 AB plasma, 6 group O RBC, and 1 pool of platelets.
- **Effective November 2, 2015**: When an MTP is activated for a patient prior without a current ABO type, the MTP pack will contain 2 AB plasma, 6 group O RBC, and one platelet pool. 4 additional units of group-specific plasma will be thawed and issued as soon as the ABO group is complete.
- In extreme emergencies, 2 additional units of AB plasma may be provided at the specific request of the physician if additional plasma is required before group-specific plasma can be provided.
- MTP packs for patients with a known ABO group will continue to be supplied with 6 RBC, 6 Plasma, and 1 platelet pool.
- A current ABO type is defined as an ABO group tested during the patient's current admission, usually as part of the Type and Screen.

MTP Activation	MTP Pack Contains
Patient ABO Unknown (unknown = not tested on current admission)	1 Platelet Pool 6 Group O RBC 2 Group AB Plasma (500mL) **4 additional ABO-specific plasma will follow (1000mL)
Patient ABO Known* but Type and Screen incomplete *known = tested on current admission	1 Platelet Pool 6 ABO specific RBC (uncrossmatched) 6 ABO specific/compatible Plasma (1500mL)
Patient ABO Known* and Type and Screen complete *known = tested on current admission	1 Platelet Pool 6 crossmatched RBC 6 ABO specific/compatible Plasma (1500mL)

Why this is Important

- There has been a significant increase in MTP activations at Chinook Regional Hospital (CRH), from an average of 4-6 per year prior to 2015 to 15 as of September 2015. This has resulted in increased usage and wastage of AB plasma.
- Canadian Blood Services tracks hospital orders of blood components. CRH AB plasma orders have risen to 18% of total plasma orders, exceeding the national average of 12%. CRH ranks #37 nationally, based on the total number of AB plasma units ordered by Canadian hospitals in 2014-2015.[2,3]
- The supply of AB plasma is extremely limited. Only 3% of blood donors are group AB. CBS has informed CRH that it cannot continue to supply the current demand.

Action Required:

- The process for activating the MTP has not changed. Transfusion Medicine will continue to provide blood components in a 1:1:1 ratio as described above.
- Ensure Transfusion Medicine is notified as soon as the MTP is deactivated to avoid unnecessary preparation of blood components.

Supplementary Information

1:1:1 formula-driven resuscitation has become popular practice, however it's superiority over goal-based resuscitation remains controversial. In 2011, the National Advisory Committee (NAC) on Blood and Blood Products sponsored an international consensus conference on transfusion and trauma, in which they found a lack of evidence to support the use of 1:1:1 blood component ratios as the standard of care.[5] The consensus panel provides three recommendations for trauma resuscitation:

1. Early administration of tranexamic acid
2. Immediate application of a foundation ratio of blood components
3. Adjustment to the foundation ratio based on clinical course and laboratory tests using goal-directed blood therapy.

The ongoing PROPPR trial[1,2] seeks to provide evidence to support 1:1:1 resuscitation but does not compare the strategy to goal-based protocols.[1,2] However, without the availability of Thromboelastography (TEG™) or Rotational Thromboelastometry (ROTEM™), goal-based resuscitation in trauma situations is hindered by laboratory turn-around-time. Administration of blood components must therefore rely heavily on clinical judgement.

The NAC consensus conference also stresses the value of an organized response plan and supports the creation of local massive transfusion protocols that coordinate with regional trauma systems.[5] Delivery of standardized MTP packs supports rapid delivery of blood components and effective communication between the transfusion medicine laboratory and the trauma team. In addition, Foothills Hospital, CRH's referral centre, supports 1:1:1 blood component resuscitation. CRH will continue to provide a foundation ratio of 6 RBC, 6 plasma, and 1 platelet pool to support continuity of care across Southern Alberta.

References

1. Transfusion of Plasma, Platelet, and Red Blood Cells in a 1:1:1 vs a 1:1:2 Ratio and Mortality in Patients with Severe Trauma. The PROPPR Randomized Clinical Trial. Holcomb et al. JAMA 2015;313(5):471-482
2. Resuscitating PROPPRly. Hess, J and Holcomb J. Transfusion 2015;55:1362-1364
3. BloodBrief - An Update on AB Plasma – Background Status, Canadian Blood Services, Sept 2015. https://www.blood.ca/sites/default/files/2015-AB_Plasma-Overview.pdf
4. BloodBrief - An Update on AB Plasma – Hospital Rank 1-100, Canadian Blood Services, Sept 2015. https://www.blood.ca/sites/default/files/Hospital-Rank-1-100-BloodBrief-AB-plasma-2015.pdf
5. Massive Transfusion Consensus Conference; Canadian National Advisory Committee on Blood and Blood Products; Massive Transfusion Consensus Conference, 2011: Report of the Panel http://www.ccforum.com/content/15/6/242/abstract

Inquiries and feedback may be directed to:

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