

14.0 QUALITY

Amanda McFarlan (Chair), Allison Collins, Avery Nathens, Troy Thompson

Continuous quality improvement activities in healthcare are an essential part of improving patient experiences and outcomes. Standardized quality metrics have been developed for the Provincial MHP to help assess and improve specific activities over time at individual hospitals and will allow for peer benchmarking. This section will address recommendation statements 41 and 42. There are 8 quality metrics recommended for reporting in order to assess the MHP process at your institution.

- The proportion of patients receiving tranexamic acid within 1 hour of protocol activation.
- The proportion of patients in whom RBC transfusion is initiated within 15 minutes of protocol activation.
- The proportion of patients (of patients requiring transfer for definitive care) with initiation of call for transfer within 60 minutes of protocol activation.
- The proportion of patients achieving a temperature $>35^{\circ}\text{C}$ at termination of the protocol.
- The proportion of patients with hemoglobin levels maintained between 60-110 g/L during protocol activation, excluding certain pediatric populations (e.g., neonates) that may require higher hemoglobin values.
- The proportion of patients transitioned to group specific RBCs and plasma within 90 minutes of arrival/onset of hemorrhage.
- The proportion of patients with appropriate activation (>6 RBC units in first 24 hours; >40 ml/kg/24 hours of RBCs in pediatric patients) or before this level in patients dying due to hemorrhage within 24 hours.
- The proportion of patients without any blood component wastage (including plasma that is thawed and not used within the 5 day limit on another patient).

Quality Metrics Reporting

A Quality Metrics reporting portal has been developed using the REDCap software platform in order to capture all 8 MHP quality metrics. The Quality Metrics reporting portal is a validated and free tool that will assist with evaluating compliance. The reporting of MHP metrics is voluntary and the reporting portal will be linked to a “dashboard” which will provide both local (hospital specific) and provincial (aggregate) data in order to monitor quality metrics over time.

(Please note- the MHP Quality Metrics portal and associated dashboard are in the development stages at time of toolkit release and more information will be provided in the future)

Hospitals can enter each MHP activation (one per patient) on a per patient basis or monthly into the MHP Quality metrics portal.



Instructions for Entering MHP Metrics

MHP Quality Metrics Portal link: https://is.gd/mhp_survey

MHP - Quality Metrics Working Instructions

Quality Metrics	Metric Reporting	Considerations
<p>1. The proportion of patients receiving tranexamic acid (TXA) within 1 hour of protocol activation.</p>	<p>Did patient receive TXA within 1 hour of activation?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Patient expired before 1 hr <input type="checkbox"/> N/A – Given by referring hospital <input type="checkbox"/> N/A – Given by EMS/Ornge <input type="checkbox"/> N/A – TXA contraindicated <input type="checkbox"/> N/A – TXA ineffective (i.e., gastrointestinal hemorrhage, bleeding secondary to thrombocytopenia) 	<ul style="list-style-type: none"> • need to consider pre-hospital infusions • exclude patients dying within first hour • receiving at least 1 gram for adult patients • need to consider dosing for pediatrics (the initial bolus -15 mg/kg up to a maximum of 1 g) • received or initiated 1 gram infusion within the first hour • look for information on the nursing drug administration area on documentation sheet or on Ornge/EMS call sheet • info could be in physician or nursing documentation
<p>2. The proportion of patients in whom RBC transfusion is initiated within 15 minutes of protocol activation.</p>	<p>Was RBC transfusion initiated within 15 minutes of protocol activation?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes – Start time of first unit not documented but first unit Issued from BB/TM before or within 10 minutes of activation <input type="checkbox"/> N/A – first RBC given at referring hospital <input type="checkbox"/> N/A – first RBC given by EMS/ Ornge <input type="checkbox"/> N/A – MHP over-activation and no RBC units required <input type="checkbox"/> N/A – patient expired before 15 minutes 	<ul style="list-style-type: none"> • red cells issued from blood bank within 10 minutes of activation¹ – every 1 minute delay associated with a 5% increase in mortality • MHP activated when call to blood bank or through communications, time-stamped emails or call log from communication or documentation time in nursing documentation in the chart • need to consider pre-hospital initiation of MHP • transfusion initiation very difficult to obtain and therefore issue time from blood bank to be used as a surrogate where required • Each hospital to record metrics (ie. patient may have metrics entered at 2 hospitals – sending and receiving) • include box “initiated at sending hospital” if applicable • need to consider Ornge/ambulance initiated treatment



<p>3. The proportion of patients (of patients requiring transfer for definitive care) with initiation of call for transfer within 60 minutes of protocol activation.</p>	<p>Was the initiation for patient transfer within 60 minutes of protocol activation?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A – Patient expired before 60 minutes</p> <p><input type="checkbox"/> N/A – no transfer/definitive care provided</p>	<ul style="list-style-type: none"> • small site- have N/A; definitive care provided at supporting hospital categories • time of activation-time of the call for transfer • can get data from Criticalll for call of transfer • Ornge/EMS call transfer sheet has time of call- can be used for surrogate marker • Ambulance call report usually scanned into Medical Health records
<p>4. The proportion of patients achieving a temperature >35°C at termination of the protocol.</p>	<p>Was the patient’s temperature >35°C at termination of protocol? (30 minutes prior to/6 hours after termination)</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No – no temperature documented within 6 hours of termination</p> <p><input type="checkbox"/> N/A – patient died before termination</p>	<ul style="list-style-type: none"> • N/A patient died before termination • If termination not documented use temperature at arrival time at destination (ICU, Recovery room) • temperature at last red cell transfusion post resuscitation • If MHP not formally terminated or time not documented • temperature can be accepted 30 min prior or 6 hours after protocol termination/arrival at destination/at time of last RBC
<p>5. The proportion of patients with hemoglobin levels maintained between 60-110 g/L during protocol activation, excluding certain pediatric populations (e.g., neonates) that may require higher hemoglobin values.</p>	<p>Was the patient’s Hb maintained over 60 g/L in the first 24 hours?</p> <p><input type="checkbox"/> Yes*</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unknown – patient died before post-transfusion blood work drawn</p> <p>*After 1st RBC unit to 24 hours after activation – no Hb value was <60g/L</p> <p>Was the patient’s Hb below 110 g/L at 24 hours?</p> <p><input type="checkbox"/> Yes*</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unknown – patient died before post-transfusion blood work drawn</p> <p>*After 1st RBC unit to 24 hours after activation - no Hb value was >110g/L</p>	<ul style="list-style-type: none"> • Exclude any Hb before initiation of transfusion • Hb at 24 hours after resuscitation as surrogate (fluid shifts complete) for over transfusion • important to be able to capture under resuscitation and over-transfusion • recording if hemoglobin <60 g/L at any point in first 24 hours excluding “opening” Hb before transfusion • Hb levels only at reporting centre –if arrival hemoglobin from another hospital is <60 or >110 g/L, only record post-transfusion levels • Referring hospitals should review hemoglobin levels in Connecting Ontario to ensure complete capture of over and under-transfusion events, based on care directed by the referring hospital



<p>6. The proportion of patients transitioned to group specific RBCs and plasma within 90 minutes of arrival/onset of hemorrhage.</p>	<p>Was the patient transitioned to group specific RBC/Plasma within 90 minutes of arrival/onset of hemorrhage?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A – unable to transition due to mix-field discrepancy unresolved at 90 minutes</p> <p><input type="checkbox"/> N/A – no blood issued after 90 minutes</p> <p><input type="checkbox"/> N/A – patient group O</p>	<ul style="list-style-type: none"> • red cell provided after 90 minutes is group specific- yes or no or N/A • time is the issue time from the blood bank for the first group-specific unit
<p>7. The proportion of patients with appropriate activation (>6 RBC units in first 24 hours; >40 ml/kg/24 hours of RBCs in pediatric patients) or before this level in patients dying due to hemorrhage within 24 hours.</p>	<p>Was the MHP activation appropriate for this patient?</p> <p><input type="checkbox"/> Yes (>6 RBC in 1st 24 hours; >40 ml/kg/24 hours of RBCs in pediatric patients)</p> <p><input type="checkbox"/> Yes – death of bleeding before unit 6</p> <p><input type="checkbox"/> No (Does not meet above criteria)</p> <p><input type="checkbox"/> N/A – transferred out before unit 6</p>	
<p>8. The proportion of patients without any blood component wastage (including plasma that is thawed and not used within the 5 day limit on another patient).</p>	<p>Were any blood/blood products wasted during this MHP activation?</p> <p><input type="checkbox"/> Yes</p> <p>Which products?</p> <p><input type="checkbox"/> RBC – # of units?</p> <p><input type="checkbox"/> Plasma – # of units</p> <p><input type="checkbox"/> Platelets – # of units</p> <p><input type="checkbox"/> Prothrombin Complex Concentrate – IU</p> <p><input type="checkbox"/> Fibrinogen Concentrate – grams</p> <p><input type="checkbox"/> No</p>	<ul style="list-style-type: none"> • blood that comes with patient and not appropriately packaged and are wasted should be counted in the sending hospital metrics • any blood products received should be recorded by sending hospital (including EMS/Ornge issues) • standardized packing configuration in the protocol may need to be considered if wastage rate is high • plasma thawed and not transfused to another patient, coded as wasted

Additional information regarding the MHP Quality Metrics dashboard will be provided at a later date.

References

1. Holcomb JB, Tilley BC, Baraniuk S, et al.(2015) Transfusion of plasma, platelets, 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. JAMA 313:471–82.

