Protocol for Bedside Audit of Blood Administration
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**Purpose and Rationale**

The purpose of this project is to collect baseline data on the compliance rate of hospital practice in Ontario with current Standards of practice for the safe Administration of Blood Components. A web-based audit tool has been created to help facilities audit the process of blood administration.

One of the highest risks of transfusion is the risk of receiving a blood component intended for another recipient. Estimates of the frequency of transfusion of blood of the wrong (incompatible) ABO blood group is approximately 1 in 40,000.\(^1,2\) The primary cause of these incidents is failure to follow clerical or technical procedures. Through auditing, the root cause of these types of errors can be identified and corrective actions put into place.\(^3\)

The goal of this audit project is to develop a tool for hospitals to use to facilitate the practice of auditing transfusion procedures periodically to ensure compliance with current Standards \(^4,5\) and critical steps in the process – specifically identification of the recipient, identification of the blood components given and monitoring the patient before, during and after the transfusion.

**The Ontario Regional Blood Coordinating Network (ORBCoN)**

The Ontario Regional Blood Coordinating Network (ORBCoN) is an initiative by the Ontario Blood Programs Coordinating Office (BPCO), of the Ontario Ministry of Health and Long Term Care. The regional networks are based on existing CBS geographic service areas. Three sites, one in each region, will provide a leadership and sponsorship role for regional activities:

<table>
<thead>
<tr>
<th>ORBCoN Region</th>
<th>Host organization</th>
<th>Project Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Ontario</td>
<td>Sunnybrook Health Sciences Centre, Toronto</td>
<td>Dr. Jeannie Callum</td>
</tr>
<tr>
<td>Northern and Eastern Ontario</td>
<td>The Ottawa Hospital, Ottawa</td>
<td>Dr. Antonio Giulivi</td>
</tr>
<tr>
<td>Southwestern Ontario</td>
<td>McMaster University, Hamilton</td>
<td>Ms. Nancy Heddle</td>
</tr>
</tbody>
</table>

The role of the province is to provide overall direction and priority setting for the network and provide funding for blood utilization initiatives. The regional network staff review utilization and surveillance data and facilitate implementation of best practices. An advisory board (Ontario Blood Advisory Committee) has been created to provide feedback and guidance to the network. In addition, ORBCoN has a Steering Committee, and each region has a Regional Advisory Committee.

**Ethics approval may be required depending on each facility’s protocol for this type of activity.***
Description of the Methodology of the Audit

A working group made up of transfusion safety officers, nurses and physicians across Ontario met over a period of three months to develop a standard audit form as well as develop this protocol for the province wide audit. An online tool, developed to be used in conjunction with the standard audit form, will be used to collect the data points. A pilot was held in October 2010 to test the audit form and online audit tool to ensure they both function at an acceptable level.

Data categories that will be audited include:

- Confirmation of the physician’s order and informed consent
- Check of the patient’s identification at the time of transfusion (at the bedside)
- Verification of the Blood Component (at the bedside)
- Check of the recipient’s vital signs prior to and after 15 minutes of the start of the transfusion

General questions will also be asked about the participating facility:

- Is there a facility policy specific to blood component administration?
- Does the facility provide transfusion information to patients that are or may receive a blood transfusion?
- Does the facility have a training program for individuals that transport blood components to clinical areas?

Hospitals in Ontario will be invited to participate in an audit between February 2011 and March 2011. Small hospitals will be asked to perform audits of 2 transfusion procedures during this time period, community hospitals will be asked to perform audits of 5 transfusion procedures and large teaching hospitals will be asked to perform 10 or more audits of transfusion procedures during this time period. Participating hospitals will be asked to perform the audits using the standard audit form developed by the provincial working group.

Participating hospitals will enter data points from the audits performed into the online bedside audit tool. Access to the online tool is password protected to ensure security of the data. Each hospital is only able to view audit results from their own facility. Reports have been created to allow hospital participants to retrieve their results in a format that could be presented to a Transfusion or Quality Assurance committee. Following this provincial audit of bedside blood administration practices, hospitals will maintain their access to the online tool and audit form and may audit procedures periodically at their facility at any time in the future.

No patient identification or health care information will be collected or recorded in the audit process.
Audit results will be analyzed and summarized from all sites to provide a perspective on provincial blood transfusion practice. Any areas of concern or areas for improvement will be identified. Corrective actions will be recommended and where appropriate educational tools will be developed. A report will be written and sent to the Ontario Blood Programs Coordinating Office at the Ministry of Health and Long-Term Care. With their permission, the report will be shared with hospitals in Ontario.

The audit form and cover sheet are included in the Appendices along with the relevant references used in the development of the standard audit form.

**Sample Size**

All Ontario hospitals with a licensed transfusion service will be invited to participate in this audit of transfusion procedures. The number of audits performed for this project will depend on the size of the facility: The audit period will be 2 months.

<table>
<thead>
<tr>
<th>Type of Hospital</th>
<th>Number of Audits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small hospitals</td>
<td>2 transfusion procedures</td>
</tr>
<tr>
<td>Community hospitals</td>
<td>5 transfusion procedures</td>
</tr>
<tr>
<td>Teaching hospitals</td>
<td>10 transfusion procedures</td>
</tr>
</tbody>
</table>

**Project timelines**

<table>
<thead>
<tr>
<th>Step</th>
<th>Responsible Party</th>
<th>Target Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop standard audit form to audit blood transfusion process</td>
<td>Ontario Bedside Audit Working Group</td>
<td>June 2010</td>
</tr>
<tr>
<td>Create web based audit e-tool to accompany audit form</td>
<td>ORBCON</td>
<td>August 2010</td>
</tr>
<tr>
<td>Pilot audit form and web based e-tool to confirm functionality (complete evaluation form)</td>
<td>Hospital</td>
<td>October 2010</td>
</tr>
<tr>
<td>Revise audit form and web based e-tool if required according to pilot evaluation</td>
<td>ORBCoN</td>
<td>November 2010</td>
</tr>
<tr>
<td>Contacting hospitals to participate</td>
<td>ORBCoN</td>
<td>November 2010</td>
</tr>
<tr>
<td>Establishing and providing protocol to hospital contact</td>
<td>ORBCoN</td>
<td>November 2010</td>
</tr>
<tr>
<td>Obtaining ethics approval at hospital</td>
<td>Hospital</td>
<td>December 2010</td>
</tr>
<tr>
<td>Providing final versions of audit form to hospital and registering in web based program</td>
<td>ORBCoN</td>
<td>December 2010</td>
</tr>
</tbody>
</table>
Protocol for Bedside Audit of Blood Administration

<table>
<thead>
<tr>
<th>Perform audits of transfusion administration at patient’s bedside</th>
<th>Hospital</th>
<th>February 01 – March 31 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter data points into web based Bedside Audit e-tool program</td>
<td>Hospital</td>
<td>March 2011</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>ORBCoN</td>
<td>April 2011</td>
</tr>
<tr>
<td>Recommendations and Report</td>
<td>ORBCoN</td>
<td>June 2011</td>
</tr>
</tbody>
</table>

**Definition of successful end-point:**

- 50% of Ontario hospitals participating in the audit with data entered into the online tool by March 31, 2011.

**Data analysis:**

Data points from all participating sites will be rolled up into a provincial report. A summary of the results will be presented to the Blood Programs Coordinating Office and Ontario Blood Advisory Committee for discussion. Further actions to improve compliance with required standards (for example – educational tools such as a memory or job aid) will be proposed if the need is indicated.

**References:**

Appendix A: Bedside Audit Cover Page and Audit Form

Bedside Audit Cover Page – Initial Order Entry

Introduction:

Hospital policies and procedures relating to transfusion of blood components and products are created to help ensure patients receive the correct blood component as prescribed by their physician in the safest manner possible. Performing regular audits of the transfusion process can provide a useful indicator for patient safety by monitoring if policies and procedures are being followed consistently.

Blood components are an important part of patient care but are not without risk. The highest risk of severe adverse reaction relating to blood transfusion (including death) is the transfusion of an incorrect unit to the wrong patient. The patient bedside is the last point at which such an error can be prevented. Therefore, the verification checks performed on the patient’s identification and the blood component labels just prior to transfusion are critical steps in the transfusion process.

5 checks of safe blood verification are:

1. Confirm the correct identity of the recipient at the bedside
2. Confirm the correct blood component / product type
3. Confirm the correct blood component / product identification number
4. Check the compatibility of the ABO/Rh group of the blood component and the recipient
5. Check the expiry date on the blood component / product to ensure it is in date

Glossary of Terms (to be considered on a separate tab accessible throughout all audit tools)

<table>
<thead>
<tr>
<th>Word/Phrase</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBS Label</td>
<td>label applied to the blood component by the blood supplier</td>
</tr>
<tr>
<td>BTL Label/Tag</td>
<td>label applied / attached to the blood component by the blood transfusion</td>
</tr>
<tr>
<td></td>
<td>laboratory</td>
</tr>
<tr>
<td>Laboratory request</td>
<td>form or LIS request sent by the ward to document the component requested</td>
</tr>
<tr>
<td>form/electronic request</td>
<td>for a particular patient</td>
</tr>
<tr>
<td>Patent</td>
<td>indicates that fluid can flow through IV tubing into patient’s blood vessel</td>
</tr>
<tr>
<td>Acceptable Expiry Date</td>
<td>Product will not be transfused after date listed on BTL label/Tag or CBS label</td>
</tr>
</tbody>
</table>

General Questions: (Please complete and submit)

1. Does your facility have a policy specific for blood component administration? ○ Yes ○ No

2. Does your facility have transfusion information to be provided to patients? ○ Verbal ○ Written ○ Electronic ○ Not Provided

3. Does your facility have a training orientation package for those that transport blood to clinical areas? ○ Yes ○ No

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# Bedside Audit Form

**Bedside Audit Order**

<table>
<thead>
<tr>
<th>Order number:</th>
<th>* Transfusion date:</th>
<th>* Priority: ○ Routine ○ Urgent ○ Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Ward/Area: ○ ER ○ ICU ○ OR/RR ○ Outpatient Clinic ○ Medical/Surgery Ward ○ Obstetrical Unit ○ Chronic Care/Rehab ○ Neonatal/Pediatric

* Blood Component: ○ RBC ○ Platelets ○ Plasma ○ Cryoprecipitate

* Blood Component Unit #:            * Time unit left laboratory:            |

**Order Confirmation Check:** [See References 1-2]

* Is the physician’s order documented? ○ Yes ○ No
  If yes, * Is component type specified? ○ Yes ○ No
  * Is the infusion rate specified? ○ Yes ○ No

* Is there evidence that Informed Consent was obtained? ○ Yes ○ No

* Was the component verified against the physician order upon receipt on patient ward? ○ Yes ○ No

**Identification of Patient Check:** [See Reference 3]

* Was the recipient information on the BTL label/tag compared to the recipient information on the Laboratory Request form? ○ Yes ○ No

* Were the recipient’s name and one additional unique identifier on the BTL label/tag compared with the identification attached to the patient? ○ Yes ○ No

* Did the confirmation of the patient’s identification and the BTL label/tag take place in the presence of the patient? (at the bedside) ○ Yes ○ No

**Verification of Component:** [See Reference 4]

* Was the donor unit ABC/Rh on the CBS label verified to match that on the BTL label? ○ Yes ○ No

* Was the donor unit number on the CBS label verified as identical to that on the BTL label? ○ Yes ○ No

* Was the recipient’s ABC/Rh on the BTL confirmed to be compatible with the donor unit? ○ Yes ○ No

If not indicate reason:

* Was the expiry date on the blood component verified to be acceptable? ○ Yes ○ No

**Procedure Check:** [See References 5-6]

* Time infusion started:            |

* Was the IV established and patent when the blood component unit arrived at the bedside? ○ Yes ○ No

* Was patient advised of symptoms to watch for and report during or following transfusion? ○ Yes ○ No ○ N/A

* Were pre-transfusion vital signs checked within 30 min prior to transfusion? ○ Yes ○ No
  If not within 30 minutes, specify: ○ 30 min - 1 hour ○ 1 - 2 hours ○ > 2 hours ○ Yes ○ No

* Were vital signs checked 15 min after start of transfusion? ○ Yes ○ No

* What vital signs were documented during transfusion? ○ Temperature ○ Blood Pressure ○ Pulse ○ Respiration ○ Other (please specify):            |

Name of Auditor:            Initials:            |

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Appendix B: Audit Form References

**Bedside Audit Order Form References**

**SECTION: Transfusion Order Confirmation:**

1. **Physician's orders written:**
   - CSA Z902-10 (11.4.3) CSTM ver2 2007 (5.8.1.2)
     Transfusions shall be prescribed by a physician and administered according to operating procedures.
   - CSA Z902-10 (11.4.4) CSTM ver2 2007 (5.8.1.2)
     The rate of infusion should be specified by a physician.

2. **Evidence of Informed Consent:**
   - CSA Z902-10 (11.2.1) CSTM ver2 2007 (1.9)
     There shall be an operating procedure for obtaining informed consent of the recipient prior to the transfusion of whole blood and blood components. Information given to the recipient shall include
     (a) A description of the whole blood or blood component;
     (b) The associated risks and benefits, including life-threatening risks; and
     (c) Alternatives, if appropriate to clinical circumstances, including benefits and risks.
   - **Note:** Policies and procedures for informed consent are usually developed and maintained by the health care facility as a whole. This Clause is intended to ensure that essential information about transfusion is included when whole blood and blood components are involved.

**SECTION: Identification of Patient Check:**

3. **Identification of Recipient:**
   - CSA Z902-10 (11.3.1) CSTM ver2 2007 (5.8.2.1)
     There shall be unequivocal identification of the recipient against the information in the written request for blood and blood components, as detailed in Items (a) to (e) in Clause 10.2.1.
   - CSA Z902-10 (11.3.3) CSTM ver2 2007 (5.8.2.2)
     Immediately prior to transfusion, the transfusionist shall confirm and document that all information associating the whole blood or blood component with the proposed recipient has been matched and verified in the physical presence of the recipient, as defined in the operating procedures.
   - **Note:** Information matching and verification take place in the physical presence of the recipient so that a direct comparison can be made between the request record and the available visual information (e.g., on the recipient’s identification band) or verbal information (from a conscious recipient).
SECTION: Verification of Component:

4. Identification of Blood Component:
   CSA Z902-10 (11.3.2)
   There shall be unequivocal identification of the blood component.

SECTION: Procedure Check:

5. Was the IV established and patent prior to receiving the blood?
   CSTM ver2 2007 (5.8.4.2)
   Venous access shall be established as per established hospital policy and procedures. Needle gauge shall be a diameter large enough to allow appropriate flow rates and avoid cell damage.

6. Was patient advised of symptoms to watch for and report during or following transfusion?
   CSA Z902-10 (11.4.14) CSTM ver2 2007 (5.8.3.11)
   The recipient shall be observed during the transfusion and for an appropriate time thereafter for suspected adverse events. Instructions concerning possible adverse events shall be provided to the recipient, or to a responsible caregiver, when direct medical observation or monitoring of the recipient will not be available after transfusion.

7. Pre-transfusion vital signs checked within 30 min prior to transfusion?
   CSA Z902-10 (11.4.13) CSTM ver2 2007 (5.8.3.11)
   Recipient vital signs shall be recorded before, during, and after transfusion. Bloody Easy Blood Administration (page 18)
   Monitor the patient closely and document vital signs: prior to the transfusion – within previous 30 minutes.

8. Were vital signs checked 15 minutes after the start of the transfusion?
   Bloody Easy 2 (page 18, 23, 27, 54)
   Monitor patient for first 15 minutes and vital signs at 15 minutes. Stop transfusion if adverse reaction is suspected.


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