Red Blood Cell Transfusion Audit Tool

Using Blood Wisely.

An initiative of:
Choosing Wisely Canada
Canadian Blood Services
Héma-Québec

This tool will provide guidance on how to undertake a simple audit that will determine if your hospital can improve its red blood cell (RBC) transfusion practices. There are multiple ways to evaluate the appropriateness of RBC transfusions at your organization.

The Using Blood Wisely audit tool will allow you to measure two indicators:

1. Percentage of single unit transfusions
2. Percentage of inpatient RBC transfusions with a restrictive transfusion threshold

1. Percentage of Single Unit Transfusions

Definition:

- A single unit transfusion measure reflects the practice of prescribing one RBC unit at a time with clinical reassessment prior to prescribing a subsequent unit.
- For this audit, a single unit transfusion is defined when a patient is transfused only one RBC unit on a given calendar day.
- Organizations can pull this data fairly efficiently from their laboratory information systems (LIS).
- The target for this metric is 65% for inpatient RBC transfusions. This target is based on the 75th percentile from audits entered into a provincial quality improvement database in Ontario.

Instructions	Example
Pull a transfusion report from your LIS for at least 50 consecutive inpatients. If you don't have 50 inpatient transfusions in a month, pull for a report for all of the transfusions you did that month.	Pull a transfusion report for one week. This may be more than 50 consecutive inpatients. This report can be exported to Excel.
Select transfusions for inpatients only. This excludes transfusions in outpatient clinics, dialysis and the emergency department.	Sort the report by location and exclude locations that are outpatient clinics, dialysis or the emergency departments. Exclude neonates as they often have different transfusion thresholds. Then sort by patient unique identifier and date and time of issue.
Count the number of transfusion days where one patient receives 1 RBC unit in one day = A	A = 81
Count the number of transfusion days where one patient receives 2 RBC units in one day = B	B = 9
Count the total number of patients transfused each day for the LIS pull	C = 96 In this example: there were 81 instances where a patient received 1 unit on 1 calendar day, 9 instances where a patient received 2 units on 1 calendar day and 6 instances when a patient received more than 2 units on 1 calendar day.

How do I calculate Percentage of Single Unit Transfusions?

- Percentage of single unit transfusions = A/C = 81/96 = 84%
- Percentage of double unit transfusions = B/C = 9/96 = 9%

2. Percent of Inpatient RBC Transfusions with a Restrictive Transfusion Threshold

Definition:

- An RBC transfusion with a restrictive transfusion threshold reflects the practice of prescribing an RBC unit when the hemoglobin (Hb) level drops below a certain level.
- Prior studies use two different thresholds to describe restrictive transfusion practices: RBC transfusion with a) Hb ≤ 80 g/L; and b) Hb ≤ 70 g/L.
- This measure may be more difficult to collect since at some hospitals, the pre-transfusion may need to be looked up manually for each transfusion.
- The target for this metric is 80% of transfusions with a pre-transfusion Hb less than 80 g/L.

Instructions	Example
Pull a transfusion report from your LIS for for at least 50 consecutive inpatients.	Pull a transfusion report for one week. This may be more than 50 consecutive patients. This report can be exported to Excel. The same list of transfusions that was used for the single unit transfusion audit can be used here.
Select transfusions for inpatients only. This excludes transfusions in outpatient clinics, dialysis and the emergency department.	Same as above, then sort transfusions by unique patient identifier and date and time of issue.
Record the latest Hb within 24 hours prior to each transfusion.	Look up the latest Hb within 24 hours prior to each transfusion.
Count the total number of transfusions with a pre-transfusion Hb = A	A = 126 Two transfusions did not have a pre-transfusion Hb within 24 hours prior to the transfusion
Count the number of transfusions where preceding Hb ≤ 80 g/L = B	B = 109
Count the number of transfusions where preceding Hb ≤ 70 g/L = C	C = 70
Count the total number of transfusions during the audit period = D (Although this number is not used in the calculations, this will allow us to calculate the total number of transfusions included in the audits).	D = 128

How do I calculate Percent of Inpatient RBC Transfusions with a Restrictive Transfusion Threshold?

- Percentage of transfusions with pre-Hb ≤ 80 g/L = B/A = 109/126 = 87%
- Percentage of transfusions with pre-Hb ≤ 70 g/L =C/A = 56%

Results

The benchmark targets for these indicators are:

- At least 65% of red blood cell transfusion episodes are single unit
- At least 80% of inpatient red blood cell transfusions have a pre-transfusion Hb 80 g/L or less

If your hospital does not meet these benchmark targets, then there is room to improve and you are ready to move on to the next step in the Get Started section.