

Using Blood Wisely

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SaskBlood 14th Annual Transfusion Medicine
Symposium, October 23, 2020



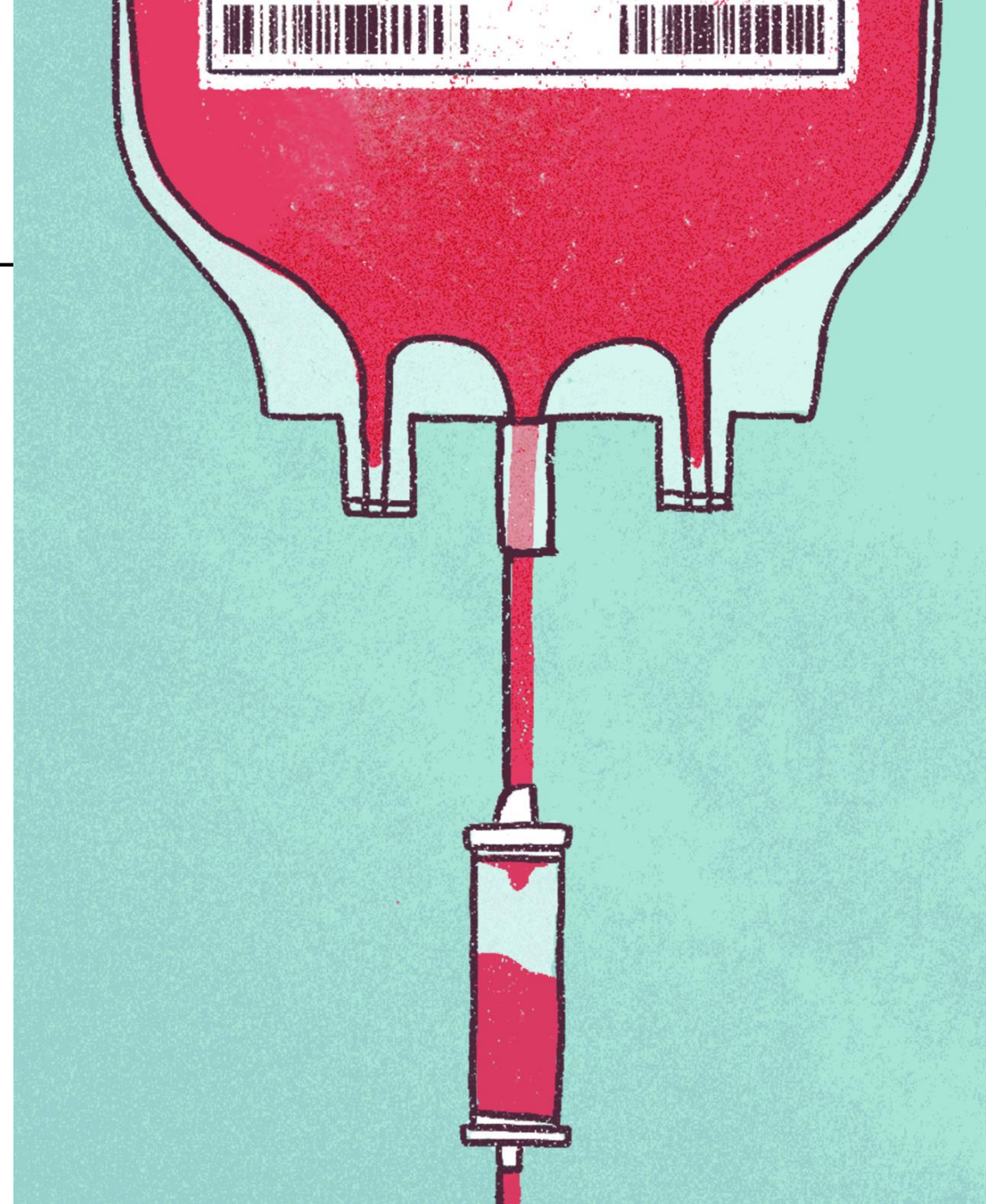
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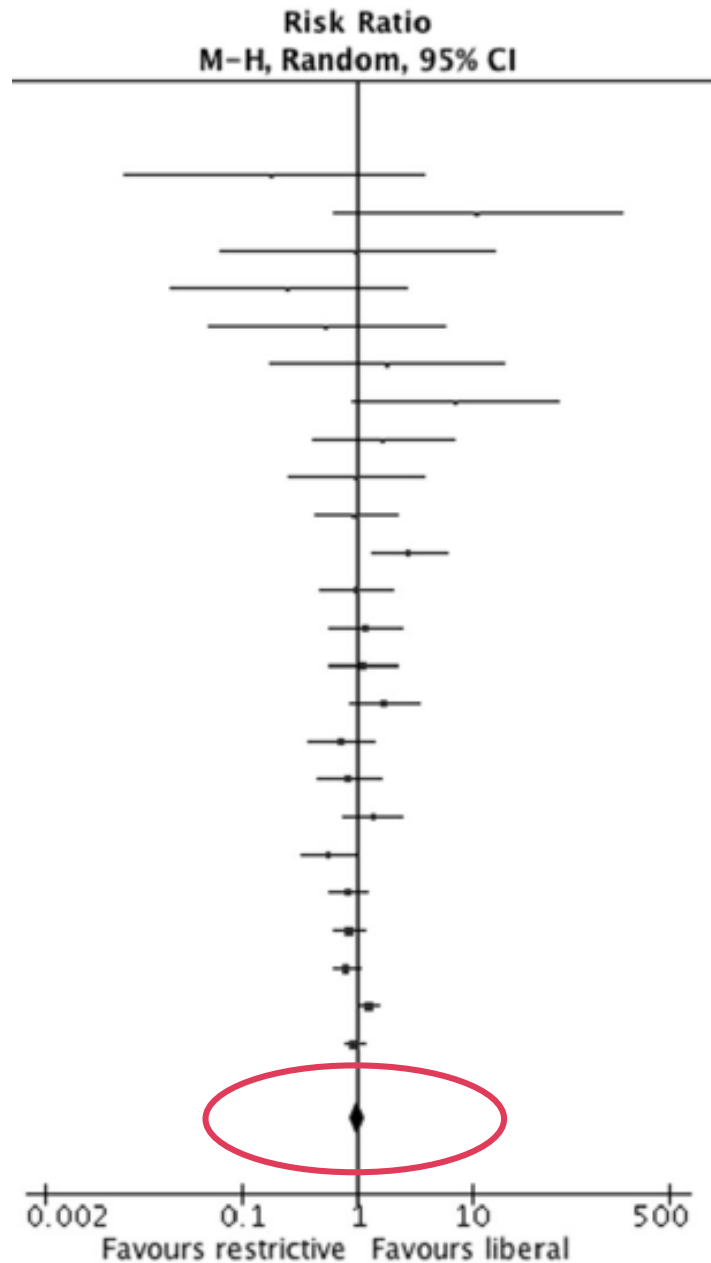


Why is this Important?

- Provide evidence-based care
- Minimize harm to patients
 - Adverse reactions
 - Transfusion associated circulatory overload - common (1%)
- Costly to collect & administer
 - Transfusions cost \$522 - \$1183 per RBC Unit!¹

¹Shander et al. Transfusion 2010 Apr;50(4):753-65.





Mortality Restrictive vs. Liberal Transfusion Trials

- 26 trials restrictive vs. liberal Hb
- All trials used single unit transfusions
- 15,681 pts

**30 day mortality OR 1.00
(0.86, 1.16)**

Restrictive was as Good as Liberal Even in...

- Elderly patients
 - Hip Fracture Surgery patients
(Carson et al. FOCUS trial. NEJM 2011)
 - Cardiac Surgery patients older than 75
(Mazer et al. Lancet Haematology 2017)
- Acute bleeding patients
(Upper GI bleeding. Villanueva et al. NEJM 2013)

Observational Studies

- Multiple observational studies from National Surgical Quality Improvement Program (NSQIP)
 - Compare Transfusion vs. No transfusion in surgical patients (Ortho, GI, Gyne, Cancer)
 - Transfusion independently associated with worse outcomes (30 day mortality) than no transfusion

Restrictive Transfusion

- Don't transfuse more than **1 unit** at a time in a non-bleeding patient.
- Don't transfuse RBCs in asymptomatic, non-bleeding patient with Hb **greater than 70 g/L**.

Give One Unit & Reassess

- **Transfuse one unit at a time** over 2 to 4 hours
- For patients > 65 yrs, impaired or renal function, use slower rate and furosemide iv pre-transfusion
- Assess the outcome (clinical, Hb) before transfusing further
- Each unit increases Hb ~ 10 g/L in non-bleeding patient

When to Transfuse RBCs

Hb < 90 g/L

Clear signs and symptoms of impaired tissue oxygen delivery

Hb < 80 g/L

Cardiac disease, elderly

Hb < 75 g/L

Cardiac surgery patients

Hb < 70 g/L

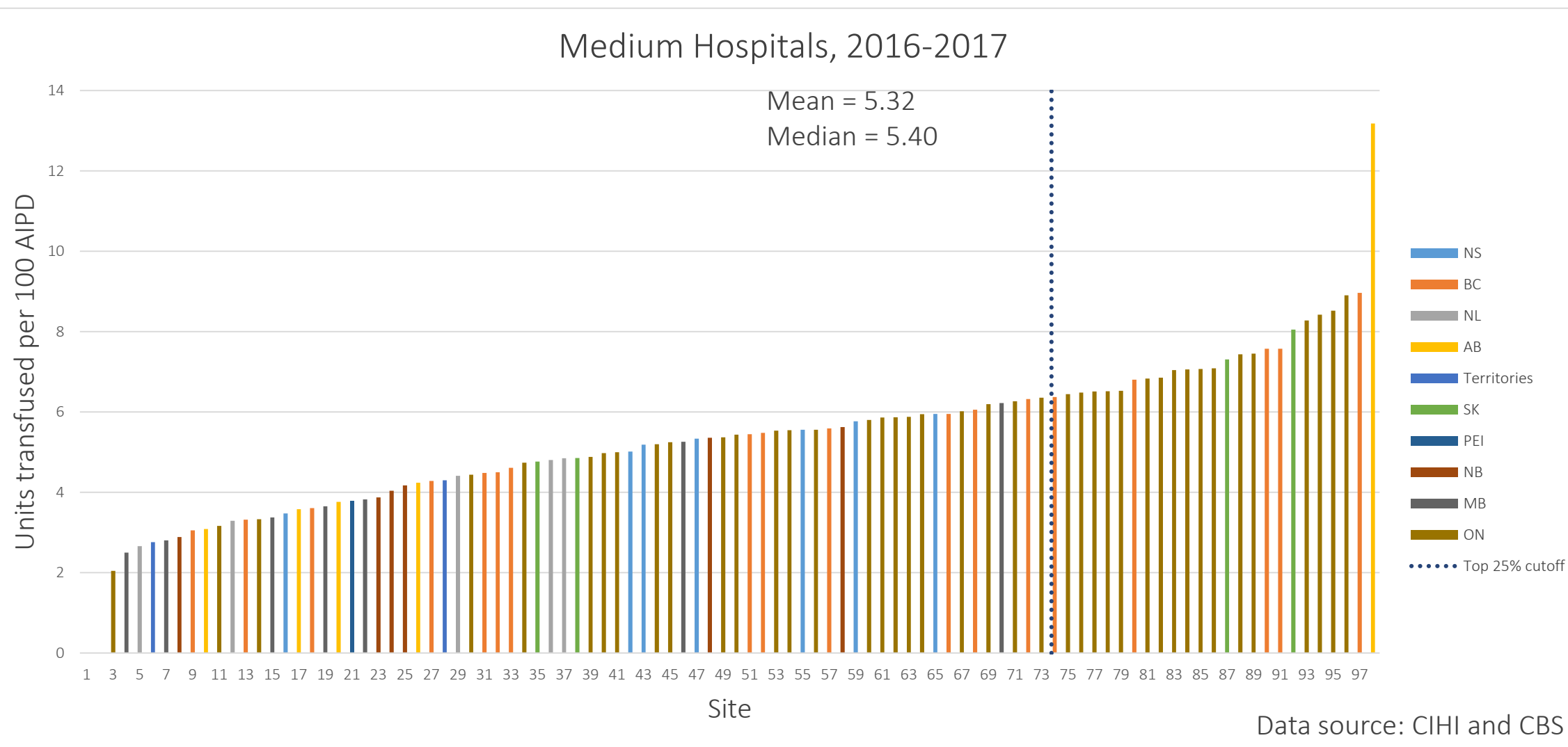
Transfusion likely appropriate although younger patients may tolerate lower Hb (i.e. Hb < 60 g/L)

Hb < 60 g/L

Is Canada Using Blood Wisely?

**Using
Blood
Wisely.**

Variation in Utilization



Gap Between Evidence and Practice

- RBC transfusion audits inappropriate transfusion practice
3%- 57%
(Barr PJ et al. Transfusion 2011)
(French CJ et al. Med J Aust 2002)
(Joy PJ et al. Ann R Coll Surg Engl 2012)
- Ontario study: 1 in 5 RBC transfusions inappropriate
(Spradbrow et al, Transfusion 2016; Kron et al, START study baseline, 2020 submitted)
- Single unit transfusion decreased RBC use 10-41%
(Shih et al Transfusion 2018)

WHY GIVE TWO WHEN 1 WILL DO?

**Evidence from
Successful interventions**



Interventions - Literature review

- Systematic review 84 studies on behavioral interventions to reduce RBC transfusion (Soril et al, BMJ 2018)

Protocols/algorithms,
multimodal
interventions

CPOE, decision support,
prospective
screening/audit, policy
intervention

Education, guidelines
or reminders

Greatest Decrease

Decrease

No Change

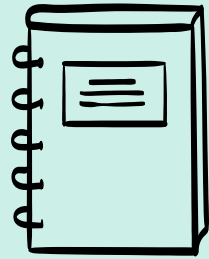
WHY GIVE TWO WHEN 1 WILL DO?

**Evidence from
Successful interventions**



Ontario Transfusion Quality Improvement Plan – Key Ingredients

Education

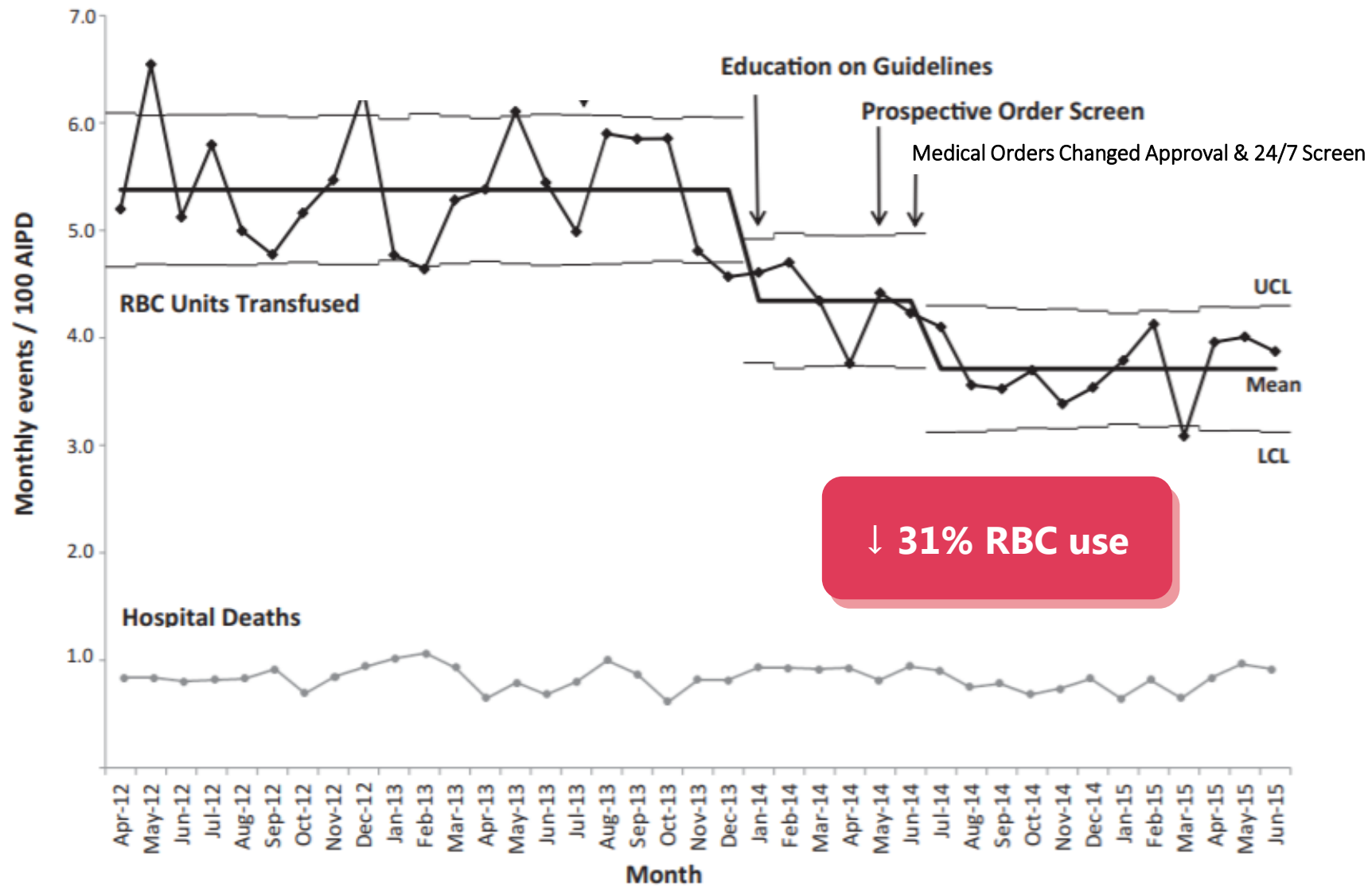


**Change in
guidelines and
transfusion
order sets**



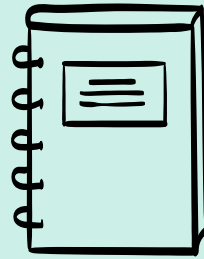
**Prospective
Screening**





START Study – Key Ingredients

Education



**13 Hospitals
in ON, AB, SK**

Guidelines



**Prospective
screening**



**Using
Blood
Wisely.**

START Study – Results

- 2,877 RBC tx audited from 1,950 patients at 13 sites
- ↑ Appropriateness (75% to 85%)
- ↑ Single-unit orders (46% to 68%)
- ↓ Total # RBC transfused (average decrease of 458 units/month for all 13 sites combined)

Using Blood Wisely

www.UsingBloodWisely.ca

**Choosing
Wisely
Canada**

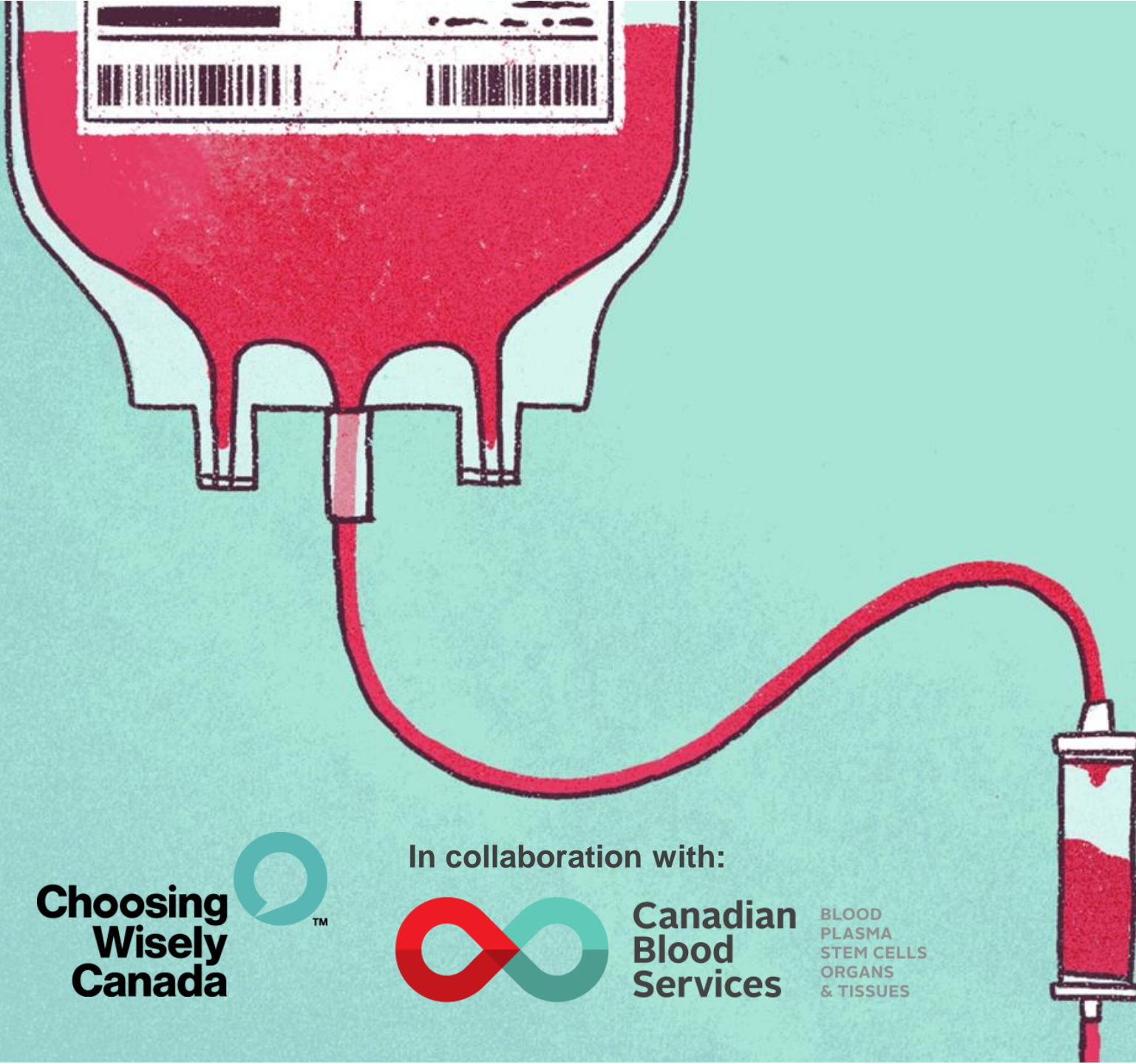


In collaboration with:



**Canadian
Blood
Services**

BLOOD
PLASMA
STEM CELLS
ORGANS
& TISSUES



What is Using Blood Wisely?

Using Blood Wisely is a national initiative of Choosing Wisely Canada, in collaboration with Canadian Blood Services.

Aim: To decrease inappropriate red blood cell (RBC) transfusions in Canada by:

- Implementing interventions and measurement to decrease inappropriate RBC transfusions
- Increasing engagement of hospitals in RBC transfusion quality improvement work

National Campaign

- **Using Blood Wisely** is Choosing Wisely Canada's first national implementation campaign!
- Supported and led by national experts in transfusion medicine, research and data
 - **Steering Committee**
 - Physicians
 - Nurses
 - Medical Laboratory Technologists
 - Canadian Blood Services
 - Canadian Institute for Health Information
 - Implementation Research Network
 - Public Members
 - **Working Groups**
 - Intervention Working Group
 - Measurement Working Group
 - Site Engagement Working Group

Take the challenge!

**Is your hospital
using blood wisely?**

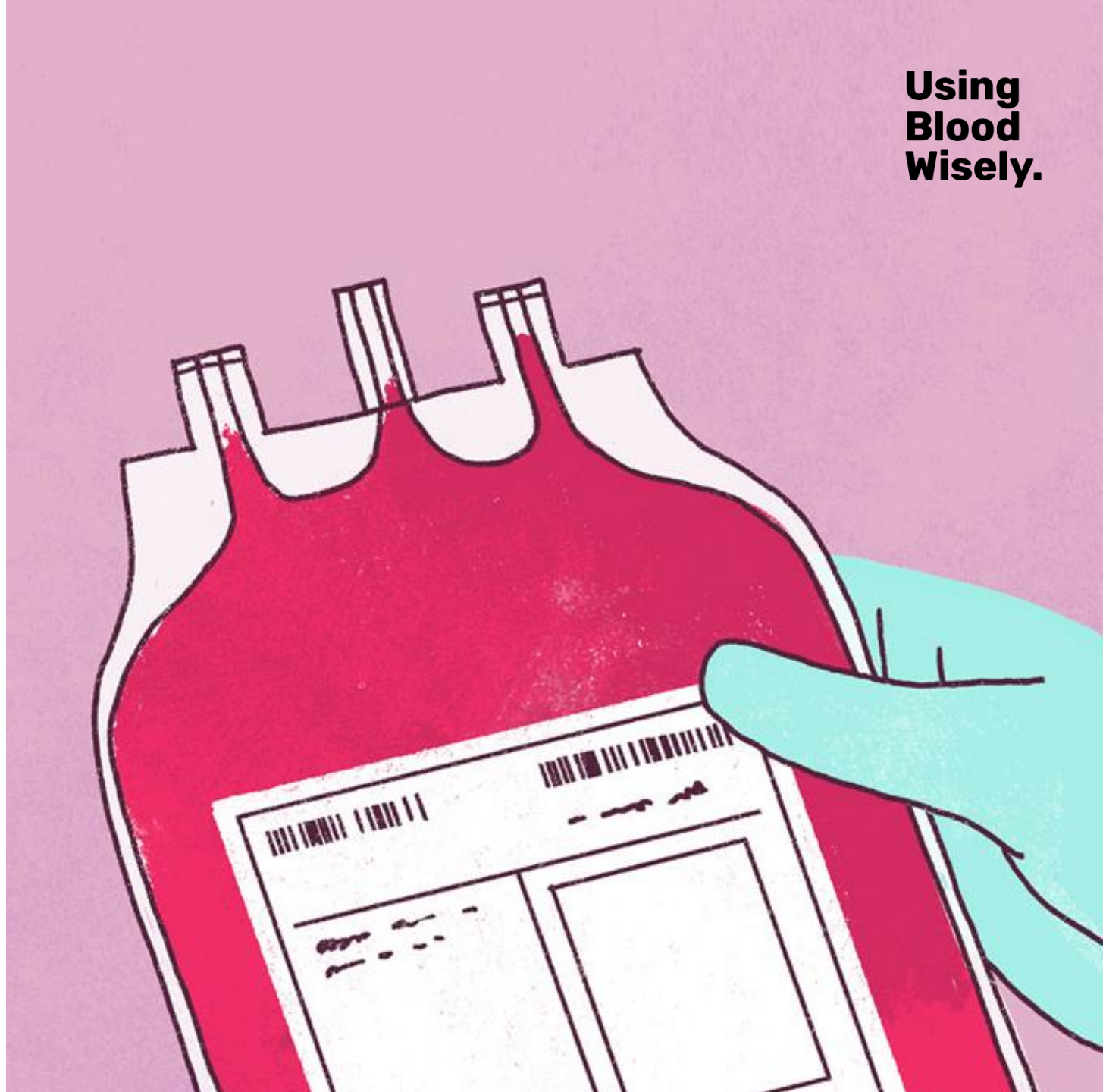
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What's the challenge?

By **December 1, 2020**: Conduct a spot audit of recent red blood cell transfusions:

- % of single unit RBC transfusions episodes
- % of inpatient RBC transfusions with a pre-transfusion Hb 80 g/L or less

Using
Blood
Wisely.



Step 1: Sign up www.usingbloodwisely.ca

Sign Up**Spot Audit**

Sign Up

Start your Using Blood Wisely journey here.

Fill in this quick form to give us some baseline information about the transfusion services at your site.

After completing the sign up form, move to the spot audit to see how your hospital compares to our national benchmarks.

Hospital or organization name*

Lead contact full name*

Position/Role

Contact email

Province*

Alberta

Step 2: Do a Spot Audit

- There are tools on the website to guide you:

Appropriateness Benchmarks for Red Blood Cell Transfusions

Using Blood Wisely.
An Initiative of:
Choosing Wisely Canada
Canadian Blood Services

Benchmarking is a core element of the Using Blood Wisely campaign. In order to achieve and maintain their status as a Using Blood Wisely Hospital, participating organizations must regularly audit a sample of their red blood cell transfusions to ensure that they're performing at or above benchmark levels:

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

Why were these indicators chosen?

The two benchmark indicators are based on current Choosing Wisely Canada recommendations related to red blood cell transfusions.

Current Recommendations:

Don't transfuse more than one red cell unit at a time when transfusion is required in stable, non-bleeding patients.	Canadian Society for Transfusion Medicine, Choosing Wisely Canada recommendation #2
Don't transfuse patients based solely on an arbitrary hemoglobin threshold.	Canadian Hematology Society Choosing Wisely Canada recommendation #5
Don't transfuse red blood cells for arbitrary hemoglobin or hematocrit thresholds in the absence of symptoms, active coronary disease, heart failure or stroke.	Canadian Society of Internal Medicine Choosing Wisely Canada recommendation #3
Don't routinely transfuse red blood cells in hemodynamically stable ICU patients with a hemoglobin concentration greater than 70 g/l (a threshold of 80 g/L may be considered for patients undergoing cardiac or orthopedic surgery and those with active cardiovascular disease).	Canadian Critical Care Society Canadian Association of Critical Care Nurses Canadian Society of Respiratory Therapists Choosing Wisely Canada recommendation #5
Don't transfuse red blood cells for arbitrary hemoglobin or hematocrit thresholds in the absence of symptoms, or if no benefit was perceived from previous transfusions.	Canadian Society of Palliative Care Physicians, Choosing Wisely Canada recommendation #5

These indicators were identified by the [Using Blood Wisely Measurement Working Group](#) as they have been recognized to be surrogate measures of appropriate red blood cell transfusion practice. They have been used in quality improvement and audit initiatives undertaken in hospitals across Ontario as part of the Ontario Transfusion



Using Blood Wisely: Red Blood Cell Audit Tool

3 weeks ago | More

[Choosing Wisely Canada](#) [PLUS](#) [+ Follow](#)

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Using Blood Wisel...
[Choosing Wisely Canada](#)

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Spot Audit Definitions

- Adult inpatients
 - Excludes outpatient clinics and Emergency
 - Does include the Operating Room
- Single unit transfusions:
 - The practice of prescribing one RBC unit at a time with clinical reassessment prior to prescribing a subsequent unit.

One RBC unit in one calendar day

Spot Audit Definitions

- Restrictive Transfusion Threshold
 - The practice of prescribing an RBC unit when the hemoglobin (Hb) level drops below a certain level.
- Metric: Pre-transfusion Hb 80 g/L or less

Pre-transfusion Hb: Most recent Hb
in the 24 h before transfusion

Spot Audit Process

- Pull transfusion report for ~ 50 consecutive patients ideally to include ~ 50 transfusion episodes
 - For small hospitals, all transfusions in 1 month should be pulled if there are few transfusions
 - Can be done retrospectively or prospectively
- Select transfusions for adult inpatients only
 - Exclude outpatient clinics, dialysis and emergency departments
 - Include operating room

Single Unit Transfusions

- Count the number of transfusion days where one patient receives 1 RBC unit in one day
- Count the number of transfusion days where one patient received 2 RBC units in one day
- Count the total number of patients transfused each day = denominator

Pre-transfusion Hb 80 g/L or less

- Look up the latest Hb within 24 hrs prior to each transfusion
 - Do not need to consider if there has been an intervening RBC transfusion
- Count the total number of transfusions with a pre-transfusion Hb = denominator
- Count the number where pre-transfusion Hb 80 g/L or less
- Count the number where pre-transfusion Hb 70 g/L or less

Step 3: How do you compare?

Using Blood Wisely benchmarks include:

At least
65%

of red blood cell transfusion episodes
are single unit

At least
80%

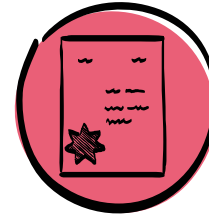
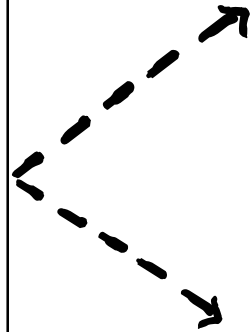
of inpatient red blood cell transfusions
have a pre-transfusion Hb 80 g/L or less

How were the benchmarks chosen?

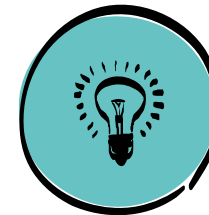
- Based on Choosing Wisely recommendations
- Used in various national QI initiatives (OTQIP, START)
- Benchmark values established based on
 - OTQIP:
 - 75th percentile for single unit transfusions = 67%
 - 75th percentile for pre-transfusion hemoglobin less than 80 g/L = 88%
 - START study
 - Single unit transfusion post-intervention = 68%
 - Pre-transfusion hemoglobin less than 80 g/L = 85%

Step 3: How do you compare?

- 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 met and sustained, you may qualify for the Using Blood Wisely Hospital Designation!



If not met, enrol in this quality improvement initiative to help your hospital achieve these results

Hospital Designation

- Meet benchmarks and maintain for at least 4 months– **Get designated a Using Blood Wisely Hospital!**
- If benchmarks not met but absolute 20% improvement in both metrics, receive recognition

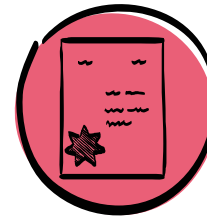
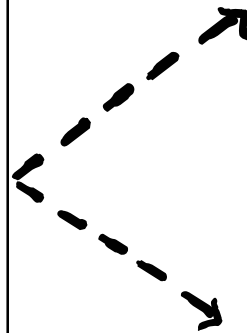
This work can also be acknowledged for credit in
Accreditation Canada Qmentum Program



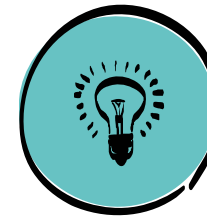
ACCREDITATION
CANADA

Step 3: How do you compare?

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Quality improvement resources

- Implementation planning survey to help you pinpoint your hospital's needs
- Intervention resources
 - Guidelines
 - Education modules for Physician, Nurses and MLTs
 - Order set template
 - Transfusion order screening examples
 - Alternatives to blood
 - Information for patients



Restrictive Transfusion

Ensure your organizational processes reflect best practices.

Guidelines

Achieving consensus regarding the appropriate indications for transfusion is a crucial step in development of all interventions to reduce inappropriate transfusion.

This process starts from initial discussions at your hospital's transfusion committee to stakeholder consultation and finally to approval at the medical or interprofessional advisory committee.

Guidelines

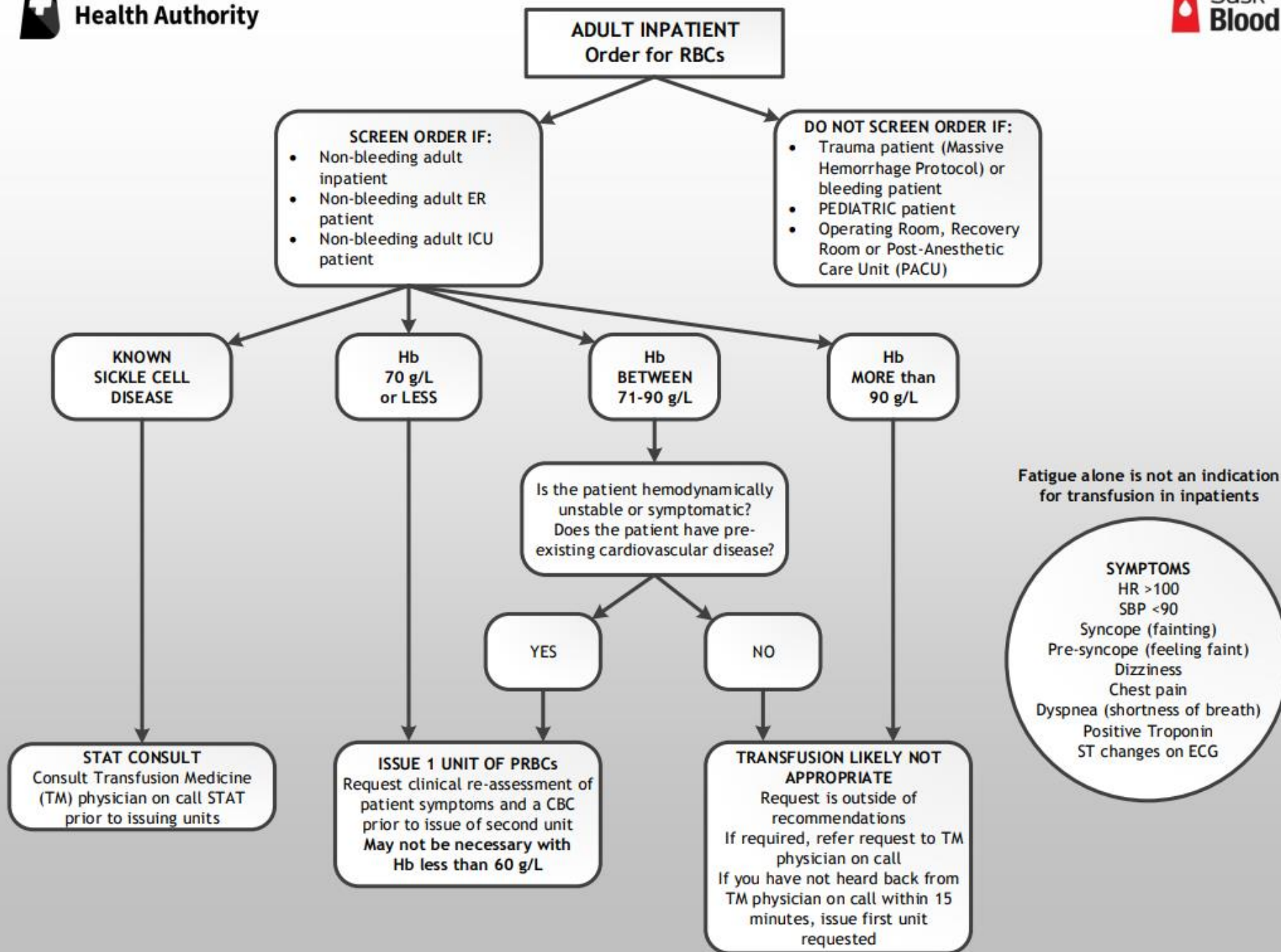
Education

Important to any practice change is education. It is important to ensure that all clinicians involved in the transfusion chain are informed of the changes in practice and the reasons why the changes are being made. This includes prescribers (e.g. physicians, nurse practitioners), nurses and laboratory technologists. Below are video modules for each clinical group.

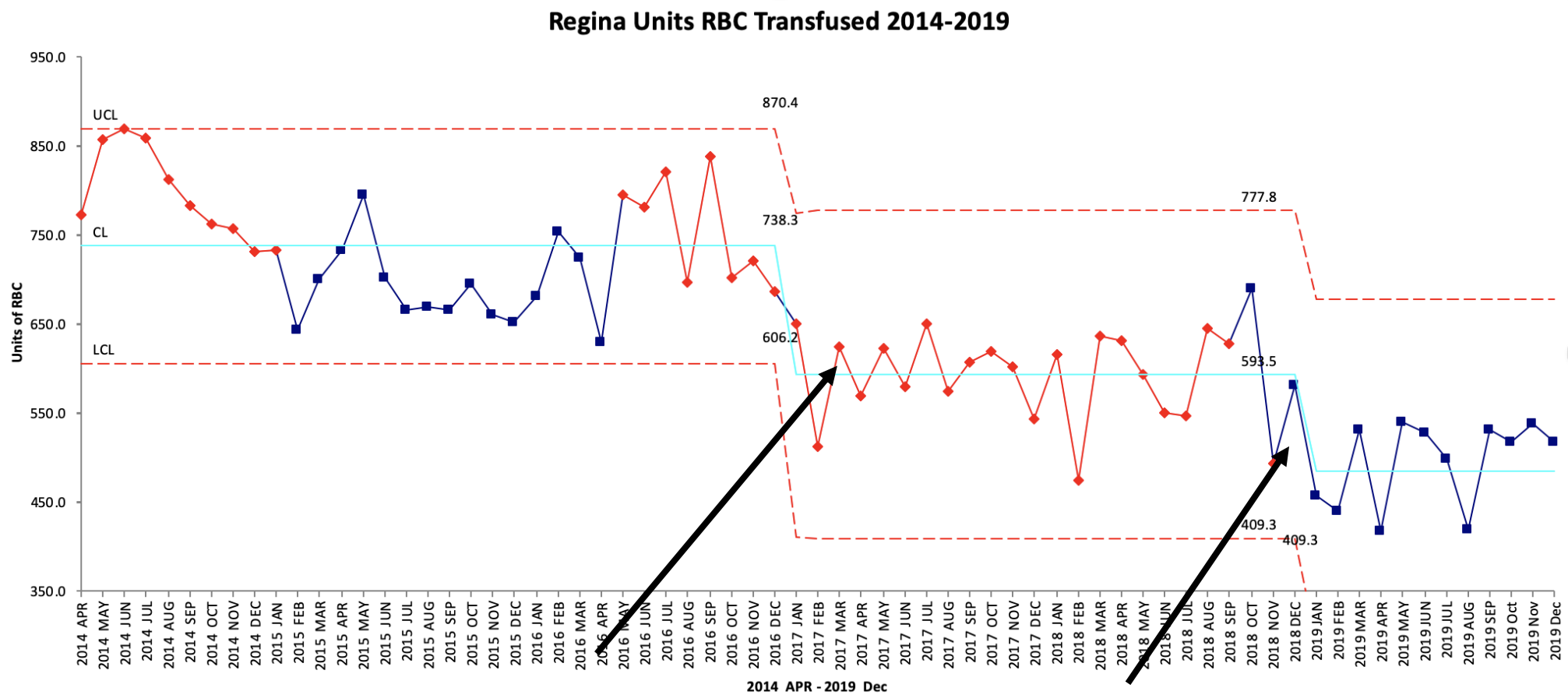
While education is of utmost importance when changing practice, it is not, alone, a sufficient intervention. Education will support the implementation of one (or more) of the interventions below.

Education Modules





Regina: Alternatives to Blood



Education on IV iron
145 units/month reduction
19% Reduction

START Study-Screening
108 units/month reduction
18% Reduction

Courtesy of Dr. Ryan Lett

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How else will my hospital be supported?

- A series of monthly community of practice webinars to walk through the stages of UBW and answer any questions
 - Spot audit
 - Planning implementation
 - Setting up for success
 - Intervention and measurement



Who's participating?

As of Oct 19, 2020,
45 hospitals signed up!



Thank you!

Take the challenge!

Is your hospital using blood wisely?



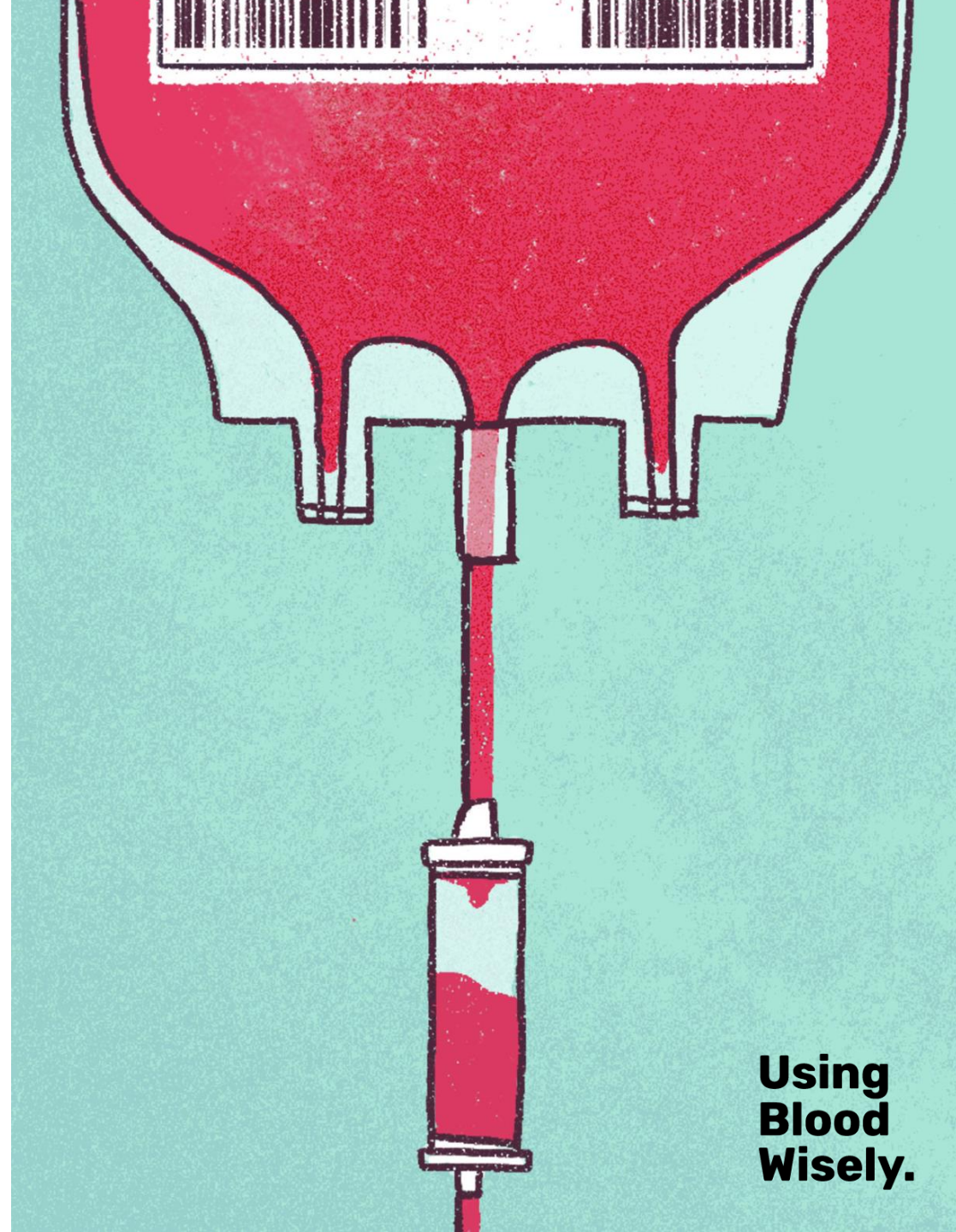
Website:

www.UsingBloodWisely.ca



For Questions Email:

blood@choosingwiselycanada.org



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