

Using Blood Wisely

Physician
Education Module
v1.0

What is Using Blood Wisely?

A national initiative of Choosing Wisely Canada in collaboration with Canadian Blood Services.

Aim:

- Decrease inappropriate red blood cell (RBC) transfusions in hospitals using evidence-based guidelines
- Recognize successful hospitals through Choosing Wisely Canada and Accreditation Canada

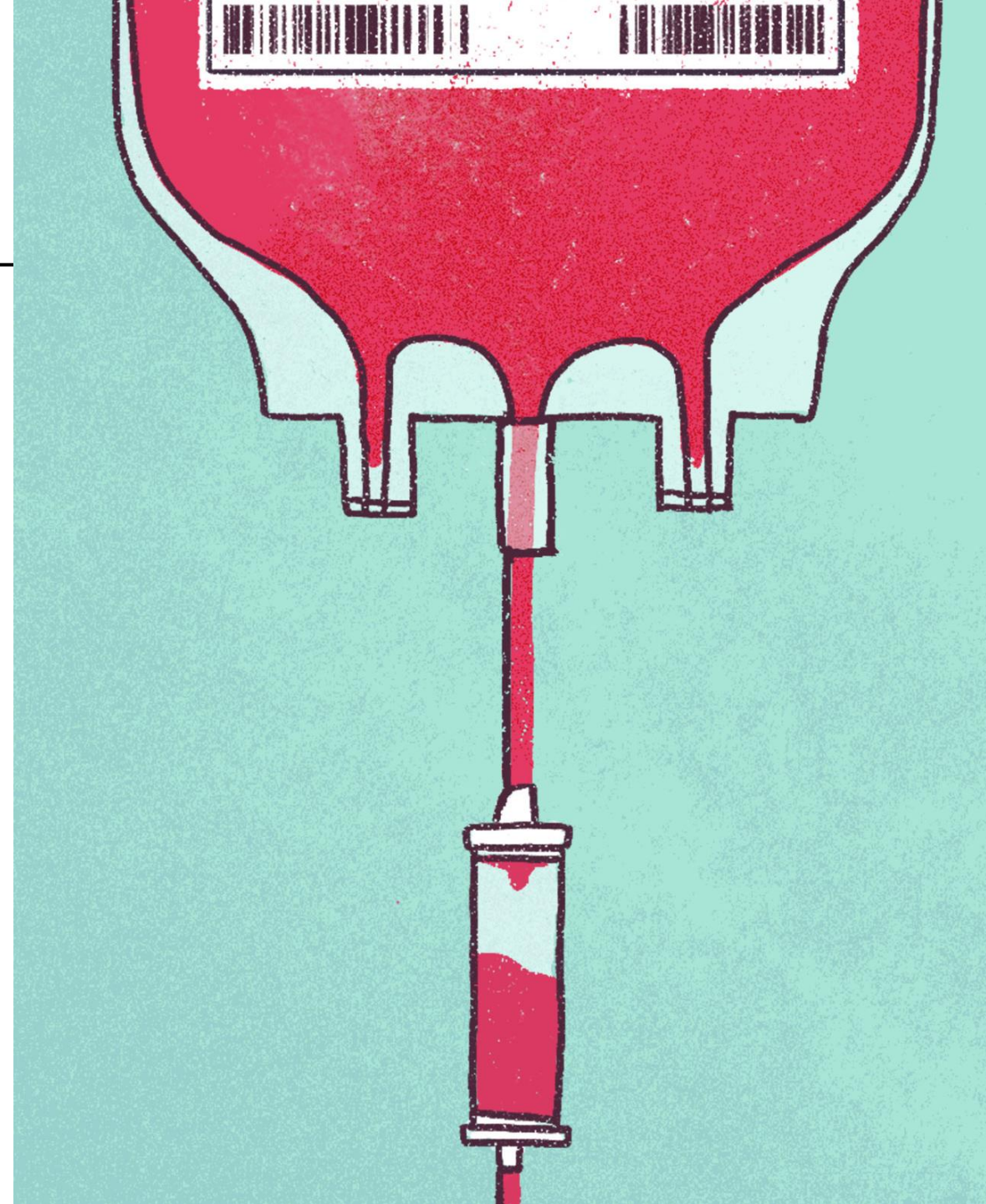
A Module for Appropriate RBC Transfusions

- This module will:
 - Review risks of RBC transfusions
 - Review current RBC transfusion guidelines and evidence
 - Highlight successful transfusion quality improvement projects
 - Share interventions and resources to help use blood wisely
- Resources and tools: www.UsingBloodWisely.ca

Why is this Important?

- Minimize harm to patients
 - Adverse reactions
 - Transfusion associated circulatory overload ,common (1%)
- Blood is a precious resource
- Costly to collect & administer
 - Transfusions cost \$522 -\$1183 per RBC Unit!¹

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



Transfusion Risks

Transfusion associated circulatory overload (TACO)	<ul style="list-style-type: none">• Probably really common – 1-6% of adults in ICU• Rarely reported to hemovigilance systems
Transfusion-related acute lung injury (TRALI)	<ul style="list-style-type: none">• 1 in 10,000
Acute hemolytic transfusion reactions	<ul style="list-style-type: none">• Most commonly due to errors in sample or patient identification• 1 in 40,000
RBC alloantibodies	<ul style="list-style-type: none">• 1 in 13• Hemolytic disease of fetus/newborn risk girls and young women
Delayed hemolytic transfusion reactions	<ul style="list-style-type: none">• 1 in 7000
Anaphylaxis	<ul style="list-style-type: none">• 1 in 40,000

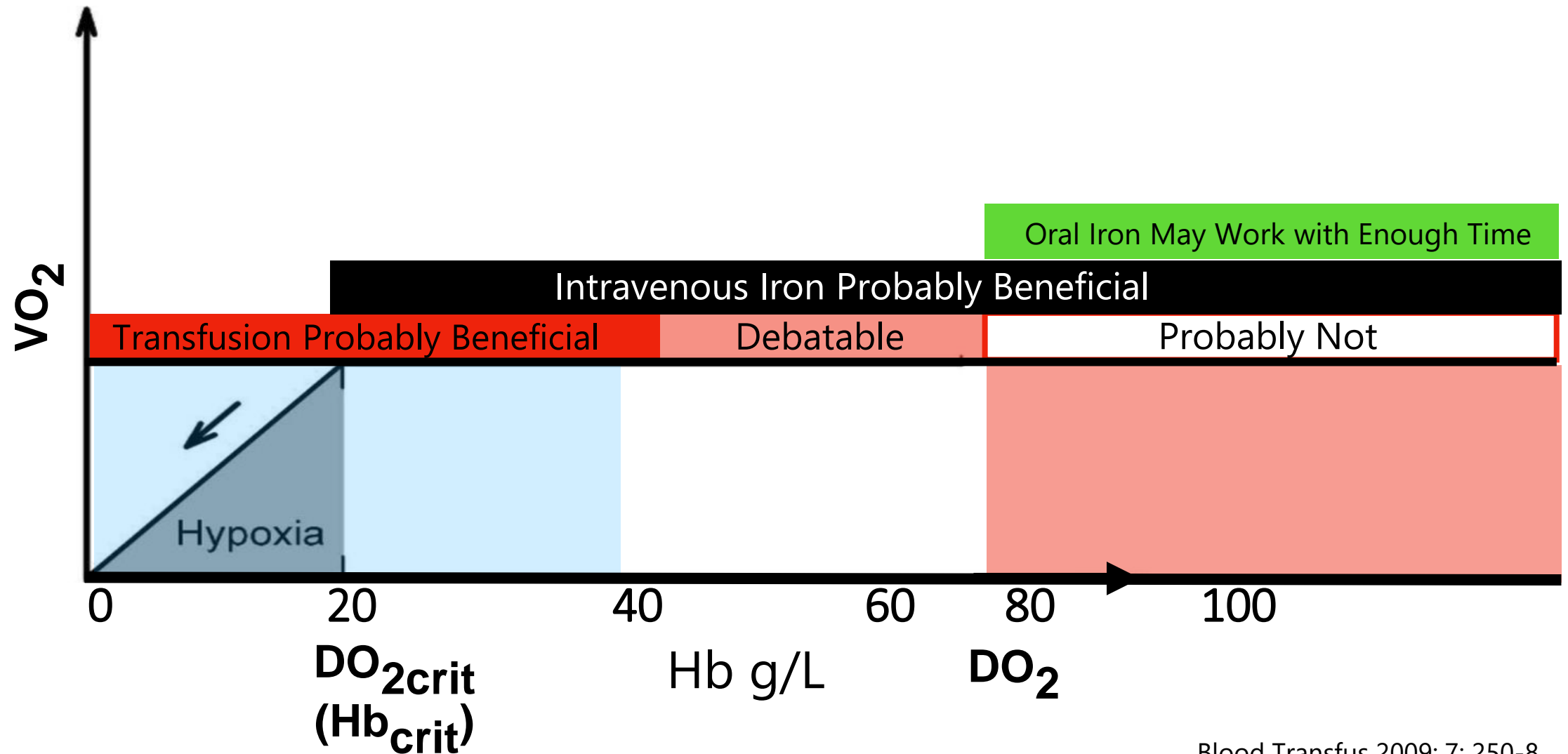
Appropriate RBC Transfusion Practices

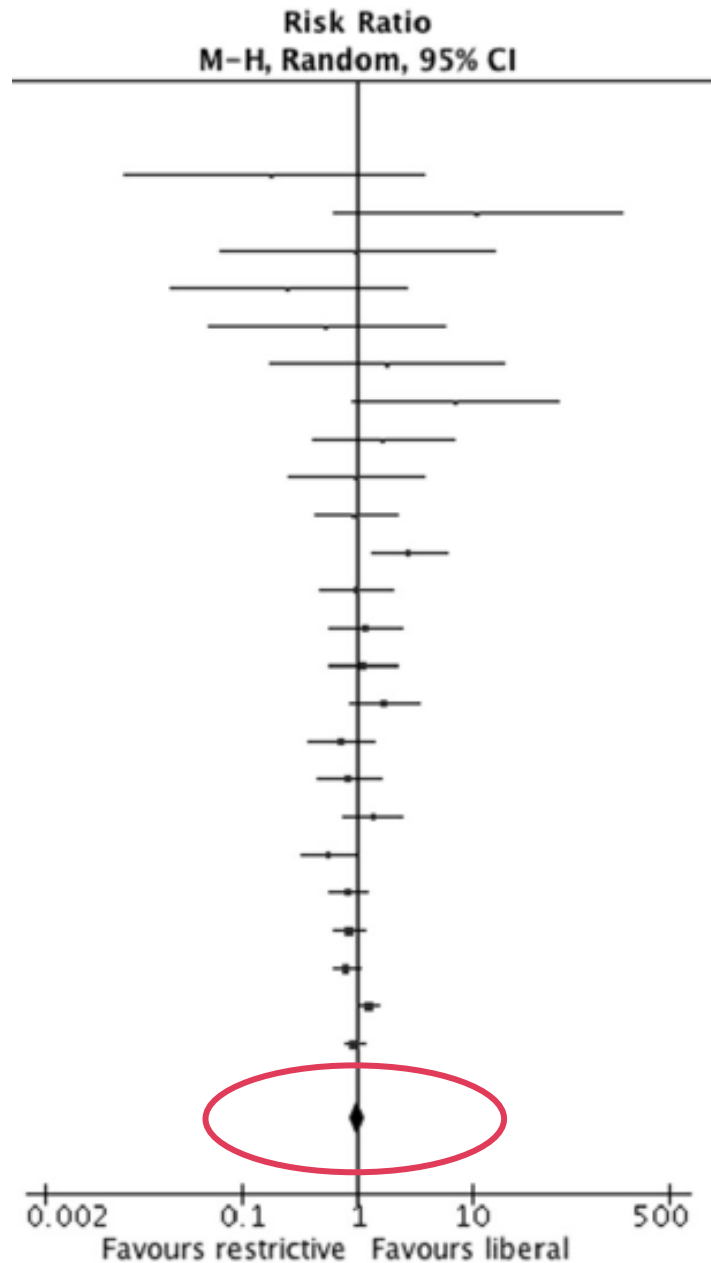
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Restrictive Transfusion

- 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**.

Relationship of Hb to DO_2





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))

Give One Unit & Reassess

- **Transfuse one unit at a time** over 2 to 4 hours
- For patients > 65 yrs, impaired cardiac 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

Restrictive Transfusion

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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

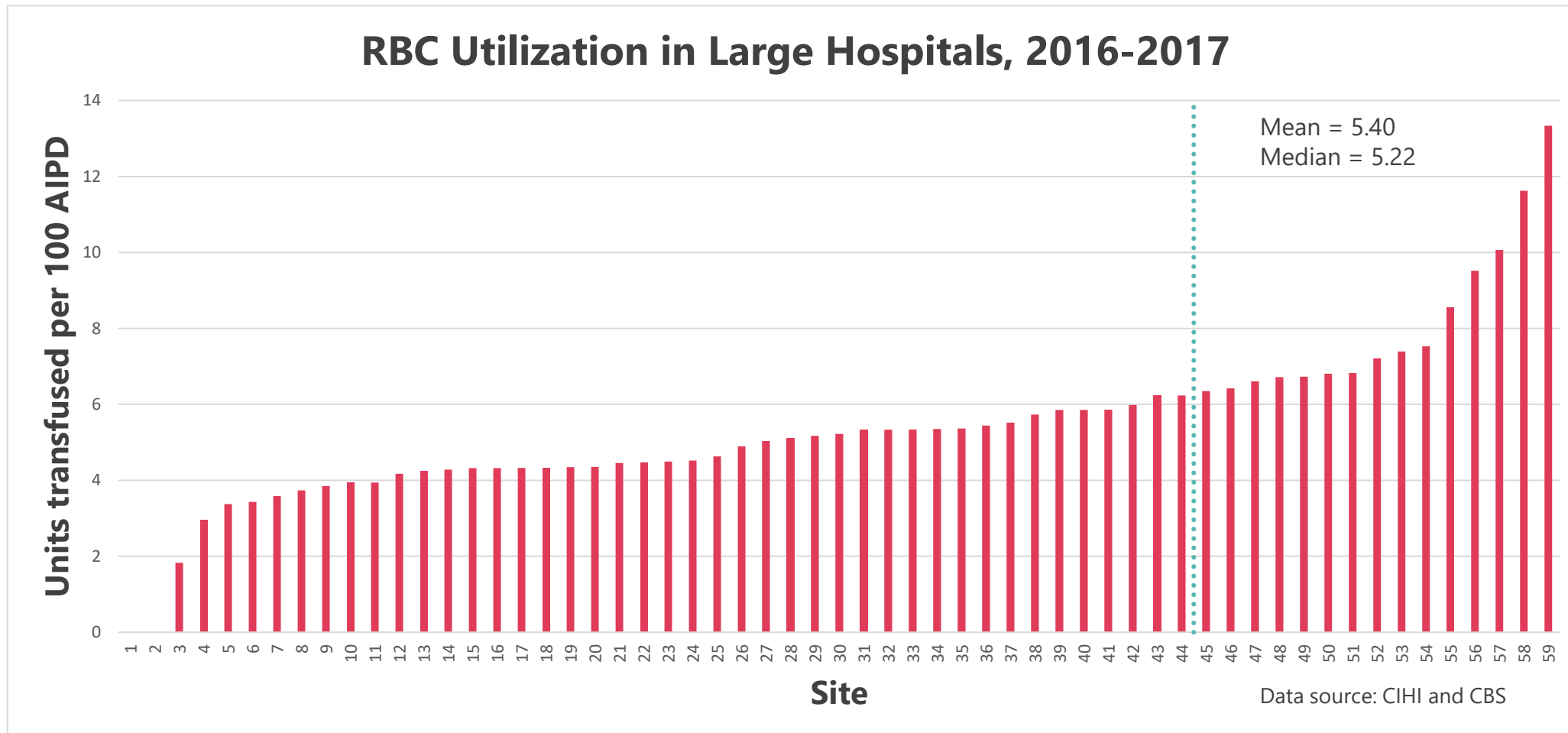
Transfusion likely appropriate although younger patients may tolerate lower Hb (i.e. Hb < 60 g/L)

Hb < 60 g/L

Is Canada Using Blood Wisely?

**Using
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Wisely.**

Variation Between Hospitals



Gap Between Evidence and Practice

- RBC transfusion audits show inappropriate transfusion rates 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)

- Single unit transfusion decreased RBC use 10-41%
(Shih et al Transfusion 2018)

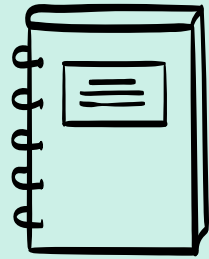
WHY GIVE TWO WHEN 1 WILL DO?

**Evidence from
Successful interventions**



Ontario Transfusion Quality Improvement Plan – Key Ingredients

Education

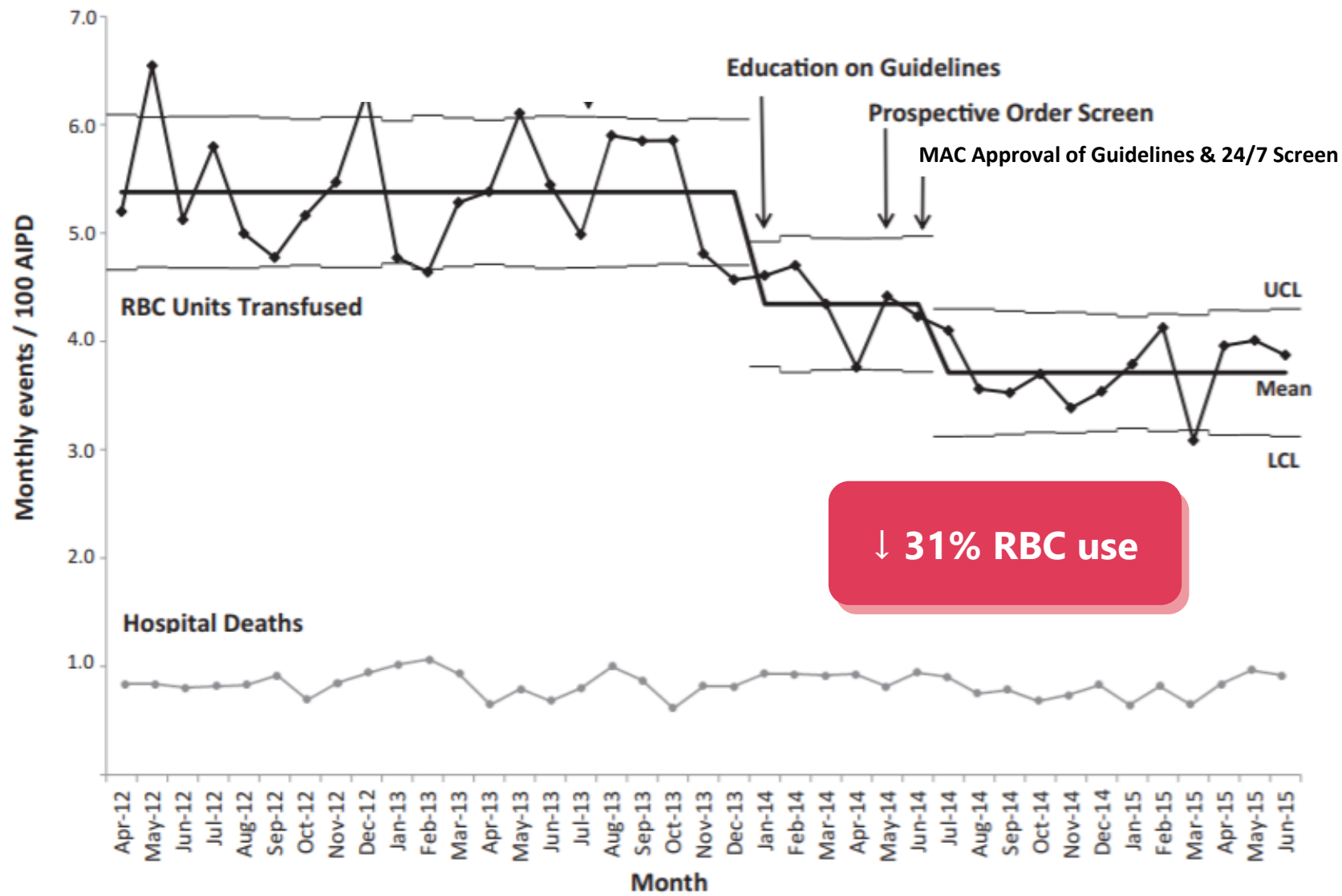


**Change in
guidelines and
transfusion
order sets**



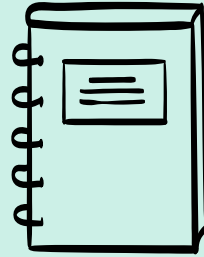
**Prospective
Screening**





START Study – Key Ingredients

Education



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

Guidelines



**Prospective
screening**

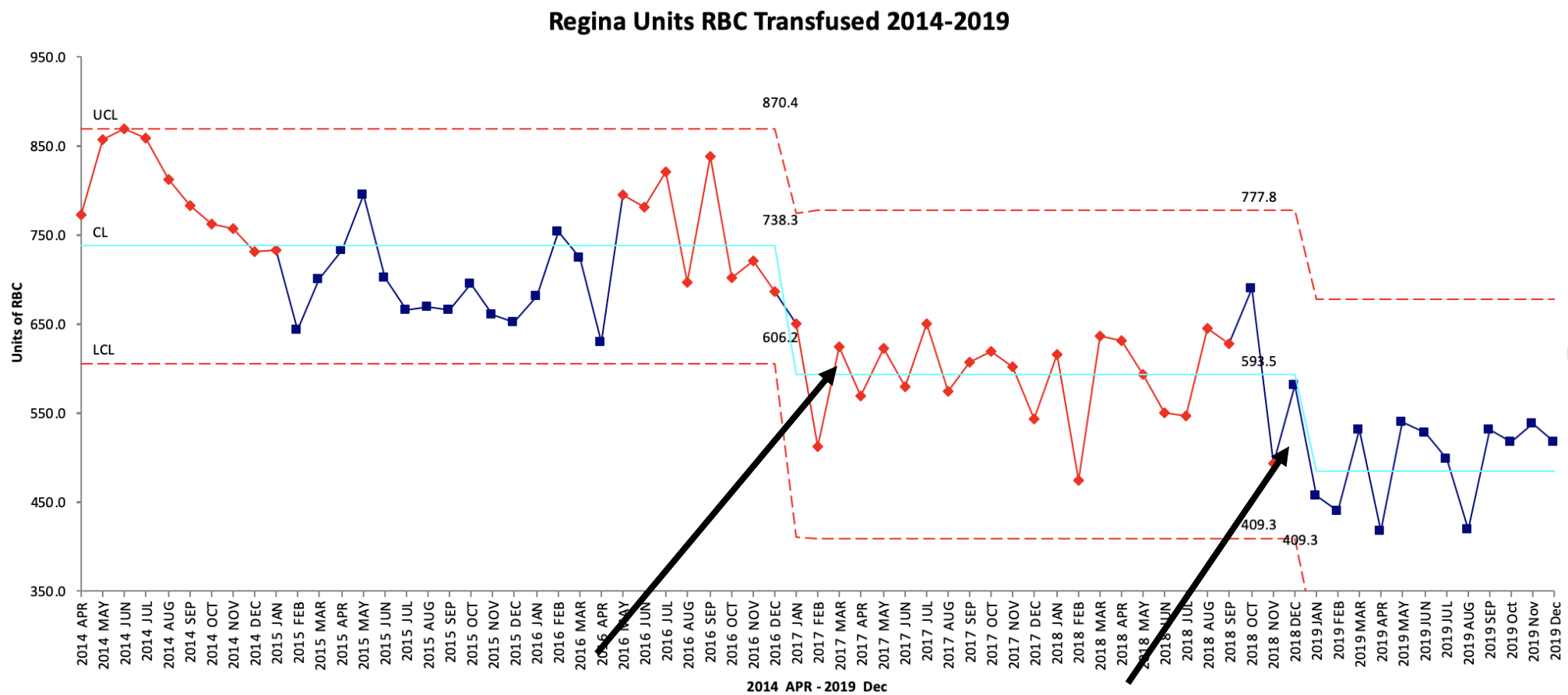


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START Study – Results

- 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)

Regina: Alternatives to Blood

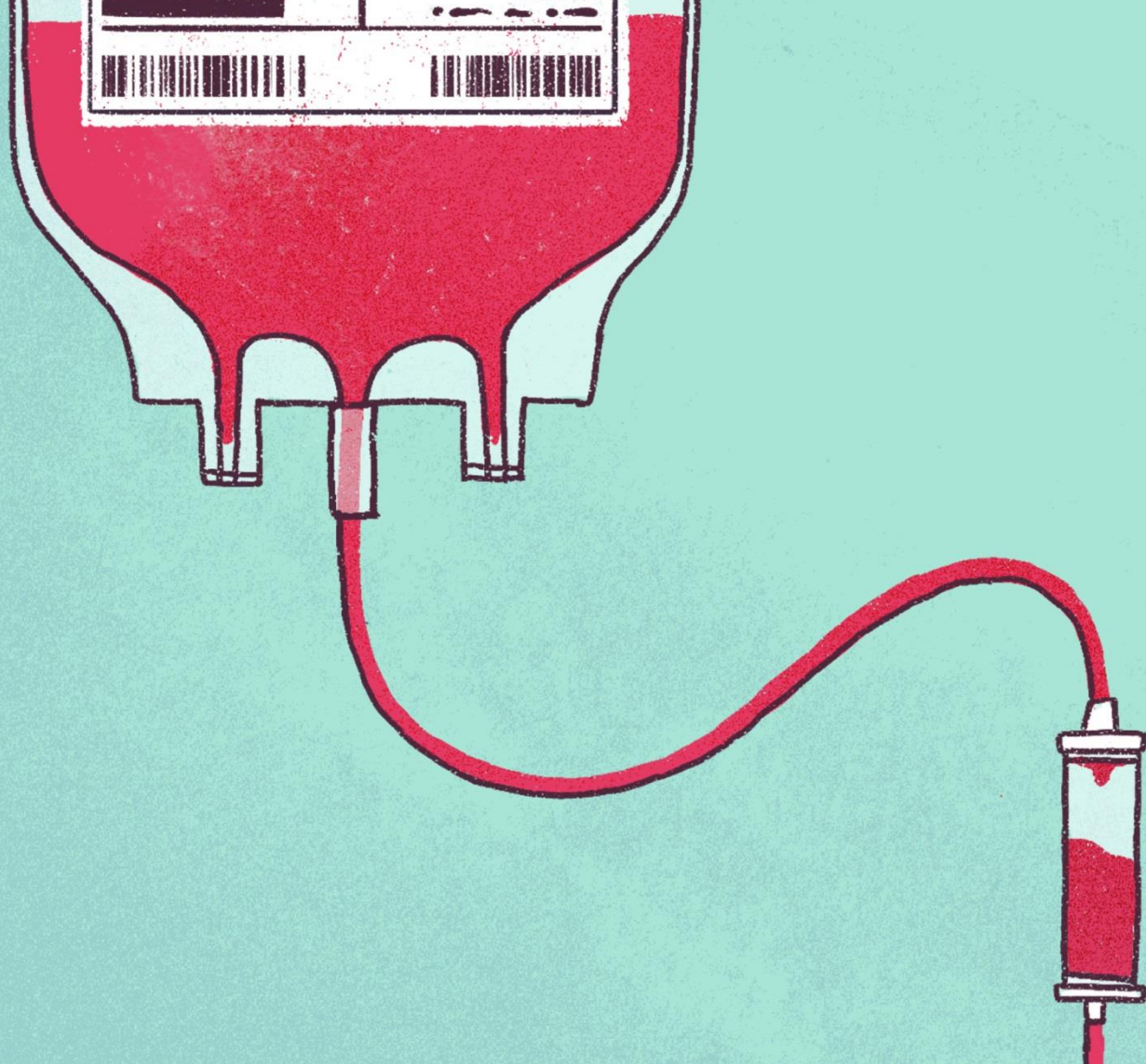


Education on IV iron
145 units/month reduction
19% Reduction

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

Courtesy of Dr. Ryan Lett

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Using Blood Wisely

www.UsingBloodWisely.ca



In partnership with:



Why Should My Hospital Get Involved?

- Eligible for **Using Blood Wisely Hospital Designation**
- Implementation of resources can be used towards the **Accreditation Canada Qmentum program**

CHOOSING
WISELY
CANADA

CANADIAN
BLOOD
SERVICES

Choosing Wisely Canada and Canadian Blood Services are pleased to recognize:

NAME

as a designated Using Blood Wisely Hospital.

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APRIL 1 2020

DATE



**ACCREDITATION
CANADA**

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More Questions?



Website:

www.UsingBloodWisely.ca



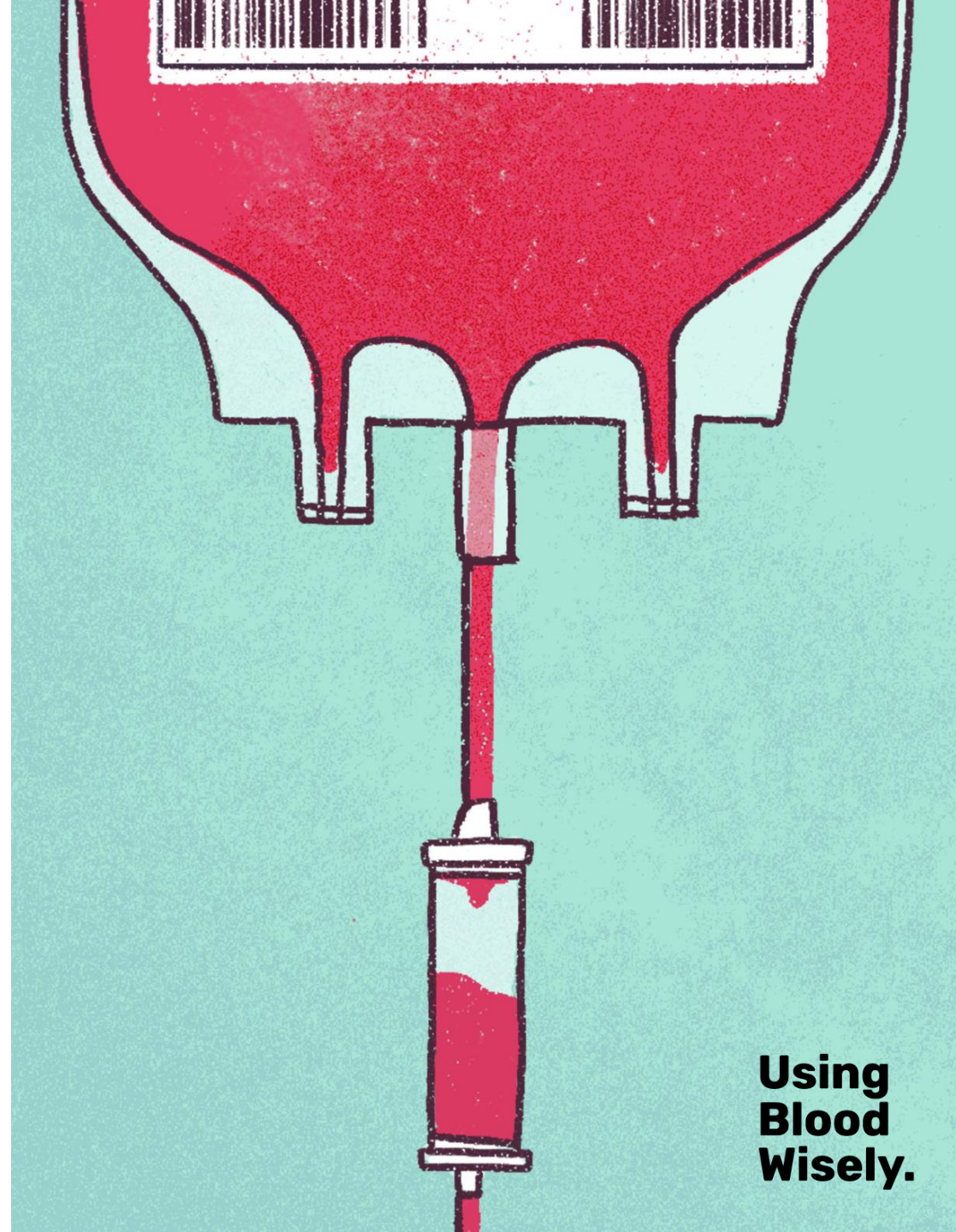
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Choosing Wisely Canada:

www.ChoosingWiselyCanada.org



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