## Patient Blood Management on the Accountable Care Unit / Role of Physician Report Cards

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2018 Transfusion Medicine Symposium Regina General Hospital Auditorium Oct. 26, 2018





## Ron Taylor

 Honorarium from 1unit<sup>™</sup> to assist in implementation of an Accountable Care Unit in Indianapolis.



# ACU Implementation at the Pasqua Hospital



## **ACU Implementation**

- Four Features of an ACU
  - Unit based (physician) Teams
  - Routines (Structured Interdisciplinary Bedside Rounds SIBR)
  - RN/MD Co Leads
  - Unit Based Metrics



#### **Reactive care vs Proactive care**



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## **ACU Results**

#### • Dr. Stein

- Decreased Length of Stay
- Decreased Mortality
- Pasqua
  - Decreased Length of Stay... for awhile
  - No change in mortality/readmissions
  - Increased staff satisfaction and reduction in overtime
  - Increased patient satisfaction and decrease in patient advocate complaints
  - Unit metric changes across multiple measures
    - Pneumovax
    - Documentation of risk states
    - More 2 Eat



# Some numbers....



#### Where do the Hospitalists work? 3 ACUs (of 4)

#### **13 Hospitalists total**

ACU	# of beds	# of Hospitalists	Description
4A	35 Beds	2/week	Medicine
4B	18 Beds (28)	1/week	Medicine
Medical Surveillance Unit	12 Beds	1/week	Intermediate Care model



#### **ACU Patient Demographics Census among Hospitalists at the Pasqua Hospital**

**Pasqua Hospital Census** January -September 2018



18-19 patients (12 MSU)

21 patients (12 MSU)

**Health Authority** 

#### ACU Patient Demographics Admissions & Discharges

#### Hospitalist Daily Admissions FY2017-2018



#### ACU Patient Demographics Discharges

#### Total Discharges per month FY 2017-2018



#### ACU Patient Demographics Average Age

#### D-4A % of Total





Saskatchewan

**Health Authority** 

#### **D-MSU % of Total**



#### D-4B % of Total

# **ACU Patient Demographics**

#### **Top Diagnoses**

Comparison of Top 20 Most Responsible Diagnosis Categories -

Hospitalists April 1, 2017-March 31, 2018



# **Project Vision, Goals and Objectives**



#### **Project Goals** Overall

- To determine/improve transfusion practice on the Accountable Care Units at the Pasqua Hospital
- To examine the impact of an audit and feedback process on physician behaviour



## **Project Objectives**

- To identify the number of RBC units transfused by each hospitalist
- To evaluate the appropriateness of RBC units transfused by each hospitalist
- To identify the factors that impact physician behaviour
- To reduce the number of inappropriate transfusions



# **Literature Review**



#### **Literature Review**



(Retter et al, Br J Haematol, 2013)



## Literature Review cont'd



- Mortality 1
- Length of hospital stay 1
- Organ dysfunction 1
  - →Lung injury (TRALI, TACO)
  - → Renal impairment
  - Stroke
  - → Myocardial infarction
- Infection <sup>1</sup>
- Transfusion reactions
- Tumor growth promotion 1
- Costs 1
- Non-Hodgkin lymphoma 1

Spahn D. R. et al. Lancet (2013) 381: 1855



#### **British Committee for Standards in Haematology** (BCSH) Guidelines

• Critically ill adults in general

#### **RBC Transfusion Recommendation:**

 Transfusion Hb threshold of ≤ 70g/l (70-90g/l) in the absence of factors (i.e., comorbidities) that would otherwise modify this decision



(Retter et al, Br J Haematol, 2013)

## Literature Review cont'd

#### ↓ risk of poor outcomes

#### **Restrictive Transfusions**

#### igstarrow patient harm



(Mirski et al, Crit Care, 2015)

#### **Review Article**

- Hospitalized adults
- Anemic
- Asymptomatic

#### **RBC Transfusion Recommendation:**

- Restrictive transfusion Hb threshold of 70-80g/l
- Transfusion Hb threshold of 80-100g/l

(Chan et al, Ann R Coll Surg Engl, 2015)

#### AABB (American Association of Blood Banks) Guidelines

- Hospitalized adults
- Stable



Advancing Transfusion and Cellular Therapies Worldwide

#### **RBC Transfusion Recommendation:**

• Restrictive transfusion Hb threshold of 7g/dL

(Carson et al, JAMA, 2016)

National Advisory Committee on Blood and Blood Products

- Hospitalized adults
- Stable

#### **RBC Transfusion Recommendation:**

- Restrictive transfusion Hb threshold of **70-80g/L**
- "One unit at a time"

(NAC on Blood and Blood Products, 2014)



#### **SHA Regina Area**



Clinical Setting	Recommendation and dose
Hb less than 60 g/L	Transfusion may be considered. Transfuse 1 unit and re-check patient symptoms
	and Hb before giving second unit.
	Patients with chronic iron deficiency anemia without symptoms rarely need
	transfusion (consider iv iron).
Hb less than 70 g/L	Consider transfusion. Transfuse 1 unit and recheck patient symptom and Hb
	before giving second unit.
Hb less than 80 g/L	Consider transfusion in patients with pre-existing cardiovascular disease.
	Consider maintaining Hb greater than 80 g/L in these patients.
	Transfuse 1 unit and recheck patient symptom and Hb before giving second unit.
Hb 80-90 g/L	Likely inappropriate unless evidence of impaired tissue oxygenation (shortness
	of breath, chest pain, tachycardia, dizziness).
Hb greater than 90 g/L	Likely inappropriate. If transfusion is ordered, clearly document indication in
	patient's chart and discuss reason with patient.
Bleeding patient	Maintain Hb greater than 70 g/L in low cardiovascular risk patient.
	If pre-existing uncorrected cardiovascular disease – maintain Hb greater than
	80g/L

(Clinical Practice Recommendations for Blood Component Use in Adult Patients, 2018)





#### Don't transfuse blood if other non-transfusion therapies or observation would be just as effective.

Blood transfusion should not be given if other safer non-transfusion alternatives are available. For example, patients with iron deficiency without hemodynamic instability should be given iron therapy.

#### Sources:

Carson JL, et al. Red blood cell transfusion: a clinical practice guideline from the AABB\*. Ann Intern Med. 2012 Jul 3;157(1):49-58. PMID: 22751760.

Retter A, et al. Guidelines on the management of anaemia and red cell transfusion in adult critically ill patients. Br J Haematol. 2013 Feb;160(4):445-64. <u>PMID: 23278459</u>.

Szczepiorkowski ZM, et al. Transfusion guidelines: when to transfuse. Hematology Am Soc Hematol Educ Program. 2013;2013:638-44. <u>PMID:</u> 24319244.

(Canadian Society for Transfusion Medicine, CWC, 2017)





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#### Don't transfuse more than one red cell unit at a time when transfusion is required in stable, non-bleeding patients.

Indications for red blood transfusion depend on clinical assessment and the cause of the anemia. In a stable, non-bleeding patient, often a single unit of blood is adequate to relieve patient symptoms or to raise the hemoglobin to an acceptable level. Transfusions are associated with increased morbidity and mortality in high-risk hospitalized inpatients. Transfusion decisions should be influenced by symptoms and hemoglobin concentration. Single unit red cell transfusions should be the standard for non-bleeding, hospitalized patients. Additional units should only be prescribed after re-assessment of the patient and their hemoglobin value.

#### Sources:

Bracey AW, et al. Lowering the hemoglobin threshold for transfusion in coronary artery bypass procedures: effect on patient outcome. Transfusion. 1999 Oct;39(10):1070-7. <u>PMID: 10532600</u>.

Carson JL, et al. Transfusion thresholds and other strategies for guiding allogeneic red blood cell transfusion. Cochrane Database Syst Rev. 2012 Apr 18;(4):CD002042. <u>PMID: 22513904</u>.

Carson JL, et al. Red blood cell transfusion: a clinical practice guideline from the AABB\*. Ann Intern Med. 2012 Jul 3;157(1):49-58. <u>PMID: 22751760</u>.

(Canadian Society for Transfusion Medicine, CWC, 2017)





# Methods



#### Methods Data Extraction

- Data extracted from SCM (monthly)
  - Patient visit number
  - RBC units transfused
  - Time and Date of transfusion(s)
  - Ordering ACU hospitalist (13 total)
  - Pre Hgb value (within 24 hrs of transfusion)
  - Post Hgb value (within 24 hrs of transfusion)
  - Grade



## Methods ACU Transfusion Algorithm



## **Preliminary Data Results**

#### January 1, 2018 – October 10, 2018

Measure	Results
Total number of transfusions	129
Average/Hospitalists	11
Median # transfusions among hospitalists	11
A	44 (34%)
В	57 (44%)
C	21 (16%)
D	5 (3.8%)
F	0
ERR	2 (2%)
	Healt

# Audit and Feedback Process



#### Methods Audit & Feedback





# **Learnings & Conclusion**



## Acknowledgements to the team!

- Idunnu Omisore
- Paula Van Vilet
- Francisco Medina
- Dr. Donna Ledingham



# Thank you! Questions?



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\*Thank you for also sponsoring Eric Ching