

QUALITY IMPROVEMENT – RED CELL INVENTORY MANAGEMENT

Megan Horne, MLT

Objective

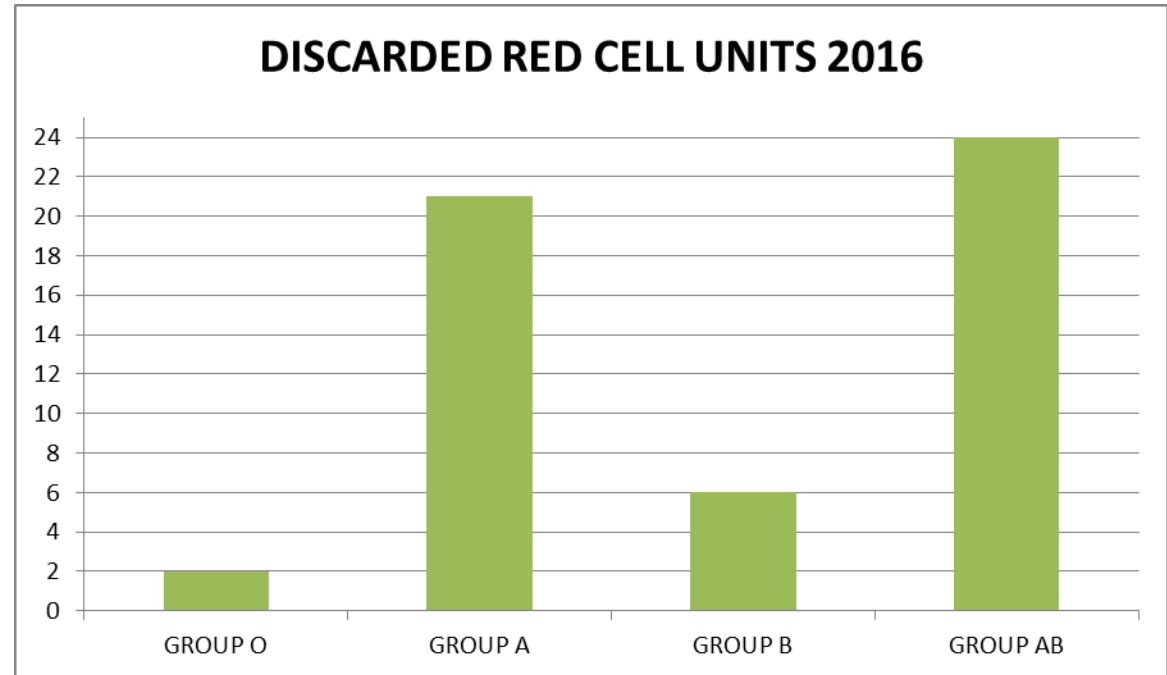
To show the process behind our red cell inventory management improvement from 2016 to present

About Michael Garron Hospital

- 515 inpatient beds
- Emergency Department – approximately 80,000 patients per year
- Level 1 Thoracic Surgery Center
- Family Birthing Center – approximately 3000 deliveries per year
- Hematology/Oncology Clinic

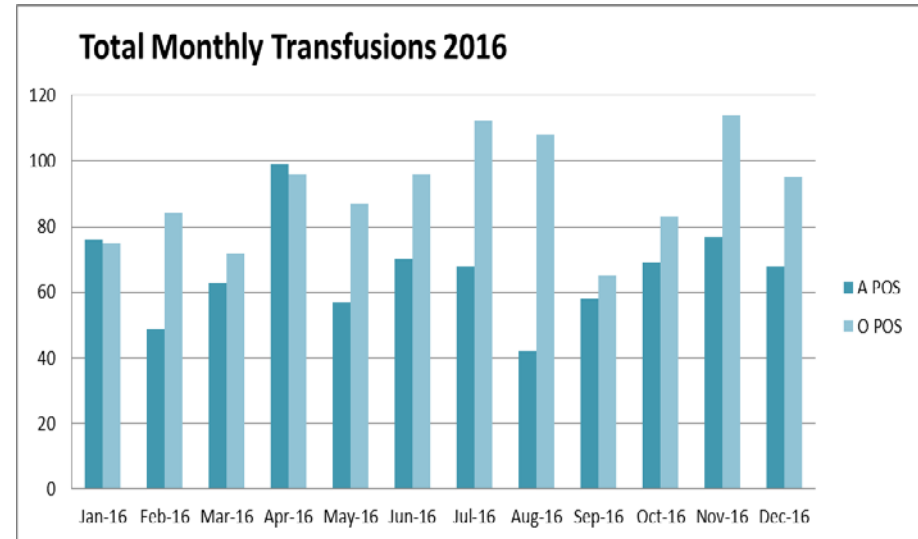
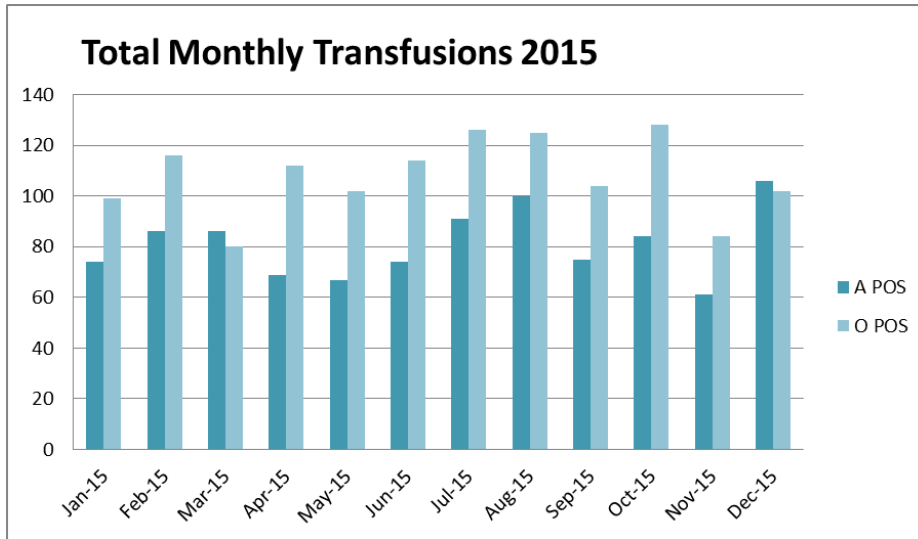
2016 Red Cell Inventory Overview

BLOOD GROUP	NUMBER OF UNITS
A POS	36
A POS IRRADIATED	4
O POS	36
O POS IRRADIATED	4
B POS	12
AB POS	4
A NEG	6
O NEG	10
B NEG	2
AB NEG	2



- Units discarded due to expiration
- Total red cell transfusions in 2016 : 2890
- Discard rate for 2016: 1.83 %

Total Transfused Red Cell Units



- On average 26% more O Positive transfusions than A Positive

Process Improvement

ORBCoN Inventory Calculator for Red Cells

By ABO / Rh	Approx # red cells used per day							
	O Pos	O Neg	A Pos	A Neg	B Pos	B Neg	AB Pos	AB Neg
% in pop [1.]	37.2%	8.0%	33.0%	6.8%	9.1%	1.8%	3.4%	0.7%
1 day stock	3.08	0.66	2.73	0.56	0.75	0.15	0.28	0.06
2 day stock	6.16	1.33	5.47	1.13	1.51	0.30	0.56	0.12
5 day stock	15.41	3.31	13.67	2.82	3.77	0.75	1.41	0.29
8 day stock	24.65	5.30	21.87	4.51	6.03	1.19	2.25	0.46
Suggested Maximum and Minimum Stock Levels (enter manually - not calculated):								
Max	42	10	36	8	10	2	4	1
Min	25	6	22	5	6	1	2	0
1 day stock- provides an estimate of the average daily use								
8 day- 'rule of thumb' and provides a buffer for inventory stock levels								

Reference: 1. Roback JD Editor, AABB Technical Manual 17th Ed AABB 2011. Appendix 9 p990

Inventory Calculator for Red Cells. (n.d.). Retrieved from <http://transfusionontario.org/en/documents/?cat=red-blood-cells>

Current Inventory Levels

CURRENT

BLOOD GROUP	NUMBER OF UNITS
A POS	24
O POS	32
B POS	12
AB POS	2
A NEG	4
O NEG	10
B NEG	3
AB NEG	2

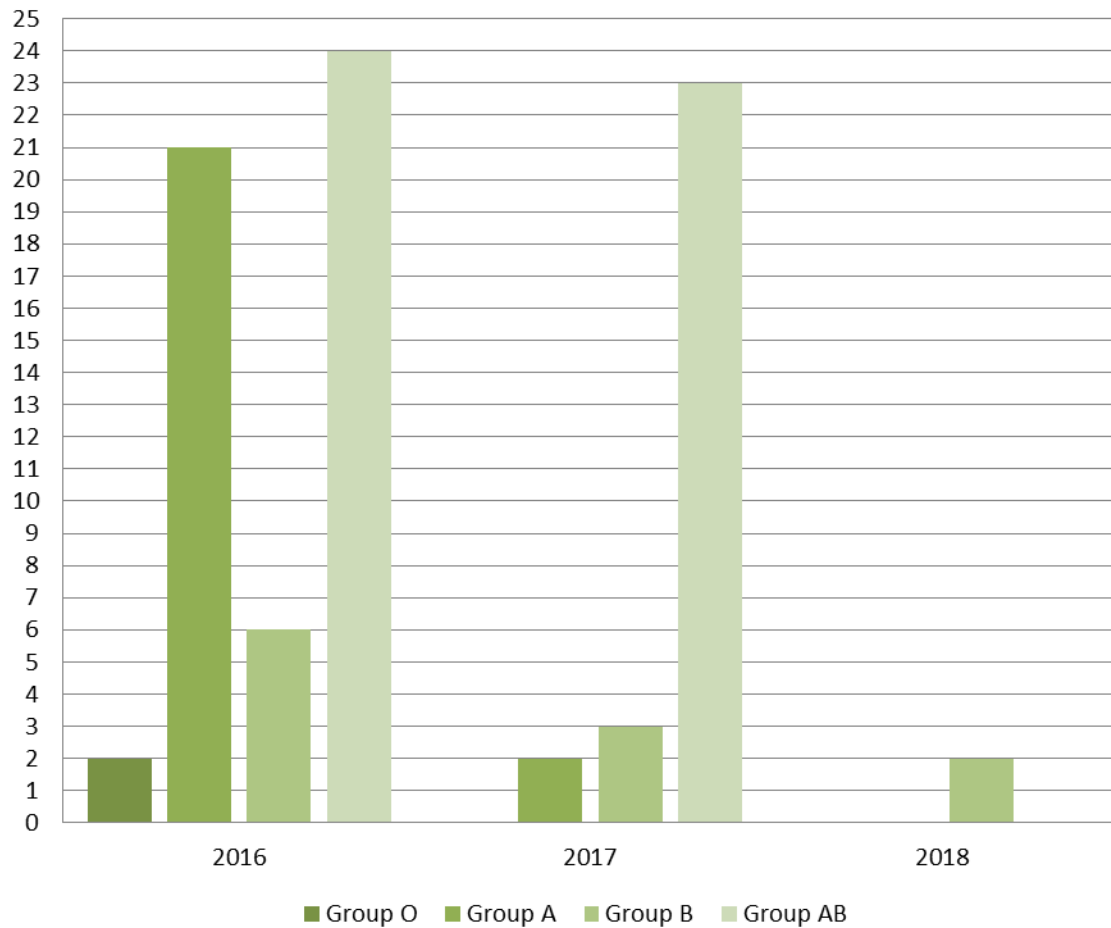
PREVIOUS

BLOOD GROUP	NUMBER OF UNITS
A POS	36
A POS IRRADIATED	4
O POS	36
O POS IRRADIATED	4
B POS	12
AB POS	4
A NEG	6
O NEG	10
B NEG	2
AB NEG	2

- A positive reduced by 40%
- O positive reduced by 20%
- AB positive reduced by 50%
- A negative reduced by 33%

Results

RCC Discards



- Total discards 2016: 53
Discard rate: 1.83%
- Total discards 2017: 28
Discard rate: 0.98 %
- Total discards 2018: 2
Discard rate: 0.06%

ADDITIONAL IMPROVEMENTS

- Irradiated red cells inventory
- 60 minute time to return red cells to Blood Bank
- Implementation of red cell coolers
 - OR and MTP
- Ongoing process improvement and reevaluation

Summary

- Reviewed red cell transfusions
 - Focusing on A Pos and O Pos
- Utilized ORBCoN tool
 - <http://transfusionontario.org/en/documents/?cat=red-blood-cells>
- Adjusted inventory based on review
- Discard rate went from 1.83% in 2016 to 0.06% in 2018

Megan Horne, MLT, Blood Bank x6374
Megan.Horne@tehn.ca

Jason Kwan, BSc, MLT, Blood Bank Senior x6378
Jason.Kwan@tehn.ca

825 Coxwell Avenue
Toronto, Ontario M4C 3E7

T: 416.461.8272

F: 416.469.6106

[**www.tehn.ca**](http://www.tehn.ca)



Create Health. Build Community.