

Success Through Data: Blood utilization rates improve with the help of analytics

Background

While blood transfusions are generally considered safe, several studies have shown that high transfusion rates can increase the risk of complications in cardiac surgery. According to research, 40% of transfusions are generally not necessary, placing a strain on hospital finances. One unit of red blood cells, including testing and acquisition costs is approximately \$1,100. These statistics have generated growing interest in hospitals across the country in finding ways to decrease the use of blood products while maintaining or improving quality.

Ministry - Selected Provider Type Name	Encounter Volume	Avg. Treatment	Avg. Blood Utilization Rate
ININD · John Doe, M.D.	10.0	\$739	40.0%
ININD · Jane Doe, M.D.	30.0	\$424	30.0%
ININD · John Doe Jr., M.D.	30.0	\$400	43.3%
ININD · Surgical Sally, M.D.	19.0	\$301	15.8%
ININD · Kevin Heart, MD.	61.0	\$279	23.0%
Grand Total	150.0	\$365	28.7%

Methods

Using a data driven approach, our physician led interdisciplinary task force reviewed blood utilization reports for cardiac surgery over a 6-month period. Utilization rates for each type of blood product were included and categorized by phase of surgery in which blood products were administered. Surgeons received an unblinded copy of all reports, including a report with total cost of treatment per case and blood utilization rates by surgeon.

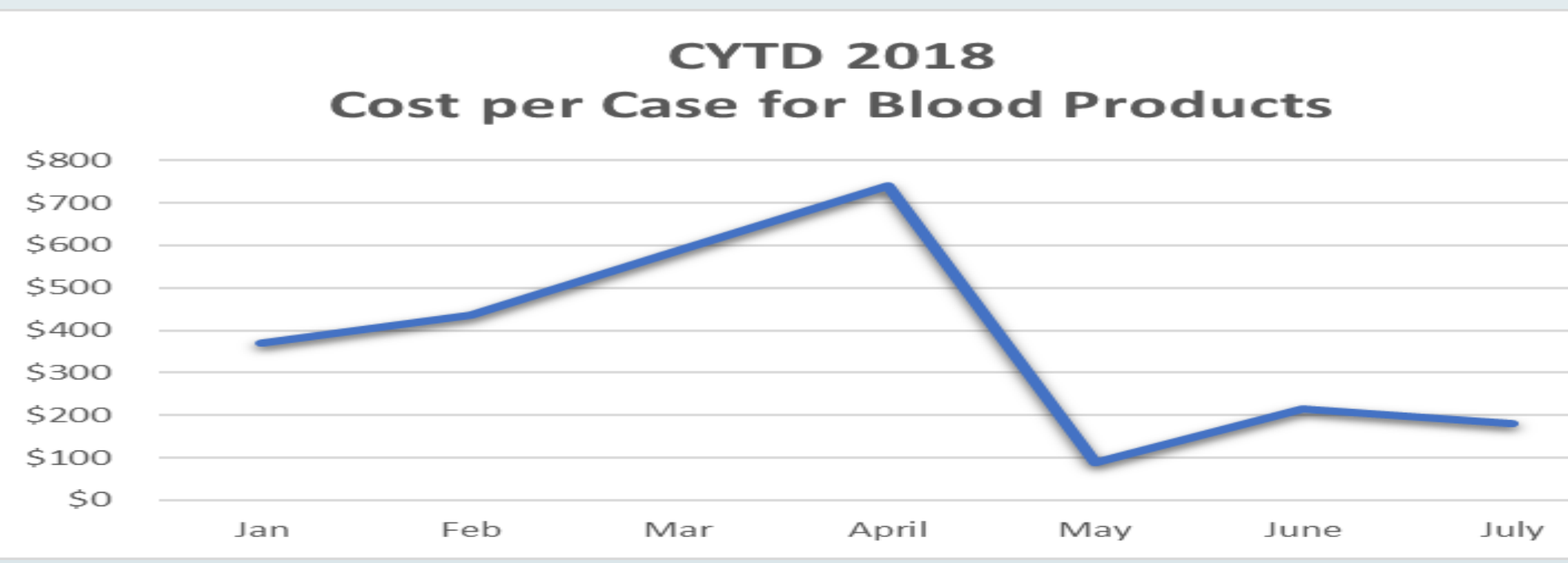


Results

Within the 6-month period, blood utilization rates dropped from 37.8% to 27.7%. The cost per case for blood products went from \$573 to \$361 with an annual estimated savings of \$500,000. Quality outcomes such as, length of stay, mortality, renal failure and readmission rates remained unchanged.

Procedure	Total # of cases	Transfusions**	
		Total	Freq
TAM	301	0	N/A
Isolated CAB	525	278	53.0%
Other OHS	232	103	44.4%
AVR	105	35	33.3%
MVR	24	13	54.2%
AVR/CABG	78	51	65.4%
MVR/CABG	10	10	100.0%
AVR/MVR	11	10	90.9%
MVP	95	18	18.9%
CABG/MVP	12	7	58.3%
LVA	2	2	100.0%
Total	1395	527	37.8%

Procedure	Total # of cases	Transfusions**	
		Total	Freq
TAM	247	0	N/A
Isolated CAB	366	123	33.6%
VAD	1	0	N/A
Other OHS	131	54	41.2%
AVR	96	33	34.4%
MVR	31	16	51.6%
AVR/CABG	69	35	50.7%
MVR/CABG	1	1	100.0%
AVR/MVR	14	10	71.4%
CABG/MVP	64	11	17.2%
CABG/MVP	11	3	27.3%
Total	1031	286	27.7%



Metric	Target	R12 Month Total	YTD	Apr-18	May-18	Jun-18	Jul-18
1 % Transfusion	40.0%	40.0%	31.4%	29.4%	29.4%	22.4%	28.1%

Outcome	Isolated CABG Outcomes	
	CY2017	CY 2018 Q1-Q3
ALOS	7.2 days	7.0 days
In Hospital Non-Risk Adjusted Mortality	1.2%	1.2%
Renal Failure	1.0%	1.1%
Readmissions	5.7%	5.2%

Conclusion

Robust data analytics can assist interdisciplinary surgical teams in lowering blood utilization and costs associated with transfusions while maintaining quality outcomes.

Clinical Implications

Improve blood utilization rates and reduce costs associated with transfusions through the use of robust data analytics and unblinded reporting.

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Disclosures

The primary author and co-authors have nothing to disclose.