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A Simple Critical Care Provider Transfusion Education Program Reduces Blood Product Use



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Background

- Restrictive transfusion practices have been shown to be superior to non-inferior in hospitalized and critically ill patient populations
- Restrictive packed red blood cell (pRBC) transfusion strategies in critically ill populations are associated with improved patient outcomes, reduced blood product use, and cost savings
- Single unit pRBC transfusions recommended as best practices by American Board of Internal Medicine, American Society of Hematology and Association for the Advancement of Blood & Biotherapies
- However, these strategies are inconsistently employed by critical care providers

AIMS Statement

- By December 2021, we will achieve a goal of 60% of 1-unit pRBC orders with the implementation of a simple provider education program on transfusion practices of critical care providers

Methods

- Baseline provider level transfusion data was collected (13 critical care physicians, 6 Advanced Practice Providers) between January-June 2020
- Data included number of patients transfused, total red blood cells (RBCs) transfused, percent 1-unit pRBC orders, and pre-transfusion hemoglobin (Hgb)
- Intraoperative transfusions for anesthesia providers excluded and transfusions were normalized for provider workload
- Beginning in August 2020, providers were presented biannually with non-anonymized provider level data and reminded of the robust literature supporting the superiority of restrictive transfusion practices
- Provider level data was collected biannually to measure the impact of this approach on transfusion practices

Table 1. pRBC Transfusions 2020-2022

	Jan – Jun 2020	Jul – Dec 2020	Jan – Jun 2021	Jul – Dec 2021
RBC Orders	526	507	491	529
1 unit pRBC orders	299	351	300	406
% 1 Unit pRBC Orders	57%	69%	61%	77%
Patient Count	506	326	344	384
total pRBCs Transfused	636	504	555	524
pRBC transfusions/ patient	1.3	1.5	1.5	1.3
Average Pre-transfusion Hgb	7.0	7.0	6.9	6.8
Intensivist shifts	1245	1345	1448	1661
Average pRBC units/ shift	0.47	0.35	0.36	0.31
SD (pRBC units/ shift)	0.30	0.19	0.21	0.14

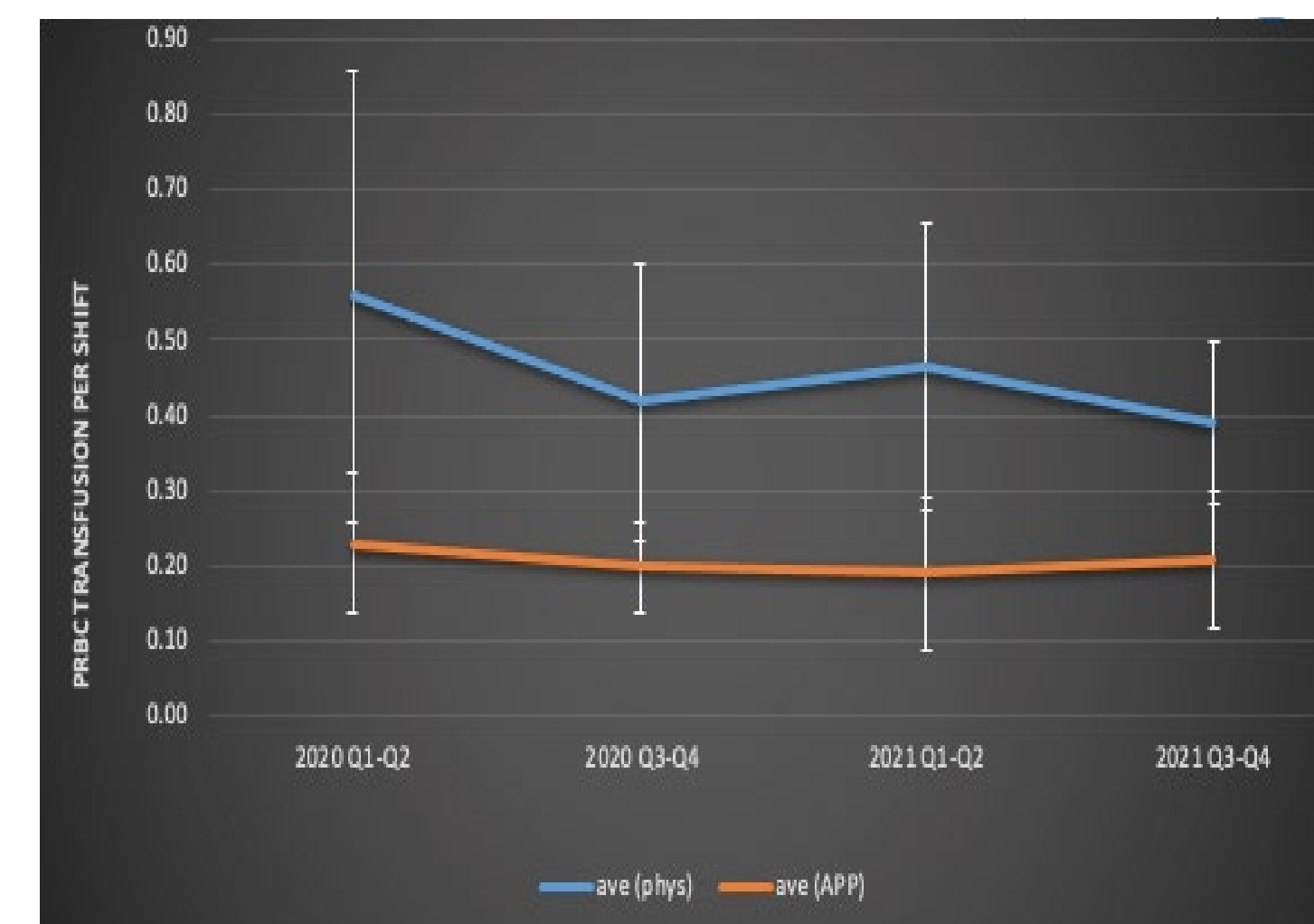
Results

- Increasing percentage of 1-unit pRBC transfusion between January 2020 to December 2021 (57% to 77%)
- Education program reduced total number of patients transfused, total RBC orders and total RBC transfusions
- There was an average 108 fewer pRBC transfusions per 6 months and reduction of inter-provider transfusion practice variability
- After three short educational presentations, 23/24 providers achieved original goal of 60% 1-unit pRBC orders (Initially 9/18 providers)
- There were 20/24 providers that achieved greater than 70% of 1-unit pRBC orders

Table 2. %1-unit pRBC Transfusion by Provider

	Jan – Jun 2020	Jul – Dec 2020	Jan – Jun 2021	Jul – Dec 2021
Physician 1	58%	58%	67%	72%
Physician 2	40%	58%	58%	83%
Physician 10	53%	60%	22%	83%
Physician 5	21%	48%	53%	63%
Physician 4	83%	67%	64%	80%
Physician 7	66%	68%	65%	74%
Physician 3	68%	83%	74%	81%
Physician 12	100%	50%	75%	86%
Physician 6	73%	59%	49%	68%
Physician 8	68%	77%	65%	78%
Physician 11	80%	74%	71%	83%
Physician 14				80%
APP 2	49%	43%	41%	57%
Physician 9	50%	50%	80%	71%
APP 7			67%	84%
APP 8				92%
Physician 13	67%	100%	80%	100%
APP 1	44%	63%	48%	67%
APP 3	55%	62%	64%	80%
APP 9			69%	91%
APP 5	100%	50%	76%	94%
APP 4	27%	53%	67%	80%
APP 6		75%	78%	100%
APP 10				100%

Figure 1. Critical Care Provider Variability



Conclusions

- A easily implemented provider education program can produce significant decreases in blood product transfusions which should be associated with improved patient outcomes and reduced costs
- A non-anonymized educational approach appears effective for providing regular feedback about their practice patterns relative to their colleagues

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