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LEVERAGING TECHNOLOGY TO IMPLEMENT AND MONITOR BLOOD PRODUCT ADMINISTRATION DOCUMENTATION
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INTRODUCTION

Blood product administration is highly regulated and it must satisfy requirements from several regulatory agencies including the American Association of Blood Banks (AABB), and the College of American Pathologists (CAP) (1) The regulatory agencies set guidelines for various processes such as screening blood and blood products, storage of products, patient monitoring, documentation of blood products.

University Hospital decided to leverage technology to integrate the ordering, processing and administration of blood products. A third party vendor application was interfaced with the hospital's electronic health record to facilitate the issuing and documenting the administration of blood products. Barcoding of specimen collection, products and patient's identification prior to starting the products was also implemented to promote patient safety.

A report was generated in lieu of the manual audit of all transfusion records received from the blood bank. It captured the following elements: unit number, product code, expiration date, product type, date of order, ordering provider, patient identifiers (name, MRN, and bed), electronic signatures of two persons validating patient's identity, vital sign values (at start, 15 minute interval, and end of the transfusion event), start time, end time, unit volume, and potential suspected transfusion reaction.

The Assistant Directors of Nursing Informatics worked directly with direct-care nurses and nurse leaders to review patient charts for presence of data not captured on the tracking report, and assisted staff in making edits and additions to the record in line with hospital's policy and standards.

A multidisciplinary team collaborated to accomplish the following:

❑ Order panels created for: type and screen, product preparation and transfusion
❑ Electronic notification when blood product is available
❑ Customized documentation flowsheet rows standardized nursing documentation and facilitated the printing of the blood product pickup slips
❑ Barcoding to capture: start time, product identification, patient verification, etc.
❑ Report created to facilitate audit of all transfusion
❑ Barcoding specimen collection

LITERATURE REVIEW

Transfusion Management Service has only recently begun to leverage the electronic medical record to address quality issues in transfusion practice and promote standardized documentation within institutions [1]. Although potentially life-saving, this procedure does carry some risk [5]; critical points in the transfusion chain include: the decision to transfuse, prescription and request, patient sampling, pre-transfusion testing and finally the collection of the component from the blood refrigerator and administration to the patient [4].

With an emphasis on patient safety and appropriate use of blood [6], institutions utilize applications of healthcare information technology in transfusion medicine to create electronic reports to support order auditing, assess blood product utilization and monitor compliance [2]. Implementation of a positive patient identification system using barcoding and computer technology were found to simplify the clinical transfusion process and improve practice [3].

METHODOLOGY

Following John Kotter's eight (8) step model for leading change

1. CREATE URGENCY
❑ Blood bank electronic system was "sunsetting"
❑ Nursing documentation of blood product administration electronic and on paper.

2. FORM A POWERFUL COALITION
Two interdisciplinary subcommittees
❑ Operations (representatives from the blood bank, nursing informatics, physician team, and information systems technology department)
❑ Clinical (representatives from the blood bank, nursing informatics, physicians, frontline nursing staff and nursing education)

3. CREATE A VISION FOR CHANGE
❑ Operations—the design, build and appearance of provider orders, flowsheets, and system integration
❑ Clinical group—revision of the blood product administration policy, nursing workflow, blood bank workflow, and training plan/implementation

4. COMMUNICATE THE VISION
❑ Nursing Leadership Team (NLT) informed of changes and dissemination plan
❑ Nursing Informatics Steering Committee (NISC) members engaged in testing the build and provide feedback for improvements
❑ Marketing flyers were dispersed to clinical units
❑ Informational screensavers added to clinical desktops
❑ Multiple computer lab-based training sessions

5. EMPOWER ACTION
❑ Processes kept close to existing workflow
❑ Electronic alerts
❑ Blood product pick-up slips printed automatically
❑ Training (classroom, online, roadshow)
❑ Staff support for the go-live
 ❑ Superusers and educators provided support to staff at the bedside
❑ Tipsheets attached to all mobile workstations
❑ A command center for go-live support

6. CREATE QUICK WINS
❑ Electronic report went to all nurse leaders at 8am daily
 ❑ evaluating completeness of the transfusion record
 ❑ following up with staff to correct any missed elements as close to real-time as possible
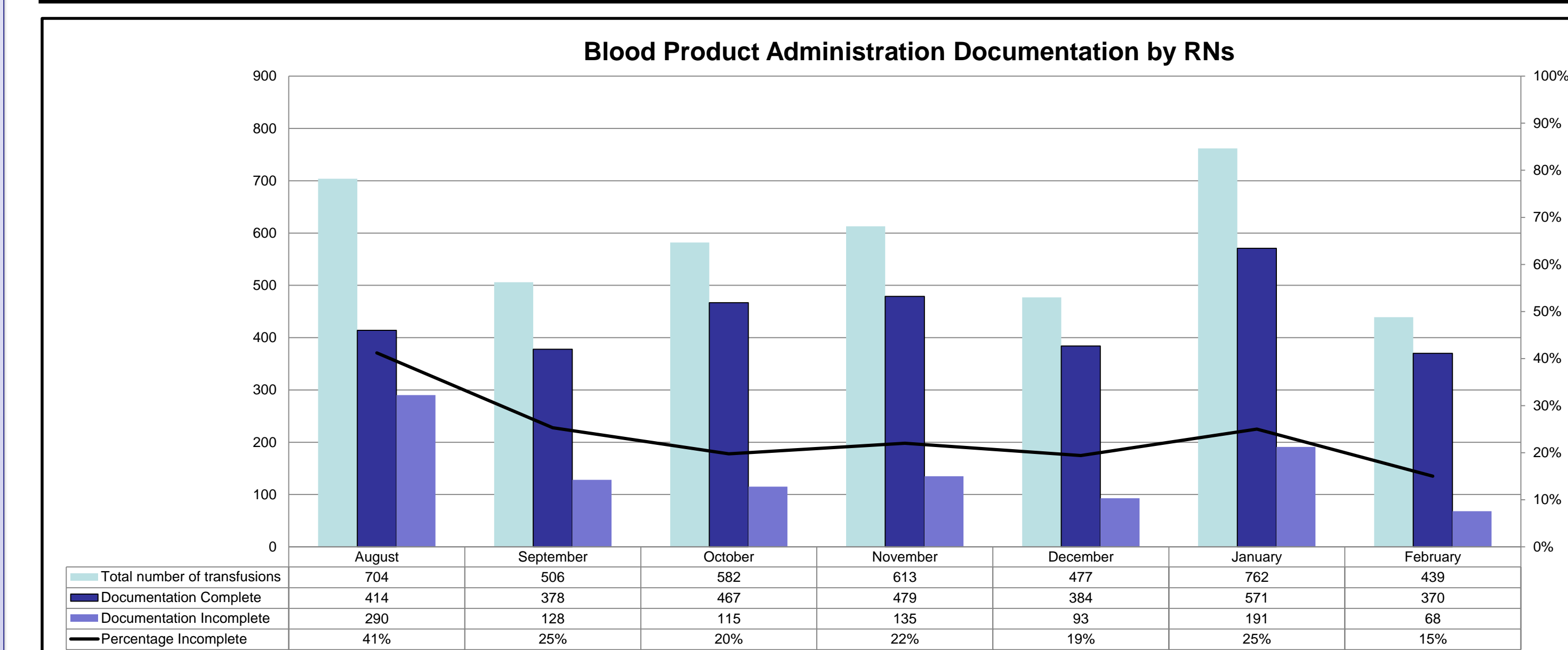
7. BUILD ON CHANGE
❑ Nursing Informatics leader noted the number of units with in incomplete documentation was sustained above 40%
❑ Daily reminders to nurse leaders, highlighting deficiencies, and served as liaison between nurse leaders and the blood bank for reporting purposes
❑ Cumulative outcomes were reported on a weekly basis during the NLT and the NISC meetings

8. MAKE IT STICK
❑ Engaging Executive Nurse leadership
 ❑ project management conducted analysis of current process and met with end-users to determine barriers
❑ NISC members charged with providing peer to peer support
❑ At-the-elbow support and real-time education for nurses
❑ Weekly discussions of progress during the NLT meetings

Report Generated for Managers

Blood Product Administration Documentation by RNs

	August	September	October	November	December	January	February
Total number of transfusions	704	506	582	613	477	762	439
Documentation Complete	414	378	467	479	384	571	370
Documentation Incomplete	290	128	115	135	93	191	68
Percentage Incomplete	41%	25%	20%	22%	19%	25%	15%

ASSESSMENT/ ANALYSIS:

Data was tracked daily by unit managers and reported weekly to nurse leadership. This pre-intervention percentage of missing documentation peaked in August 2017 at 41%. With implementation of improvement efforts this number dramatically declined to 25% in September, and 15% in February with a target goal of 10% by April 30, 2018.

The areas for improvement continue to be documentation of vital signs, transfusion end time, and total administered volume.

OTHER CHALLENGES
❑ Appropriate use of the order panels for type and screen, prepare, and transfuse
❑ Nurses send specimens without the required documentation of their initial and collection date
❑ Electronic transfusion reaction report did not meet the needs of the blood bank
❑ Blood bank not updating the product's status to issued
❑ Some departments (OR and Trauma) continued the manual processes

WHAT WAS DONE

✓ Reeducation of staff/at the elbow support started at go-live and continues as needed
✓ Blood bank contacted nurse champions when process was not followed
✓ Follow-up with staff as needed by unit management
✓ Banner created in EHR to identify units with incomplete documentation (March 2018)
✓ Transfusion reaction report reverted to paper documentation
✓ Changes made to order panels
✓ In addition to the daily electronic report, weekly monitoring/tracking of compliance/reports provided to nurse leadership
✓ Monthly audit of at least one transfusion coordinated with the blood bank
✓ The blood bank medical director and/or supervisor attend in your monthly nursing/lab/transfusion services meetings
✓ Monthly QA review process

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