eP066: Error Analysis in the Blood Transfusion Service: A tool for quality improvement

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INTRODUCTION

- The transfusion chain is prone to errors, which can significantly increase the risk of transfusion-related adverse events.
- Timely identification, root cause analysis (RCA), and implementation of corrective and preventive actions (CAPA) are essential in minimizing these errors and preventing recurrence, ultimately reducing the potential for patient harm

AIM & OBJECTIVE

- To identify and categorize the types and patterns of errors within the transfusion process,
- To develop and implement preventative strategies to minimize their recurrence

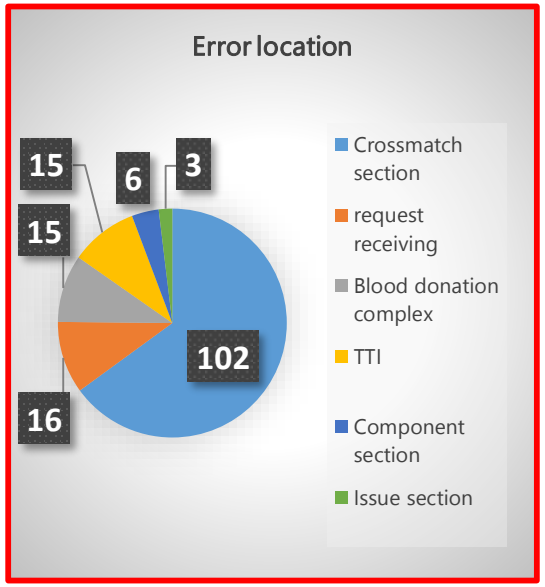
METHODOLOGY

- Root Cause Analysis (RCA) was conducted using data from a paper-based event reporting register covering the period from January 2024 to June 2024.
- Errors were classified according to their location and type.
- Errors trends were rated for severity, taking into account factors such as potential harm to patients
- Incomplete or missing records, as well as rejected reports, were excluded from the analysis

- **Near Miss Report**: Records and incidents with the potential to cause harm to patients, but which did not result in actual harm
- Potential Harm to patient was classified using **HAMEC** classification system.
- RCA was done the '5 Whys' technique

RESULTS

Total Errors: 157
Near miss report:150 (95.5%)
Adverse Events: 7
No harm - 3
Minor harm - 2
Moderate harm- 2
Primarily attributed to WBIT and issue of wrong product



TYPES OF ERROR IN DIFFERENT LOCATION

Cross match Section	**Blood grouping (BG) errors :** **Mislabeling errors :** **Missing Records**	**44** **41** **17**	(2 in 1000)
Request receiving counter	**WBIT :** **Inaccurate documentation :** **Missing records :**	**10** **5** **1**	(1 in 1105)
Donation Complex	**Mislabeled blood bags :** **Donor screening errors :**	**10** **5**	
TTI Section	**Inclusion of reactive units (RU) (8), RU documented as NR (3) Missing results (2), Missing test run (2)**		
BCSU	**Outdated platelet inventory :** **Storage failure :**	**5** **1**	
Issue Section	**Wrong product issue :**	**3**	

Abbreviations used: IQC: Institutional Quality Cell, HAMEC: The Harm Associated with Medication Error Classification, WBIT: Wrong Blood In Tube, TTI: Transfusion Transmitted Infections, BCSU: Blood Component Separation Unit , NR: Non-Reactive

Root Cause Analysis:

- 81.4% of mislabeling and documentation errors occurred during the afternoon shifts, indicating an imbalance in workforce distribution..
- Sixty percent of documentation errors in the cross-match laboratory occurred on Fridays and were linked to a specific staff member.
- BG errors are mostly due to pipetting errors, misreading of results and transcriptional errors
- Errors in the TTI section were attributed to late-hour result processing and multi-tasking by technicians
- Missing records were most frequently associated with emergency night requests
- WBIT errors stemmed from non-compliance with standard operating procedures (SOPs) by the nursing staff.

Corrective Action Taken:

- Retraining of the linked staffs
- Readjustment of duty schedule with accountability assigned to single technician
- Issue of advisory notes

Preventive Action Initiated:

- Biannual competency assessments for technicians
- Regular induction training for nursing staff on transfusion protocols
- Redistribution of staffing to ensure balanced workloads
- Modification of the software for computerized order management
- Initiation of automated blood grouping processes

CONCLUSION

This study **highlights:**

- ✓ Key areas of error—documentation errors (mislabeling and missing records), BG, WBIT and inventory mismanagement (TTI section)—that require targeted interventions.
- ✓ The observed error rates and workforce distribution emphasizes the need for a more balanced duty schedule.

Recommended actions:

- Adjustments to duty schedules
- Targeted retraining and
- Increased automation to ensure sustained improvement in transfusion safety
- Reassessment of error rates following the implementation of these preventive measures to evaluate their effectiveness and ensure sustained improvements in transfusion safety.