ACCURACY OF PATIENT IDENTIFICATION IN BLOOD PRODUCT ADMINISTRATION: THE ROLE OF BARCODES

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Introduction: Ensuring that a patient always receives the correct blood product is known to be very difficult and reducing transfusion error is a national patient safety goal. In recent years, the standard mechanism has used the Typenex system where a wrist band with identification code is placed on the patient and peel-off labels with the same code are placed on the blood-sample tube and the blood-product requisition. The blood bank then sends the blood product to the operating room along with the code. Prior to transfusion, 2 people verify that the code on the patient's wrist matches the codes on the bag and chart copy. This system is known to be unreliable as the 2-person check is subject to lapses and bypassing without the ability to audit the check. We have instituted a comprehensive computerized barcode scanning system to decrease the probability of misadministration of a blood product.

Methods: Software was written for our in-house-developed healthcare information system for proper identification matching for transfusion samples, blood products and patients. This program has 8 functions: 1) printing barcode labels that contain the patient's name, hospital number and its barcode, date of birth and date and time of printing. Barcode printers are located in each OR. The patient's wristband ID is a barcode label; 2) scanning at the time of blood draw to verify that the barcodes on the patient's wrist band, blood tube and requisition are identical; 3) verifying tube and requisition match – and recording to a database- when the sample arrives in the blood bank; 4) matching the release requisition, patient ID and blood product ID when blood products are dispensed from the blood bank – and recording to a database; 5) verifying by scanning at the time of administration that the patient's wrist band barcode matches the patient ID and blood-product-ID barcodes on the bag (from step 4); 6) establishing a proxy function so that a secondary barcode label within the OR may be scanned if the patient's wrist is not available; 7) scanning units returned to the blood bank; and 8) creating a history and reconciliation function so that any discrepancies between units dispensed, administered and returned can be detected and investigated.

Results: In the 6 years that the system has been functional, the history function has recorded over 700,000 scans. During this time, we have documented only 1 misadministration of a blood product and that occurred as the system was being rolled out on a unit where it was being used for the first time. There have been no misadministration events detected since then. Potential mismatches between patient and product have been detected (and misadministration prevented) at a rate of 1.3 events per month.

Comments: Prior to implementing the system, our interval of misadministration was about 1.25 years. If one considers the rate at which mismatches are prevented and the rate of failure to scan (about 1%), we estimate that the average interval between misadministration events is now about 9 years. Besides the enhancement of safety, another valuable aspect is that the 2-person check is no longer needed. In practice, a unit can be verified every 8 seconds with a positive verification giving a green background for 4 seconds and a negative giving a red background requiring operator input to clear. The system has provided a powerful new way to comprehensively track and analyze errors in the transfusion process. We hope to integrate the system with our new hospital information system (Epic) in the near future.