35th International Congress of the International Society of Blood Transfusion, Toronto, Canada June 2 - 6, 2018

ISBT TORONTO 2018

Monday, June 4

08:30 - 10:00
Meeting Room 801
Working Party Session on IT

08:30 - 09:00 3A-S06-01 ELECTRONIC IDENTITY CONTROL, REPLACEMENT IDENTIFICATION, AND MULTIPLE TRANSFUSIONS MADE EASY IN THE OR/ER
J. Georgsen, L. Espersen
South Danish Transfusion Service and Tissue Center, Odense C, Denmark

09:00 - 09:45 3A-S06-02 FINDING BLOOD PRODUCTS VIA RFID AND COMPLEMENTARY TECHNOLOGIES
L. Briggs
Versiti/BloodCenter of Wisconsin, Milwaukee, United States

09:45 - 10:00 3A-S06-03 PRACTICAL CONSIDERATIONS IN IMPLEMENTING RFID FOR THE BLOOD SUPPLY
S. Lam
Health Sciences Authority, Singapore

10:00 - 10:30 **Coffee Break**

P-016

CHECK COMPLIANCE OF RFID TAGS WITH RESPECT TO THE REQUIREMENT OF PHASE JITTER MODULATIONS (PJM) RFID TAGS RECOMMENDED IN THE GUIDELINES OF VOX SANGUINIS APRIL 2010 VOLUME 98 SUPPLEMENTAL 2

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Background: A blood bank performed a non-PJM RFID evaluation in 2011 to evaluate an RFID tag and equipment program. The RFID tags failed to be read quickly and were unable to be tracked in bulk accurately. The tags failed to read after the centrifugation process and the encoded blood information was corrupted post radiation. The encoded information did not match the encoded information prior to radiation. Due to these failures, the test was discontinued.

Aims: A different form of RFID tag, PJM RFID Tags, were attached to blood products and subjected to various processes and read at a specified distance from the reader, including the speed of bulk reading at the capacity of the PJM RFID Tags whilst checking the accuracy and integrity of the data stored in these tags

Methods: A total of 192 blood bags (450-ml and 350-ml) were filled with tap water and affixed with a PJM RFID Tag on the uppermost position of the base labels for each of the blood bags to represent: 48 units of the following were tested: Red Blood Cells (RBC), Platelets (PLT), Fresh Frozen Plasma (FFP) and Buffy Coat (BC). Data was encoded onto each PJM RFID Tag using the ISBT 128 data structures. Blood components with PJM RFID Tags were subjected to the following standard treatment conditions with the specified duration: centrifugation, irradiation, refrigeration

Results: All PJM RFID Tags were successfully read (at the temperatures if specified) after each of the following tests: 192 blood bags were subjected to 5000G centrifugation for 30 min, 48 PLT bags and 48 FFP bags were subjected to a second round of centrifugation of 2560G for 30 min, 48 BC bags were subjected to a normal radiation exposure of 25 Gy and subsequently refrigerated at 4°C for 1 day, 48 RBC bags were subjected to a double radiation exposure of 50 Gy and subsequently refrigerated at 4°C for 5 days, 48 PLT bags were subjected to a double dose of radiation (50 Gy). Read distances of 96 irradiated PJM RFID Tags were measured with a PJM RFID Desktop Reader were within the specified range. 48 FFP bags were rapid frozen to −30°C, then frozen to −55°C for 24 h, followed by −80°C for 4 days, 4 weeks and 12 weeks.

Summary / Conclusions: The PJM RFID solution meets the requirements and objectives outlined in the Vox Sanguinis RFID guidelines. It provides high-speed bulk reading unaffected by centrifugation, irradiation or refrigeration based on these test results showing that all PJM RFID Tags could be read throughout the test.

3A-S06-03

PRACTICAL CONSIDERATIONS IN IMPLEMENTING RFID FOR THE BLOOD SUPPLY

S Lam

Blood Services Group, Health Sciences Authority, Singapore, Singapore

Background: The technology development and cost reduction of RFID over the years have make it possible to harness its use more cost-effectively on the fragile blood products for managing the fluid inventory movement and to secure blood and patient safety. The possible application and potential benefits to the blood supply chain has been widely studied in the blood transfusion industry but adaptation of use nationwide has been slow. Singapore intend to implement use of RFID for real-time management of the national blood inventory and to enhance blood transfusion safety.

Aims: To outline the potential application and objectives of RFID in Blood Supply Chain. To explain the use of gap analysis and value stream mapping tools for identification of areas of improvement that RFID can address. To highlight various practical point of concerns to address in the use of RFID for Blood Supply Chain based using Singapore's experience.

Methods: RFID for the national blood programme was one of the key IT initiative towards smart healthcare in Singapore, harnessing technology to increase blood and patient safety, effective management of national blood supply and increase staff productivity. In order to ensure effective use of RFID to complement the existing blood bank computer system and hospitals' laboratory and patient medical record information systems, a gap analysis and value stream mapping study was conducted to identify areas of improvements from existing processes and workflows. A business proposal with funding requirements was put up to various stalk-holders for acceptance.

Results: Many practical considerations were raised during this process that delays the project actualisation. This includes the impact on current processes and equipment, the extend of use of RFID; the funding needed and cost allocation; the type of RFID hardware to be use; the type of network infrastructure; the scope of RFID tagging; the data to be capture; mode of data exchange between RFID and existing systems; RFID system security and integrity and scope of application software. The most critical concern is to ensure buy-in from various stalk-holders which includes leadership and operational personnel from both the blood service and the hospitals.

Summary/Conclusions: From our experience, a good change management plan of the RFID project communicated in the early stage of planning and continual updates of progress will be instrumental in the smooth implementation to achieve the full benefits of RFID in blood supply chain.