TRACKING THE INTRA-HOSPITAL TRANSPORT: IMPLEMENTATION OF AN INNOVATIVE SYSTEM FOR THE PICKING OF SAMPLES FOR THE LABORATORY

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Introduction

In healthcare systems, value is centered on patient care for which total safety and the best quality and financial management are required. In the clinical laboratory, and considering all daily time consuming activities, the arrival of large batches of untraceable samples and the occupation of professionals with non-adding value tasks (e.g. barcode reading or patient data registration prior to the analytical phase) are faithful illustrations of activities that compromise laboratory performance. In this regard we present the implementation of an innovative project that allows early management of laboratory requests from the entire hospital with the advantages of extending the traceability of samples, anticipate the registration of data and rationalizing the use of pneumatic transport lines.

Methods and Materials

A Mini-Indexor® System (MIS, Maksense) connected to the hospital's wireless network was incorporated in the mobile transport units that collect samples from the inpatient locations (IL) (Figure 1). Simultaneously, MIS readers were placed in all pneumatic picking areas (PPA), including in the emergency room (ER). All sample barcodes were read (IL+PPA+ER) prior to transport to the laboratory and information sent to the laboratory information system (LIS) allowing the sample to be checked-in automatically and avoiding any additional step at the reception besides sample sorting (Figure 2). An evaluation was performed after one month of implementation and the processing time of a batch of EDTA samples from the Internal Medicine inpatient was compared to the time before MIS implementation.

Figure 1. Mini Indexor System. Connected to the Hospital wireless network, all sample barcodes were read prior to transport to the Laboratory.

Results

After one month, 37,743 samples were recorded by all MIS, 11,285 in mobile transport units and 26,458 in PPA and ER, without manual integration of petitions (Figure 3, top). Considering the EDTA samples, the first sample in batch have completed analysis within 27 minutes after reception in the laboratory. Before MIS, the time was highly variable, ranging from 31 to 52 minutes (Figure 3, bottom).

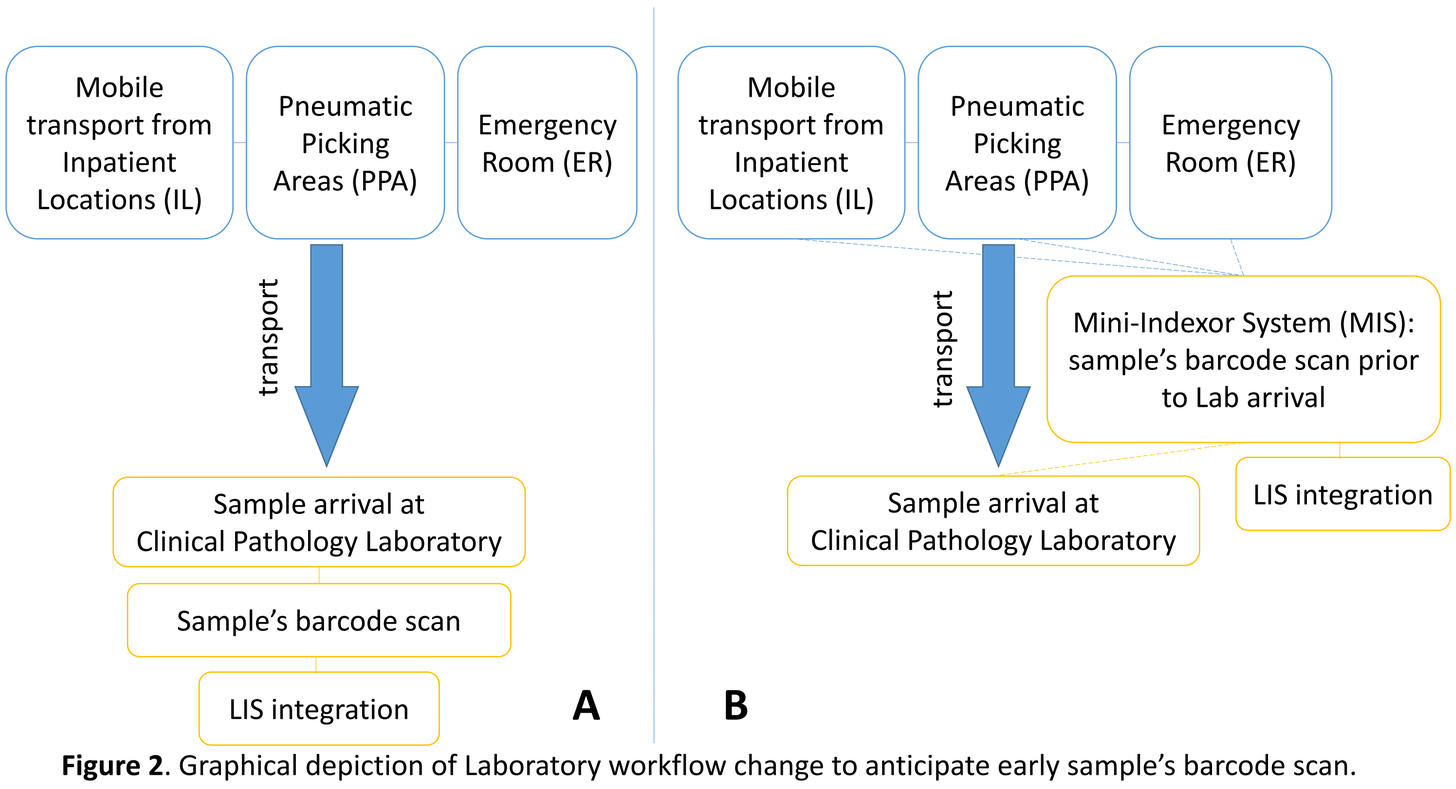

Figure 2. Graphical depiction of Laboratory workflow change to anticipate early sample's barcode scan. Before MIS (A), samples were only scanned upon Lab arrival, leading to time consuming human intervention delayed sample processing. MIS introduction (B) allowed for sample scan before arrival, saving in-Lab time in sample processing while reducing human intervention and increasing sample tracking.

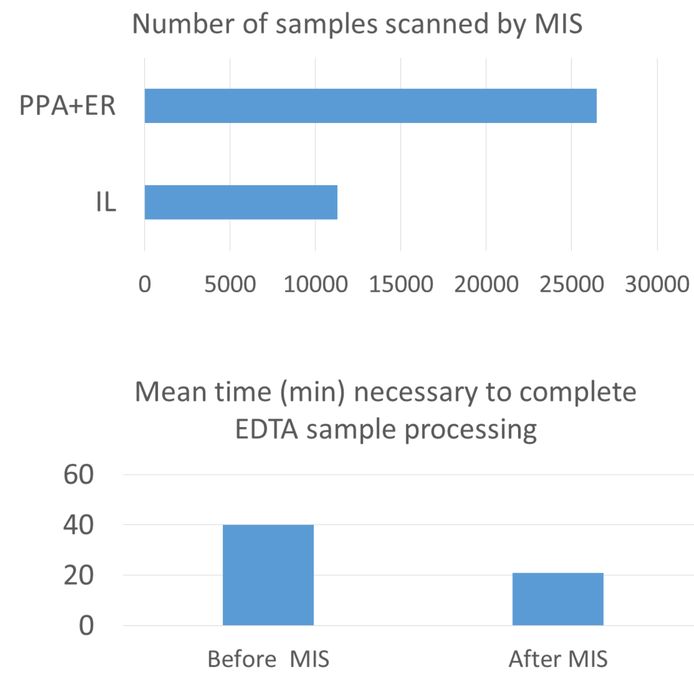

Figure 3. Implementation analysis. Top: after one month, a total of 37743 samples were scanned by MIS in all established points. Bottom: reduced human intervention in sample registration translated into a reduced turn-around-time. MIS, Mini Indexor System.

Conclusions

The implementation of MIS in the intra-hospital mobile transport units of samples and in all PPA proved to simplify the intra-laboratory pre-analytical process, reduce and standardize the turnaround time and enable improvement in future interventions based on documented evidence.

References: Robert Hawkins. Managing the Pre- and Post-analytical Phases of the Total Testing Process. Ann Lab Med 2012; 32: 5-16