

Reducing Medical Error by Improving Preanalytical Processes for Laboratory Testing

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Description of the problem to be addressed, including its importance to the state of Alabama and how it is generalizable to other states, the U.S. and the world:

Laboratory testing is critical to patient care. It is estimated that 70% of medical decisions are based on laboratory tests, affecting patients across all health care facilities nationally and worldwide. UAB Hospital Laboratories performs millions of tests annually based on orders from physicians. Preanalytic processes are an integral part of the Laboratory Path of Workflow (Figure 1). It is well documented that this phase of the testing process predominates in laboratory errors ranging from 31.6% - 75%.

Within UAB Medicine, laboratory specimens are collected at multiple sites within multiple facilities; The Kirklin Clinic, Whitaker Clinic, numerous outreach clinics, In-patient areas and Operating Rooms. Locally, this includes Highlands and Main Hospital but is extending throughout the state as UAB Medicine affiliates with additional facilities. Routinely, electronic orders are placed in the Cerner system and tracking is a part of the *in-lab* process, however, there is no electronic tracking of actual specimen location as transports occur from multiple physical locations.

Delayed specimen transport at best, results in delayed results to guide patient care. In some cases, the delay compromises the integrity of the specimen. Additionally, many specimens are not replaceable at all if lost or compromised (i.e. Anatomic Pathology biopsies/tissue) and some may require repeat procedures to recollect. Electronic tracking of the location, transfer and transport of specimens would add safety and efficiency to the process.

Industries (i.e. Fed Ex, Amazon) have long adopted asset-tracking technology; however, healthcare in general and laboratories in particular, with a primary focus on the analytic phase of testing, have not systematically addressed accuracy of the preanalytic phase, which owns the majority of the errors.

A mechanism developed in UAB Medicine would have broad application across healthcare institutions nationwide. In a small sample on the UHC/Vizient List serve, there were no preanalytic systematic, electronic tracking mechanisms reported for laboratory specimens outside of the laboratory.

Desired outcomes and the conceptualization of the plan of work to achieve them:

Within UAB Medicine, outside of the laboratory, specimen transport and tracking is largely managed by an array of paper log sheets requiring handwritten information. This is fraught with illegibility, incorrect patient identification, inaccurate time/date notations and general lack of compliance. A HIPAA compliant system (Bar code scanner, hand held device or APP) would safely connect the process from location to location as the specimen is transported. The existing widespread use of bar codes could be leveraged to expedite the process. The information would be housed and monitored from a central system. This system will provide tracking, an audit trail and potentially information for gaining efficiencies in the laboratory testing process through workflow analysis. A similar model of tracking using bar codes within lab is functioning in UAB Surgical Pathology (Roche Ventana Vantage).

Using existing infrastructure and technology (bar codes), the addition of centralized tracking software and standardized scanning stations, critical data elements to ensure seamless specimen tracking could be provided: Who, What, When, Where.

Who? UAB ID badge scanned by staff as specimens are placed in a transport container. This drives **accountability of personnel**.

What? Each specimen label is scanned to identify patient (2 identifiers) and specimen type. This drives accuracy in **patient and specimen identification**.

Where? Each site at which specimens “rest” awaiting transport is assigned a bar code designation. This location is scanned when a specimen is deposited in the transport container as well as when it is removed from the transport container. This drives electronic **specimen location** tracking.

When? A time/date stamp is applied at each event. This drives electronic **specimen time** tracking.

http://www.uab.edu/reporter/administrative-announcements/take-note/item/8180?utm_source=ereporter&utm_medium=email&utm_campaign=20180427

List of potential team members (individuals and organizations) from inside and outside UAB

- Isam Eltoun, MD, MBA, Vice chair for Quality and Patient Safety
- Sherry Polhill, MT, MBA Associate Vice President, Hospital Labs
- Janie Roberson, SCT (ASCP) Sr. Director, Laboratory Quality
- Representatives from HSIS
- Representatives from Patient Safety
- Representatives from Industry
- Representatives from UAB Engineering and Computer Science

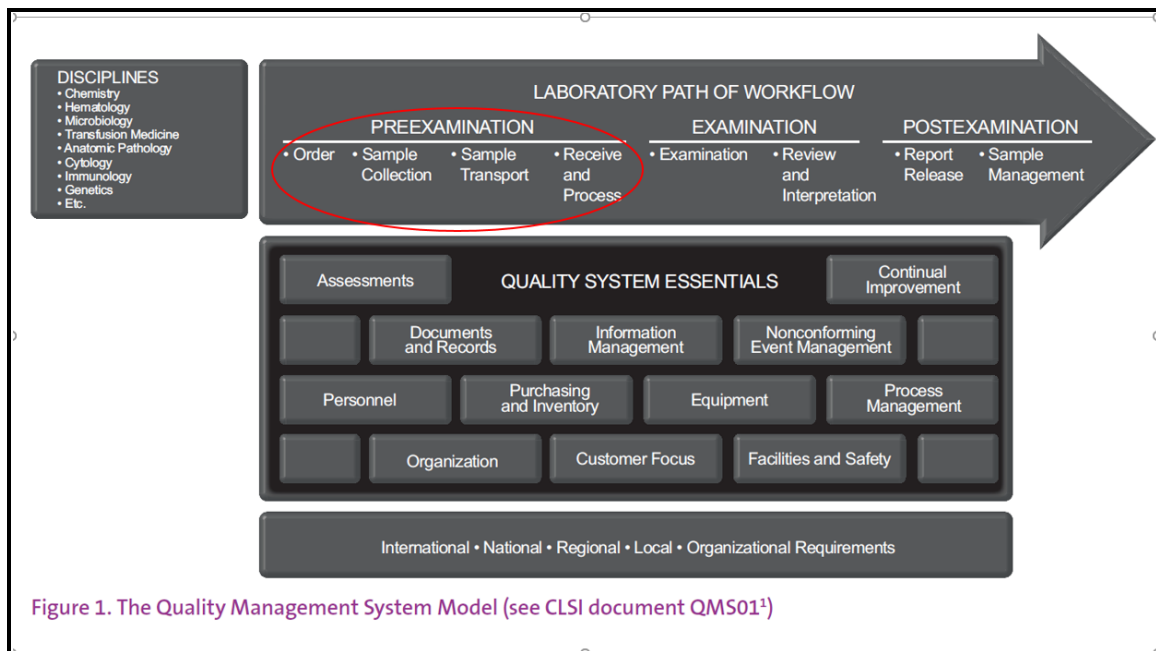


Figure 1

References:

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<http://www.ventana.com/product/page/view/vantage> accessed 4.2018.