AUTOMATION AT WORK: IMPROVING OUTCOMES THROUGH AUTOMATION EFFICIENCIES

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INTRODUCTION

William Osler Health System (Osler) is one of Canada’s largest community hospital corporations serving the growing and diverse communities of Brampton, Mississauga and surrounding areas in the Greater Toronto Area (GTA). Osler’s hospitals include Brampton Civic (BCH), Etobicoke General (EG), and the soon to be rebranded Peel Memorial. BCH operates 773 inpatient beds and employs a workforce more than 8,100 healthcare professionals and is poised for significant growth (Nearly 11,000 to transform health care delivery through design and technology, with 2,620 million dollars of Central West Ontario. As a regional referral centre, Osler provides programs and services to over nine million residents in the Central West Local Health Integration Network (LHIN) and in metropolitan areas. In 2007 and 2008, Environics International, a global research and analytics firm, ranked Osler as Canada’s Most Admired Large Company, in 14th place overall.

The Laboratory processes more than 50,000 specimens per month and was seeking a way to increase overall efficiency, improve productivity, and decrease labor costs. The laboratory was looking for a way to reduce workload and increase outputs as this workload steadily grows and renewal as it transforms health care for more than 1.3 million residents of Central West Ontario. As a regional referral centre, Osler provides programs and services to over nine million residents in the Central West Local Health Integration Network (LHIN) and in metropolitan areas. In 2007 and 2008, Environics International, a global research and analytics firm, ranked Osler as Canada’s Most Admired Large Company, in 14th place overall.

In October 2007 the new state-of-the-art Osler Civic Hospital opened its doors. The laboratory at Brampton Civic Hospital processes approximately 1.7 million Chemistry and 1.2 million Hematology tests per year. Workload has increased 38% since the move to BCH and it was essential that the laboratory utilize less labor and increase outputs as this workload steadily grows. Implementing automation has significantly improved workload output, TAT, and recruitment and lab efficiency by redistribution of staff, enhancement in patient safety by reducing errors, and quality of service. A similar model will be employed when As a regional referral centre, Osler provides programs and services to over nine million residents in the Central West Local Health Integration Network (LHIN) and in metropolitan areas. In 2007 and 2008, Environics International, a global research and analytics firm, ranked Osler as Canada’s Most Admired Large Company, in 14th place overall.

METHODS AND MATERIALS - PLANNING AND IMPLEMENTATION

IMPLEMENTATION

Streamline Processes

Elimination of Non Value Added Time

The goal for lab automation is to minimize non-value added processes which can delay results:

* Pre-Analytical
  * Sorting tubes to work areas
  * Sample level/quality checking
  * Placing/removing from centrifugation
  * Pre-analytical manual analyzer loading
  * Recapping
  * aliquoting
  * Missing samples between analyzers

* Post Analytical
  * Manual verification
  * Rack unloading/reloading
  * Sample testing
  * Results release for reflex/add on testing
  * Specimen storage sorting

Avoiding errors decreases the workload for lab staff. A simple solution to minimizing errors is reducing the number of personnel to do the job.

METHODS AND MATERIALS - MANAGEMENT, MONITORING & BREFORTING

Objectives

* Increased efficiency through improved workflow and decision making steps which offers full access to any connected analyzer from a single workstation in real time
* Integration of device events such as operator errors, closing cap/decapping/ manual analyzer loading

Reduction in erroneous results caused by cross-contamination and evaporation

* Barcode reader technology streamlines specimen processing and minimizes errors due to barcodes and specimen tracking

Use of indices (hemolyzation, icterus, internal) on the DataLink 2000 allows for efficient auto verification of normals and provides technologists more time to review abnormal/critical results

Conclusions

* Focus on elimination of potential future points in processes subject to errors improved the automated workflow and improved staff productivity
* Improved efficiency and increased staff skills, increasing productivity and providing technologists more time to focus on value added activities

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CONCLUSIONS

Automating pre-analytical sample processing and subsequent delivery of specimens to the analytical portion of the analyser has simplified workflows, shortened the time reporting of test results, increased productivity, reduced labor costs, significantly reduced time spent performing non-value added tasks and increased time for value added work. Speed and efficiency are critical elements for every laboratory. When Brampton Civic Hospital implemented home end automation, the laboratory quickly witnessed significantly improved turnaround time of laboratory results, improved productivity and the ability to accommodate a growing workflow without increasing staffing. The CEO of our organization, when reviewing the annual laboratory quality report commented “I particularly appreciated the way you highlighted the implicit interplay between workflow management and improving quality. These kinds of diagnostic tools are a great model for understanding performance. A similar model will be employed when we approach the hospital’s quality program. I will be sure to share this information with our Board Chair when we meet this month”.