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Lab automisation opens new revenue doors

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How can lab automisation improve analysis services and open doors for new business opportunities?

Laboratory testing occurs daily on inpatients and outpatients in both hospital and physician office visit settings. Do you know what happens to the vial of blood that you offer during your inpatient stay or outpatient visit? UAB Medicine recently implemented an automation line that analyses anywhere from 4000 to 5000 vials of blood daily within the main core laboratory environment. The automation line includes pre-analytical elements of equipment, a track that transports specimens to the designated analysers, and fastens storage components used for storing specimens. Additional elements include command central stations, inlets, outlets, and areas used for performing limited manual technical work, like differentials.

Automation provides robotic functions as soon as the specimens arrive from the outpatient and inpatient environments. Lab techs work diligently to manage the volume of specimens received. The bar coded specimens are placed immediately on the preanalytical inlet where the bar coded specimen is read, sorted, routed to w here it is analysed, and, finally, stored. Tests not performed online go the outlet for pickup, including reference tests, immunology, and flow cytometry specimens. The automation system performs the majority of the work. Automation provides more of a hands-free operation once lab tests arrive in the laboratory.

The automation line supports the vision of quality. The specimen tubes are resulted in a steady state fashion, improving the consistency of turnaround time testing, with minimal interruptions.

High Reliability Organisations (HRO), or an organisation that manages to avoid catastrophes in an accident-risk environment, is the vision for healthcare in the future. Laboratories that implement HRO strategies implement methods that maximise teams focusing on minimising risk, while increasing quality and standardisation of processes. Implementing the new automation system at UAB Medicine supports HRO concepts. The $7 mln plus lab debuted in 2016 and has been busily working since.

Expecting that automation would reduce labour has allowed the exploration of new industry opportunities. Being able to repurpose talented employees towards developing new businesses was an effective win-win. The already trained lab techs and technologists provided excellent clinical assets as they transitioned smoothly to the new clinical areas created.

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One of the new businesses created included the Lab Medicine Customer Service area. The Customer Service area now manages all incoming calls that used to go to the automation area and surrounding Lab Medicine locations due to its success. The Customer Service personnel focus only on the customer's needs, managing the requirements effectively and without having to transfer calls multiple times. The new process frees up the limited technologists that remain in the automation area while providing a quality experience to the customer on the other end of the call. This means zero distractions with 100% quality experience delivered by talented personnel and impressive customer reviews received due to the implementation of this service.

Another industry receiving additional labour was the Diagnostic Molecular Lab department. The Diagnostic Molecular Lab is the fastest growing industry in laboratory science. Being able to add already trained labour to this environment was beneficial.

A third opportunity receiving labour was to develop a new lab, the Drug Confirmation testing laboratory. The vision includes insourcing the testing, optimising expenses and healthcare revenue, and adding value for our multiple customers and services within the healthcare system.

At the end of the automation line, small, grasping mechanical arms pick up the tubes and place them into refrigerators that can hold 10,000 tubes or into room-temperature storage for 5,000 tubes, in case further testing is needed. When clinicians order additional test(s), instead of collecting another tube of blood, automation mechanisms sequester the original tube from the storage area and rerun the specimen through the designated analyser. Automation programming manages the needs of the specimens.

The specimens are de-capped, centrifuged, re-aliquoted, analysed, and then re-capped through automation methods. All procedural steps function through the means of robotic programming. Well-trained technologists monitor, govern, and maintain the automation process, keeping the human element in the formula for excellence. The technologists troubleshoot problems, monitor the turn-around times, and verify critical test values for immediate reporting to clinician providers.

The UAB Medicine’s automation line, 32 different laboratory sites, including nine offsite satellite labs, four hospital locations, with approximately 400 laboratory employees and the Department of Pathology keep the whole process of blood analyses running smoothly. Innovation keeps us progressive and we enjoy managing the needs of patients, customers and providers to the best of our abilities.

Key Points

- Lab automation supports a vision for quality
- High Reliability Organisations (HRO) is the vision for health care in the future
- Automation has reduced labour and allowed for exploration of new industry opportunities
- Procedural steps function through the means of robotic programming
- Several new business opportunities were enabled owing to automation including a Lab Medicine Customer Service area, Diagnostic Molecular Lab Department and a Drug Confirmation Testing Laboratory

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