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Order No. A91DX-0700499-C2-4A00
Printed in USA

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Increased Operator Productivity by Eliminating Non-Value-Added Operator Tasks

The Siemens Medical Solutions Diagnostics Immunoassay (IA) Workcell provides clinical laboratories with the ability to process samples and report results more quickly than when using stand-alone immunoassay analyzers. It reduces operator time spent on non-value-added tasks such as sample sorting, thereby permitting faster sample loading and improved result turnaround time (TAT). In addition, the IA Workcell provides a single location for sample and result management that streamlines the workflow of the operator.

The present case study demonstrates how one laboratory reduced result TAT while increasing the productivity and efficiency of its operation. This was demonstrated by a 15 percent reduction in total work time (i.e., total time required for results of all tests) as well as a 37 percent reduction in total operator time required to interact with the instrument. These improvements allowed the laboratory to utilize its staff more efficiently and release results more quickly.

Challenges

This laboratory was faced with the following challenges that are prevalent among typical growing reference laboratories.

- Reduce time spent on sorting samples and other non-value-added tasks
- Improve result TAT with the goal of acquiring new customers

Laboratory Profile

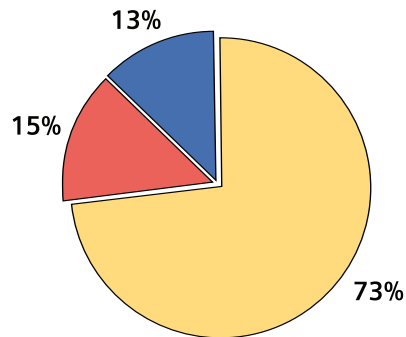
| | |
|------------------------|--|
| Laboratory Size | Large US reference laboratory (1200 IA tests/day, 600 IA samples/day) |
| Instrumentation | 2 IMMULITE® 2000s |
| Staffing | 2 Medical technicians dedicated to the IMMULITE 2000s |
| Shifts | 24-Hour operation; highest volume during 2nd/3rd shifts |
| Quality Control | 3 Levels of QC/assay/instrument twice a day |
| Reagent Loading | Some reagent replication across instruments |
| Sample Loading | Samples manually sorted at the bench to determine which instrument to load |
| Result Review | All results manually reviewed before releasing to LIS |

Immunoassay Workcell Case Study 2

Laboratory Modifications to Streamline Workflow

Incorporating the IA Workcell eliminated the need to sort samples across instruments, decreasing both operator time and laboratory total work time. In addition, using a single computer screen to review sample and result status eliminated redundant, non-value-added operator tasks.

Figure 1. Testing Mix



- Thyroid: ATA, ATG, FT3, FT4, RTH, T3, TSH, T4, TU
- Tumor Marker: CEA, OV, PSA
- Fertility: E2, FSH, HCG, LH, PRG, PRL



Sample Sorting

By using the SMS to connect two IMMULITE 2000 systems, the laboratory was able to provide a single sample-entry point for both instruments. Since the operator never needed to decide which instrument should process each sample, there was no need to sort samples before loading on the instruments. By eliminating this non-value-added step, the laboratory achieved a 37 percent time savings when the operator worked with the instrument and samples (Figure 2). This translated into increased usable walk-away time for the operator to tend to other tasks. In addition, since samples were loaded more quickly, the lab also demonstrated a 15 percent decrease in the time it took to result all tests (Figure 3), translating into quicker turnaround time to its customers. Overall, operator efficiency increased by 30 percent, as measured by the number of samples processed per hour (Figure 4).

Conclusions

By incorporating the IA Workcell, this laboratory eliminated non-value-added tasks, allowing samples to process more quickly. This was possible by streamlining sample and result management through a single access point, thus eliminating the need to sort samples across instruments and reducing the amount of time the operator spent at the instrument. This improved operator efficiency and created a more productive environment in which the operator could tend to more skilled tasks rather than spending time sorting samples and monitoring instrument status. In addition, it allowed the laboratory to report results more quickly, thereby meeting current customers' needs and providing an attractive testing solution for potential customers.

Figure 2. Total Operator Time

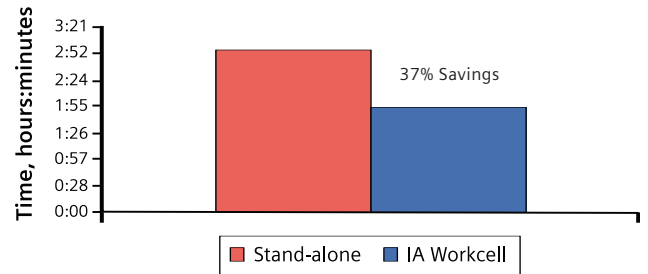


Figure 3. Total Work Time

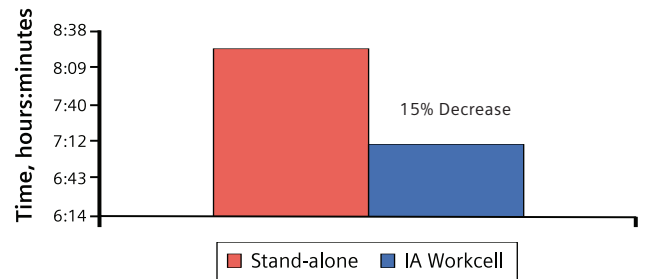


Figure 4. Operator Efficiency

