Case Study:

Improving Efficiency and Patient Care with Hemostasis Specialized Lab Automation



University Medical Center

Lubbock, Texas, US

This case study highlights the impact of **HemoCell™ Specialized Lab Automation** in the clinical laboratory at University Medical Center (UMC) in Lubbock, Texas. By reducing the number of manual steps required to automate Hemostasis testing, the lab realized a significant reduction in staff time, enhancing efficiency and allowing staff to focus on other tasks. In addition, HemoCell enabled the lab to expand its hospital test menu, decreasing turnaround time and positively impacting patient management.

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HemoCELL
SPECIALIZED
LAB AUTOMATION

Addressing an increase in lab testing demand

University Medical Center, a 500-bed facility in Lubbock, is the only Level 1 trauma center in Northwest Texas. The UMC laboratory performs approximately 4,000 tests daily.

The challenge: increased testing capabilities needed to support increased demand

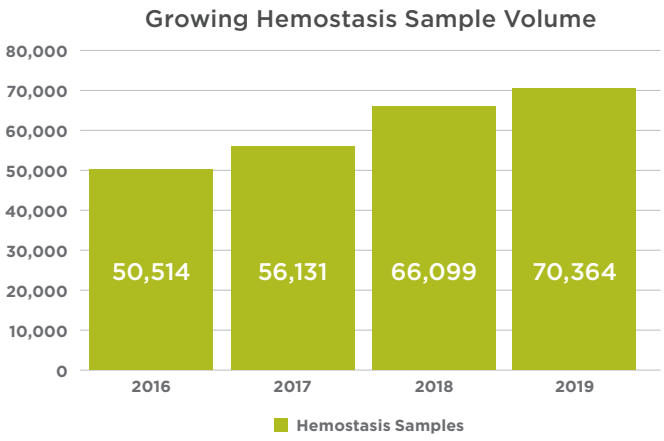
In 2017, UMC increased its number of licensed beds to 500 and made plans to add a new floor to its cancer center. To address current and future increases in lab testing demand, the lab was renovated, including implementation of a Total Laboratory Automation (TLA) system to improve productivity.

While this helped UMC increase its testing capability, it was not enough to meet the goals of their Hemostasis testing, prompting the team to consider the HemoCell Specialized Lab Automation workcell.

UMC Hemostasis testing goals

- Consistently deliver 30-minute turnaround time (TAT) for stat testing
- Minimize variation in time to result through reduction of standard deviation (SD)
- Improve autovalidation rates
- Reduce number of calls for results





The solution: HemoCell Specialized Lab Automation

Previously, the UMC Laboratory used a combination of automation and manual steps for Hemostasis testing. Samples were received in processing, then loaded onto the TLA system. Technologists retrieved samples from the outlet to spin in stand-alone centrifuges and then transferred into ACL TOP racks.

Through the implementation of HemoCell Specialized Lab Automation, pre-analytical sample preparation steps were eliminated—streamlining the process, reducing potential delays and freeing up technologists to focus on value-added activities.

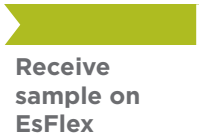
Before HemoCell

Seven-step process for Hemostasis testing



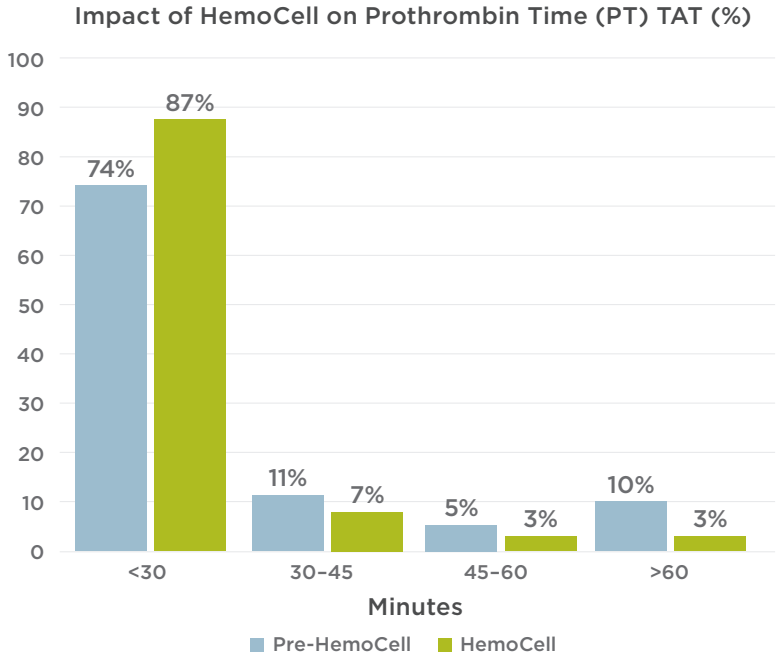
After HemoCell

One-step process for Hemostasis testing



> "By automating pre-analytical steps with HemoCell, the lab staff spends less hands-on time with samples, and has more time for other tasks."
>
> — Jayton Zachary, MT(ASCP)
> Laboratory Hematology Section Manager

The results: key performance indicators (KPI)*



↓ 44% "90th percentile sample completion" time
Before: 62 minutes → After: 35 minutes

↓ 52% TAT SD
Before: 29 minutes → After: 14 minutes

↓ 13% mean TAT
Before: 31 minutes → After: 27 minutes

↑ 7% routine autovalidation
Before: 92% → After: >99%

* Only PT sample analysis was considered. Pre-HemoCell samples = 1,977; samples with HemoCell = 2,166. Due to the descriptive nature of this study, it is not advisable to generalize the results. This study is based on a case with specific conditions; therefore, the results obtained cannot be extrapolated.

Economic impact

Prior to the implementation of HemoCell Specialized Lab Automation, technologists spent a total of 1,711 hours per year on pre-analytical sample preparation. With HemoCell, all of this time was recuperated and re-allocated to other activities in the lab.

This gave the staff time to research and implement new technologies and bring additional specialty testing in-house (*e.g.*, heparin-induced thrombocytopenia, protein C and S testing), representing a cost reduction of 67%.

Enhanced patient care and employee satisfaction

With an expanded hospital test menu, UMC has significantly decreased turnaround time, leading to potential reduction in time to diagnosis and treatment.

In addition, the lab's more efficient workflow has led to an all-time high record employee engagement, in the 99th percentile.

1,711 hours saved

67% cost reduction

Conclusion: quality and efficiency in Hemostasis testing through HemoCell Specialized Lab Automation

Implementing HemoCell Specialized Lab Automation has enabled the UMC Lab to address the increased demand in testing volume. In addition, the lab achieved its goals of improved KPIs. Plus, because significant time has been saved, the lab staff can focus on value-added activities to ensure and enhance quality care and efficiency, as well as staff satisfaction.

> **"By automating steps with HemoCell, we have seen a more consistent turnaround time with all routine and stat Hemostasis samples, and we are meeting our 30-minute TAT goals for our stat Hemostasis testing."**
>
> —Jayton Zachary, MT(ASCP), Laboratory Hematology Section Manager

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For more information, contact us at eemeai@werfen.com

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