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BEDSIDE POINT-OF-CARE TESTING:

Helping Advance Patient Care at a Busy New York CVICU*

Cardiovascular intensive care units (CVICUs) face a number of challenges that distinguish them from other segments of a busy hospital system. Predominantly, the unit cares for critically ill patients—which makes operational efficiency imperative. The traditional blood analysis process can be complex and inefficient, and it can delay clinical decision-making when time is crucial. The implications of such delays can be significant, affecting mechanical ventilation times, blood transfusions, and length of stay (LOS). Costs can escalate quickly, and care within this unit often comprises a large portion of an institution's overall budget. Bedside point-of-care (POC) testing plays an important role in the critical care setting, as it can help address these CVICU operational, clinical, and financial challenges.

CASE BACKGROUND

This acute-care teaching hospital has served its community for 125 years. The CVICU resides within the hospital, one of the busiest medical centers in Brooklyn.

350	8	1:1
visits/year	CVICU beds	Nurse-to-patient ratio

THE CVICU'S TOP PRIORITY WAS TO FULLY INTEGRATE THE CRITICAL CARE TEAM AT THE PATIENT'S BEDSIDE.

This would empower real-time collaboration of clinicians, nurses, respiratory therapists (RTs), and other key team members in caring for the critically ill. This CVICU, which functions as a closed unit to optimize efficiency, brought in bedside POC testing with the *i-STAT*® System to help advance patient care.

The results shown here are specific to one health care facility and may differ from those achieved by other institutions. The information presented here is based on an actual facility, but the institution has requested anonymity in this promotional material.

Data represents values at the time of the study and is on file with Abbott Point of Care.

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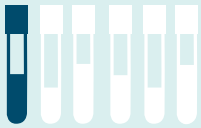
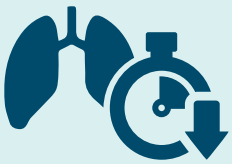
ADDITIONAL GOALS FOR IMPROVEMENT IN THE CVICU

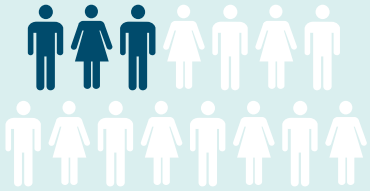
1 DECREASE BLOOD-PRODUCT UTILIZATION



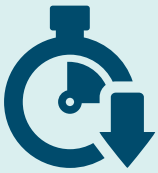
2 REDUCE MECHANICAL VENTILATION TIMES



3 REDUCE MORBIDITY & MORTALITY



4 REDUCE LENGTH OF STAY (LOS)



5 DECREASE DEEP STERNAL WOUND INFECTIONS

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CVICU SEAMLESSLY INTEGRATES THE i-STAT SYSTEM INTO THE PATIENT-CARE PROCESS

The *i-STAT System* was incorporated into a number of CVICU protocols, including those directly associated with the unit's primary goals.

Implementation of i-STAT included:

- ☑ Vent-weaning process (ABG* analysis)
- ☑ Postoperative hemorrhage etiology analysis
- ☑ Blood product utilization requirements
- ☑ Ionized calcium determinations

Streamlining the vent-weaning process

To support the CVICU's goal of reducing vent times, *i-STAT* was implemented into the weaning process:

- ABG analysis hourly for 18 hours post-op
- Bedside POC testing would eliminate steps from the traditional process and accelerate the availability of test results
- With the cyclical nature of vent weaning, the cumulative time savings promised to be significant

Bedside point-of-care testing plays an important role in the critical care setting, as it can help address these CVICU operational, clinical, and financial challenges.

GREATER EFFICIENCY IN VENT WEANING WITH BEDSIDE POC TESTING

Traditional process using the lab

ABG REQUESTED → ORDER ABG → LABEL PRINTS → DRAW → TRANSPORT → ANALYSIS → RESULT

Bedside POC process using i-STAT System

ABG REQUESTED → DRAW → ANALYSIS AT BEDSIDE → RESULT

Bedside POC testing streamlined the mechanical vent-weaning process—empowering the department to

REDUCE MEAN TIME ON VENT TO 2 HRS, 40 MIN

FOSTERING TEAM INTEGRATION AT THE BEDSIDE

Due to the critically ill nature of CVICU patients, the unit's number-one goal was to integrate the full patient care team at the bedside. The *i-STAT System* furthered that goal by providing real-time, lab-quality results and enabling the critical care team to act immediately.

CVICU STAFF FEELS EMPOWERED TO DO MORE

- The Nurse Director, who had previously worked in a facility without POC testing, recognized the benefits immediately
- The RT who championed the system believes it has been pivotal in involving him more in the patient care process and allowing him to remain at the bedside. He also notes the system has proven beneficial to the Rapid Response Teams. Having information sooner may help them avoid more serious interventions (eg, mechanical ventilation) and their clinical and financial ramifications.
- The Intensivist acknowledges that *i-STAT* has helped the unit evolve with growing demands on performance. Continued improvements in the CVICU have kept the unit ahead of the curve.

MEASURABLE RESULTS: CVICU ADVANCES QUALITY OF CARE AT THE BEDSIDE

As part of its effort to improve the care of critically ill patients, the CVICU implemented bedside POC testing with the *i-STAT System*. The results achieved were both measurable and meaningful.

GOALS	RESULTS*
Decrease blood product utilization	Decreased blood product utilization by **36%** • Reinforced patient safety and reduced mortality
Shorten mechanical ventilation times	Decreased mean time to **2 hrs, 40 min** • Reduced resource utilization, time to initiate physical therapy, and costs of patient care
Reduce morbidity and mortality	Lowered mortality rate by **0.1%** • Reduced incidences of stroke, ventilator-associated pneumonia, and myocardial infarction.
Decrease incidence of DSWI	Decreased incidence of infections to **0%** (vs nat'l avg of **0.4%** to **5%**[1])
Reduce LOS	Reduced LOS by **44%** • Overall, decreased costs of patient care by **47%**

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WITH BEDSIDE POC TESTING, THE CVICU MET ITS DISTINCT GOALS

This CVICU improved utilization of RT resources, costs of medical services provided, and patient/family satisfaction.

Reference: 1. Sarr MG, Gott VL, Townsend TR. Mediastinal infection after cardiac surgery (collective review). Ann Thorac Surg. 1984;38:415-23.

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NY CVICU Snapshot - 350 Visits/Year Snapshot 2782.REV2.APOC.EN-US (v5.0)

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