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## BEDSIDE POINT-OF-CARE TESTING:

# HELPING ADVANCE PATIENT CARE AT A BUSY NEW YORK CVICU*

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 on file.

## CHALLENGES

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.

## BACKGROUND & GOALS

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.

- CVICU visits: 350 per year
- CVICU beds: 8
- Nurses: 1:1 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. In addition to full team integration, specific goals were to:

- Decrease blood product utilization
- Reduce morbidity and mortality
- Decrease deep sternal wound infections (DSWI)
- Shorten mechanical ventilation times
- Reduce length of stay (LOS)

# 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


"Integration of this system has been seamless. We don't have to think about it and can just focus on what we need to do with our patient."

– CVICU Intensivist

## 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

# 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

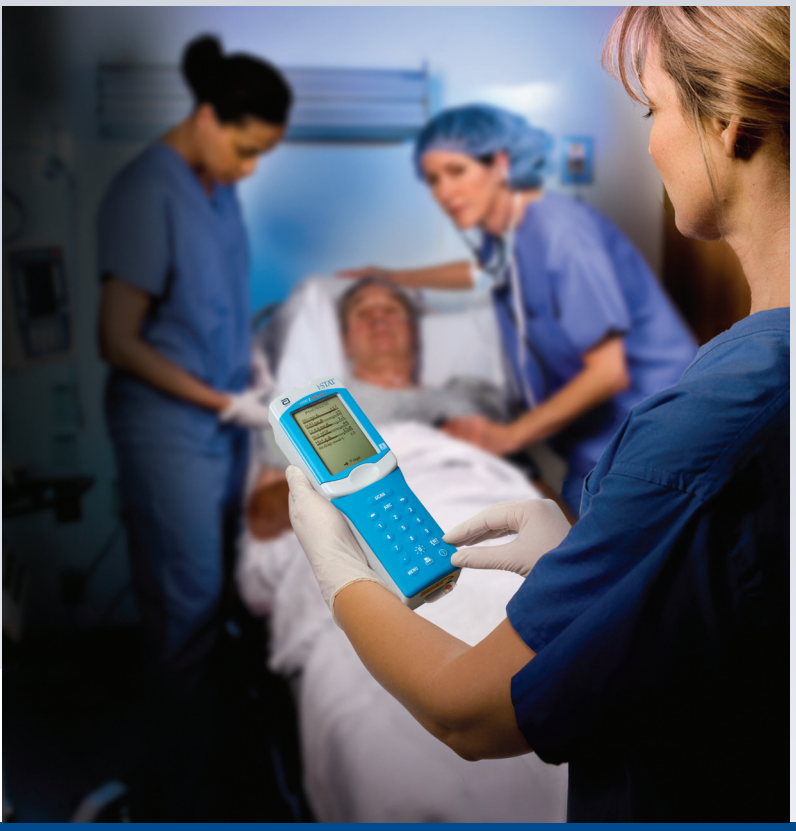
Bedside POC testing streamlined the mechanical vent-weaning process—empowering the department to

**REDUCE MEAN TIME ON VENT TO 2 HRS, 40 MIN**

Data on file with featured institution. The results shown here are specific to one health care facility and may differ from those achieved by other institutions.
*i-STAT 1 Wireless* in not available in all regions.

# THE i-STAT SYSTEM FOSTERS 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

"The i-STAT System has completely changed the culture. Everyone is on the same page at the same time—at the bedside. We're all working towards a collective goal."

*– CVICU Intensivist*

"The first few minutes after surgery are critical. The immediacy of test results makes a big difference in patient care."

*– CVICU Nurse Director*

"The responsibility and consequences of what we do are immense. With the *i-STAT System*, we can make timely, profound decisions."

*– Respiratory Therapist*

"At monthly Quality Improvement Committee meetings, objectivity is crucial, and I am confident presenting our data."

*– CVICU Intensivist*

# CVICU ADVANCES QUALITY OF CARE AT THE BEDSIDE

| GOALS | RESULTS* |
|---|---|
| DECREASE BLOOD PRODUCT UTILIZATION | Decreased blood product utilization by **36%**<br>• Reinforced patient safety and reduced mortality |
| SHORTEN MECHANICAL VENTILATION TIMES | Decreased mean time to **2 hrs, 40 min**<br>• Reduced resource utilization, time to initiate physical therapy, and costs of patient care |
| REDUCE MORBIDITY AND MORTALITY | Lowered mortality rate by **0.1%**<br>• Reduced incidences of stroke, ventilator-associated pneumonia, and myocardial infarction. |
| DECREASE INCIDENCE OF DSWI | Decreased incidence of infections to **0%**<br>(vs nat'l avg of **0.4% to 5%**[1]) |
| REDUCE LOS | Reduced LOS by **44%**<br>• Overall, decreased costs of patient care by **47%** |

*Timing of data assessment for results shown varied. | Data on file with featured institution.
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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.


## With bedside POC testing, the CVICU met its distinct goals and improved utilization of RT resources, costs of medical services provided, and patient/family satisfaction.

"Hourly bedside glucose tests helped reduce the incidence of DSWI to 0% at our institution. This is major for all open-heart surgery programs."

*– CVICU Intensivist*

To learn more about the *i-STAT System*, or to learn about our other technology, process and service innovations, contact your *i-STAT* Representative or visit www.pointofcare.abbott

For *in vitro* diagnostic use only | *i-STAT 1 Wireless* is not available in all regions.

Reference: 1. Sarr MG, Gott VL, Townsend TR. Mediastinal infection after cardiac surgery (collective review). Ann Thorac Surg. 1984;38:415-23.
For more information, visit: www.health.ny.gov/statistics/diseases/cardiovascular/heart_disease/docs/2008-2010_adult_cardiac_surgery.pdf or www.leapfroghospitalsurvey.org/web/wp-content/uploads/2012/03/Fact_Sheet_LeapfrogGroup.pdf



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