Capsule Helps Trident Hospital Implement Ventilator Data Integration that Follows the Patient

SmartLinx Enables a Comprehensive, Reliable Respiratory Record

CONTEXT

Critically ill ventilator patients generate a wide array of complex data points that provide an important picture of their current state and clinical history. The more comprehensive and easily accessible these records, the better the decision-making and care that follows.   Convinced of this, in March 2014, Trident Medical Center (Charleston, SC)--a Hospital Corporation of America (HCA) facility--implemented Capsule's SmartLinx medical device information system (MDIS) for direct ventilator data integration into a Meditech electronic medical record (EMR) solution. Additional goals included maximizing the value of skilled RT time and trending electronic information to help predict adverse events and address ventilator-related quality measures.

At that time, Trident relied on a legacy ventilator integration solution that was unreliable and not equipped to support the full range of data points that would drive better care. As a result, RTs were thrust almost daily into the role of device technician as they continually struggled to reset the system. Already a success in other departments, Capsule was the obvious choice for the replacement. Managing the project was Angela Holten, BA, RTR, manager of respiratory care for Trident, a skilled department manager and RT with almost 20 years of experience.

CHALLENGES

A key goal was supporting continuous data acquisition wherever the patient was situated. The fixed-location, legacy solution left the hospital with numerous information gaps when patients were not in their assigned ICU beds where the ventilators interfaces were located.

Holten explains that ventilator patients often are admitted through the emergency department (ED) and may be moved to care areas such as radiology for short time periods. For greater efficiency and safety--including prevention of ventilator-acquired pneumonia (VAP) --ventilators travel with patients rather than assigning transport devices or new ventilators in each care area. Without mobile integration, device data was lost or skilled therapists were distracted transcribing detailed measurements onto scraps of paper for manual EHR input. Inverting two digits could launch a series of unneeded tests or serious interventions. The result was that despite its advanced technology, the hospital's respiratory data integrity was still easily compromised.

With the new system, Holten wanted not only to capture a broad range of relevant ventilator parameters but to present them clearly and logically. Efficient workflow and data accuracy also were crucial. For example, she wanted MDIS display readings to match device data exactly to streamline validation. That meant customizing SmartLinx for appropriate rounding of the more precise figures actually output by the device. Naturally, overall system reliability was paramount.

Other goals included ensuring correct bedside patient/device association through barcode scanning, as an alternative to relying on an ADT feed. Also important was enabling a quick, detailed review of recent data to provide a historical perspective on the patient's current condition.

SOLUTION
"SmartLinx met all our needs and more. I was immediately impressed with its wireless capabilities," says Holten, recognizing that data acquisition could now follow the ventilator and patient throughout the hospital. "Moreover, the difference in performance and reliability between Capsule and our legacy system was enormous."
Today, SmartLinx Neuron clinical computers running Vitals Stream software connect 22 Maquet SERVO-i ventilators in a combination of mobile and fixed installations. Capsule's *secure association* feature enables direct association of patient and device through barcode scanning anywhere in the hospital. Once established, data immediately begins flowing. As an extra check, therapists also must approve the patient's identity on the MDIS screen. "All parameters have been carefully mapped to the Meditech record and present for easy validation. This is thanks to the dedication and patience of the Capsule team, who worked with us tirelessly to meet Trident's goals," comments Holten.

She also notes that SmartLinx's more complete and accurate EMR data translates to meaningful trending and analysis for a wide variety of both business and clinical use cases. Trident has leveraged this to report on VAP rates. With the more complete EMR record, therapists can go back in time to spot trends and identify developments leading to a patient event. Potentially, ventilator data can also help address other quality measures, track equipment utilization and optimize billing.

"Our therapists just love everything about the SmartLinx solution and prefer it to other systems they have used elsewhere. Physicians and administrators appreciate the more comprehensive data. MDIS is the wave of the future. It provides more accurate information and saves time. It's also the right thing to do for patients."