CareAware iBus

Industry Overview
The adoption of electronic medical record (EMR) systems throughout the health care industry is helping organizations improve the coordination and delivery of patient care. However, the lack of communication between medical devices and the EMR is often prevalent in clinical environments, resulting in workflow inefficiencies and data inaccuracies. Therefore, the integration of devices to the EMR is an important step for health care organizations seeking to improve clinical efficiencies and enhance patient care delivery.

Increasing Speed and Accuracy of Documentation
BayCare Health System is a community-based health care provider with 10 not-for-profit hospitals, as well as a number of outpatient facilities and other health service offerings that serve the Tampa Bay, Fla. area. The facilities within BayCare’s extensive network are well-respected and technologically-innovative, winning numerous annual awards, in addition to receiving Magnet™ designation for four of the hospitals.

BayCare needed a way to increase the speed and accuracy of patient data capture and documentation. Already pressed for time, BayCare nurses and other caregivers also felt the constraints of computerized data entry and double-transcription requirements. These inefficiencies were compounded when caregivers were required to manually record patient vital signs and ventilator data several times an hour in critical care areas.

To address these issues, BayCare implemented Cerner’s CareAware® device connectivity architecture within several units across its 10 hospitals. The architecture enables the flow of real-time data between medical devices and the EMR, improving efficiencies and documentation accuracies.

Bridging the Knowledge Gap
At the core of the CareAware architecture is the CareAware iBus™, which facilitates the flow of information between medical devices and the EMR. Much like the way hardware connects to a computer, the CareAware iBus acts like a USB for medical devices, allowing data and messaging to be sent bi-directionally. This two-way communication helps health care organizations bridge the knowledge gap between devices and the EMR, providing a foundation for efficient and accurate data capture.

Workflow Analysis
At the 10 BayCare hospitals implementing the CareAware architecture, bedside physiological monitors and ventilators were connected to the CareAware iBus in order to enhance the workflow of data documentation. Previously, nurses were required to travel to the patient’s bedside, transcribe the vital sign data appearing on the face of the monitor onto a piece of paper, complete additional manual transcriptions for ventilator data, and eventually manually chart that information into the patient’s EMR. This workflow was not only inefficient, but it also increased the risk for transcription errors, as well as created a significant lag between when patient data was taken and when the information was actually entered into the EMR.

By connecting bedside monitors and ventilators to the CareAware iBus, patient data flows seamlessly into the EMR, leaving nurses to simply verify the data and sign it into the record with one click. The integration between the devices and the EMR allows caregivers to easily...
CareAware iBus

capture a patient’s most recent vital signs and ventilator data directly from the computer, improving efficiencies. As no manual transcription or data entry is required, the chance of transcription errors is virtually eliminated, as is any lag in time between when vitals and other patient data is taken and when it’s entered into the EMR.

Implementation Results
BayCare conducted a series of timing studies to measure the effects of the CareAware iBus implementation on nursing workflows at five of the hospitals.

The organization took pre-go-live measurements to evaluate the amount of time spent on manual vital sign assessments and documentation into the EMR. The measurements indicated that it was taking nurses between 0.57 and 0.69 minutes to complete a vital sign assessment for a single patient. In venues like the ICU and PACU where patient statuses can change frequently, nurses must complete vital sign assessments for each patient at least three or four times per hour, if not more. Therefore, these nurses spent a significant amount of time on data transcription and charting throughout a 12-hour shift.

After the CareAware iBus go-live, BayCare took follow-up measurements and found that it was now taking nurses an average of only 0.17 minutes to complete a single vital sign assessment, an improvement of between 0.40 and 0.52 minutes when compared to the baseline data.

Total time savings for nurses varied across units and hospitals due to a fluctuation of patient beds, nurse-to-patient ratios and frequency of vital sign assessments. Using the averages across all units of the five hospitals, BayCare determined units using the CareAware iBus technology are saving an average of 42 minutes per nurse per shift. With these increased efficiencies, nurses are able to reallocate time back to providing direct patient care, instead of charting clinical data.
CareAware iBus

Improved Clinical Workflows
The implementation of CareAware iBus throughout BayCare Health System has greatly improved clinical workflows around the taking and charting of patient data. The CareAware device connectivity platform has enabled seamless, bi-directional communication between bedside devices and the EMR, eliminating the nursing inefficiencies, transcription errors and data latency prevalent with the manual documentation of patient information. Caregivers are now able to spend more time at the bedside providing patient care, instead of charting clinical data. Donna, a BayCare nurse, summed it up by stating, “In the PACU, having to take vital signs every five minutes, iBus allows me a chance to focus on the patient and not have to worry about stopping to do vitals...iBus automatically pulls these over for me. I love it.”

Expanding on the CareAware Architecture
In the future, BayCare plans to leverage the CareAware platform to implement other workflow-enhancing solutions, including:
- CareAware VitalsLink™ for mobile vitals collection
- CareAware AlertLink™ for secondary alerting and alarming

With this device connectivity infrastructure in place, BayCare expects that it will continue to improve its clinical efficiencies and provide higher levels of care delivery throughout the entire health system.

The CareAware iBus is a messaging system that manages communication between devices and clinical applications. The CareAware iBus is Cerner’s USB for health care.