



## HIMSS Meaningful Use Case Study

### Sentara Healthcare—2010 Davies Organizational Award

[J. Miller Trimble](#) and [Natalie Kaszubowski](#)  
[Davies Award Entry](#)

#### Goal

To use the clinical decision support capability of a certified electronic health record (EHR) to more proactively plan for and respond to patient needs. Developed prior to meaningful use as an integrated functionality to the EHR, Sentara's dashboard (see illustration) is strategically aligned to allow Sentara to perform syndromic surveillance. The emphasis on syndromic surveillance in the meaningful use objectives highlights the importance of this type of monitoring.

#### Clinical Decision Support Definition

Interactive computer programs with medical knowledge and patient-specific information designed to help clinicians make diagnostic and treatment decisions.

#### Organizational Snapshot

Sentara operates more than 100 care giving sites, including eight acute-care hospitals with a total of 1,935 beds, six outpatient care campuses, seven nursing centers, three assisted-living centers and eight advanced imaging centers. Sentara has 380 primary care and multi-specialty physicians.

#### Lessons Learned—Successful Strategies

***Real-time information enhances clinical and operational effectiveness.*** Sentara leverages the clinical decision support capabilities of its EHR, known as eCare, to predict emergency department (ED) resource needs. Data extracted from the EHR is interpreted and displayed via a real-time dashboard, which Sentara uses for a variety of clinical and financial purposes. The dashboard tracks financial, census, operational effectiveness and clinical effectiveness indicators. It provides red (improvement needed), yellow and green (acceptable performance) indicators and allows managers to look at trends in those indicators over time and by location.

***Access to influenza diagnostic data helps to manage an influx of influenza patients.*** The dashboard enables Sentara to pull and analyze near real-time influenza-related diagnostic data, from two hours old and older, including upper respiratory diagnoses, influenza-like symptoms and viral syndromes. These data are shown graphically so that the operational clinical team can spot trends and see how the data have changed from day to day, week to week, month to month, year to year or within any other time frame. The dashboard helps reinforce a culture of managing according to actionable information.

During the 2009-10 flu season in response to seeing an influx of patients with H1N1 symptoms, Sentara was able to make proactive decisions about the staffing of EDs and physician offices,

*(continued)*

as well as about supplies. Because Sentara knew what supplies they had at various locations and how quickly they could get more, there was no need to stockpile.

***Key performance, safety and financial indicators are tracked at the enterprise, hospital and departmental levels.*** Through the dashboard, Sentara is also tracking key performance indicators at the enterprise, hospital, and departmental levels, including hyper- and hypo-glycemic rates, average central line duration, and percentage of heart failure patients weighed daily. In addition, patient safety indicators tracked daily include computerized provider order entry (CPOE) rates and medication and patient barcode scan compliance rates.

The dashboard graphically displays more than 40 different metrics for management, ranging from emergency department turnaround times to key financial indicators and volume statistics. The real-time data feeds enable Sentara to display patient census and occupancy rates three times a day: by facility, by unit and type of service, and by financial class. Managers also have the ability to monitor associated revenue by defined categories; they can view trends over time for dollars, units of service, patient days, margin analysis and revenue by payer. These indicators and statistics can be compared to monthly benchmarks at a facility level.

ED data include tracking boarder hours and turnaround times for minor emergency care, arrival to triage, arrival to admission and arrival to discharge by level of care. Every 15 minutes, the dashboard updates the average patient wait-time in the ED, and escalation alerts are sent to the leadership team when defined thresholds are exceeded.

The dashboard is Web-based and is automatically launched upon access to Sentara's network. And since the dashboard is available via secure login from outside of Sentara's network, a manager or executive has access to key performance indicators wherever there is Internet connectivity.

### **Other Lessons Learned**

Now having access to a remarkable amount of real-time data, Sentara must carefully evaluate what should be measured and what should not. Can anything be done with the data once clinicians and managers have it? Too much data becomes clutter. Sentara is still working to encourage a culture of thinking more in real time than about what happened in the past.

### **Results**

***The dashboard provides Sentara with consistent and relevant data that is accurate and direct from the original source.*** The data is available from one place, not from several sources. Having these data is invaluable because they allow clinicians to do predict and anticipate situations and practice medicine more proactively.

***The EHR's data has fostered improvements on clinical and operational performance measures.*** Since the EHR was implemented, reductions in length of stay, medication errors and time to first dose have been realized. Also, average turnaround time for medication ordering to availability for administration decreased from 59 minutes to 4.5 minutes.

### **Next Steps**

Sentara continues to add features to the dashboard, expanding clinical, safety and staffing

*(continued)*

indicators and working to reduce the amount of information it must still collect manually. In the future, Sentara plans to distribute performance data on Centers for Medicare and Medicaid (CMS) core measures via the dashboard and to view relational data in the same presentation—for example, being able to see surgical schedules, ICU utilization, ED utilization and related staffing ratios all at once. Optimally, Sentara would like as much data as possible to go directly from the EHR to the dashboard, with no need for manual work.

## Screenshot of Sentara’s Dashboard

