



Hilo Medical Center Improves SEP-1 Compliance by 34 Percentage Points Using MEDITECH's Expanse EHR

Introduction

According to [Hospital Compare](#), the national compliance rate for timely and effective sepsis care is 50 percent. Hawaii, however, leads the US in sepsis core measure compliance, at 68 percent. Hilo Medical Center (HMC) is located in a medically underserved area, where physician shortages hover around 35 percent. In addition, the community exhibits some of the highest rates of chronic disease in Hawaii.

SNAPSHOT

Opportunity

Improve SEP-1 Core Quality
Measure compliance and reduce sepsis rates

Solution

MEDITECH's Sepsis Management Toolkit and automation through MEDITECH's Quality and Surveillance solution

Benefits

- Significantly improved SEP-1 compliance from 42 percent to 76 percent (coded data)
- Automated processes for earlier detection of potential sepsis
- Coordinated sepsis response among physicians and nurses

Profile

Hilo Medical Center (Hilo, HI), part of Hawaii Health Systems Corporation, serves a population of over 43,000 people and is the largest employer in the Big Island of Hawaii. A safety-net hospital, HMC provides care to predominantly uninsured, underinsured, and vulnerable populations in a 100-mile service area.

An Evolving Sepsis Approach

HMC's approach to sepsis has evolved over the years. In determining areas for quality improvement, the hospital found that 85 percent of sepsis cases were present on arrival at the emergency department. While MEDITECH's ED Tracker provided clinical information from the patient's EHR, staff were looking for ways to more quickly identify and treat septic patients.

Prior to May 2018, HMC's sepsis activation protocol in the ED was as follows:

1. Nurse suspected possible sepsis based on patient's vital signs.
2. Physician checked for SIRS (systemic inflammatory response syndrome) criteria.
3. Physician confirmed infection.
4. Physician ordered the 3-hour or the 6-hour sepsis bundle.

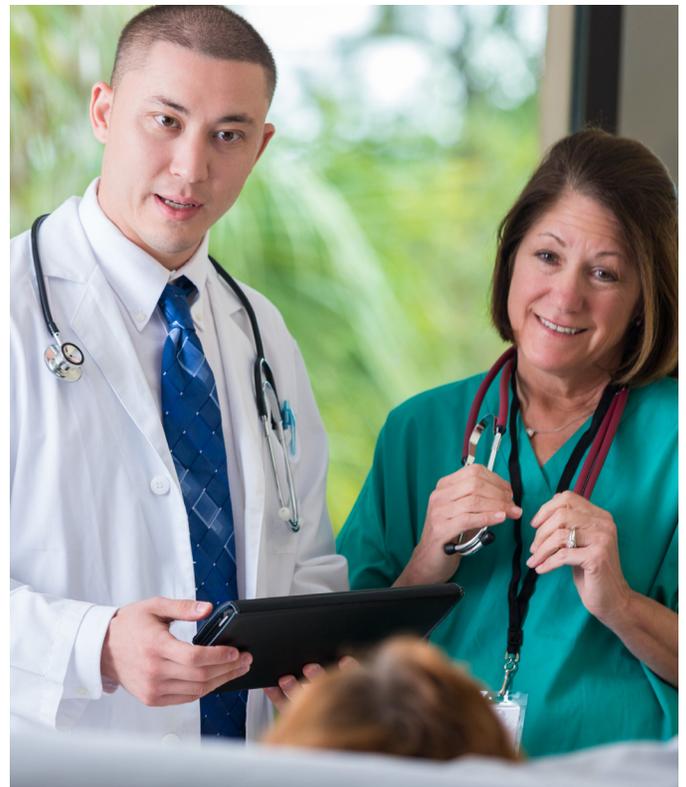
Recognizing the need to better assess patients, hospital leaders looked to MEDITECH's Sepsis Management Toolkit and Quality and Surveillance solution. Using the toolkit's evidence-based and outcomes-focused implementation guide, staff aligned best practice workflows within the EHR. These interventions included:

- Building rules into the triage assessment for even earlier detection when lab results may not yet be available.
- Implementing Quality and Surveillance to identify early sepsis warning signs and send alerts to the ED tracker.
- Adopting one sepsis order set bundle, which incorporates both the 3-hour and the 6-hour bundle criteria. The combined bundle includes reflexing a repeat lactate and accessing the antibiogram.

Over the course of a year, HMC continuously refined its clinician workflow in the ED, and in May 2018 adapted their sepsis activation workflow to the following:

1. Nurse screens for sepsis using ED triage assessment; sepsis surveillance occurs automatically, in real time, in the background of MEDITECH's EHR.
2. Quality and Surveillance solution triggers an alert to the ED Tracker.
3. Physician confirms sepsis.
4. Physician orders the combined 3-hour/6-hour sepsis bundle.

Since the hospital has incorporated the Sepsis Management Toolkit and Quality and Surveillance into their workflow, they have made significant strides in quality improvement.





Nurse Triage

HMC used MEDITECH's Sepsis Management Toolkit guidance to automate their intake process upon triage. As the triage nurse documents on the ED triage assessment, a built-in calculation — aligned with the Surviving Sepsis Campaign — analyzes the documented data and automatically evaluates whether the patient is at risk for sepsis. This process helps catch at-risk patients when laboratory data is not yet available.

If the patient is identified as being at risk, an alert appears on the screen, detailing the activation protocol. At this point the nurse dials *50, which goes to a special "activation" phone at the switchboard and alerts the response team via overhead page.

A query link reminds the nurse to enter the sepsis triage order set — including lab tests and other diagnostics—to help confirm the patient's diagnosis and begin treatment.

Analyzing Real-Time Clinical Data via Surveillance

Potential sepsis cases not detected at triage will be picked up by Quality and Surveillance, which uses algorithms to continuously sift through the patient's clinical data to detect early warning signs of sepsis. If sepsis is suspected, Quality and Surveillance broadcasts an alert to MEDITECH's ED Tracker. HMC's ED physician champion designed the alert to appear on the tracker in such a way that it cannot be missed or ignored by staff.

By clicking on the sepsis alert, the physician obtains sepsis activation details, and may opt out of the alert, if necessary. For example, if the patient's pulse is 130 due to rapid AFib, the provider can negate that alert.

The alert also activates the hospital's sepsis response team, immediately deploying the ED physician, ED RN, lab technician, x-ray technician, and respiratory therapy technician to administer a sepsis bundle to the patient.

Careful Planning by a Determined Physician Champion

HMC started small. The sepsis algorithm within Quality and Surveillance was deployed in the background of the system, so that only the ED physician, acute medical director, and EMR ED team lead could view it. For one month, they validated the algorithm's performance on the tracker before rolling it out to staff.

HMC leveraged the Take Action feature to automatically suggest role-based care interventions to the care team member. In accordance with the sepsis activation protocol, when a nurse or a physician selects the sepsis surveillance indicator, the nurse sees only nursing-specific interventions, and the physician sees only physicians-specific interventions (e.g., sepsis order set bundle). Passive clinical support text is also included as guidance, eliminating the need to retrain or re-educate care team members.

Anticipating resistance to process changes, physician leaders looked to eliminate challenges such as alert fatigue.

- Within the Sepsis Surveillance Profile, they set up filters based on certain lab values to avoid false positives — staff would not buy in if there were too many alerts.
- They intentionally made an intrusive Sepsis Activation Flag on the ED Tracker, so staff could not ignore it — forcing the clinicians to take action.

Lab Criteria Mapped in the Surveillance System

Possible Sepsis

Bands > 10%
WBC > 12.0 or < 4.0
Lactic Acid > 2.0

Probable Severe Sepsis

Lactic Acid > 2.0
WBC > 12,000 or < 4,000
Creatinine > 2.0
Bilirubin > 2.0
INR > 2.0
Platelets < 100,000

“We went live with our sepsis protocol in 2015 in the ED. Because of the SIRS plus source trigger, we found ourselves activating on flu cases and people short of breath walking in from the parking lot. We re-set the triggers to include vital sign and lab abnormalities consistent with sepsis. In order to get the attention of an ED doctor whose mind was on the STEMI patient in room 25, the intubated COPD patient in Trauma D, and the seizure patient in room 8, we set an annoying, irritating flag on the tracker that cannot be deleted without reviewing and managing the trigger. This was the least popular item ever produced with sepsis, but it increased our compliance. This single change has improved patient care and outcomes. It has made it so much easier for the multitasking ED doctors to manage our sick patients.”

Judith FitzGerald, DO FACEP
Director Emergency Department
Hilo Medical Center

“Thanks to the strong leadership from Dr. Fitzgerald, we were able to focus the conversation on how to improve processes versus how to get rid of the flag. We emphasized the importance of why we're doing this,” states Jon Martell, MD, CMIO.

Dedicated Governance Keeps Processes Moving in the Right Direction

HMC holds monthly sepsis governance meetings to review data and discuss areas for improvement. The Sepsis Governance Committee comprises representation from across the hospital, including the CMIO, ED physician champion, ED nurse manager, quality director, and IT. To analyze and refine process improvement, they review data compliance for activations and non-activations, as well as activations that were coded as sepsis and sepsis cases that were missed.

In addition to the governance meetings, HMC's lead quality management coordinator:

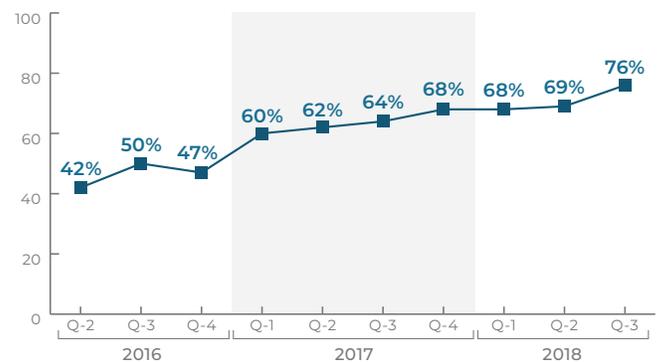
- Gathers feedback on a weekly basis to learn where they can improve core measure
- Sends a weekly Opportunity for Improvement report to the CNO, management team, hospitalist champion, ED physician champion, ED nurse manager, and individual department heads for review and posting
- Sends memos or emails to physicians for educational purposes.

Compliance Measures Continue to Climb

Within months of implementing MEDITECH's Quality and Surveillance solution and guidance from MEDTECH's Sepsis Management Toolkit, HMC surpassed Hawaii's 68 percent core measure compliance by reaching 76 percent compliance for coded data.

Historically, HMC has ranked in the top 10 percent for sepsis survival. Because the hospital's inpatient compliance was already high, quality improvement efforts focused on the ED, where they have had a tremendous impact on sepsis awareness and recognition.

SEP-1 Core Measure Compliance Coded Data



“Sepsis has been a difficult core measure for us. Truthfully, it was driving us crazy to try to meet the ‘all or nothing’ requirements without excessive personnel cost or over-treating patients. But MEDITECH's surveillance is a game changer. We now have action items built into our EHR, so we can alert physicians quickly when patients meet sepsis criteria and prompt the appropriate orders and documentation.”

Jon Martell, MD, CMIO
Hilo Medical Center



MEDITECH

+1 (781) 821-3000

www.meditech.com

info@meditech.com

Connect with us: [t](#) [i](#) [f](#)

INNOVATORS AT
one
MEDITECH
CIRCLE