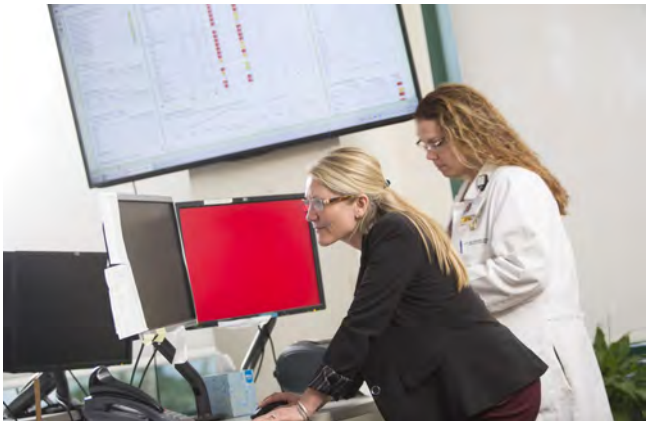
Decreasing Septic Shock



In early 2016, Gerard Kiernan, MD, backed by a strong team of nurses and doctors, launched a Greenbelt project seeking to reduce mortality in septic shock patients at Cheshire Medical Center in Keene, NH. There are one million hospital admissions for sepsis in the U.S. each year, resulting in more deaths than breast and prostate cancers combined. At Cheshire Medical Center, there were 217 admissions for sepsis in FY2015, and in 2014 and 2015 patients with septic shock had a mortality rate of 44%. At the same time, data on the three-hour bundle (a protocol to follow when a patient presents with sepsis) showed that adherence to the bundle in cases where patients present with severe sepsis specifications are met only 35% of the time.

This Greenbelt project sought to improve three-hour bundle compliance from 35% to 60% and to reduce mortality in septic shock patients from 44% to 35%. Completion of this three-hour bundle improvement project sets the stage for future improvement in the six-hour bundle, which depends on first meeting the three-hour bundle requirements. The three-hour bundle requires the provider to follow these steps: measure lactate level, obtain blood cultures prior to administration of antibiotics, administer broad spectrum antibiotics, and administer 30 ml/kg crystalloid for hypotension or lactate greater than four.

With these steps in mind, the team found problems with the triage nurse screens, lab delays, provider antibiotic order delays, and antibiotic hang delays. They created a new, streamlined ED sepsis screening process, addressed lab delays, implemented a new protocol to circumvent the IV pump rate, and standardized antibiotic use by suspected infection source and provided a guide at point of ordering. They took other steps to increase the rate of compliance to the three-hour bundle, like placing a warning on Vanocomycin orders not to hang first in sepsis patients, and on broad-spectrum antibiotics orders to make sure to obtain blood cultures first in suspected sepsis patients.

The team also found it important to explain that providers should try to rule-out sepsis, rather than trying to prove that it is. Further, they encouraged providers to order antibiotics in the face of uncertainty. One aspect of the Control phase of this project has been to provide weekly feedback to the department on process and outcome measures in sepsis cases. Overall, the project has found success in nursing and provider engagement, improved care delivery, core measure improvement and visibility, and in creating a sense of order from chaos. Some remaining challenges include nursing and provider turnover and onboarding, staff/team bandwidth issues, and competing priorities.

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