

# NEARLY 400 lives saved IN N.J. IN ONE YEAR OF TARGETED CHANGES

## NEW JERSEY SEPSIS LEARNING ACTION COLLABORATIVE

### First Year Results

#### INTRODUCTION

In late 2014, 73 healthcare organizations from around the state came together with the New Jersey Hospital Association with a common goal: to save lives by improving the care of patients with sepsis across New Jersey. Since then, the New Jersey Sepsis Learning and Action Collaborative has grown to be a multi-discipline, dynamic support network for healthcare providers.

The group set lofty goals to establish hospital-wide sepsis screenings and hospital-wide sepsis treatment protocols, and many members achieved those goals with several others well on their way. The ultimate goal is to decrease sepsis mortality in New Jersey by 20 percent, which would prevent an estimated 1,214 deaths, and recent data shows that the collaborative is making strides toward that goal.

#### BACKGROUND

Sepsis, or septicemia, is a life-threatening complication of infection. According to the Centers for Disease Control and Prevention, sepsis is the body's overwhelming and life-threatening response to an infection which can lead to tissue damage, organ failure and death. More than 1.1 million people in the United States were diagnosed with septicemia in 2008, with a mortality rate between 28-50 percent of severe sepsis patients.

Research by the Healthcare Cost and Utilization Project and the U.S. Agency for Healthcare Research and Quality shows that the cost of treating sepsis in the United States in 2013 was nearly \$24 billion. Sepsis was among the four most costly conditions and accounted for 6.2 percent of all hospitalization spending that year. Sepsis was one of the few areas of spending growth in healthcare from 2011 to 2013, in comparison to spending reductions or stability of most conditions.

To combat the costly effects of sepsis, the New Jersey Hospital Association, through its Health Research and Educational Trust and its Institute for Quality and Patient Safety, called on the state's hospitals to join a sepsis improvement effort designed around best practices and evidence-based protocols. Member hospitals voluntarily reported sepsis data to NJHA, as well as participated in peer-to-peer learning through webinars, in-person sessions and expert presentations. The national Surviving Sepsis Campaign was used as a guide and resource for developing cooperative goals and tools.

#### AFTER ONE YEAR OF COLLABORATIVE WORK:

- **Nearly 400 lives were saved through a 10.78 percent decrease in sepsis mortality.**
- **Three-hour bundle compliance increased 38 percent**
- **90 percent of N.J. hospitals have a severe sepsis protocol hospital-wide**
- **70 percent of N.J. hospitals have a sepsis screening tool in place**

## CHALLENGES AND BASELINE MEASUREMENTS

One of the reasons sepsis can be such a deadly condition is that it is difficult to diagnose if the clinician is not specifically looking for it. Sepsis can develop from even minor infections, and if diagnosed in late stages, is difficult to treat. Symptoms of sepsis look like other common maladies, like the flu. Symptoms include shortness of breath, fever and chills, extreme pain or discomfort, confusion and pale or discolored skin.

To address these challenges, the Surviving Sepsis Campaign developed an evidence-based “bundle” of actions for providers to take when sepsis is suspected or confirmed. The initial proactive actions are to be taken within three hours of diagnosis and work in conjunction to give patients the best chance of surviving. Additionally, there is a bundle of actions that should be completed within six hours of diagnosis.

When the collaborative began its work, baseline measurements were taken on mortality, screening for sepsis and use of the three-hour bundle were taken. In 2014, 28.71 percent of patients in New Jersey with severe sepsis died, and the recommended three-hour bundle of actions for patients going into septic shock or with severe sepsis was completed about half the time. At the beginning of the project, about 20 percent of participants used a sepsis screening tool across all units in their hospitals, and 40 percent had a hospital-wide protocol of addressing sepsis once discovered.

## INNOVATIONS

As part of the collaborative, online learning and in-person sessions created opportunity for healthcare leadership, nurses, physicians, pharmacists and other staff to interact with experts on identifying and treating septic patients. Additionally, the collaborative developed innovative tools aimed at encouraging implementation of best practices and improving outcomes.

One of the first tools to be produced was a web site dedicated to the data reported by the participating hospitals. The web site was useful for hospitals to compare their progress among their peers in real time.

The initiative also developed hospital-specific sepsis mortality reports; previously, sepsis mortality had been only reported as an aggregate of all of the state’s hospitals. By creating hospital-specific reports – including mortality by race and ethnicity – providers were more acutely aware of their individual performance, as well as any disparities in care.

Finally, several members of the collaborative addressed a specific need – a toolkit for post-acute care facilities, like rehabilitation centers and nursing homes. Working with a pilot group of facilities, the collaborative identified gaps that existed in the post-acute care settings. The toolkit is a resource to help address those gaps by assisting in implementing an early severe sepsis identification and treatment program. It’s designed to provide an evidence-based communication tool, staff education and care pathway to more quickly identify patients with severe sepsis and to provide timely and effective treatment. This post-acute toolkit is unique to the New Jersey Sepsis Learning and Action Collaborative.

## THREE-HOUR BUNDLE

*According to the Surviving Sepsis Campaign, bundles are the core of the sepsis improvement efforts. Using bundles simplifies the complex processes involved in the care of patients with severe sepsis. A bundle is a selected set of elements of care that, when implemented as a group, have an effect on outcomes beyond implementing the individual elements alone. The three-hour bundle is:*

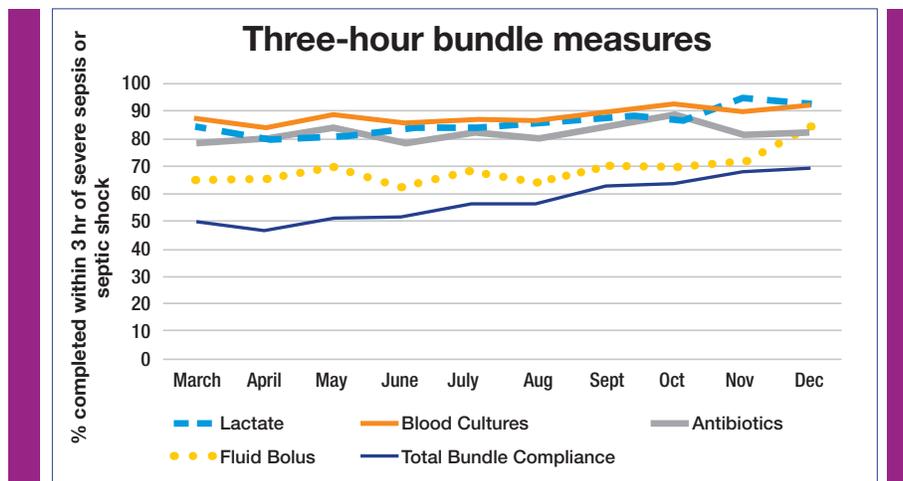
- 1. Measuring the level of lactate in the patient’s blood. Lactic acid is produced when not enough oxygen is available to tissues, and high levels are an indicator of sepsis.**
- 2. Obtain blood cultures to identify presence of bacteria in the blood.**
- 3. Administer broad-spectrum antibiotics, which are effective against a number of infections.**
- 4. Administer a crystalloid fluid bolus, like saline, intravenously to prevent the patient from going into septic shock. A fluid bolus is a quickly-administered intravenous treatment.**

## RESULTS

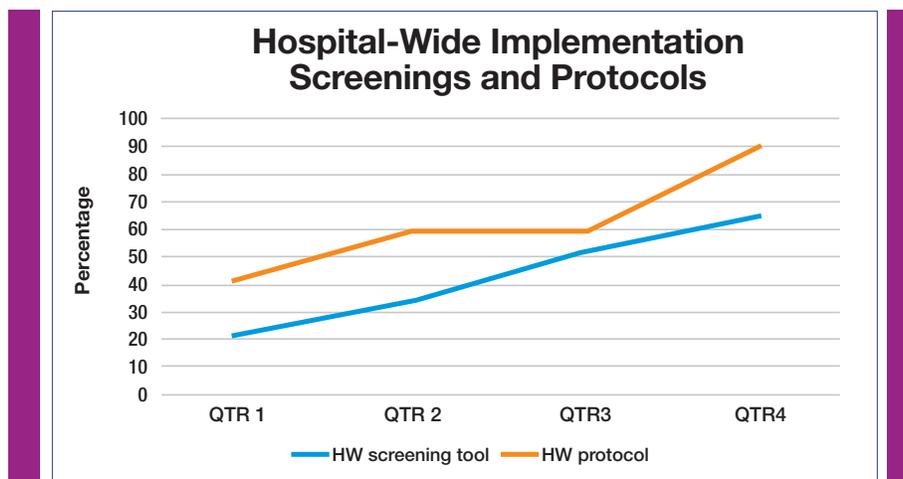
Monthly and quarterly reports to NJHA were filed by the individual hospitals as they gained knowledge from trainings and implemented the strategic efforts recommended by the Surviving Sepsis Campaign. By the end of 2015, it was clear sepsis was becoming a more manageable condition for New Jersey's health-care providers.

## PROCESS-BASED MEASUREMENTS

From the start of the Learning and Action Collaborative, the overall compliance in completing the three-hour bundle increased from roughly half the time to nearly 70 percent of the time. With implementation across the state up 38 percent, some organizations achieved 100 percent compliance with initiating the four steps.

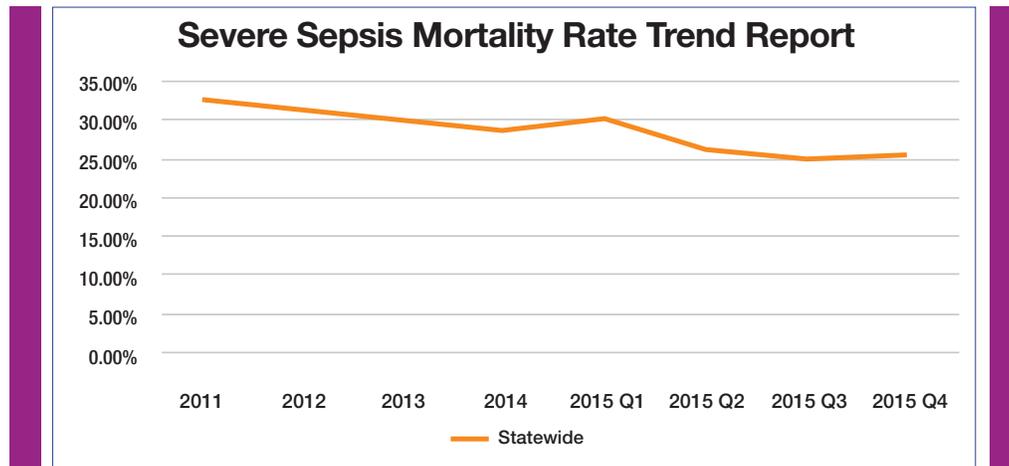


Because detecting sepsis is as difficult as treating sepsis, screening tools and protocols are important to making swift diagnosis of the condition. At the start of the group, 20 percent of hospitals had a screening tool used throughout the various units of their facilities, and 40 percent had a protocol that all departments used. By the end of 2015, 90 percent of hospitals had a protocol in all areas (the remaining 10 percent had protocols, but had not implemented them hospital-wide), and nearly 70 percent of hospitals had instituted an organization-wide screening tool.



## MORTALITY

The results of these implementations, in addition to other lessons learned through the collaborative, was a 10.76 percent decrease in severe sepsis mortality statewide from the baseline measurements, which translates into nearly 400 lives saved. Additionally, New Jersey hospitals have reduced severe sepsis mortality by 21 percent since 2011, from 32.56 percent to 25.62 percent. That translates into nearly 3,000 lives saved.



## RECOGNITION

The Sepsis Learning and Action Collaborative and its leadership have been recognized nationally for the innovations and results of this life-saving work.

In February 2016, the work of the collaborative was highlighted in the book, “Spotlight on Success: Collaborative Stories from the Surviving Sepsis Campaign,” published by the Society of Critical Care Medicine. The book highlighted the way New Jersey providers utilized system-wide leadership to leverage change in sepsis treatment.

Additionally, members of the collaborative presented to peers from around the country at the 2016 Association for Professionals in Infection Control and Epidemiology annual convention in Charlotte, N.C. NJHA Clinical Quality Improvement Manager Shannon Davila, RN, MSN, was honored as a Hero of Infection Prevention by APIC for her work in engaging audiences to institute improvements through programs such as the Sepsis Learning and Action Collaboration.

## MOVING FORWARD

In addition to driving toward the overall goal of reducing severe sepsis deaths by 20 percent from baseline measurements, there are several specific goals of the collaborative for the second year of work. They include:

- Additional focus on bundle implementation and government reimbursement ramifications;
- Identifying vulnerabilities for and reducing frequency of sepsis-related readmissions; and
- Shaping sepsis screening and treatment for the pediatric setting.