Healthcare Organization Commitment

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Commitment Details

Commitment Name
Sepsis and Shock Response Team (SSRT): A Multidisciplinary Approach to Bundle Adherence and Patient Safety

Participants
Pablo Moreno Franco
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What Patient Safety Challenge does your Commitment address?

Patient Safety Movement Foundation | patientsafetymovement.org
Challenge 9A - Early Detection and Treatment of Sepsis for High-income Countries

How Many Hospitals Will This Commitment Represent
1

Commitment Summary
Nearly 750,000 cases of sepsis are diagnosed each year in the United States. Nearly 200,000 patients die annually. Even with optimal treatment, mortality due to severe sepsis or septic shock is approximately 40% and can exceed 50% in certain patient populations. A 2001 publication estimated each case of severe sepsis to cost approximately $22,100, with an annual total cost of $16.7 billion nationally.

There is a gap in quality care because there is poor compliance with the implementing all the elements of the sepsis resuscitation bundle early on when the patient presents to the ED and to the ICU. Additionally, there is not a system in place at Mayo Clinic Florida such that we can have a multidisciplinary team treat patients with sepsis/shock. There have been prior administrative attempts from ED and ICU but since they were lacking the QI approach, they were unsuccessful. Furthermore, there is a need to promote the early recognition of sepsis and septic shock to improve patient outcomes.

Commitment Description & Detail
The specific aim of the project was to create a series of quality improvement (QI) interventions, including early identification and multidisciplinary team-driven early resuscitation of severe sepsis patients through implementation of the SSCG. The hypothesis was that improved compliance with SSCG would result in measurably better outcomes for patients presenting to the ED with severe sepsis or septic shock. The goal was to improve adherence to applicable SSCG bundle elements by 30% over a 15-month time period without negatively impacting the perceived value of time utilization by the consulting team members or increasing the rate of central line associated bloodstream infections (CLABSI).

Action Plan
A baseline retrospective chart review of 25 consecutive patients discharged with the diagnosis of sepsis (ICD 995.91), severe sepsis (ICD 995.92), or septic shock (ICD 785.52) to Mayo Clinic’s ED in Jacksonville, FL from December 2011 to March 2012 was initially completed. Compliance data was recorded for each of the seven elements and an all-or-none calculation was completed. Prospective data collection for compliance with the same seven element bundle occurred for one year from the start of implementation for all 116 patients identified in the ED with severe sepsis/septic shock activation triggers. Monthly hospital sepsis mortality rates were extracted from institutional discharge data from the University HealthSystem Consortium (UHC) from September 2011 through August 2013. To adjust for possible changes in severity, mortality rates were adjusted using UHC’s patient-specific expected mortality. In addition, CLABSI rates were obtained from our hospital’s infection control for 2013-2014. At the project start, key stakeholders were identified and a multidisciplinary QI team was assembled. A number of QI tools were used throughout the
Define-Measure-Analyze-Improve-Control project life cycle. The project team began constructing a Supplier-Input-Process-Outcome-Customers-Requirements (SIPOC+R) diagram in the define phase in order to understand the high level process flow. The SIPOC+R was particularly useful in identifying the requirements based on the Surviving Sepsis Campaign Care Bundle, which eventually led to the use of a critical to quality tree and failure mode and effects analysis (FMEA) tool. During the analyze phase, the team divided the sepsis resuscitation process steps into three primary drivers for the effective treatment of sepsis: 1. identify severe sepsis and septic shock, 2. standardize quantitative resuscitation, and 3. triage decision. Those primary drivers were then further broken down into ten secondary drivers, which ultimately populated the FMEA as process steps and sub-process steps. This organization allowed the QI team to be divided into subgroups that were then responsible to act as focused process and sub-process experts. These focused expert groups were then responsible for identifying the potential failure modes and possible causes. Each failure mode was assessed for frequency of occurrence, severity, and presence of potential detection system in place; these characteristics were rated in scale from 0 to 10. Using the individual scores, we calculated risk priority numbers (RPNs) consisting of frequency score x severity score x detection system score; the results obtained ranged from 4 – 700. Interventions were designed and deployed addressing the highest RPNs first.

Commitment Timeline
September 2013-September 2014