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Improving Nurse Driven Initiation and Adherence to Sepsis Protocol within Bridgeport Hospital's Emergency Department

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Purpose

- The purpose of this project is to present a poster to Bridgeport Hospital's Emergency Department nurses that would provide necessary education and reinforcement in regards to early identification of septic patients upon initial triage.
- Emergency nurses at Bridgeport Hospital have the authority to initiate the institution's septic protocol following the suspicion of a septic patient.
- If nurses detect sepsis early, they would increase compliance levels within the Emergency Department in regards to initiating three and six hour sepsis bundles.

Background

- Severe sepsis is responsible for approximately 500,000 emergency department visits in the United States annually and is one of the leading causes of admission and death in critically ill patients (Jozwiak, Monnet, & Teboul, 2016).
- It is crucial to bridge the gap between understanding the disease pathology and presentation, and initiating treatment measures.
- While sepsis bundles can lead to a favorable outcome for the patient, the benefit of the bundle is dependent on the nurse's compliance of sepsis bundles (Jozwiak, Monnet, & Teboul, 2016).
- Studies have indicated that once the Surviving Sepsis Campaign (SSC) implemented six-hour bundles in 2004, there was a decrease in patient mortality and length of stay within the hospital.



Review of Literature

- Between 2000 and 2009, septicemia admissions nearly doubled in the hospital (O'Shaughnessy, Grzelak, Dontsova, & Braun-Alfano, 2017).
- In hospitalized patients, about 2.26% have a discharge diagnosis of severe sepsis, and half of those patients required treatment in the ICU (Bruce et al., 2015).
- Sepsis costs the United States about \$16.7 billion each year (Bruce et al., 2015).

Sepsis

Patient Presentation with Suspected Sepsis

- Temperature < than 36 or > 38.3 degrees Celsius
- Heart rate > 90 beats per minute
- Respiratory rate ≥ 20 breaths per minute
- Altered mental status
- Decreased urinary output
- Suspicion of infection (such as cough, abdominal pain, diarrhea, dysuria, neck stiffness, cellulitis, etc.)
- Hypotension

Associated Signs and Symptoms

- Chills and/or muscle aches
- Delayed capillary refill of more than 3 seconds
- Skin: warm/flushed, cool/clammy, mottled, petechiae
- Edema
- Hyperglycemia
- Leukocytosis or leukopenia
- Elevated serum lactate level



Current Sepsis Protocol

Following patient presentation, assessment, and determined suspicion of sepsis, the patient shall subsequently receive:

- 1) Saline lock IV
- 2) CBC and differential; Metabolic panel (BMP and LFTs)
- 3) Lactate; POCT Troponin
- 4) Urinalysis with culture reflex
- 5) Blood cultures x2

Three and Six Hour Bundles

Perform Within Three Hours:	Perform Within Six Hours:
<ul style="list-style-type: none"> ➤ Measure lactate level ➤ Obtain blood cultures prior to antibiotic administration ➤ Administer broad spectrum antibiotics ➤ Administer 30mL/kg crystalloid for hypotension or lactate greater than or equal to 4 mmol/L 	<ul style="list-style-type: none"> ➤ Apply vasopressors for hypotension that does not respond to initial fluid resuscitation to maintain a MAP greater than or equal to 65 mm Hg ➤ If persistent hypotension after initial fluid administration occurs, (MAP < 65 mm Hg) or if lactate was greater than or equal to 4 mmol/L, reassess volume status and tissue perfusion, document findings ➤ Re-measure lactate if initial lactate elevated

Potential Causes of Sepsis

- Respiratory infection; pneumonia
- UTI; pyelonephritis
- Intra-abdominal conditions (example: peritonitis, cholecystitis, etc.)
- Soft tissue, bone, and joint infections
- Endocarditis
- Meningitis
- Skin and wound infections
- Implantable device infections

Quality Improvement/Measurement

- While the bundles are associated with a 25% reduction in patient mortality, the compliance of these six-hour bundles ranges from 0 to 10% (Jozwiak, Monnet, & Teboul, 2016).
- Measurements that would be included in monthly performance data include Arrival/Door to 3 hours:
 - Lactic acid level
 - Blood cultures prior to antibiotics
 - Broad spectrum antibiotics
 - 30ml/kg crystalloid for hypotension or lactate ≥ 4mmol/L
- Additional data completion measurements exist for within 6 hours of presentation derived from the Surviving Sepsis Campaign.

Significance to Nursing

- Bridgeport Hospital currently utilizes three and six hour bundles, which were recommended in 2015 as part of the Center for Medicare and Medicaid Services (CMC) sepsis quality measure NQF #0500 (Kim, Watase, Jablonowski, Gatewood, & Henning, 2017).
- It has been noted that within the hospital septic patients fail to be identified and diagnosed in the emergency care setting, which results in the under treatment and prolongation of the disease process.
- "Although nurse-initiated ED sepsis protocols improve guideline compliance, nurses' roles have not been clearly formalized. There remains an information dearth regarding the impact of nurse-initiated protocols on ED patients with severe sepsis" (Bruce, Maiden, Fedullo, & Kim, 2015, p. 131).

Conclusion

- There are expectations that the teaching tool presented to Bridgeport Hospital will better assist nurses in identifying sepsis early, since this disease is life threatening.
- Nurses must remain compliant to the three and six hour bundles that are initiated if sepsis is suspected.
- Early identification of sepsis is crucial.
- Placing a teaching poster regarding sepsis protocol in Bridgeport Hospital's Emergency Department will serve as a reminder and resource for nurses to recognize sepsis and initiate protocol.

References available as handouts