The Introduction of a Sepsis Alert Protocol

City of Greater Sudbury

Emergency Services Committee

October 23, 2019

Melissa Roney, A/Deputy Chief

Dr. Jason Prpic, Medical Director, HSNCPC

Sepsis

- Dies at the age of 20 from multi organ failure
- Admitted to hospital for upper respiratory tract infection, 4 days later dies from sepsis
- Urinary tract infection leads to further infection causing amputations and patient dies from sepsis

Does a Sepsis Alert Protocol in the Pre-Hospital setting decrease time to antibiotic administration in the Emergency Department?

Study Approval

This study was approved by the Research Ethics Board of Health Sciences North.

What is Sepsis?

- Sepsis is the body's overwhelming and life-threatening response to infection that can lead to tissue damage, organ failure, and death.
- If caught early, sepsis is treatable with fluids and antibiotics.

Study Design Phase I

- Retrospective chart review of patient who were brought to the ED by Paramedic Services between June 2015 and June 2016 and who were diagnosed with sepsis in the ED.
- Identified length of time to administration of first dose of antibiotics.

Study Design – Phase 2
Patient Assessment and Sepsis Alert

- Trained all frontline Paramedic staff with a new sepsis screening tool.
- Paramedic activation of Sepsis Alert Protocol which provided ED with advance notice that a potentially septic patient would be arriving, resulting in rapid work-up upon arrival to ED.

Sepsis Screening Tool

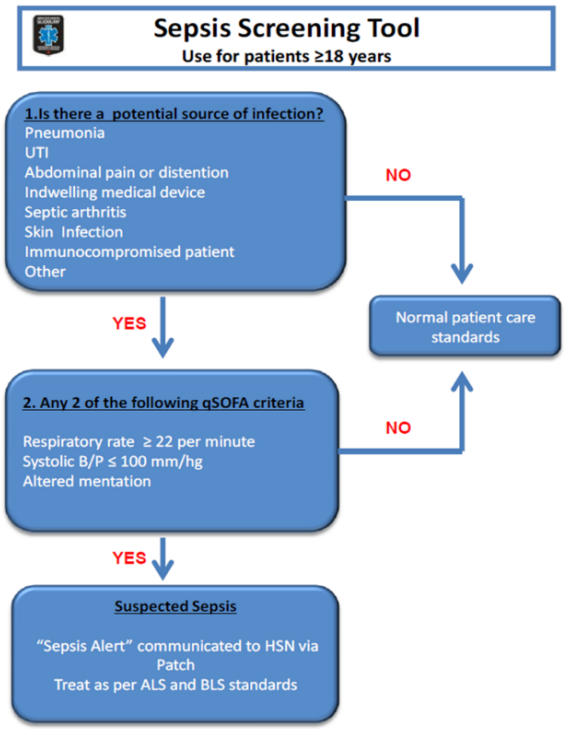
Greater | Grand Sudbury

Sepsis Alert Protocol used by Paramedics

Is there a source of infection? YES

Are there any “two” clinical criteria present? YES

➡ Suspect Sepsis



Greater | Grand Sudbury

Study Population

Inclusion Criteria

- Adults transported via Greater Sudbury Paramedic Services with an ED diagnosis of sepsis

Exclusion Criteria

- Pediatric cases
- Pregnant women
- Cardiac arrest
- Patients transported via a different Paramedic Service
- Patients treated with palliation who did not receive antibiotics
- Patients whose ED charts were missing, unavailable
- Alternate diagnosis

Primary Outcome Prediction

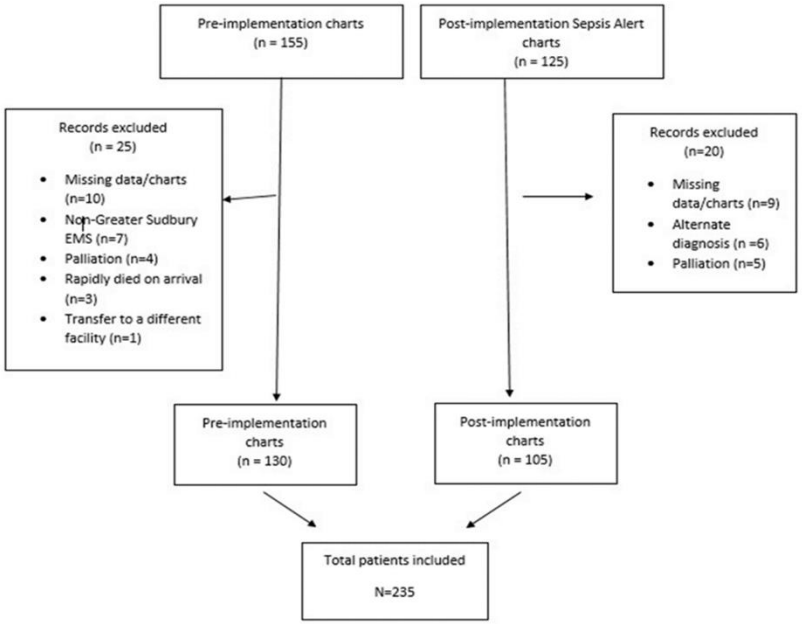
- The Research team predicted that the implementation of a Pre-hospital Alert would not reduce the time to administer the first dose of antibiotics in the Emergency Department.

Results

After exclusions there were 130 patient charts reviewed in the pre-implementation sepsis alert group.

After exclusions there were 105 patient charts reviewed in the post implementation sepsis alert group.

Total patient charts included in the study = 235



Results – Mean Time to Antibiotic Administration

Decrease of 48 minutes

	Pre-Sepsis Alert	Post-Sepsis Alert	
N=	130	105	
Mean (time in minutes)	138.81	90.20	P=0.003
Standard Deviation	90.44	79.36	

Greater Grand Sudbury

Results – Severity of qSOFA scores

	qSOFA EMS	qSOFA ED
0	0.95% (1/105)	8.57% (9/105)
1	11.43% (12/105)	33.3% (35/105)
2	63.80% (67/105)	49.52% (52/105)
3	23.80% (25/105)	8.57% (9/105)

Greater Grand Sudbury

Discussion

- Study is statistically valid
- Our findings are consistent with other studies
- Other studies now looking at validating the qSOFA tool in the Emergency Department

Conclusion

- Implementation of a Sepsis Alert Protocol in the pre-hospital setting decreases time to antibiotic administration in the Emergency Department.

- The Sudbury Paramedic Services Sepsis Alert Protocol decreases morbidity and mortality of patients in our community.

Greater | Grand Sudbury