

INTRODUCTION

Sepsis is a medical condition associated with high morbidity and mortality if not recognized and treated quickly^[1, 2]. Over one-third of patients treated for sepsis in the emergency department are brought in by EMS^[3]. Studies have shown early recognition and treatment of septic patients shortens time to initiation of intravenous fluids^[4] and antibiotics^[4, 5]. While this is encouraging, survey data shows paramedic knowledge and awareness of sepsis is widely variable^[6]. Due to this variation in knowledge, prehospital sepsis may be missed if there is not a robust prehospital sepsis protocol in place.

Objective: To evaluate the effectiveness of University of Missouri Health Care's protocol on the management of prehospital sepsis.

RESULTS

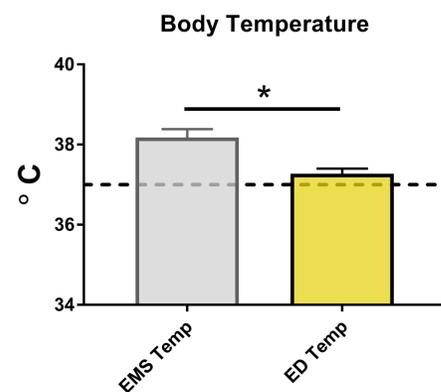


Figure 2. Average body temperature decreased from 38.2°C to 37.5°C.

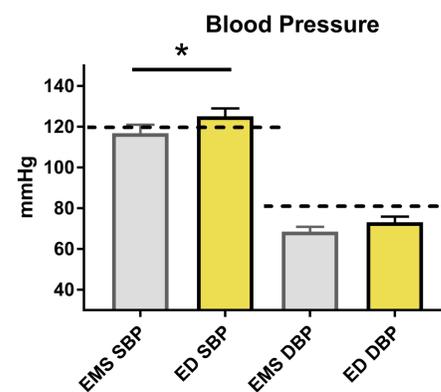


Figure 4. Average SBP increased from 116.8 mmHg to 125.2 mmHg. Average DBP increased from 68.6 mmHg to 73.2 mmHg, and approached statistical significance (p=0.11).

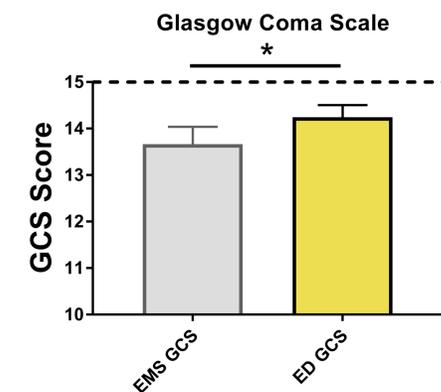


Figure 6. Average Glasgow Coma Scale increased from 13.7 to 14.2.

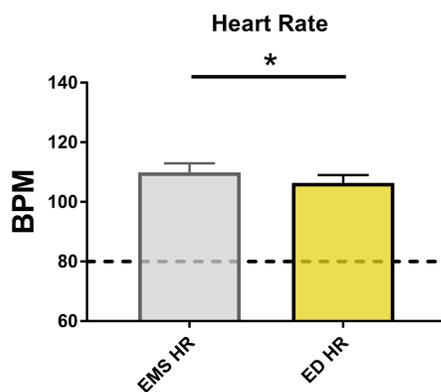


Figure 3. Average heart rate decreased from 109.9 bpm to 106.4 bpm.

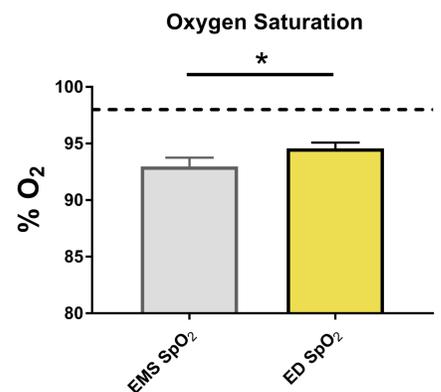


Figure 5. Average SpO₂ increased from 93.0% to 94.6%.

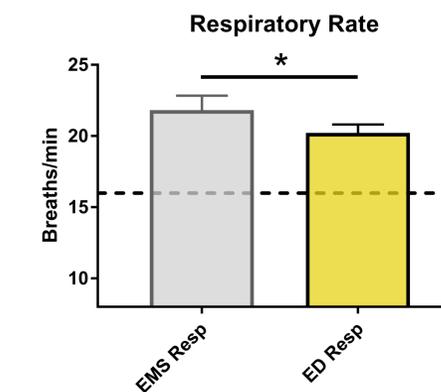
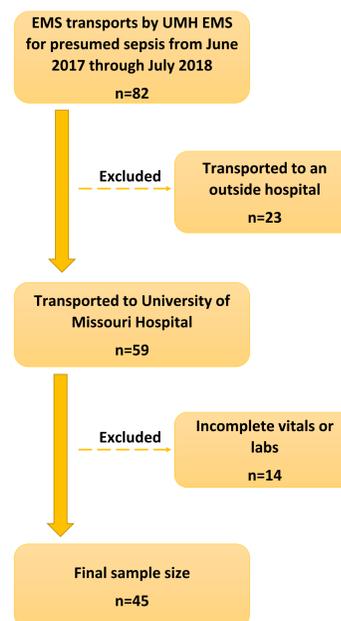


Figure 7. Average respiratory rate decreased from 21.8 breaths/min to 20.2 breaths/min.

METHODS

- Retrospective identification of patients transported by University of Missouri Health Care EMS for presumed sepsis from 06/01/2017 to 07/31/2018.
- Patients were screened for sepsis according to Boone County EMS Sepsis Pathway (Figure 1).
- Patients transported to University of Missouri Hospital were included.
- Patients with suspected sepsis, a complete set of EMS and ED vitals, and prehospital sepsis labs (serum lactate, aerobic/anaerobic cultures) were included for final data evaluation.
- Final sample size n=45 patients.



CONCLUSION

- Implementation of a robust prehospital sepsis protocol lead to hemodynamic improvement in patients with suspected sepsis.
- The significant improvement in vital signs suggests prehospital management temporized sepsis pathophysiology until definitive care was reached.
- Prehospital providers improved aspects of downstream care by establishing IV access, drawing labs, obtaining blood cultures, and activating a sepsis alert at the receiving hospital.

REFERENCES

- Rivers, E., et al., *Early Goal-Directed Therapy in the Treatment of Severe Sepsis and Septic Shock*. NEJM, 2001. 345(19).
- Yealy, D.M., et al., *A randomized trial of protocol-based care for early septic shock*. N Engl J Med, 2014. 370(18): p. 1683-93.
- Wang, H.E., et al., *Opportunities for Emergency Medical Services care of sepsis*. Resuscitation, 2010. 81(2): p. 193-7.
- Band, R.A., et al., *Arriving by emergency medical services improves time to treatment endpoints for patients with severe sepsis or septic shock*. Acad Emerg Med, 2011. 18(9): p. 934-40.
- Studnek, J.R., et al., *The impact of emergency medical services on the ED care of severe sepsis*. Am J Emerg Med, 2012. 30(1): p. 51-6.
- Seymour, C.W., et al., *Understanding of sepsis among emergency medical services: a survey study*. J Emerg Med, 2012. 42(6): p. 666-77.

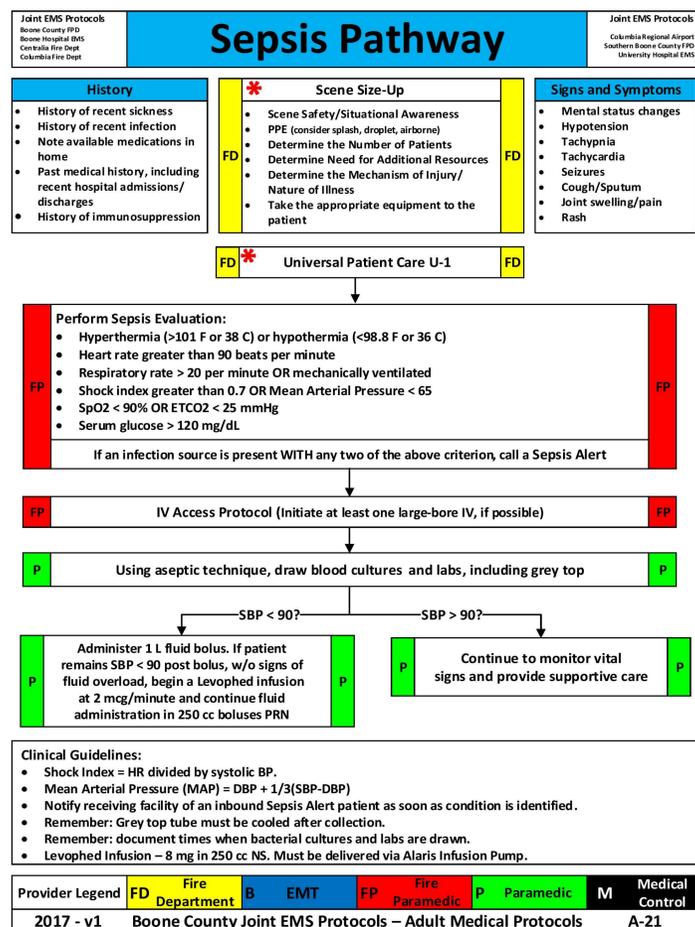


Figure 1. Boone County EMS Sepsis Pathway