

## Recognition to Treatment: The Roles of Emergency Medical Service Providers and Mobile Intensive Care Nurses in Sepsis

**PURPOSE:** Local evidence suggested that Emergency Medical Service Providers (EMSPs) and Mobile Intensive Care Nurses (MICNs) are challenged with recognizing sepsis. Early recognition of sepsis in the pre-hospital setting and notification to the receiving hospital may decrease time to treatment (TTT) on arrival, which may improve patient outcomes. The project objective was to improve the recognition of suspected sepsis by EMSPs and MICNs and decrease TTT.

**DESIGN:** An interdisciplinary quality improvement (QI) project led by nurses which involves pre and post implementation data.

**SETTING:** An Emergency Department (ED) of a Magnet-designated community hospital in Southern CA in collaboration with three local EMS agencies.

**PARTICIPANTS:** All MICNs (n=27) in the ED, and all EMSPs (n= 300) from 3 local fire agencies that collectively transport the highest volume of patients to the ED.

**METHODS:** An IRB determination as a QI project was obtained prior to initiation. The project involved teaching EMSPs and MICNs standardized sepsis content and sepsis screening tools via electronic learning modules or in-person lectures. Outcomes included comparing the pre and post implementation data on: (1) knowledge and attitudes of EMSPs and MICNs in their ability to recognize, treat and affect sepsis outcomes using an anonymous 8-question survey; (2) The rate of accurate sepsis recognition, defined by documented primary impression, by EMSPs and MICNs of patients that: arrived to ED via EMS, were treated for sepsis in ED, and discharged with a sepsis diagnosis; And (3) time from pre-hospital sepsis presentation to initiation of sepsis treatment in the ED. Because EMSPs and MICNs use different sepsis screening tools, a modified qSOFA/SIRS sepsis screening tool was designed for MICNs to use during pre-hospital initial communication with EMSPs. The tool included an algorithm to notify ED personnel of a suspected sepsis patient.

**OUTCOMES:** Nearly 80% of EMSPs and 96% of MICNs received the sepsis education. Pre-implementation data showed less than 50% of EMSPs defined sepsis correctly as compared to 81% of MICNs, and both groups failed to recognize hypothermia as a symptom (81% and 23%, respectively). Additionally, 30% did not believe they could recognize sepsis in the field. Pre-implementation data of 209 patients showed the rates of accurate sepsis recognition by EMSPs and MICNs were dismal (1.9% and 1%, respectively). It also revealed incongruencies between pre-hospital vital signs and those at triage which may have contributed to the lack of accurate pre-hospital sepsis recognition (41% of the cases). Of the 209 sepsis patients, 87 (42%) met hospital criteria for sepsis (infection + 2 SIRS) in the pre-hospital setting with an average TTT of 104 minutes. The post-implementation data collection will be completed in February and the comparative data will be reported during the ePoster presentation.

**IMPLICATIONS:** We identified a lack of knowledge regarding sepsis (definition, signs and symptoms) among EMSPs and MICNs, including their accurate use of pre-established screening tools for sepsis. We anticipate improvements in EMS documentation, early notification to the MICN, and reduced time to treatment of the sepsis patient as outcomes of the project.

## References

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Audience Type: Clinical Nurses