

# What's New in the Patient Safety World

June 2016

## An EMR-Based Early Warning Score

One of the reasons that rapid response teams have been less successful than we all once anticipated is due to weakness on the afferent limb of the rapid response system – i.e. that we don't identify clinically deteriorating patients soon enough to make a difference. Therefore, multiple attempts have been made to develop scoring systems like MEWS (the modified Early Warning Score) that will help in that earlier identification. Many such systems have been automated, using data readily available from electronic medical records and computerized monitoring devices.

One recent study used real-time automated continuous sampling of electronic medical record data to enable early identification of patients at risk for death ([Khurana 2016](#)). An alert would trigger when at least 2 of 4 systemic inflammatory response syndrome (SIRS) criteria plus at least one of 14 acute organ dysfunction parameters was detected. 5.2% of patients for whom the alert triggered died compared to only 0.2% of those without the alert. Those for whom alerts triggered also had more hospital days and ventilator days. In the validation phase, the sensitivity, specificity, and positive and negative likelihood ratios for predicting mortality were quite good.

It's, of course, interesting in that we just recently applauded the proposed removal of the SIRS criteria from the definition of sepsis (see our March 2016 What's New in the Patient Safety World column "[Finally...A More Rationale Definition for Sepsis](#)"). However, the current study would certainly suggest that the SIRS criteria may still be valuable when part of a broader score in predicting mortality in hospitalized patients.

### **Some of our other columns on MEWS or recognition of clinical deterioration:**

- February 26, 2008 "[Nightmares: The Hospital at Night](#)"
- April 2009 "[Early Emergency Team Calls Reduce Serious Adverse Events](#)"
- December 15, 2009 "[The Weekend Effect](#)"
- December 29, 2009 "[Recognizing Deteriorating Patients](#)"
- February 22, 2011 "[Rethinking Alarms](#)"
- March 15, 2011 "[Early Warnings for Sepsis](#)"
- October 18, 2011 "[High Risk Surgical Patients](#)"
- March 2012 "[Value of an Expanded Early Warning System Score](#)"

- September 11, 2012 “[In Search of the Ideal Early Warning Score](#)”
- May 2013 “[Ireland First to Adopt National Early Warning Score](#)”
- September 17, 2013 “[First MEWS, Now PEWS](#)”
- January 2014 “[It MEOWS But Doesn't Purr](#)”
- March 11, 2014 “[We Miss the Graphic Flowchart!](#)”
- July 15, 2014 “[Barriers to Success of Early Warning Systems](#)”
- November 11, 2014 “[Early Detection of Clinical Deterioration](#)”
- February 2015 “[Detecting Clinical Deterioration: Don't Neglect Clinical Impression](#)”
- April 28, 2015 “[Failure to Escalate](#)”
- September 8, 2015 “[TREWScore for Early Recognition of Sepsis](#)”
- October 2015 “[Even Earlier Recognition of Severe Sepsis](#)”
- December 15, 2015 “[Vital Sign Monitoring at Night](#)”

#### **Our other columns on rapid response teams:**

- August 2007 “[Responding to Patients with Clinical Deterioration](#)”
- November 27, 2007 “[More on Rapid Response Teams](#)”
- August 2008 “[AHRQ's New Patient Safety Primers](#)”
- December 2008 “[Rapid Response Teams Don't Live Up to Expectations](#)”.
- April 2009 “[Early Emergency Team Calls Reduce Serious Adverse Events](#)”
- December 29, 2009 “[Recognizing Deteriorating Patients](#)”.
- February 2010 “[Rapid Response Teams Still Not Cutting It](#)”
- November 11, 2014 “[Early Detection of Clinical Deterioration](#)”
- April 28, 2015 “[Failure to Escalate](#)”

#### **Our other columns on sepsis:**

- March 15, 2011 “[Early Warnings for Sepsis](#)”
- April 1, 2014 “[Expensive Aspects of Sepsis Protocol Debunked](#)”
- September 8, 2015 “[TREWScore for Early Recognition of Sepsis](#)”
- October 2015 “[Even Earlier Recognition of Severe Sepsis](#)”
- February 2, 2016 “[Success Against Sepsis](#)”
- March 2016 “[Finally...A More Rationale Definition for Sepsis](#)”

#### **References:**

Khurana HS, Groves RH, Simons MP, et al. Real-Time Automated Sampling of Electronic Medical Records Predicts Hospital Mortality. The American Journal of Medicine 2016; published online 17 May 2016

<http://www.amjmed.com/article/S0002-9343%2816%2930294-7/abstract>



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