



# Research Week 2021

## Point-of-Care Capillary Refill Technology Improves Accuracy of Peripheral Perfusion Assessment in Sepsis

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### Keywords

Sepsis, early, detection, capillary, refill

### Abstract

#### Introduction

Approximately 1 million patients present to emergency departments in the United States with sepsis annually and each hour delay in recognition results in an 8% increase in mortality. Unfortunately, sepsis is a challenging diagnosis to make early in its disease course due to reliance on subjective measures and laboratory studies. Capillary refill time (CRT) has been shown to be effective at both early recognition and monitoring of sepsis. Yet, CRT remains a subjective measure due to lack of instrumentation.

#### Methods

This was a prospective, observation trial in a quaternary care hospital adult intensive care unit (ICU) and emergency department (ED) to assess the accuracy of a new optic-based technology for capillary refill measurement developed by Promedix Inc.. The gold standard consisted of trained research personnel assessing CRT visually by applying manual pressure and using a stopwatch. The same patients within the convenience sample then were assessed for CRT by a physician in a similar manner and the research assistant followed up with the Promedix Inc. CRT device. Correlations between research personnel CRT and either the provider CRT or device-based CRT were assessed.

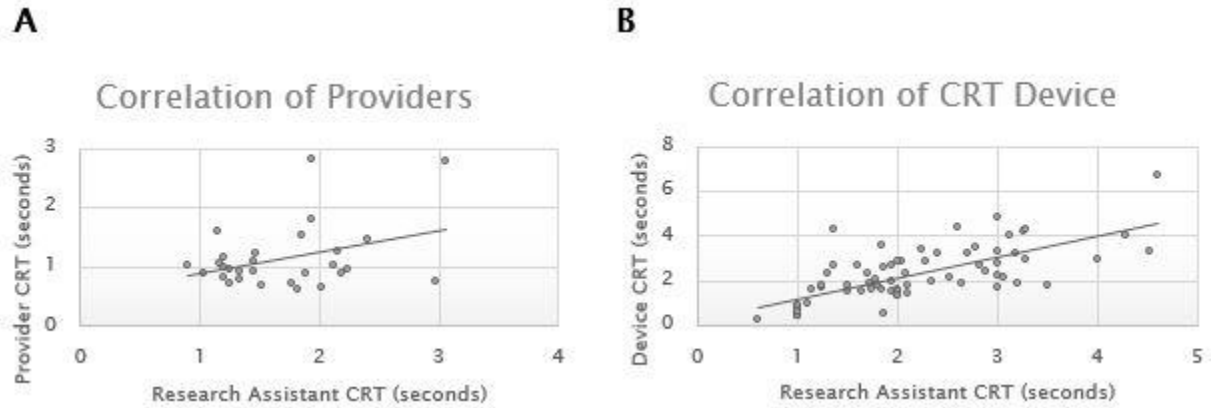
#### Results

There was a total of 98 paired measurements. The Pearson correlation for the device CRT compared to research personnel CRT was 0.693. The Pearson correlation for the provider CRT compared to research personnel CRT was 0.359 (see Figure 1).

## Conclusion

This new CRT device shows improved correlation to a gold standard of trained research personnel compared to provider visual assessment. Prior research has shown the ability to significantly impact care when CRT is deliberately measured through research protocols. Therefore, objective evaluation of CRT can allow clinicians to direct patient care and reduce the mortality associated with sepsis.

Figure 1. Capillary Refill Time Correlation



CRT: capillary refill time