

**Lead ChristianaCare Inventor**

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**Technology Overview**

The *Device And System For Passive Clinical Assessment* relates generally to clinical assessment of the personal health of patients and other persons as is required for hospital Emergency Department (ED) triage and other purposes, and more particularly to a device and system for clinical assessment of persons to gather and/or analyze vital signs and other health indications in a passive manner that provide a feasible alternative to thorough patient examination by a highly skilled healthcare professional in certain limited circumstances, such as in initial patient screening, intake and/or triage activities.

**Opportunity/Background/Unmet Need**

Delays in diagnosis of acute illness can result in significant patient harm. As EDs have become busier, patient wait times have risen: the CDC National Center for Health Statistics reported a 32% increase in ED visits and a 25% increase in wait times between 1999 and 2009<sup>1</sup>. Increased patient volumes force EDs to triage patients, delaying care for those who appear safe to delay.

EDs receive patients at a triage desk where information is collected and a triage clinician, usually an experienced Registered Nurse (RN), assesses the patient visually. A decision for immediate versus delayed care is made based on this limited information. If a patient is delayed, they wait in a nearby area until another clinician (also usually an RN) moves the patient to an area to measure vital signs. Further delay may be experienced before an electrocardiogram is obtained.

Patients presenting with an acute coronary syndrome (ACS) require immediate care to minimize risk of harm. However, lacking classic ischemic symptoms, immediate identification of the condition can be challenging. No single clinical feature of a patient's presentation can diagnose ACS to the exclusion of other causes of chest pain. Vital sign measures (minimally blood pressure, heart, temperature, and respiratory rate) can improve early diagnostic accuracy, and obtaining an electrocardiogram (ECG) promptly is a high-value maneuver<sup>2</sup>. However, data from the National Hospital Ambulatory Medical Care survey found that the mean wait time for patients with chest pain in 2004 was 36 +/- 1.7 min; furthermore, about 10% of patients with cardiac or undifferentiated chest pain had no record of having an ECG performed<sup>3</sup>.

Current processes create opportunities for patients with ACS (and other time-sensitive conditions) but without classic symptoms of such to experience care delays that can impact outcomes. Delays in recognition and treatment of other serious conditions may follow similar patterns. In addition, the current processes for vital sign acquisition remain largely manual, requiring clinician engagement for data collection and manual entry into electronic health records.

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<sup>1</sup>Hing, Bhuiya. NCHS Data Brief 2012;Aug (102):1-8.

<sup>2</sup>Ringstrom, Freedman. Mt Sinai J Med 2006;73:499-505.

<sup>3</sup>Brown, Xie, Mensah. Am J Cardiol 2007;99:115-8.

### Solution

The *Device And System For Passive Clinical Assessment* acquires biometric data passively at or before an interview at the ED triage desk and displays this information for triaging clinicians. The impact of this device/system is that it (1) moves acquisition of basic biometric data, including ECG, forward in the process of care, thereby making this information available to inform triage decision-making; (2) reduces the human resource required to acquire basic biometric data; and (3) automates transfer of acquired information into the electronic health record (EHR).

### Advantages

- Improves patient health through reduced risk of missing the diagnosis of time-sensitive, serious conditions
- Improves efficiency of patient triaging function in the healthcare setting
- Reduces costs by reducing need for human intervention during biometric data acquisition
- Improves the fidelity of data entry into the electronic health record by eliminating manual data entry

### Intellectual Property

Patent Application Filed.

### Institutional Contact

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