

GETTING AHEAD OF PATIENT DETERIORATION

Predicting patient deterioration is more important than ever.

20.3 BILLION DOLLARS

It costs approximately \$20.3 billion to treat sepsis patients annually in the USA.¹

5X↑ MORTALITY RATES

Sepsis patients have a 5X higher mortality rate.²

1.5M SEPSIS PATIENTS

There are 1.5M sepsis patients annually in US med/surg.²

PATIENT DETERIORATION IS A SIGNIFICANT ISSUE IN HOSPITALS

6.2 MILLION
HIGH-RISK PATIENTS IN U.S. MED/SURG.²

Sicker patients in lower acuity settings

Risk factors and comorbidities are increasing

Widespread shortage of nurses

60%

PATIENT DETERIORATION IS HARD TO DETECT

Patient acuity levels are rising on general care floors while staff-to-patient ratios are not³

Delays in capturing and documenting vitals can hinder detection and treatment

Symptoms of conditions like sepsis and respiratory depression can be hard to detect early

OF PATIENTS

HAVE A DOCUMENTED PHYSIOLOGICAL INDICATION BEFORE A CARDIAC ARREST, UNPLANNED ICU ADMISSION AND/OR DEATH.⁴

RESPIRATORY AND HEART RATES ARE KEY PREDICTORS OF DETERIORATION⁵

70-80%

OF PATIENTS HAVE ELEVATED VITALS SCORES 6 HOURS BEFORE AN EVENT.²



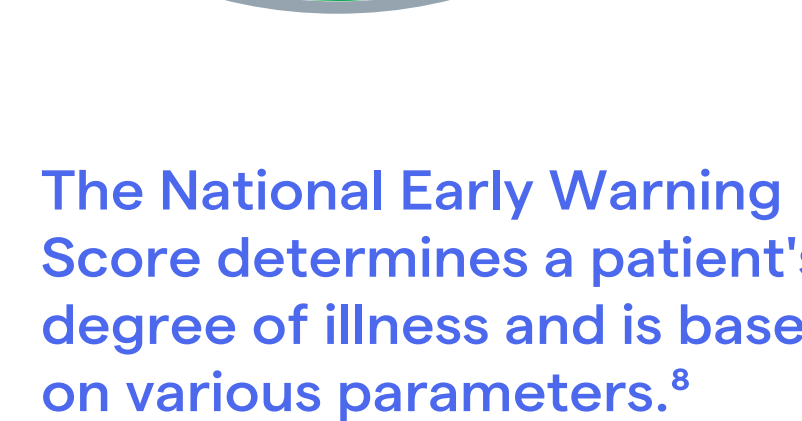
Increasing Respiratory Rate
Potential indication of acute illness or distress

Increasing Heart Rate
Potential indication of cardiac failure, fever, pain, distress or sepsis symptoms

Decreasing Respiratory Rate
Potential indication of narcosis or respiratory depression

Decreasing Heart Rate
Potential indication of hypothermia, CNS depression, hypothyroidism or heart block

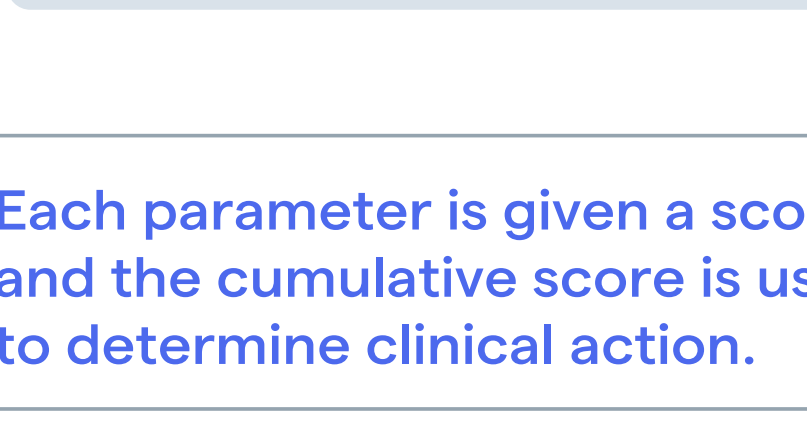
EARLY WARNING SCORES CAN HELP DETECT DETERIORATION EARLIER⁶



6-8 HOURS BEFORE

6-8 HOURS BEFORE AN EVENT OR CARDIAC ARREST, SIGNS OF DETERIORATION CAN BE DETECTED IN SOME PATIENTS.⁷

The National Early Warning Score determines a patient's degree of illness and is based on various parameters.⁸



- TEMPERATURE
- SYSTOLIC BLOOD PRESSURE
- ANY SUPPLEMENTAL OXYGEN
- SPO₂
- RESPIRATORY RATE
- HEART RATE
- AVPU SCORE

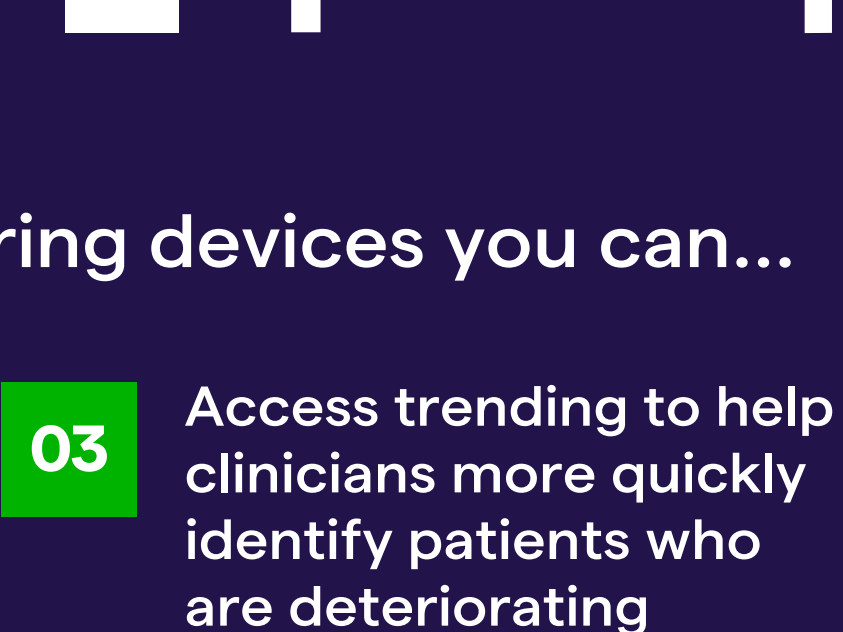
Each parameter is given a score and the cumulative score is used to determine clinical action.

This system can help predict adverse outcomes in the emergency department and acute care units.

CONTINUOUS MONITORING CAN HELP IDENTIFY PATIENT DETERIORATION

A RECENT STUDY SAW UP TO AN...
86% REDUCTION

OF CODE BLUE EVENTS WHEN USING CONTINUOUS MONITORING.⁹



With select continuous monitoring devices you can...

01 Give clinicians easy access to monitoring capabilities designed specifically for med-surg patients and workflows

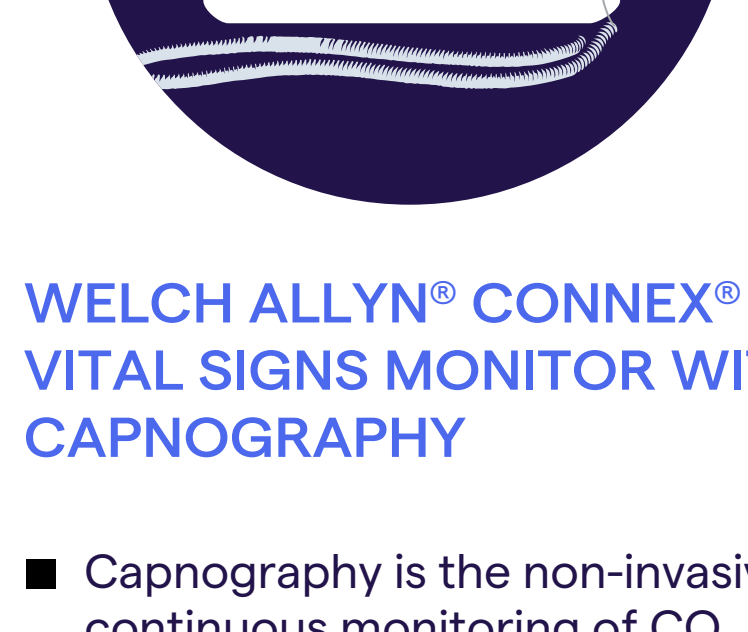
03 Access trending to help clinicians more quickly identify patients who are deteriorating

02 Have centralized, remote visibility to patients

04 Automatically transfer patient information directly to the EMR

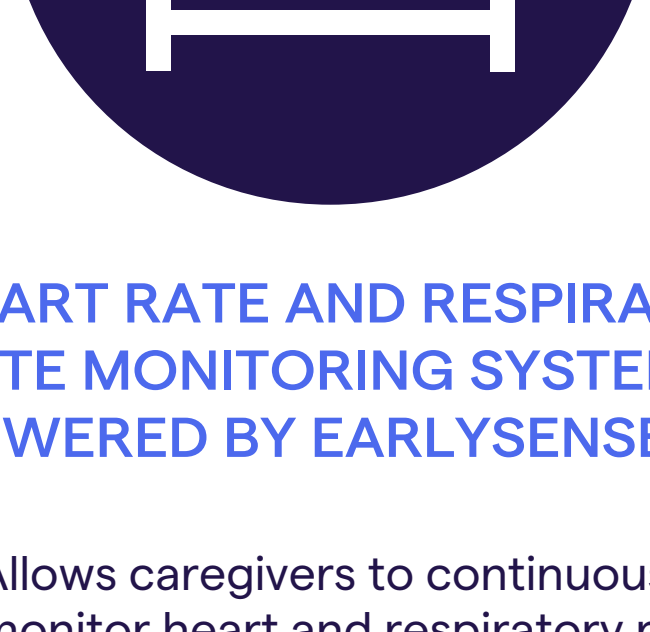
CAPNOGRAPHY IS 17.6X MORE LIKELY TO DETECT RESPIRATORY DEPRESSION THAN PULSE OXIMETRY.¹⁰

NEW TECHNOLOGY ALLOWS CONTINUOUS MONITORING OF RESPIRATORY AND HEART RATES



WELCH ALLYN® CONNEX® VITAL SIGNS MONITOR WITH CAPNOGRAPHY

- Capnography is the non-invasive, continuous monitoring of CO₂ at the airway
- Helps caregivers identify respiratory depression more quickly and effectively
- Reflects change in ventilation within 10 seconds
- Alarm when measurements go outside of safe thresholds



HEART RATE AND RESPIRATION RATE MONITORING SYSTEM POWERED BY EARLYSENSE®

- Allows caregivers to continuously monitor heart and respiratory rates
- Sensor technology can detect motion in heart and lungs when patient is still
- The sensor records heart and respiratory rates twice per second
- Creates a running trend, alarming whenever rates go outside predefined thresholds

IMPROVING OUTCOMES WITH CONTINUOUS MONITORING

IN ONE STUDY, CONTINUOUS MONITORING IN MED/SURG RESULTED IN:⁹

45%
Reduction in ICU stay for Med/Surg transfer patients

9%
Reduction in Med/Surg length of stay

Are You Ready to Get Ahead of Patient Deterioration?

Continuous monitoring of heart and respiratory rates can help you detect deterioration earlier.

Visit hillrom.com to learn how our solutions provide the information you need to deliver the right care at the right time.

References
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³ Pascale Carayon; Ayse P. Gurses. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Chapter 30: Nursing Workload and Patient Safety—A Human Factors Engineering Perspective. <https://www.ncbi.nlm.nih.gov/books/NBK26557/>, Accessed January 15, 2020.
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⁶ Subbe CP, Kruger M, Rutherford P, Gemmel L. Validation of a modified Early Warning Score in medical admissions. QJM. 2001 Oct;94(10):521-6. PubMed PMID: 11588210.
⁷ Utilization of Electronic Modified Early Warning Score to Engage Rapid Response Team in Clinical Deterioration: Melody A. Rose, DNP, RN; Lee Ann Hanna, PhD, RN; Sareeda A. Nur, MD; Constance M. Johnson, PhD, RN. Journal for Nurses in Professional Development & Volume 31, Issue 3.
⁸ MDCalc. National Early Warning Scores (NEWS). <https://www.mdcalc.com/national-early-warning-score-news>. Accessed January 13, 2020.
⁹ Brown, HV et al. The American Journal of Medicine. 2014; 127:226-232.
¹⁰ Waugh J, Khodnava Y, Epps C. Monitoring to Improve Ventilation Safety During Sedation and Analgesia. Anesthesia and Analgesia, 2008