



Fighting COVID-19, resource demands are peaking. Hospital resources are scarce and care homes are being devastated by spreading infections. The continuous real-time monitoring provided by SafetyPatch frees beds, minimizes personal protective equipment use, and improves timeliness of treatments leading to better outcomes.



CODIV-19: For your patient's health, continuous real-time vital signs monitoring is critical.

75% OF DEATHS IN HOSPITAL SETTINGS ARE OUTSIDE THE ICU, INPATIENTS THAT ARE NOT MONITORED.

75% OF THESE PATIENTS EXHIBIT CHANGES IN VITAL SIGNS LEADING UP THEIR DEATH.

SAFETYPATCH IMMEDIATELY CREATES BETTER OUTCOMES FOR PATIENTS.

SafetyPatch

FOR HOSPITALS AND CARE HOMES

Basic human health is determined through measurement of five vital signs. SafetyPatch is a small comfortable wireless device that detects five vital signs and various kinds of motion. As such, it is very useful in determining the state of a person's health.

SafetyPatch is intended as an early warning system (EWS) for individuals, providing continuous real-time monitoring of any deterioration in their health and communicating that change to a care provider network. As an EWS, SafetyPatch can be used in care homes and hospital wards for non critical patients.

SafetyPatch allows for continuous real-time monitoring of those in isolation remotely, eliminating personal protective equipment changes and freeing resources to be used in more critical areas in this time of crisis. Automatic vital signs measurements, patient data recording, alarms and a central display system provides a safer more reliable system with fewer resources.

SafetyPatch provides monitoring of heart rate (HR), respiration rate (RR), blood oxygenation or SpO2, temperature (T) and blood pressure (BP). Alarm ranges are programmable by nurses and physicians and the detection of an alarm is communicated to the care providers in two scenarios.

For outpatients, the care provider network uses mobile phones, email and SMS as well as central monitoring. For inpatients, central monitoring is provided and phones are not necessary. The continuous nature of these alarms means earlier detection of deterioration and earlier treatment for better outcomes.

Alarms are programmed by physicians or nursing staff. In addition, a NEWS2 score is provided based on available information to provide another measure of the preferred action.



SafetyPatch – small size and light weight:

- 35mm x 15mm x 7.5mm
- 3 grams

SafetyPatch is a device that detects five vital signs:

- *Heart Rate (HR)*
- *Respiration Rate (RR)*
- *Blood Oxygenation (SpO2)*
- *Temperature (T)*
- *Blood Pressure (BP)*

The small size and light weight of SafetyPatch along with its wireless design contribute to its comfort.

Weight	3 grams
Size	35mm x 15mm x 7.5 mm

This tiny device, measuring five vital signs plus motion, continuously in real-time with alarm capabilities and an IP68 rating sets a new standard for vital signs monitoring.

SafetyPatch is reusable and wirelessly rechargeable with an expected life of five years with continuous use. With the ability to sterilize the device using an alcohol swab or harsher methods, it can be quickly recharged, sterilized and reused minimizing costs.

IN PATIENT USE

75% of deaths in hospital settings are patients outside of the ICU that are not monitored. Using SafetyPatch and monitoring all inpatients, there are immediate alerts of deterioration of any patient's condition. 24/7/365 detection occurs which means that there is constant monitoring, not just once per shift. SafetyPatch also records data automatically eliminating manual recording and associated errors. This allows nurses to follow trends and lets patients sleep and recover.

Studies have shown that this approach leads to a 10% reduction in stay and a 45% reduction in re-admission. These are significant savings for the hospital and a significant increase in the quality of care for the hospital.

When patients are not monitored, the probability of less effective treatment increases. Vital signs changes lead up to 75% of hospital deaths so continuous real time monitoring to replace once per shift checks are a substantial improvement.

There are three main areas where vital signs monitoring is most critical: respiratory depression, cardiac issues and sepsis. Respiratory depression is 97% preventable and early detection allows immediate treatment. In hospital, cardiac deaths are preceded with changes to vitals in 75% of cases. Of these deaths, 64% are predictable, and 38% are preventable. Of patients having in hospital cardiac events, 80% do not recover.

THE ABILITY TO WEAR SAFETYPATCH ON MULTIPLE LOCATIONS IS A KEY BENEFIT. TYPICAL LOCATIONS INCLUDE:

- BEHIND THE EAR
- ON THE FOREHEAD
- ON THE TEMPLE
- ON THE CAROTID ARTERY

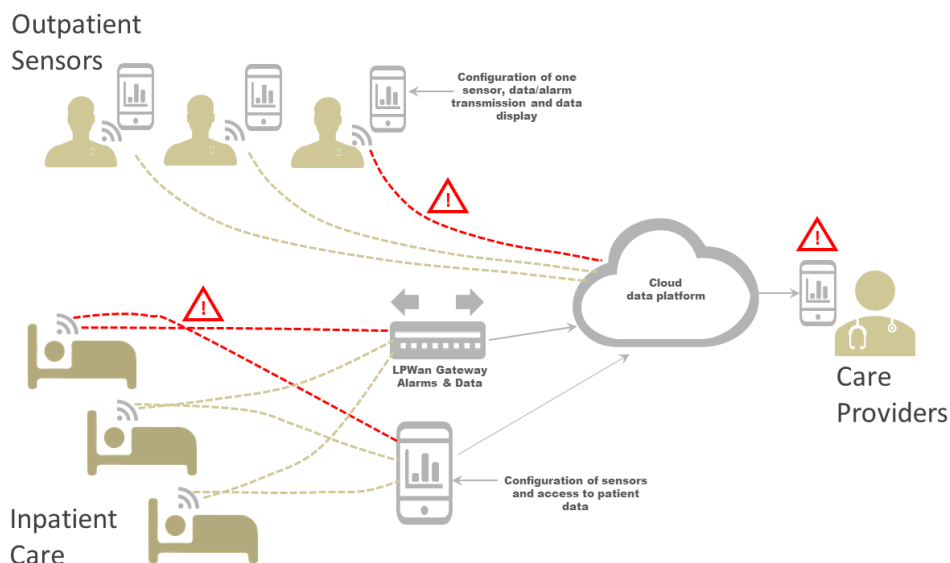
HAVING THIS FLEXIBILITY ALLOWS THE USER TO WEAR THE DEVICE IN AN OPTIMAL PLACE.

Using the NEWS2 score and physician or RN specified alarms ensures a timely and accurate response to changing conditions.

SafetyPatch provides continuous real-time monitoring for changing health related to HR, RR, SpO2, T, and motion. Cuffless measurement of BP can be done on a demand basis provided the patient is at rest. This collection of features, with continuous real-time data monitoring is unique and gives the best possible picture of the user's health remotely or by the bedside.

The ability to wear SafetyPatch on multiple body locations without wires is a key benefit. Generally, compliance or having patients adhere to treatment recommendations is a challenge. By having wireless device that can move around provides flexibility to wear the device in an optimal location for the maximum comfort. Typical locations include behind the ear, on the forehead, on the temple, and on the carotid artery, either up on the neck with a choker or down at the top of the ribs. The freedom of movement created by the wireless device is also a substantial benefit.

SYSTEM ARCHITECTURE DIAGRAM





SafetyPatch is

- reusable
- wirelessly rechargeable
- with an expected life of 5 years.

With the ability to sterilize the device using an alcohol swab or harsher methods, it can be quickly recharged, sterilized and reused minimizing costs.

THE CHOICE BETWEEN ISOLATING SAFELY AT HOME OR GOING TO THE HOSPITAL COMES DOWN TO VITAL SIGNS MONITORING.

MYSAFETYPATCH DELIVERS VITAL SIGNS MONITORING CONTINUOUSLY IN REAL-TIME SO WHEN IT COMES TO YOUR LOVED ONE'S HEALTH - YOU HAVE A CHOICE.

SafetyPatch can assist with prediction using vital signs monitoring and early warnings, and assist with treating the 38% that are preventable, early on. It also allows for earlier treatment of the predictable cases.

Studies have shown that sepsis is detected six hours sooner with continuous real-time monitoring and alerts. Some combined filter of temperature below 36 degrees C or above 38 degrees C, heart rate greater than ninety (90) beats per minute and respiration rate greater than twenty (20) breaths per minute detects sepsis early. Early detection leads to substantially better outcomes.

For at rest measurements, hypertension also has standard alarm limits. If systolic pressure is below ninety (90) or diastolic pressure is below sixty (60) it is an alarm condition. Similarly, systolic pressure above one hundred forty (140) or diastolic pressure above ninety (90) is an alarm condition. SafetyPatch provides cuffless at rest blood pressure measurements allowing patients to be checked at any time without waking them.

Issues with tachycardia, bradycardia, tachypnoea, pyrexia, hypertension and hypotension can all be monitored 24/7 in real time with immediate alarms. SafetyPatch delivers in hospital or care home monitoring providing both safety and a sense of safety during:

- elder care;
- unmonitored;
- post surgical; and
- neutropenic patients.

There are warning vital signs changes in 75% of hospital deaths; SafetyPatch can provide an early warning for 100% of these change cases.

OUT PATIENT USE

SafetyPatch can be used for remote monitoring of patients, allowing them to recover at home, only returning to the hospital occasionally for treatment. Using this approach frees beds and makes better use of these critical resources and eliminates the in-hospital infection risks.

Freeing beds through early discharge is also a benefit of SafetyPatch. By providing post discharge monitoring of remote patients, beds can be freed sooner, knowing that remote monitoring will allow early detection of degradation. Treatment can be modified immediately to suit these new conditions as an outpatient or by their GP.

The freeing of beds leads to substantial cost reduction. Studies have shown that there is a 90% reduction in the cost of treatment with outpatient care. In addition, the patients are happier and with remote monitoring, outcomes are better. Effective resource use will be a key to getting through the current crisis and SafetyPatch can make a substantial contribution.

Clinical trial monitoring is also a feature of SafetyPatch. During new drug investigations, vitals of all participants can be monitored 24/7, allowing any unexpected conditions to be addressed immediately as deterioration starts. This will increase the safety of the trials, as occasionally mistakes have been made with very serious consequences.

Issues with tachycardia, bradycardia, tachypnoea, pyrexia, hypertension and hypotension can all be monitored 24/7 in real time with immediate alarms. SafetyPatch works well for a broad set of remote monitoring conditions providing both safety and peace of mind for outpatients in:

- elder care;
- those waiting for a diagnosis for a serious condition;
- post surgical;
- neutropenic; and
- patients with serious illness.

Remote monitoring allows the remote identification of patients with deteriorating conditions and allows early treatments reducing admissions and re-admissions. It also allows for prioritization of patients which are being admitted.

Note: All statistical outcomes are supported by journal research papers, primarily from UK NHS, USA and WHO.