PORTRAIT™ MOBILE

A continuous, wearable, wireless monitoring solution.

Portrait Mobile is a CE marked medical device. Portrait Mobile is not available in all markets and is not 510K cleared.

Where patients go,
PORTRAIT MOBILE *follows.*

Patient safety and ensuring optimal care for recovering patients are priorities for every hospital. A way to do this is to keep patients moving and to continuously monitor key vital signs, including respiratory rate (RR). While this sounds easy, finding a simple and reliable way to support monitoring patients in the general ward setting has been a challenge.

GE Healthcare is meeting this challenge with **Portrait™ Mobile**, a **wearable continuous monitoring solution** that provides a real-time personalized view of the patient. The device and sensors are wireless, so Portrait Mobile encourages mobility and goes wherever the patient goes, while measuring dual vector respiration rate, SpO_2 and pulse rate continuously. The flow of data is uninterrupted and provides continuous trending and meaningful alarms, helping clinicians detect deterioration as it is happening so they intervene proactively.

When deterioration is detected earlier, it may have a positive impact on outcomes, patient satisfaction and total cost of care.[4]
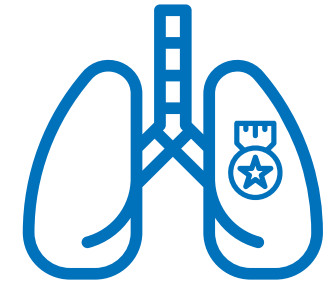
Respiration rate is the "sentinel and arguably the **most important vital sign**",[1] but is frequently omitted, inaccurately measured and not recorded.[2]

90%

Percentage of hypoxemic **episodes missed** when nurses checked vital signs every 4 hours.[3]

1. Loughlin, *et al.,* Respiratory Rate: The Forgotten Vital Sign – Make It Count! *Jt Comm J Qual Patient Saf;* 2018; 44(8), 494-499.
2. Kelly, C. Respiratory rate 1: why accurate measurement and recording are crucial. *Nursing Times* 2018; 114: 4, 23-24.
3. Sun Z, *et al.,* Postoperative hypoxemia is common and persistent: a prospective blinded observational study. *Anesth Analg* 2015; 121: 709-15.
4. Vincent, JL, *et al.,* Improving detection of patient deterioration in the general hospital ward environment, *Eur J Anaesthesiol.* 2018 May; 35(5): 325-333.

A continuous, wearable, wireless
monitoring system

99
SpO₂

16
RR

84
PR

See the patient's picture **in real-time and react**

By providing a continuous picture of patient's health, Portrait Mobile allows caregivers to see when respiration rate, SpO_2 and pulse rate change even slightly, signaling cardiorespiratory complications or infectious disease may be developing. This gives clinicians the opportunity to act early and potentially avert serious adverse events.

### Leverages a unique method of tracking respiration rate

Respiration rate is "the best marker for a sick patient",[1] but continuously measuring it accurately has been difficult. Drawing on GE Healthcare's legacy of parameter excellence, Portrait Mobile reimagines respiration rate measurement through a wireless sensor. This innovative dual vector respiration rate measurement leverages an **innovative algorithm designed for mobile patients,** and **optimized electrode placement** helps account for different breathing patterns.

Helps promote early recovery protocols

By eliminating bedside monitor tethering and by tracking data wirelessly, nurses can still visualize data while encouraging patients to ambulate. Mobility helps keep patients from experiencing functional decline, like developing pneumonia, ultimately **helping enable early recovery, which in turn can lower costs and elevate patient satisfaction.**

Designed so every alarm is actionable

Portrait Mobile is designed for the wards so the alarm strategy is different than for other patient populations. Limits and delays are easily set to **indicate when a change in the patient's status is significant and sustained**, thereby requiring an immediate response.
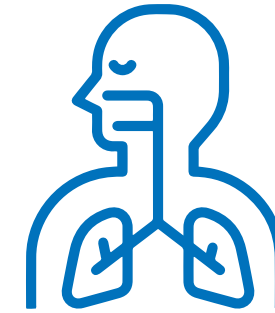
Top 10

patient **safety concern** for healthcare organizations is monitoring for **respiratory depression** in patients receiving opioids.[2]

86%

is the amount code blue **events decreased** when med/surg patients' HR and RR were continuously monitoried in a clinical trial.[3]

1. Michard, Frederic, *et al.,* Protecting ward patients: The case for continuous monitoring, *ICU Management & Practice* 2019; 1, 32-35.
2. ECRI Institute. Top ten patient safety concerns for healthcare organizations. 2017; https://www.ecri.org/EmailResources/PSRQ/Top10/2017_PSTop10_ExecutiveBrief.pdf. [Accessed 10 February 2018].
3. Brown, Harvey, *et al.,* Continuous monitoring in an inpatient medical-surgical unit: a controlled clinical trial, *Am J Med*. 127(3):226-32 https://pubmed.ncbi.nlm.nih.gov/24342543/ [Accessed 28 November 2020].

Make recovery a
moving experience

Ambulation helps with patient recovery. Not only can the Portrait Mobile continuous, wireless, wearable monitoring solution facilitate early patient mobility and support enhanced recovery protocols, untethering from a bedside monitor improves patient comfort and experience.

Helps patients move easily and rest comfortably
With **no wires**, a patient has the freedom to move about, and visitors can seamlessly interact with the patient, without technology getting in the way. Better still, both the patient and family can rest easier and worry less, knowing monitoring is constant — whether the patient is in bed, or walking in the ward. Alarms can be configured to alert at the central viewer, enabling a **silent recovery experience** for the patient.

Helps provide a more realistic view of patient status
The Portrait Mobile Patient Monitor can be docked beside the patient's bed, enabling clinicians to **view and access real-time patient data at the bedside or Portrait Central Viewer.** This can minimize the occurrence of "white coat effect" where patients wake up when a clinician enters the room and values become abnormally elevated.

Mobilization contributes to **improved outcomes** of hospitalized patients and **prevents costly complications** related to immobility.[1]

Geriatric patients with acute illnesses who increased their walking by at least 600 steps from day one to day two of hospital admission were **discharged about two days earlier** than those who did not.[2]

1. Cabalsa, Camille, Creating a Culture of Learning: Improving Patient Mobility in a Medical-Surgical Unit. *Master's Projects and Capstones* 2018: 844. https://repository.usfca.edu/capstone/844.
2. Fisher SR, *et al.,* Early ambulation and length of stay in older adults hospitalized for acute illness. Arch Intern Med. 2010;170(21):1942-1943. doi:10.1001/archinternmed.2010.422.

Put clinical and economic goals in focus

Continuous monitoring can help drive better outcomes by helping increase patient safety and minimizing costs incurred from preventable adverse events.[1] Because the Portrait Mobile solution allows clinicians to have visibility to patient deterioration as it is happening and intervene proactively, it may drive operational efficiencies and help improve quality of care, cost and mortality measures.

May help reduce transfers to higher acuity units

Because, traditionally, the ICU has the highest mortality compared to other sections of the hospital,[2] and because critical care is costly to administer, it is imperative clinicians and hospitals minimize ICU transfers. Data from a study highlighting continuous ward monitoring of SpO_2 and heart rate, a key capability of Portrait Mobile, showed a reduction in ICU transfer rates, which led to **significant annual cost savings**.[3]

May help reduce length of stay

Reducing hospital lengths of stay (LoS), especially as it relates to avoiding unnecessary hospital-acquired conditions, is a primary indicator of a hospital's success in **avoiding patient harm and maintaining quality while also lowering costs.** Continuous monitoring on a medical-surgical unit was associated with a significant decrease in total LoS in the hospital and in intensive care unit days for transferred patients, as well as lower code blue rates.[4]

More efficient use of Rapid Response Teams

Portrait Mobile's uniquely designed alarm configurations **alert caregivers when a change in patient status is significant and sustained,** requiring an immediate response. Clinicians acting sooner should decrease the number of adverse events which may enable better and more efficient use of Rapid Response Teams.

Helps optimize telemetry usage

While telemetry (ECG) monitoring is appropriate in a cardiac unit, its use with non-cardiac patients increases the cost of healthcare and may provide a false sense of security.[5] Portrait Mobile's alarm strategy, workflow and cost make it more purposeful for the ward.

$9 mil

5-year total cost savings of intervention effects of continuous monitoring based on a comparative study.[6]

1. Vincent, JL, *et al.,* Improving detection of patient deterioration in the general hospital ward environment, *Eur J Anaesthesiol.* 2018 May; 35(5): 325-333.
2. Molina JA, *et al.,* Outcomes of direct and indirect medical intensive care unit admissions from the emergency department of an acute care hospital: a retrospective cohort study. *BMJ Open.* 2014 27 November; 4(11):e005553.
3. Michardl, *et al.,* The rise of ward monitoring: opportunities and challenges for critical care specialists. *Intensive Care Med* 2019; 45(5): 671-673.
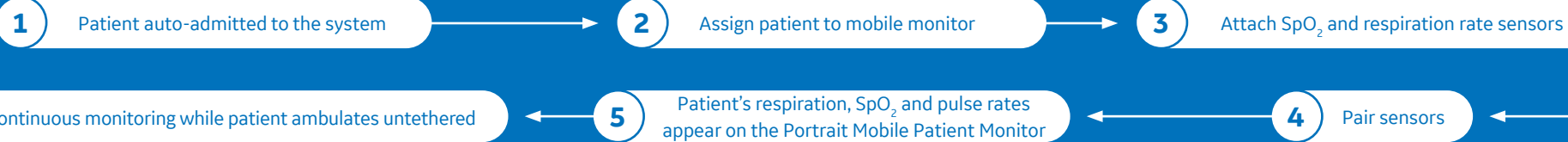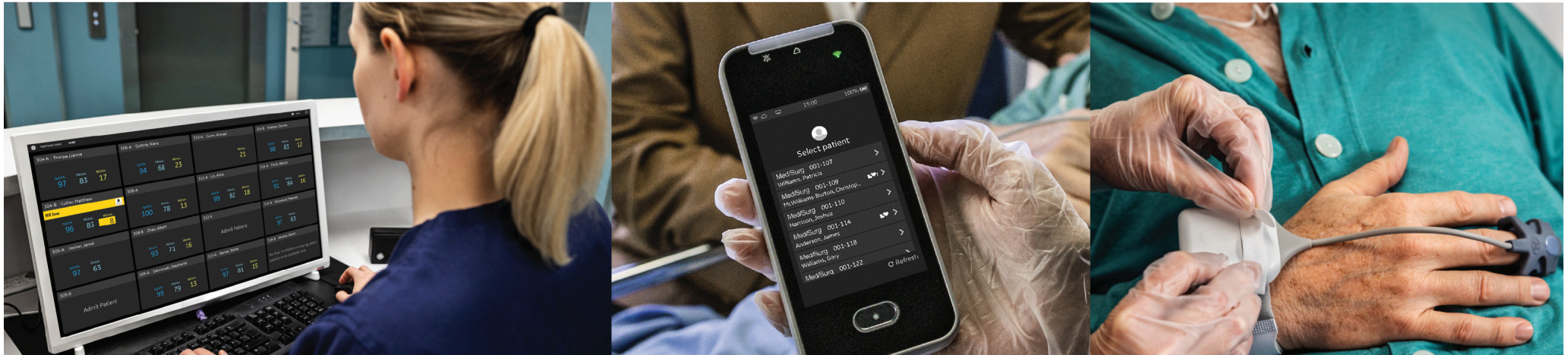4. Brown H, *et al.,* Continuous Monitoring in an Inpatient Medical-Surgical Unit: A Controlled Clinical Trial. *The American Journal of Medicine* 2014;127(3):226-232.
5. Larson, T, *et al.,* Electrocardiographic monitoring in the hospitalized patient: a diagnostic intervention of uncertain clinical impact. *Am J Emerg Med* 2008 Nov;26(9):1047-5.
6. Slight, SP *et al.,* The return on investment of implementing a continuous monitoring system in general medical-surgical units. Comparative Study, *Crit Care Med* 2014 Aug;42(8):1862-8.

Portrait Mobile Workflow

1. Patient auto-admitted to the system → 2. Assign patient to mobile monitor → 3. Attach SpO$_2$ and respiration rate sensors

6. Continuous monitoring while patient ambulates untethered ← 5. Patient's respiration, SpO$_2$ and pulse rates appear on the Portrait Mobile Patient Monitor ← 4. Pair sensors

Portrait Mobile Ecosystem

Wifi Connection

Byndr™ medical body area network (MBAN) Connection

Paint a future of secure,
comprehensive monitoring

Designed for real-time critical monitoring, Portrait Mobile is a future-focused platform. By incorporating state-of-the-art technologies on an edge-computing architecture, Portrait Mobile provides the reliability, data security, and horizontal scalability needed by the hospitals of the future.

Seamless integration
Portrait Mobile's routable communications architecture enables hospitals to **leverage their existing network infrastructure** when deploying the system, reducing installation and maintenance costs. And because the Portrait Clinical Viewer is a Windows® application running on your hardware, IT teams are able to **use their existing security tools and management practices** to ensure security and privacy policies are followed.

By **adopting IHE/HL7® standards,** Portrait Mobile can easily integrate with EMR systems to enable ADT workflows for admit and discharge, publish clinical documentation to patient records, or connect with other third party platforms such as a distributed alert system.

Robust and reliable
Portrait Mobile provides reliable, real-time data with its skin-to-screen reporting. The wireless medical body area network (MBAN) wearable sensors communicate to the Portrait Mobile Patient Monitor using an innovative Byndr™ transmission protocol, **designed so the wireless signal is as reliable as a wired connection.** The wearable sensors are capable of operating in both protected spectrum[1] as well as the unlicensed Industrial Scientific and Medical frequency band.

Robust cybersecurity protections include **end-to-end encryption on a platform secured with signed software.** And you can count on the high availability and ease of expansion offered by a solution **built on a modern, containerized architecture.**

Future-focused and expandable
Portrait Mobile is built on GE Healthcare's Edison HealthLink platform, which is an **advanced edge-compute platform** that collects, analyzes and acts upon critical data closer to its source. This modern system is designed to last, meaning you can start wireless monitoring patients with Portrait Mobile today and expand the platform as your monitoring needs evolve.

Powered By
Edison

Secure your future today with Portrait Mobile.

1. Availability of protected spectrum may vary from country to country.

Portrait Mobile Monitoring System

Portrait Mobile Monitor Features*

Display size: 3.7in

Weight: 230g (0.5lb)

Battery life: Continuous power when docked, 16 hrs when mobile*

IP rating: X7

Drop height: 1.6m

Range (sensors to monitor): Designed for full mobility in-room use, including en suite bathroom.

Parameters: TruSignal™ SpO_2 and RRdv sensors. Rechargeable battery with minimum 24 hr battery life.

Trend: 4 hrs on monitor; 24 hrs on viewer with events

Number of beds per viewer: 24 on one screen, 48 beds on two screens

Patient population: Adult and pediatric (age 3+) >10 kg (22 lbs)

*See product specifications sheet for details.