

Checkpoint Cardio (consortium)

Checkpoint Cardio has developed one of the first systems for real time online patient telemonitoring with fully operating cardiological medical center for continuous 24/7 observation, diagnostics, patient health management and emergency reaction services. Through smart wearable devices, the system collects 3-12 lead ECG, SpO₂, pulse, respiration rate, non-invasive blood pressure trend, activity and location of the patient. The first of its kind telemedical center has served more than 15 000 patients across 3 continents. There are thousands of patients' cases, where severe health conditions have been detected and the condition of the patient immediately managed, while at the same time her/his safe transfer to a hospital was conducted. Thus the system and the service have been proven to be lifesaving.

With the participation in Nightingale solution, Checkpoint Cardio will be able to widen the pathologies detected and medical services offered, through the system, such as model-based intelligent detection and prediction of deterioration in general patient condition both inside and outside the hospital, the adding of more medical specialists in the telemonitoring medical center, such as General Practitioners, emergency specialists, psychiatrists, etc., and to bring the remote medical professional help to a level of indispensable part of the healthcare system of the future, where the medical help can be delivered instantly to the patient, and where the patient will be the central point of care.

Cronos (consortium)

Rather than being disruptive the emergence of the always-on, always connected world is a true opportunity in healthcare. Data may be literally very vital: patients die because signs of deterioration are missed all too often, because patients are not connected today. Working at the edge of today's available technology UCIM brings an affordable solution for monitoring patients. UCIM is a consortium combining the powers of the University of Oxford, Cronos, Innomediq, and Mindray.

It is essential to have the right data accurately on time and to provide actionable insight to physicians and caregivers. Both aims will be fulfilled with the joint development of an intelligent monitoring system, baptized AIMS (Ambulatory Intelligent Monitoring System).

Emfit

Emfit is a world-leading manufacturer of non-contact vital signs, sleep, sleep-disorder and seizure movement sensors and electronics. Emfit has developed a low-cost contact-free system now in use for elder care, hospitals and consumers. Emfit's sensors suitability for diagnosing obstructive sleep apnea and increased respiratory resistance are supported with tens of scientific publications. Also, its usability for heart rate, heart rate variability, breathing rate and even atrial fibrillation diagnosis are supported with tens of non-biased scientific publications.

For the Nightingale challenge Emfit is offering a solution that would utilize the underlying existing real time over the Internet operating sensor technology. In the project Emfit with its partners is developing a well-integrated patient safety system to alert caregivers across the continuum of care to impending deterioration in their patients.

HealthCareCoCreation (consortium)

P@RMbot is a unique collaboration of innovative world-leading and deeply experienced organizations that have come together to work with the Nightingale team to meet the Nightingale challenge. Underpinning the consortium is the powerful approach of "co-creation" that delivers true collaboration and an open innovation mindset, alongside a unique "value driven" framework that delivers a rigorous approach to benefits understanding and solution design and ensures that all stakeholders are fully represented. Through real-world experience, collaboration and unique insights into deterioration ecosystem interactions, resources, capabilities and decision-making, P@RMbot will enable new more effective modes of clinical assessment, collaboration and action leading to improved patient, clinician and ecosystem outcomes. With P@RMbot the patient will feel confident, safe and cared for during and following a visit to the hospital.

P@RMbot will sense, decide and respond to changes in vulnerable patients in hospital and following discharge. P@RMbot does provide a multi modal hybrid solution using a variety of appropriate, tailored sensors, devices and interfaces. These consist of electronic devices with standard software interfaces (app) and human interaction all supported with a novel conversational BOT interface. The latter builds patient motivation, learning and adherence with their deterioration treatment whilst improving their self-knowledge and overall wellbeing.

Pulso (consortium)

The aim of "Smart Eye" solution is to provide a tool for managing post-operative patients in both recovery rooms/ICU and at home. The device will be smart monitoring continuously their health condition and giving support to patients with their self-care, allowing to predict and detect physiological instability and perform corrective actions to prevent death and disability and leading to safer care. The long-term objectives of the developed device include: safe reduction of Length of Stay in the hospital, reduced number of avoidable re-admissions to ICU, reduction of mortality, reduction of additional costs.

"Smart Eye" will be based on a wearable device for monitoring patient's vital signs and relevant parameters and an intelligent virtual coach to which patients will communicate from different platforms. "Smart Eye" will be used by different users in a patient ecosystem: informal caregiver, case manager and other health professionals. Thus, different functionalities will be accessed depending on the user accessing the system.

SUI Generis Solutions

Sentinel Patient Monitoring System (SPMS) is an "Offline First", patient monitoring and dynamic clinical workflow app that works with its own, untethered, vital signs sensor. SPMS maximises the use of A.I. models on the client device even when not connected to a network or the Internet. A smart phone and sensor is assigned to the patient. Alerts are automatically issued to selected group members when needed but also when patterns in the vital signs indicate other deteriorating trends even though they may be within normal ranges.

The system is group based and makes use of block chain technology allowing patients and their data to be transferred between groups and updated even when off-grid. The system also reduces false alarms through intelligent algorithms that use all the sensors capability but also by asking users/medics if the alert was correctly generated. From this data the system 'learns' and improves. Sentinel is the next generation of patient monitoring.

Tech4Care (consortium)

NightWatch is a ground-breaking solution for monitoring, detecting and predicting physiological instability of high-risk patients, enabling real-time healthcare intervention for safer care and prevention of disability and eventually death. The NightWatch solution consists of an innovative wearable sensor technology and an intelligent information analysis information system, which can be used in both hospital and home settings for early detection and prediction of any incurring deterioration and instability of health situation.

NightWatch is conceived as a technological system which integrates the following modules: (1) a set of sensing wearable devices – a smart wristband, a smart shirt and others – for collecting key health data; (2) a web-based portal as input system for getting additional health-related data from patients and/or family carers; (3) an interoperable and secure information system for accessing and retrieving health data from electronic health records (EHRs) and electronic medical records (EMRs); (4) a tablet – with a dedicated machine learning system and software (apps) – as a portable device for collecting, integrating and analysing all relevant individual data and notifying information and actions to all targeted users (patients, carers, health professionals).

TRUST Medical Systems

Patients die because signs of deterioration are missed. There is a huge unfulfilled need for better monitoring of vital signs and other data to identify high-risk patients who are on general hospital wards or at home. Patient deterioration is often overlooked or not detected at all. One of the reasons is the intensity in nursing and frequency of vital signs monitoring which decreases from the Intensive care via ward towards home. Early detection of physiological instability is crucial to prevent death and disability.

With Healthy@Home TRUST medical systems B.V. with its partners Cerner Nederland and Biovotion AG proposes a solution that fulfils the goals of the Nightingale project and surpasses those goals in the near future. With a wearable the vital signs of patients are continuously monitored in order to detect in an early phase patient de-hospitalization at home. The data will be interpreted with sophisticated algorithms to prevent artefacts. The solution is flexible which makes it possible to start as a hospital with patient health management and in a later phase make the solution available for population health management for the region. In that phase all caretakers of the region can participate.

Early detection of deterioration is crucial to prevent death and disability from rapidly fatal conditions and reduced number of avoidable re-admissions to intensive care unit. Secondly, we want safe reduction of length of stay in the hospital.

Welch Allyn

Welch Allyn and Mortara are wholly owned subsidiaries of Hill-Rom Holdings, Inc. We provide industry-leading technology for measurement of patient vital signs, analysis algorithms, management of data artefacts, and connectivity to hospital electronic medical record systems. Our unique focus on patient monitoring in the low to medium acuity hospital wards, technology platforms, and demonstrated ability to integrate data within the electronic medical record allow us to deliver a fully integrated, seamless solution that meets the Nightingale challenge to wirelessly monitor patients' vital signs, identify high-risk individuals, and detect patient deterioration early so that treatment can prevent death and disability in the hospital and at home.

Hill-Rom is a leading global medical technology company with more than 10,000 employees worldwide. We partner with health care providers in more than 100 countries, across all care settings, by focusing on patient care solutions that improve clinical and economic outcomes. Hill-Rom's people, products, and programs work towards one mission: Every day, around the world, we enhance outcomes for patients and their caregivers.