FROST & SULLIVAN

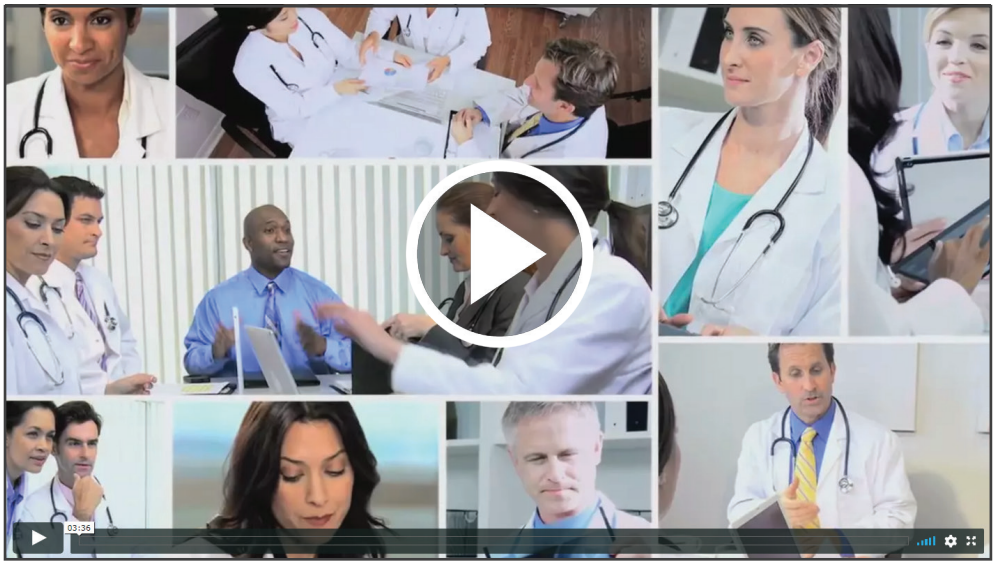
Acute Care—Workflow Solutions

2016 North American
General Acute Care Workflow Solutions
Product Leadership Award

BEST PRACTICES
AWARDS

The Philips IntelliVue Guardian solution provides general floor, medical-surgical units, and emergency department waiting areas an accurate and efficient workflow solution to identify deterioration signs that predict a future event.

North American Product Leadership Award for Philips



Understanding Product Leadership Award

By incorporating the hospital's early warning scoring protocol, the IntelliVue Guardian solution allows clinicians to track, predict, and react to health events before they happen, reducing code blue alarms, and unnecessary transfers into the intensive care unit, thereby lessening patient stay times and the associated financial burden. Philip's close customer relationships enable Philips to utilize customer feedback during innovation stages of new product development, ensuring that the company can continue to meet its customer's evolving needs.

General Care Challenges Facing Healthcare Providers Today

All too often, patients admitted to hospitals suffer from unanticipated adverse clinical events, many of which are preventable. Surprisingly, 35% to 40% of hospital deaths occur on medical surgical (med-surg) floors not meant for the most critically ill patients. For 5% to 8% of these general cases, the patient will actually expire when there were expectations for a full recovery.

Standards of care for med-surg patients include periodic or spot-check vital signs monitoring that is typically done every 4 to 6 hours and can include respiration rate, SpO2, blood pressure, temperature, observation (level of consciousness, pain, O2 source), and other parameters. This data becomes part of the electronic health records (EHR) of the patient's medical history. The collection and storage of this critical physiological data allow caregivers to develop an overall impression of the patient.

Patients on the med-surg floor are sicker than they were in the past. In fact, many patients on the floor would have been in the intensive care unit (ICU) only a few years ago. These patients require more intensive care and as a result some hospitals have chosen to add continuous ICU-level monitors to the floors with an alarming workflow. The alarms let the caregiver know when a patient's vital signs have gone outside of an acceptable boundary. The hope is that it will allow the caregiver to intervene before the patient suffers a Serious Adverse Event (SAE), like a myocardial infarction. Unfortunately, this approach to monitoring can lead to alarm fatigue and false-positive alarms.

Evidence now indicates that a patient on a general floor can be in a state of pre-clinical failure 6 to 8 hours before experiencing an SAE. If this gradual deterioration goes undetected, the result can be fatal.

Shifting Population Demographics in America Means Sicker Patients

As more and more baby boomers move into Medicare eligibility (age 65+), the demand for general care beds will increase. The main reason for this demand is two-fold—the rapid growth of the Medicare-eligible demographic (10,000 Americans a day turn 65) and the fact that this population is also living longer due to continuous improvements and advances in their medical care.

However, unanticipated clinical complications associated with patients admitted to general care floors can have potentially catastrophic results.

The ability to automatically analyze clinical data for the subtle signs of patient deterioration that precede an event is not present in most vital signs monitoring systems. Even if an institution is using a system that looks for clinical deterioration, technology alone does not guarantee success. The clinical staff at the hospital must be integrally involved in the program to have the best possible outcomes.

Answering the Call for Solutions: The Philips IntelliVue Guardian System

Many hospitals created early warning score (EWS) protocols, where nurses must calculate a score based on a patient's vitals. These scores help identify patients showing signs of clinical deterioration—those at an increased risk for an SAE. However, crowded wards combined with overburdened nurses and sicker patients sometimes result in delays in the completion of each patient's EWS, which can lead to increased events[1]. As such, hospitals need more efficient EWS solutions that can implement a streamlined patient care workflow and identify patient deterioration earlier to prevent adverse events.

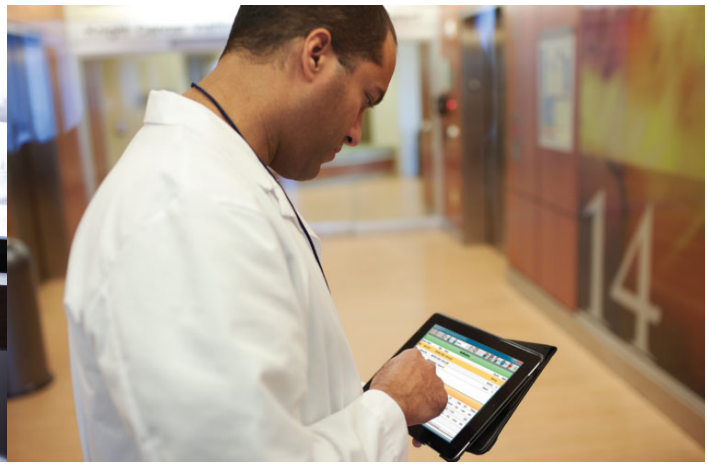
Philips designed the IntelliVue Guardian System to address the challenge of manually tracking clinical deteriorations using EWS. One primary function of the IntelliVue Guardian System is to aid in identifying potential signs of early deterioration.

The IntelliVue Guardian System is an overall solution that can aid with quick identification of general floor patient deterioration and can facilitate appropriate intervention that can aid in reducing potential health events; thus, enhancing patient care, clinician workflow, and patient stay times. Philips works with hospitals to identify challenges faced by the institution regarding care workflow and data collection related to patient deterioration. Together, Philips and the hospital's clinical team can identify process changes and even develop customized EWS protocols, helping hospitals improve response times to events, the accuracy of patient identification and the effectiveness of communication among caregivers. The Philips Spotcheck monitor can automatically calculate a patient's EWS and present the results and action list right at the bedside, eliminating the time and possible error of manual calculations while reducing time spent manually documenting vital signs.

[1] https://www.ncbi.nlm.nih.gov/pubmed/26181217

Meanwhile, the IntelliVue Guardian System can collect and collate patient data and scores, and forward spotcheck records to the electronic medical records (EMR) with bedside user authentication and validation, so charted data is added to the EMR automatically. The system can deploy on a hospital's hardware or virtual environment using its LAN/WLAN infrastructure, facilitating easy installation and seamless integration.

When a patient's EWS rises into a warning phase, the system can automatically send a notification through the Philips CareEvent system or another compatible and equivalent third-party event management software to the mobile device chosen by nurses, calling for an intervention based on each hospital's specific protocol. Should the protocol call for more frequent vital sign collection, nurses can choose to use Philips sensor-based vital signs technologies to send measurements at more appropriate intervals (e.g., every five minutes). This capability allows nurses to care for the other patients on the floor with confidence, knowing that the Philips IntelliVue Guardian Solution monitors patients for them. The sensors seamlessly integrate with the Guardian system, enabling clinicians to view changes in patient status from a Guardian client or at the patient's bedside on the vital signs monitor.



Adding Value to Patient Monitoring: The Philips IntelliVue Guardian Solution

The IntelliVue Guardian System offers a comprehensive clinical solution designed and engineered specifically for the general care floor, so it can fit into the hospital's existing workflow. This sophisticated and advanced design can notify attending clinical staff on the floors about potential adverse health-related events. Philips works with hospitals to identify and mitigate the challenges related to accurate and predictive patient monitoring.

Together, Philips and hospital clinical care teams work to improve response times for detecting clinical deteriorations by implementing each hospital's specific EWS protocol. If a hospital has not decided on a specific EWS protocol, Philips can work with them to select the EWS algorithm that best suits their patient population. Once a hospital selects an EWS algorithm, Philips works to automate that protocol within the Guardian solution. The Guardian System then can automatically calculate an overall patient EWS score at the bedside or the Guardian clients throughout the unit, and send notifications to caregivers using the hospital's alerting and notification system. This methodology relieves a nurse from having to gather independent vital sign values to calculate each patient's EWS manually. The EWS scores can indicate whether a patient is stabilizing or is in distress.

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Philips Commitment to Quality Outcomes: The Philips Customer Service Continuum

One hospital that adopted the IntelliVue Guardian System experienced significant improvements in the time it took to identify patient deterioration and to notify the caregiver, going from an elapsed time of 19.6 hours to 1.47 hours[2]. It also experienced a 70% reduction in codes, which led to an estimated $800,000 reduction in annual code blue-associated costs. Furthermore, the recently released VITAL II study, showed that the deployment of an electronic automated advisory vital signs monitoring and notification system, using the IntelliVue Guardian System demonstrated an increased number of rapid response team (RRT) notifications; triggered fluid therapy, bronchodilators, and antibiotics more quickly and accurately based on patients' conditions; and empowered caregivers to make more informed care decisions. These increased activations led to decreased overall mortality, cardiac arrests, and illness severity in the medical surgical patients and patients admitted to the ICU in participating hospitals[3].

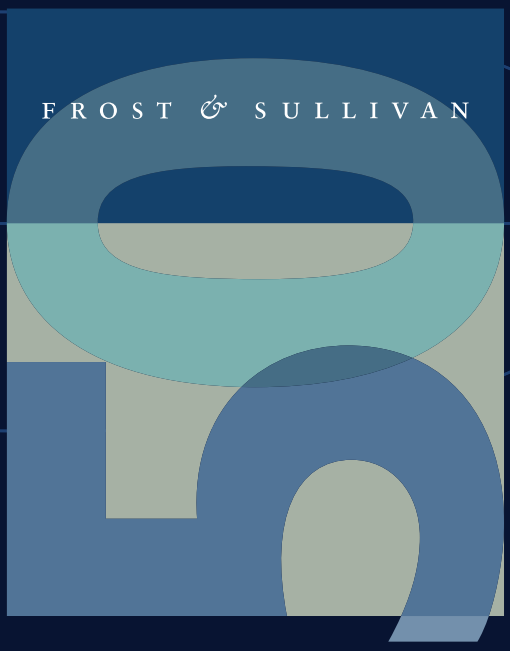
[2] Stephen Knych MD, et al. Implementation of a Multi-System Solution to Identify the Clinical Deterioration in Patients on the Medical Surgical Unit. National Patient Safety Conference, 2013.

[3] Subbe, C. P., Duller, B., & Bellomo, R. (2017). Effect of an automated notification system for deteriorating ward patients on clinical outcomes. Critical Care, 21, 52. http://doi.org/10.1186/s13054-017-1635-z

Achieving Recognition as the Frost & Sullivan Product Leadership Award Recipient

Ultimately, growth in an industry requires a select collection of customers to purchase a product with the hope that these same customers will ultimately become ambassadors for the brand and eventually provide referrals—meaning, a company must make repeated and value-driven propositions to its customers by adding value to their lives and businesses. To achieve and sustain product excellence while growing brand recognition, an organization must strive to be the very best in its industry vertical and be the standard for performance. Frost & Sullivan characterizes product leadership in three key areas: understanding demand, nurturing the brand, and differentiating from the competition. Philips continually executes this three-fold focus while concurrently demonstrating a best-in-class level of performance. Necessities for this achievement include continuous customer communication, attention to customer feedback, competitive pricing, and awareness of competition; all monitored to ensure a climate of ongoing success.

Philips earned Frost & Sullivan's 2016 Product Leadership Award in the general acute care workflow solutions market.



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