

PHILIPS

Patient Monitoring
Solutions

Alarm management

Alarm management **from signal to action**



Be informed of patient conditions, virtually anywhere you are

When you use monitors to observe the health status of your patients, it is important to manage alarms. In fact, one study showed that each day, caregivers are exposed to up to 300 alarms per patient.¹ Some of those alarms require immediate action. Others, while important, can be responded to as time allows or transferred to a colleague. Still others are false alarms, or conditions that resolve themselves without intervention.

An informed caregiver is the critical link to a holistic monitoring system

On the patients...



- Philips medical consumables
- Sensors

...in their rooms



- IntelliVue monitors
- Telemetry monitors
- Vital signs monitors
- IntelliVue Guardian Solution

...on their units



- PIIC iX Platform
- IntelliBridge Enterprise

² This continuous end-to-end solution from a single vendor simplifies patient alarm management and helps align resources, processes, and technologies.

Our distributed alarm solution addresses these challenges:

- Aiding patient safety
- Facilitating efficient workflow
- Supporting caregiver mobility
- Preventing alarm fatigue
- Enhancing staff satisfaction
- Providing secure access to the patient monitor data
- Organizing your team efficiently

Determining which alarms require immediate response can be a source of stress and frustration. Proper alarm management addresses that frustration by helping you categorize and distribute alarms, leading to improved workflow, lower noise levels, and enhanced patient care. Our alarm management solution is an end-to-end solution: from the electrodes to the monitors to mobile solutions to reporting and analysis. It helps you manage and distribute alarms so that no matter where you are in the hospital, you have access to the data you need to assess your patients' conditions. Reliable and secure, it is designed to complement real world workflow and staffing.

Philips CareEvent

...out to their caregivers

Name	Bed	Patient Name	Nurse	Backup Nurse
Rubata, Rubata	1045	Rubata, Rubata	Nancy, Nancy	
Nancy, Nancy	1045	Rubata, Rubata	Nancy, Nancy	
Subham, Akher	1045	Rubata, Rubata	Nancy, Nancy	
	1047	Rubata, Rubata	Nancy, Nancy	
	1048	Rubata, Rubata	Nancy, Nancy	

- CareEvent care assignment

...on the caregivers' smart devices



- Philips CareEvent
- IntelliVue Mobile Caregiver

...and for clinical management



- Alarm reports
- Alert and event reports

More useful information; fewer interruptions

From end-to-end, we've designed a patient monitoring system that puts patient safety first, while helping you manage alarms and prevent alarm fatigue. Our alarm management solution includes primary monitoring at the bedside, the central station within the unit, and a mobile application available on the caregiver's smartphone.

Alarm management starts at the bedside

Every component of our monitoring system is aligned to help you provide outstanding care, while minimizing unnecessary distractions. For example, when interpreting ECG waveforms, even the most sophisticated algorithms can be defeated by a loose or improperly located electrode. That is why our focus on quality begins with our electrodes and sensors, which meet our exacting standards and are designed to deliver clear signals to our monitors, enhancing alarm reliability.

IntelliVue monitors put you in control of alarming parameters, so you can separate actionable from non-actionable alarms. They permit you to tailor alarms to the clinical characteristics of individual patients and groups of patients, so you can choose different alarm triggers that reflect different patient conditions, reducing nuisance alarms. You can create alarm profiles customized to unit policy, patient population, disease state – or even time of day. Advanced clinical decision support (CDS) tools provide graphical views that help you analyze measurement trends and spot concerns so you can respond to patient needs even before an alarm is triggered. All these options help to reduce noise, creating a quieter healing environment.

In addition, you can use the bed-to-bed overview at any monitor to access alarms and vital signs information from any other networked monitor, so you can quickly review a patient's data and determine appropriate action even if you're in another patient's room.

A clear view of patient condition

Philips IntelliVue Information Center (PIIC iX) provides a powerful central monitoring system that gives you one intuitive view of each patient's current status, personalized to the patient's clinical condition and configured for your department. From the PIIC iX information center, several review applications highlight interdependencies and give you a clear picture of patient status and condition, to help you identify alarm trends and then adjust alarms to better reflect patient needs. In addition, you can silence and manage alarms from the information center. PIIC iX also relays alerts with clinical content from bedside or telemetry monitors to CareEvent.

Clinical context in your hands

CareEvent event management delivers parameters, waveforms, and other alarm-based data directly to your hospital-supplied smartphone, so you can confidently assess patient condition even when you are away from the bedside or information station. With clinical context in your hands, you can make an informed decision to respond, escalate an alarm to a colleague, or communicate effectively with the care team. Role-based assignments determine which caregiver receives the alarms, and you can design a three-level escalation path that complements your staffing and workflow.



Our distributed alarm system integrates data from various sources, including third party equipment such as ventilators and infusion pumps.

CareEvent's impact

Easy to learn and use, CareEvent's varied ringtones – including Philips patient monitoring alarm ringtones – help you distinguish alarm types even before you view the alert. Visual indicators signify the priority and validity of the alarm.

CareEvent is designed for reliability and peace of mind. Compliant with the international standard IEC 60601-1-8,* it supports secure communication among the care team. Technical alarms are also distributed to CareEvent, so any breaks in connectivity result in a disconnection sound or vibration, and the signal indicator turns grey.

* The international standard IEC 60601-1-8 defines alarm condition categories and provides guidance for alarm generating devices and systems.

- Receiving actionable notifications and communicating directly on a smartphone enables workflow optimization, which drives efficiency and facilitates collaboration among staff
- Supports effective utilization of resources because relevant, actionable information is delivered to the patient's assigned caregiver, using role-based assignment per bed and three levels of escalation
- Helps address the financial costs attributed to nursing overload
- Enhances the quality of care and hospital environment for patients, their families, and staff



Reducing noise levels

Patient safety is the first priority for any healthcare provider. While patients are at risk when relevant data fails to trigger an alarm, they are also at risk when too many non-actionable alarms create unnecessary noise and lead to alarm fatigue, in which alarms become so commonplace and there are so many false alarms that actionable alarms don't receive the attention they deserve. In addition to causing frustration and stress for caregivers, inaccurate and nuisance alarm can keep patients from resting and hinder recovery.



Analyze and enhance

What you cannot measure, you cannot control. The PIIC iX Alarm Audit Log supports hospital research on alarming and sentinel events and provides data to continuously improve your alarm management.

CareEvent and reports – including the number of alarms, the times of alarms, the caregiver response and response times associated with the alarms – can be used to adjust your alarm parameters, improve your protocols, and balance the workload among caregivers.

Our alarm solution supports targeted, intelligent alarm delivery to reduce noise and alarm fatigue. In fact, Philips clinical transformation team helped St. Antonius Hospital (Nieuwegein, the Netherlands) reduce irrelevant ICU alarms by 40%.²

End-to-end, our solution helps you reduce the overall noise level by allowing you to:

- Customize parameters for patients whose conditions cause vital signs to fall outside of normal parameters
- Generate a graphical report that displays potential changes that will reduce alarms without increasing risk
- Send actionable alarms directly to the caregiver assigned to a patient
- Save critical time by identifying the alarm type with the first signal, because you can assign different ringtones to different alarm types

Clinical experts provide consulting and training

In addition, our clinical experts can review your reports and help you assess and adjust your alarm strategy. We also provide training on your alarm management solution and how to tailor it to meet your needs. As part of the launch process, we work with your clinical teams to establish alarm management workflow using a role-based alarm escalation path, with the option to include staff resources from your entire enterprise.

1. Görges M, Markewitz BA, Westenskow DR: Improving Alarm Performance in the Medical Intensive Care Unit Using Delays and Clinical Context. *Anest. Analg.* 2009;108:1546-1552
2. St. Antonius Hospital reduces non-actionable ICU alarms by 40% to improve patient care and staff satisfaction. 2014 Koninklijke Philips N.V. 2014.

