

Vital signs data is not enough. Meaningful changes in healthcare delivery require actionable data.



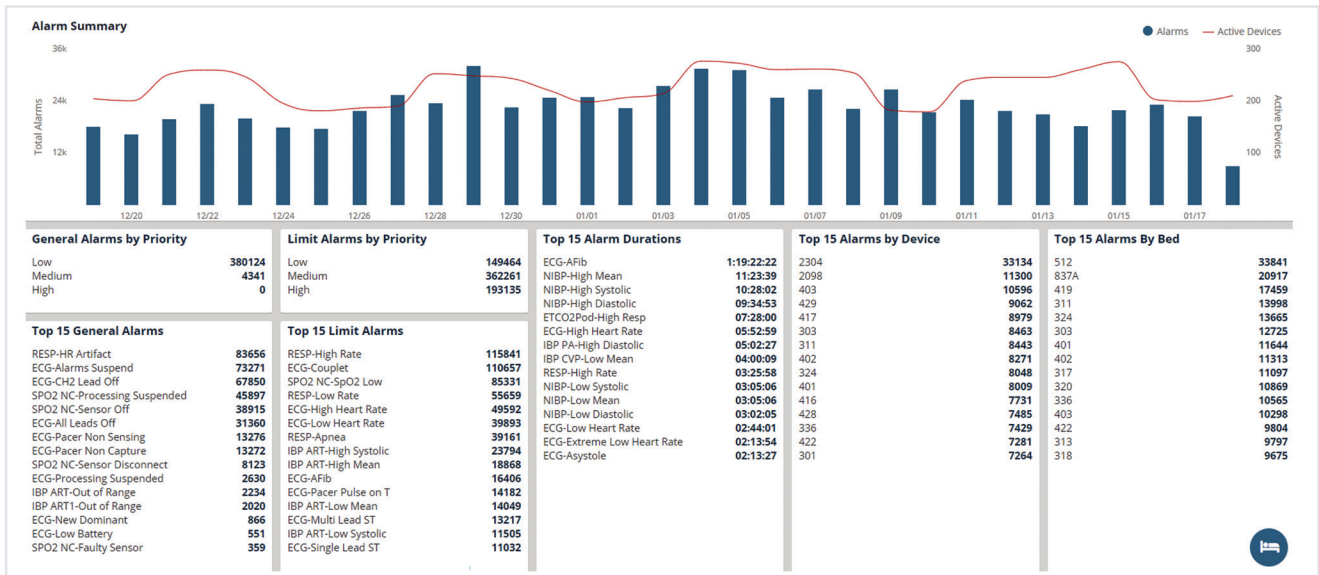
A Need for Change

For more than 40 years, vital signs monitoring has been an important component of monitoring an adult or child patient’s progress during hospitalization, allowing for the swift detection of hindered recovery or adverse events. Traditionally, the five vital signs of blood pressure (BP), pulse, respiratory rate, oxygen saturation (SpO₂), and temperature are regularly used to monitor a patient’s progress. Changing trends in a patient’s vital signs data can indicate clinical decline, which, without identification and intervention, can lead to harmful outcomes or death. Patient vital signs are monitored at the bedside and at nursing central stations, while specific information is sent to Electronic Medical Records (EMR) systems as part of the patient record. But there is so much more that can be done with the information being collected.

Overview

The most unrecognized and misunderstood asset of hospital systems today may be patient data. Clinicians rely on data to make informed decisions at the point of care, but too often they do not get the right type of data at the right time. Instead, they see too much data, or data that is not formatted to drive meaningful action.⁽¹⁾

To improve workflow efficiencies and patient benefits, hospitals are challenged to take the necessary steps to make actionable data available to the right staff at the right time. In a recent Strata survey of leaders in health systems, 90% of respondents said they did not have access to the information they needed to do their job.⁽²⁾ For many health systems, patient data is a mystery, hidden away from clinical providers and only used for research, while being nearly impossible to access for most clinical users. Making this data available in usable formats can allow staff to improve clinical efficiencies, operations, and financial performance. Doing so may involve upfront spending beyond the traditional capital expenditure for monitors, but the gains are worth it across a multitude of areas.



Alarm fatigue.

Nurses working in intensive care settings are all too familiar with the overwhelming distraction of constant alarming from patient monitors, ventilators, beds, medication pumps, vital signs monitors, and other medical devices in their care area. Research indicates that 72% to 99% of all alarms are not actionable, which can lead caregivers to become desensitized to critical alarms—a condition commonly known as alarm fatigue.

The American Association of Critical Care Nurses defines alarm fatigue as a sensory overload that occurs when clinicians are exposed to an excessive number of alarms. This desensitization can create serious patient safety issues when clinicians do not respond to alarms because they assume the alarms require no intervention.⁽³⁾

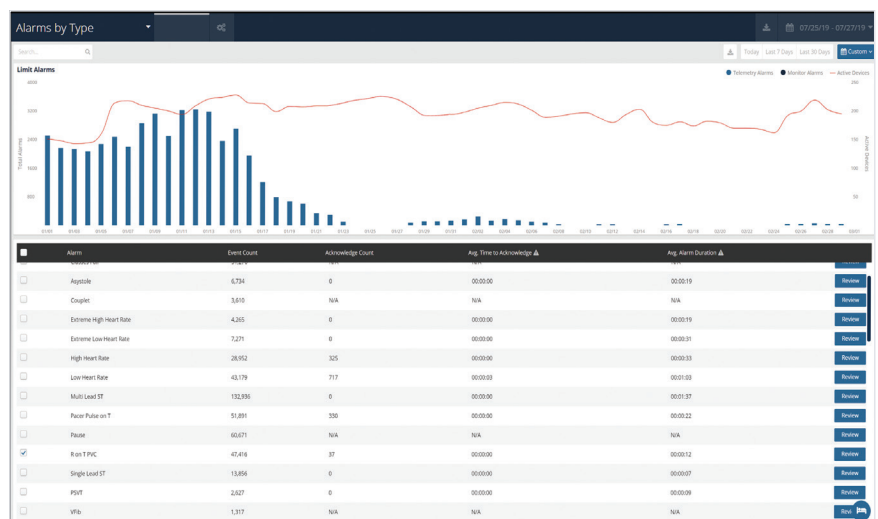
Not all patient populations are equal. Settings may be too sensitive for some patients leading to high alarm loads and non-actionable alarm signals. Customization of limits can reduce alarm excess and false alarm signals without decreasing clinical relevance and patient safety.

Using real data to change alarm settings to be clinically pertinent and reduce alarm fatigue is made simple using SafeNSound. In the example that follows, the SafeNSound Alarm Summary Report that follows reveals that respiratory alarms are creating 25% of the noise in the care environment. An adjustment in these alarm settings has the potential to reduce alarms by more than 170,000 in 30 days. The impact of being able to review alarms and adjust alarm settings is significant for both the clinicians and patients.

A Texas hospital recently implemented Spacelabs SafeNSound technology and began utilizing the software's alarm management tools to review alarm data reports and make meaningful changes that would not negatively affect patient care. After reviewing alarm detail, a decision was made to adjust the R on T PVC alarm settings. By changing the settings, this facility was able to reduce the occurrence of this alarm by 30,000 alarms over a 30-day period.

Effective alarm management strategies enable prioritization of critical alarms and elimination of nuisance alarms. The goal is to send only actionable notifications and appropriate patient, caregiver, and event context, so that caregivers can respond faster and collaborate more efficiently.

As shown in the Alarm Limit Report, the number of R on T PVC alarms was significantly reduced - 40% - following the adjustment of the alarm settings.





A SafeNSound patient experience.

The benefits of data-driven alarm management extend to the patient as well. Patient satisfaction is an important and commonly used indicator for measuring the quality of healthcare. A patient's surroundings can have a significant impact on their experience during their hospital stay. Loud noises and bright lights may negatively affect patient's sleep as well as anxiety levels, disrupting the healing process.

Patients can rate their hospital experience when answering their HCAHPS Survey (Hospital Consumer Assessment of Healthcare Providers and Systems) following their hospital stay. One question on the survey specifically addresses how quiet their room was during their hospital stay. A poor patient experience can result in lower HCAHPS scores and impact a hospital's bottom line by hampering their reputation among consumers and reducing the payments received from Medicare.

The Centers for Medicare & Medicaid Services currently withhold one percent of Medicare payments, 30 percent of which are tied to HCAHPS survey scores, according to the American Medical Association Journal of Ethics.⁽⁴⁾ Hospitals that had the highest HCAHPS scores, among other key factors, received the most financial support, while those with exceptionally low scores received financial penalties or withholding of reimbursements.

More than ever before, a hospital's success is dependent on its ability to prioritize the patient experience. HCAHPS scores are directly tied to hospital reimbursement, putting pressure on healthcare administrators and clinical leadership across the country to create environments that promote a safe, comfortable patient experience.

Better data drives significant savings in U.S. hospital.

Telemetry overutilization continues to be an issue for most hospitals. In several studies, the data points to at least 35% of all cardiac telemetry days being considered non-indicated and not aligning with American Heart Association Guidelines for telemetry use.

Even if the initiation of telemetry monitoring was appropriate, quite often a patient will remain on telemetry past the recommended guidelines and sometimes even until discharge.

What sort of challenges can this present? These patients can still cause alarms that may be clinically insignificant, specifically technical alarms such as low battery or leads off. Monitor techs must address these issues which take their attention away from more critical patients. In fact, the Christiana study⁽⁵⁾ found that cardiac-arrhythmia related emergencies accounted for less than 1% of calls to caregivers, while 70% of phone calls resulted from equipment related conditions, specifically lead or reception related, and battery issues.

Taking care of a patient on telemetry requires more time from a bedside caregiver as there are additional phone calls to manage, strips to complete, alarms to review, and lead and battery issues to resolve. On occasion, artifact is misinterpreted, and these patients can end up having unnecessary testing or intervention.⁽⁶⁾

In 2017, a hospital system in the south-central region of the U.S. sought technology that could enhance management of their entire telemetry process to improve efficiency and outcomes while cutting costs. Recognizing that its processes needed to be updated, the hospital deployed Spacelabs SafeNSound™ software to improve access to patient data.

After implementation of SafeNSound, the hospital recognized quantifiable financial results. The software’s analysis and reporting features helped to reduce unnecessary telemetry usage 30% in the first year after implementation. This represented over a \$900,000 savings, as illustrated in the table below.

One Year After SafeNSound Implementation

This cost savings model can easily be applied to any hospital by factoring in the current number of telemetry patients per day, estimated cost per day, and the estimated reduction in telemetry patients expected for the facility — typically between 30 and 50%. And even if you have taken action to reduce telemetry usage in your hospital, the question is – can you further reduce telemetry usage?

Telemetry usage before and after implementation of SafeNSound:

	Total telemetry patients per day	Cost of telemetry patient per day	Cost savings metrics	Cost savings for one year
Prior to SafeNSound Implementation	140	\$53.00		
One Year After SafeNSound Implementation	90	\$53.00	140 telemetry patients - 90 telemetry patients = 50 fewer patients per day 50 x 53.00 x 365 days = \$967,250	\$967,250

Drive down printing costs.

The average 1,500-bed hospital system prints more than eight million pages per month, adding up to about \$3.8 million per year.⁽⁷⁾ Printing is one of the higher expense categories in healthcare, yet this spending is often overlooked and unmonitored, resulting in wasteful practices and unnecessary costs.⁽⁸⁾

The once laborious manual process of printing and scanning waveform strips into the EMR by nursing staff is now an automated waveform management process with SafeNSound.

To better understand your potential savings by using SafeNSound, review the following detail:

How many patients require 2 strips saved per nursing shift?

Determine operational costs such as:

- a. Cost for roll of thermal paper
 - b. Number of times a day paper is reloaded
 - c. Paper cost per day per strip
 - d. Time to mount strip
 - e. Labor to scan document into Media manager
 - f. Filing storage costs
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From above determine the reduction in resources spent.

Determine fixed costs per saved event.



From this you can roughly estimate your monthly and annual revenue impact.

SafeNSound helps streamline documentation by allowing clinicians to electronically view, measure, and save waveform strips to the electronic health record, eliminating paper, printing, and labor costs, thus expediting and improving clinical workflow.

Lost medical devices.

More than one-third of nurses spend at least an hour of each hospital shift searching for equipment, according to a survey by Nursing Times,⁽⁹⁾ and this problem is growing as the number of devices per hospital bed increases.

Frost & Sullivan research found that in a typical 500-bed public hospital, about \$1.8 million worth of mobile assets are being used at only about 60 percent of their capacity.⁽⁹⁾ Most of this inefficiency is related to misplaced devices and the resulting search-and-find expeditions. Not knowing where critical equipment is or who might be using it threatens the already tight profit margins in healthcare and raises costs for both hospitals and patients.

Consider the tracking of lost telemetry devices at one hospital in Texas. This facility realized they had an issue with misplacing telemetry devices and were looking for a better way to manage their inventory. With SafeNSound implemented, lost telemetry device tracking improved by over 97% – saving the hospital more than \$40,000 annually. Implementing SafeNSound not only saved money in lost devices, but it also saved valuable nursing time and ultimately improved patient care.

Telemetry usage before and after implementation of SafeNSound:

US Hospital >300 beds	Year	Missing Telemetry Devices	Cost to replace cardiac telemetry devices at this hospital was \$2,100 each. (Verify with your facility)
Before SafeNSound implemented	2013	19	\$39,900
	2014	20	\$42,000
	2015	18	\$37,800
	2016	21	\$44,100
	Total		78
After SafeNSound implemented	2017	0	\$0
	2018	1	\$2,100
	2019	1	\$2,100
	Total		2

Greater efficiencies using SafeNSound.

As healthcare organizations increasingly seek technology that facilitates evidence-based, data-driven decisions, caregivers are turning to SafeNSound. The software offers much more than alarm management and reporting, with real-time reports on communications and throughput management and detailed retrospective information on patient events, providing valuable insights to clinical directors and managers. Bedside caregivers and monitor technicians can take advantage of automated communications and Admit-Discharge-Transfer (ADT) capabilities for associating and dissociating a device to a patient. Automated ADT provides accountability, reduces errors, and creates detailed logs for additional tracking. Print-to-PDF waveform integration is also offered for workflow efficiency.

If you are interested in learning more about SafeNSound or any of the points made in this case study, please call us at 1-800-522-7025, or register for a demo at www.spacelabshealthcare.com/datapower. We can arrange a video conference or an on-site discussion at your convenience.

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