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UNIFIED CARE COMMUNICATIONS: 3 KEYS TO CONNECTING DATA, DEVICES AND PEOPLE

OVERVIEW

Information is the lifeblood of healthcare. Too often, however, too much information, especially from monitoring devices, overwhelms caregivers and IT managers with a deluge of unusable data. Consider:

- Hospitals today must manage and facilitate data sharing among caregivers for as many as 25,000 devices, which include pulse oximetry systems, heart monitors, scanners and mobile communications devices.[1]
- One unit in a children's hospital averaged 5,300 alarms per day – and 95% were false;[2] another study found that the bedside monitors in a hospital's five intensive care units triggered 2.5 million alarms in a single month.[3]
- One medical center CIO estimates that each patient accumulates approximately 80 megabytes of data each year – the equivalent of more than 1,000 pages of words and images.[4]

The difficulty of transforming voluminous data into meaningful, actionable and sharable information is exacerbated by the increasing fragmentation of care across healthcare settings, which the ECRI Institute identified as a top 10 Patient Safety Concern for 2020.[5] The key question: What can hospitals do today to get the right information to the right people at the right time, when their decisions and actions will have the greatest impact on patients' health?

The first step is to recognize and begin to address the core problem – inefficient, erroneous, missed or delayed communications. According to the Institute of Medicine, "Within any given hospital, many medical errors result because of a lack of effective data-sharing and teamwork among its health care professionals ... studies indicate these errors are a systemic problem."[6]

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Such systemic failures require a systemic solution: A unified, patient-centric communications platform with easily expandable and interoperable components that:

- Bring together data streams from multiple sources – including EHRs, patient monitoring systems, communication analytical tools and other medical devices – to give caregivers and IT managers quick and easy access to needed information.
- Deliver actionable information quickly and efficiently to the right caregivers in any location using connected nurse call, smartphones, tablets and other mobile devices.
- Engage and empower patients and their families to enhance their hospital experiences.

This white paper examines three critical elements to consider when building a unified communications platform – expanding interoperability to support cohesive, collaborative care communications; integrating alarms and alerts; and bringing the patient into the communications loop.

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>
> —**The Institue of Medicine**

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EXPANDING COMMUNICATIONS INTEROPERABILITY WITH OPEN, SCALABLE SOLUTIONS

Four years ago, the Office of the National Coordinator (ONC) for Health Information Technology called the interoperability of health information a national priority.[7] Ideally, an interoperable communications system should be built on open standards and a scalable infrastructure, and should facilitate patient-centric communications through user-preferred channels. Interoperability enables the sharing of more robust, meaningful information across the IT ecosystem and faster and more efficient connections between:

- Caregivers (nurses, physicians, other clinicians, support staff, employees, managers, executives)
- Communications methods (nurse call systems, desktop messengers, smartphone apps, pagers, VoIP calls)
- Medical and monitoring devices (physiological monitors, smart beds)
- Patient information (EHRs, images)

As medical technologies continually advance and proliferate, a unified communications platform also can be combined with vendor-agnostic medical device integration (MDI) platforms. For example, an MDI solution can aggregate patient data from multiple sources to provide clinical context (such as heart rate, SpO2 and streaming waveforms) for a more complete picture of a patient's health status in near-real-time.

Hospitals are now incorporating MDI and other sophisticated tools into their communications systems to gain insights into their communications practices and clinical workflows, support their Alarm Committee Policy and Procedures, troubleshoot problems, facilitate care coordination, and improve patient response times. These include:

- Analytical tools that transform data into understandable and actionable information.
- Storytelling tools that work like a social network (think Facebook wall) to create patient-centric information and messaging strings readily accessible to clinical team members.
- Point-of-care tools such as real-time locating systems (RTLS) that automate clinical workflows, enable care team connections, and provide staff safety through integrated duress alerts.

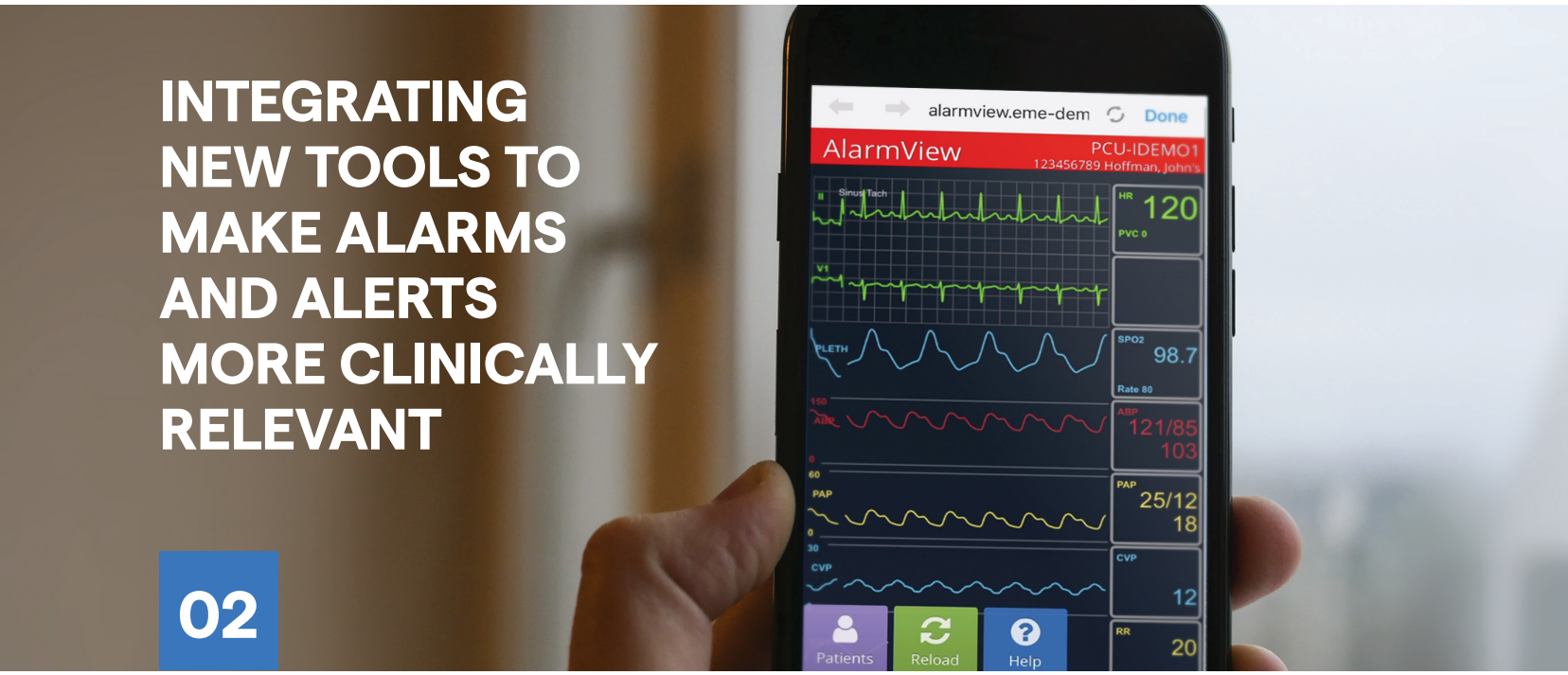
Clearly, interoperability is indispensable to adapt and thrive in today's ever-changing health IT environment. A unified platform that supports secure, consolidated and standardized communications practices can help hospitals:

- Lower costs by simplifying upgrades and maintenance.
- Reduce the number of solutions needed to support clinical needs.
- Provide seamless, intuitive experiences to users of communications devices and apps.
- Improve patient outcomes.[8]
- Increase operational efficiencies across care teams.[9]

HIMSS DEFINITION OF INTEROPERABILITY IN HEALTHCARE

"The ability of different information systems, devices and applications to access, exchange, integrate and cooperatively use data in a coordinated manner, within and across organizational, regional and national boundaries, to provide timely and seamless portability of information and optimize the health of individuals and populations."[16]

INTEGRATING NEW TOOLS TO MAKE ALARMS AND ALERTS MORE CLINICALLY RELEVANT



02

Vigilance in monitoring patient health status is a cornerstone of delivering quality care. Although telemetry devices and other technologies can detect a patient's physiological changes, the tsunami of information they produce causes a familiar problem – alarm fatigue.

According to The Joint Commission, patient monitoring devices at typical hospitals will transmit tens of thousands of signals each day. Yet studies have shown that 85% to 99% of these alarms do not require clinical interventions. With so many alerts having no clinical value, clinicians often turn off or ignore alarms, lower the volume or adjust the settings – actions that can have serious or fatal consequences.[10] For years, reducing the harms associated with clinical alarm systems has been one of The Joint Commission's Hospital Patient Safety Goals.[11]

By linking a care communications platform with an alert and alarm management solution, hospitals can 1) reduce the risk of clinical errors caused by missed, erroneous or delayed communications, 2) minimize unnecessary interruptions and distractions that take caregivers' time away from the patient, 3) improve caregiver response times, and 4) facilitate continuity of care during patient hand-offs.

Such platforms often feature technology tools such as:

- Real-time and retrospective alarm volume analytics for clinical managers that enables them to apply a data-driven method to understand and manage alarms.
- Visualization of near-real-time waveforms and patient clinical context for viewing on smartphones.
- Customizable alarm escalation pathways that empower nurses to adjust alarm thresholds appropriate to the patient, which can reduce nonactionable alarms.
- Suspend features to delay sending alarms that do not require immediate attention.
- Alarm filtering to smartphones or other devices to ensure that notifications are timely and meaningful without overburdening caregivers.

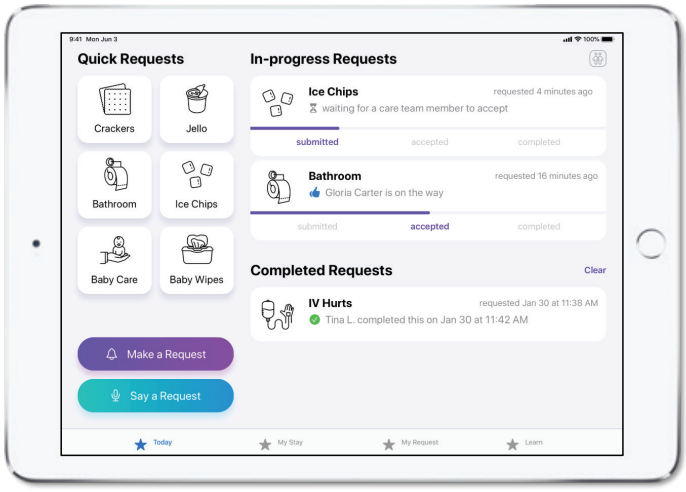
PATIENT ENGAGEMENT: CLOSING THE COMMUNICATIONS LOOP

The latest development in connected, patient-centric care is leveraging a communications platform to 1) engage and empower patients to become more involved in their own care, and 2) enhance their experiences in the hospital, which will increase patient satisfaction scores. New interoperability rules enabling greater patient access to their own medical data[12] will no doubt accelerate the development and deployment of more patient engagement technologies.

This next generation of care collaboration will require providers to reach patients with information tailored to their specific needs and situations through channels they want to use. In hospitals, interoperable platforms linked to EHRs, nurse call and tablets, or other mobile devices will enable patients to:

- Interact by voice, text or video directly with their nurses and care teams, which strengthens the relationships that are vital to the healing process.
- Learn more about their conditions, diagnoses and treatment plans.
- Make specific requests for help and receive updates on what caregivers are doing to meet their needs.

Somewhat paradoxically, these patient engagement technologies help create a more humane, satisfying and healing experience for hospital patients. As new technologies enter the market every day, IT leaders need to be forward-looking and ensure their communications platforms can integrate them as soon as they are introduced to a hospital system.



THE NEXT WAVE: VIDEO CONNECTIONS FOR PATIENTS AND CAREGIVERS

Thanks in part to COVID-19 quarantines, which have spawned billions of posts on Instagram and TikTok and nearly as many meetings on Zoom and Microsoft Teams, video communications are becoming an integral part of everyday life. Even after hospitals lift restrictions on visitations, many of the tens of millions of people who have used these apps will expect hospitals to provide similar services for connecting patients with their caregivers and families. It's time for IT leaders to begin preparing now for how their organizations will integrate video capabilities into their patient engagement and communications platforms.

As a result of restrictions and practices caused by COVID-19, hospitals have already begun to accelerate this industry-wide shift to video at the bedside. For example, many have implemented video-based telehealth care to reduce caregivers' risk of exposure to the virus by minimizing direct contact with patients. Government funds can support these efforts; in April 2020, the Federal Communications Commission adopted a $200 million telehealth program to support healthcare providers responding to the coronavirus pandemic.[13]

Video solutions also can enable virtual, team-based care while giving providers remote, anytime access to their patients – two keys to improving response times, building trust and enhancing patient experiences. Personalized videos also can be effective tools for patient education and engagement, and "video chats" enable patients to stay in touch with their friends and families, even if they are in isolation or an ICU. Given the ubiquity of video in modern life, this functionality is a must-have for every hospital's unified communications platform.

ANALYTICS IN ACTION

After a spike in alerts triggered a call for help, one hospital IT director used insights from a report to identify and fix a configuration problem in the nurse call system, which resulted in alerts falling from 8,000 to 700 in one day.[17]

MINIMIZING FALSE ALARMS

By delaying the transmission of non-urgent alarms, Johns Hopkins Hospital found that, in one week, only 3,103 of 61,227 warning level alarms from physiological monitors were sent out to mobile devices.[18]

CONNECTING THE LAST PIECE OF THE PUZZLE

Ultimately, the most important health IT function is supporting the delivery of better patient care and experiences. When creating an interoperable communications platform, the integration of mobile devices is critically important in helping caregivers quickly and easily connect with colleagues and find the right information when and where they need it. One survey of nurse managers and IT decision-makers[14] found that, by 2022, 97% of nurses will use mobile devices at the bedside.

For example, the operating room at UW Medicine's Valley Medical Center expedited communications and collaboration between caregivers and staff by:

1. Putting shared smartphones in the hands of operating room and circulating nurses, anesthesia providers and technicians, patient care assistants, transport staff, surgical services technicians, admitting staff, and the post-anesthesia care unit staff.

2. Integrating this mobile care team communications solution with its EHR mobile app, middleware, nurse call system and patient monitoring devices.

By deploying this unified care communications platform in the OR and other hospital units, UW Medicine Valley Medical Center:

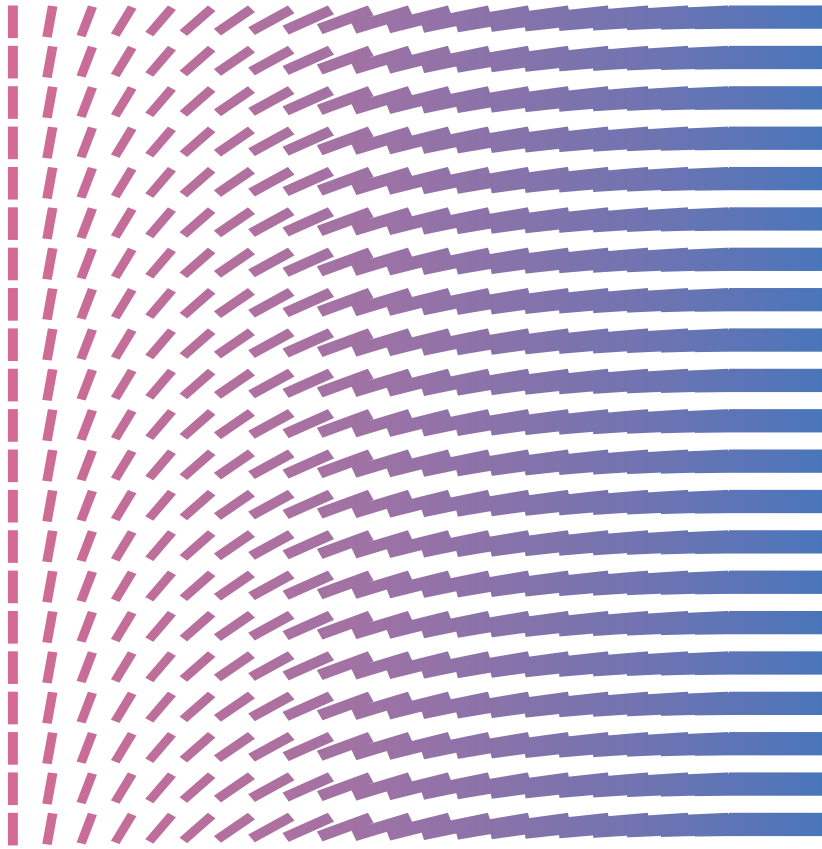
- Reduced operating room turnaround times, which increased the number of surgeries the hospital performed by an average of 200 cases per year and saved it tens of millions of dollars.

- Alleviated stress for physicians and nurses caused by communications delays or errors.

- Boosted HCAHPS scores in almost every measure, including its first 99% rating on one unit's patient satisfaction survey.[15]

CONCLUSION

Since the federal government mandated "meaningful use" of electronic health records in 2014, hospitals have made the integration of EHR data into other systems a top priority. This same intense focus and effort now needs to be directed to communications systems, the backbone of care collaboration, coordination and delivery. Successfully deploying a unified care communications platform that enables the seamless, system-wide interoperability of data, devices and people will help hospitals efficiently deliver the right care to the right patient at the right time.



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