The Need for Context-Aware Clinical Communication

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EXECUTIVE SUMMARY

In the past, physicians primarily communicated clinical information about patients with each other via handwritten notes, letters, telephone calls and face-to-face conversations. However, technological advances have led to the widespread use of communications through desktop computers, mobile devices and electronic health records (EHRs). While these advances have enabled clinicians to close some communication gaps, thereby improving care delivery, they have not yet ushered in the ideal of anytime, anywhere access to the right people and the right information.

The purpose of clinical communication is to generate a shared mental context, and the reading of visual and verbal cues. Of course, in today's busy hospital environment, real-time voice to asynchronous communication for the “action arm”—or patient care delivery, they have not yet ushered in the ideal of anytime, anywhere access to the right people and the right information.

This white paper identifies the challenges and opportunities for adopting contextual, clinical communication. It also identifies how a secure, enterprise-wide solution can leverage the synergy of a wide network of users to add value in patient care.

THE CHALLENGE: TRADITIONAL MODES OF CLINICAL COMMUNICATION

Until now, clinicians have only had two ways of communicating with patients and each other: at the synchronously, sharing information and responding in real-time or asynchronously, where one or more parties to the communication are off-line and respond with some delay. Synchronous or real-time interactions may take the form of face-to-face conversations or telephone conversations with the patient or colleague, while asynchronous communication may take
the form of chart notes, texting or voice mail, nurse white boards. Asynchronous communication occurs even through the EHR and its attendant tools, such as computerized provider order entry and clinical documentation.

Both forms have their advantages and disadvantages. On the one hand, asynchronous electronic tools have made communication faster, easier and more streamlined. Often targeted to physicians, these tools can also be used by nurses and other clinicians across the enterprise. With the advent of HIPAA-compliant, secure messaging applications, information can now also be shared across multiple devices. Despite these benefits, most often the information lacks context. For example, communicating through an EHR may solve the problems of documentation and efficiency, but it lacks tone, immediacy and opportunity for dialogue and learning that’s always been a component of clinician-to-clinician communication about patients. And, without real-time conversation, it may not be possible to ensure that the message was both clearly received and understood.

For these reasons, physicians often prefer synchronous communication, either face-to-face or real-time voice to asynchronous communication for the “action arm”—or patient care ordering—piece of their communication. Synchronous communication allows for tone, context, and the reading of visual and verbal cues. Of course, in today’s busy hospital environment, meeting in person or even contacting another physician by telephone can be incredibly challenging. Worse, it’s subject to misinterpretation and lacks the requirements of documentation for safety, quality and performance measurements. These gaps and failures in both modes go a long way in explaining why a study by the Joint Commission found that more than 70 percent of treatment delays or sentinel events arise from a breakdown in communication.6

It is time for physicians to reconsider how they communicate. In his commencement address at Harvard Medical School, physician-writer Atul Gawande observed that care delivery is moving away from the individual physician as the primary source of information to a team-based system that places the patient at the center of care and values coordination, communication, standardization and humility. Not satisfied with tradition, this new delivery model is driving innovation and the development of technology that is reliable, integrated, economical and effective to enable the real human-to-human communication that underlies patient care, professionalism and constant learning that clinicians strive for in their practices.5 This new generation is finding the bridge between synchronous and asynchronous communication via contextual communication, often using mobile applications.
THE OPPORTUNITY: CONTEXTUAL COMMUNICATION

Context awareness is defined as understanding external and internal factors that cause a change in a patient’s situation and therefore require a different interpretation of the available data. More specifically, contextual communication is a mobile device capability that relies on a combination of wireless communication devices, remote sensors and computational algorithms to identify the user, location, availability and preferred method of contact. It includes the ability to monitor, collect and process data such as vital signs in real time, bringing point-of-care information to clinicians and enabling them to respond quickly and effectively whether the patient is at home or in the hospital. The application can be integrated with a knowledge system or rules engine that can identify the most appropriate recipient of a message and escalate alerts. Rather than limiting physicians to secure messaging, the mobile platform also delivers synchronous messaging through voice and video conferencing capabilities. The data could be stored locally, on the device, but most implementers will prefer “zero-footprint” on the mobile device with storage in the hospital's information system infrastructure.

The following de-identified use cases demonstrate the value of a context-aware point-of-care mobile solution that orchestrates people, data, and processes in real-time:

- **Real-Time Nurse-Physician Communication**: A nurse observes that his post-operative patient is experiencing breakthrough pain. He texts the surgeon or covering physician and advises her of the situation. With the context-aware application, the physician receives not only that message, but a timeline of pain medication administration in the context of the patient’s vital signs, intake and output and laboratory values. The physician recognizes that the patient’s urinary output is diminishing and texts back to the nurse to ask if the catheter is draining well and to check if the patient’s bladder distended, which can cause pain and restlessness, and may not be readily recognized in a patient who is unable to clearly articulate the location or cause of pain. The nurse immediately checks the patient’s catheter, and enters notes and updates urinary output measurements into the EHR, which is then forwarded to the physician’s mobile device.

- **Physician-Physician Care Coordination**: An obese, middle-aged man with type 2 diabetes presents to the emergency department (ED) with high fever, chills and complaining of hip pain. On examination, a large perirectal abscess is found. The ED physician texts the patient’s primary care provider with the findings along with a request to admit the patient to the hospitalist’s service. The family physician reviews the patient’s vital signs and laboratory values, including blood gas values, fluid administered and urine output and medications. Using his personal mobile device running the context-aware communication application, he contacts his preferred surgeon and forwards the patient’s information, and then texts the ED physician and asks to have the on-call internist covering the ICU see the patient and manage the patient in conjunction with the surgeon who is en route.

- **Transitions of Care**: An elderly nursing home resident is ready for discharge from the hospital and will be returning to the nursing home. The pressure ulcer, which was present on hospital admission, has been stabilized.
and is showing signs of improvement. Leveraging contextual communication through a capable application, the nurse photographs the wound and then coordinates with the inpatient-attending physician to forward the image and treatment regimen to the physician who will be following the patient in the nursing home.

These examples illustrate the power of arming clinicians with actionable, contextually relevant information at the time the point of care for improved safety, efficiency and documentation.

CRITERIA FOR IMPLEMENTATION

Research by Spyglass Consulting, a market intelligence firm and consultancy focused on the current and future potential of mobile computing and wireless technologies within the healthcare industry, found that 98 percent of physicians have adopted smartphones for a variety of applications, such as secure messaging or context-aware communication, scheduling, personal information management, internet reference and location-based services. In addition, more than half of the hospitals interviewed were considering an enterprise-class smart phone for nurses to promote collaborative care.

Despite interest, however, few clinicians leverage smartphones for hospital applications for reasons relating to the small screen size and the difficulty of doing data entry. Moreover, as hospitals and ambulatory facilities have added the technology infrastructure that supports achieving federal mandates such as ICD-10, Meaningful Use and HIPAA compliance, any additional cost of infrastructure improvements, no matter how marginal, can be a deterrent.

In order to gain widespread adoption of a mobile point-of-care device, hospital leaders should keep in mind the following criteria before implementing a vendor’s solution:

- **Reliable infrastructure:** Enterprise healthcare communication solutions should begin with a secure, reliable and unified platform and directories that enable clinicians to reach across and beyond the organization for real-time conversations or secure messaging.

- **HIPAA-compliance:** There’s more to compliance than secure messaging. The platform should also enable providers to meet HIPAA compliance across all forms of communication – text, photo, voice, web, teleconferencing, and more. Maintenance of communication logs and audit capability are essential components.

- **Device agnostic:** The solution should not only work seamlessly with the EHR regardless of software preferences, but also be designed to work with past, current and future technologies for maximum ROI.

- **Customizable workflows:** Physician leaders need programmable workflows for facilitating communication with both enterprise-based clinical staff (nursing, pharmacy, therapists) and community-based physicians. In addition, selected technologies should enable alerts and escalations, call management and message routing.

- **Integration capabilities:** The device software should enable real-time access to physiological status and EHR information from a single-user interface.
The clinician reaching out needs tools that keep the message in context and ideally allow action to take place (i.e., order input) without having to get on the phone or sign-in to a computer. Something has generated the need to message a provider, and the message should arrive with context. It should also allow for order entry in a manner that is auditable and secure, along with escalation rules and transparency. Clinicians should know who ‘has the ball’ at any given point in time so there is are no gaps in care. In short, it should ensure the:

1) Right Message is sent to the
2) Right Actor at the
3) Right Time in the
4) Right Format with the
5) Right Context via the
6) Right Technology and the
7) Right Security

CONCLUSION

Contextual communication would streamline many of today’s communication-intensive processes and allow organizations to create new ways of interacting, built around collaboration. Contextual communications allows companies to take full advantage of many of the technology advancements of the past few years to streamline workflows and improve productivity. Organizations need to make delivering context-aware communications a priority or they risk rapidly falling behind the competition.
REFERENCES


2 http://homepages.rpi.edu/~grayw/grayres/CogWkld.html viewed on July 28, 2014 1322 hours ET


ABOUT PATIENTSAFE SOLUTIONS

PatientSafe Solutions has mobilized clinicians and redefined clinical workflows for more than a decade. We understand that communications is at the center of care team efficiency, cost effectiveness, and most importantly, patient safety, so we want to empower clinicians with intuitive clinical communications.

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