Designing Communication Networks to Optimize Healthcare Outcomes

Recent evolution in the healthcare industry has highlighted the need for clinical collaboration inside and outside the hospital, and across the continuum of care. That’s why more emphasis is being placed on effective care team communication and collaboration across sites to improve the overall healthcare experience for patients and staff, while moving the needle on readmission rates and other important outcome measurements. Delivering excellent care coordination and patient care along the patient journey requires care teams to connect instantly and exchange critical information in real-time. Without the right communication tools that span the breadth of the patient’s experience, organizations will continue to operate in silos and struggle to provide consistent, high-quality outcomes for patients and the populations they serve.

Trends in the Healthcare Environment

Communication strategies are being influenced by a number of significant developments in healthcare such as payment reform provisions in the Patient Protection and Affordable Care Act, the growth of Accountable Care Organizations (ACOs), consumer empowerment, and the increasing pressure to improve population health as a means of containing national health costs.

ACOs are leading the shift towards value-based operations by coordinating the care of patient populations among multiple providers. In fact, the number of ACOs throughout the country has risen dramatically — with more than 600 ACOs spanning the nation in 2014 as compared to fewer than 500 the previous year — and roughly 67% of the American population is being served by an ACO. As groups of providers and physician practices form collaborative affiliations, a communication and collaboration platform becomes a key requirement to deliver seamless, high-quality patient care.

As part of larger efforts to reduce readmissions, limit expensive emergency room visits, and make healthcare more affordable, regulators have introduced incentives (and penalties) that encourage providers to work together to keep patient populations healthy. In 2014, Medicare reduced reimbursements to 2,610 hospitals — 433 more than the previous year — due to patient readmission rates within 30 days of discharge.

Facing serious financial repercussions, leading healthcare institutions are revamping how physicians and nurses collaborate around the patient, as well as how they communicate with the patient before being admitted, during their stay, and at discharge to prevent avoidable readmissions and improve patient satisfaction.

These emerging trends in the healthcare environment present a set of unique challenges, but also opportunities for improvement driven by integrated communication and collaboration solutions.

“Communication by itself is just a word,” says Gautam M. Shah, Vice President of Product Management for Vocera Communications. “But communication with context becomes collaboration, collaboration drives trust, which builds relationships, and ultimately drives better patient outcomes and experiences.”

Challenges and Opportunities

As hospitals across the nation work towards achieving Meaningful Use Stage 2 certification, much of the attention has been on exchanging data and clinical system interoperability. However, as health systems grow via acquisitions or partnerships, critical clinical systems may not interoperate. The net result is that communication and collaboration between physicians, nurses, and the extended care team across sites continues to be “broken.” In fact, a recent study by the Ponemon Institute shows that healthcare professionals waste an estimated 45 minutes per day due to communication challenges — that translates to an estimated $5.1 billion dollars annually wasted in healthcare.
With the industry continuing to emphasize value, one key goal for healthcare leaders is finding ways to help care teams focus more on the patient and strive towards communicating and collaborating efficiently. Despite efforts placed on improving communication strategies, poor execution leads to a less-than-optimal experience for staff, physicians, patients, and families.

“There are many technologies that can improve healthcare, however, some detract from the patient-doctor-nurse relationship,” says Bridget Duffy, MD, Chief Medical Officer of Vocera Communications. “I meet too many physicians who want to quit, retire, or do something else because of the toll that some technologies take on them. What is needed are technology solutions that put doctors and nurses back at the bedside, optimize their efficiency, improve outcomes and restore the sacred patient- clinician relationship.”

Given the current collaboration challenges that healthcare providers nationwide face, there is a need within the industry for real-time, continuous communication systems that work across multiple sites, integrated with critical clinical systems, such as EHRs, and users’ devices of choice.

**Solutions**

As more sophisticated communication platforms become available to address these challenges, better collaboration between clinical staff, patients, and the extended care team is expected. The goal of implementing clinical communication technology is to complement workflow and operational improvements with experiences that deliver a consistent and more engaging experience of care — stripping out inefficiencies while improving the human connection. When evaluating new tools to improve collaboration, healthcare leaders must be mindful of their ability to:

- Consider existing workflow use cases
- Enable more doctor and nurse time at the bedside
- Improve physician and nurse collaboration
- Engage the patient and family in plans of care

The solutions that are implemented need to be enterprise-grade, secure, easy to manage and maintain, support all sites and multiple roles, and scale with the organization across the health system. With these factors in mind, finding the right balance in humanizing healthcare through improving communication networks can be found.

Enterprise-grade communication and collaboration solutions that provide integrated, secure text messaging, hands-free communication, and contextual alarm management are known to improve patient and physician experience, patient safety, and support the attainment of clinical outcomes. Patient experience is elevated when organizations include solutions that improve communication with patients before admission or outpatient procedure, during a hospital stay, at discharge, and after they transition home or to another healthcare setting. By empowering clinically relevant and patient-centered collaboration technology and processes for all care team members, healthcare organizations can achieve improvement goals for the patient experience, population health management, and cost reduction in healthcare delivery.

**The Patient’s Journey**

Once integrated on an enterprise level, collaboration and patient experience management tools help create one consistent, seamless patient journey throughout the continuum of care — from the physician’s office to outpatient care sites, acute care hospitals, post-acute care facilities, or the patient’s home. For an example of how these technologies intersect with the patient’s clinical journey, consider a patient who sees his primary care physician for knee pain.

1. His physician refers him to an outpatient imaging center to get an MRI. Prior to the patient’s appointment, he engages with the imaging center using a secure pre-arrival application that helps prepare him and the

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Top Reasons Time is Wasted
Waiting for Patient Information
Source: Ponemon Institute

52%
39%
38%
36%
28%

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<th>Reason</th>
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One recent survey of healthcare professionals found that shortcomings with communication networks and devices were at the root of clinicians’ wasted time.
center for the procedure. Using communication and collaboration tools such as secure text messaging, the MRI technician at the imaging center asks the patient’s primary care physician at another location questions about the injury and diagnosis.

2. Based on the results of the MRI, the specialist suggests the patient make an appointment for surgery at the local hospital. Specific requirements around preparation and arrival time are communicated to the patient when he makes the appointment. Prior to the scheduled surgery, the hospital uses pre-arrival technology to send automated reminders to the patient, instructions about prepping for surgery, what time to arrive for his appointment, a map to the hospital, what he can and cannot do during recovery, and other important information to create an ideal first impression.

3. While the patient is in pre-op and being readied for his procedure in the hospital, clinicians use hands-free badges to exchange information and ask questions about the patient’s preparation. In the operating room, the orthopedic surgeon, who normally uses communication and collaboration tools on her smartphone, is able to clip on a wearable badge so she can effortlessly talk with other personnel during the procedure.

4. While the patient recovers after surgery, nurses round regularly and ask him if he is comfortable. Using a care rounding management solution, the nurse records the patient’s responses. On one occasion, the patient notes that he has not received his meal. The nurse records the request and alerts Dietary Services, enabling real-time service recovery and improving patient satisfaction.

5. When the patient experiences pain at the surgery site, he presses the pain button on the pillow-speaker. This alert goes directly to his nurse on her hands-free device that allows her to respond quickly. Once arriving in the patient room, the nurse uses the wearable device to connect instantly with the patient’s surgeon at another facility via his mobile device to ask a question about the patient’s medication.

6. At hospital discharge, the nurse uses a secure mobile application to record the patient’s personalized discharge instructions and also take a baseline photo of the incision. The nurse then sends an email to the patient with a secure link to the online instructions and images that he, a family member, or another caregiver can access at any time on their device of choice.

7. Using industry best practice guidelines, the care management team at the hospital makes a follow-up call to the patient within 72 hours. A care calls management solution streamlines the call and guides the care team member through a series of questions to ensure the patient understands his discharge instructions, confirm he has filled any medications prescribed, remind him about his follow-up appointment, and address any questions or concerns.

In this way, a suite of technologies works seamlessly to connect caregivers so that they can provide a consistent, superior level of service to the patient at all points along their clinical journey.

Results Realized
The technologies outlined above fall into two categories:

- Communication and collaboration amongst the care team about the patient to improve care coordination and quality of care
- Communication between the care team and the patient that improves engagement with the patient and their family, empowering them as equal members of the care team

Several leading health systems and institutions have achieved good results by implementing tools and processes in both categories. These organizations have been able to fix broken links in a chain of care team communication, improving the patient experience, and shedding light on approaches that can be successful.

Increasing Communication and Collaboration Efficiency: Mission Health
For Bill Maples, MD, Chief Quality Officer at Mission Health in Ashville, North Carolina, finding methods to ease the way doctors and nurses communicate with one another was a key area of institutional focus. In light of events where crucial patient information was not conveyed between doctors and nurses when needed, Dr. Maples took it upon himself to create a communication curriculum that enhanced the way doctors and nurses talk with one another.

As part of a strategic operating infrastructure, Mission Health incorporated Vocera’s hands-free communication platform to instantaneously connect doctors and nurses. No longer relying solely on typed notes that may not
capture the narrative of a patient’s story, these new practices increased the opportunity for the right diagnosis and treatment plans. With the integration of Dr. Maples’ communication curriculum in tandem with hands-free communication tools, staff communication and satisfaction has increased. In addition, patient experience scores for criteria such as doctors involving patients in the decision-making process, doctors’ understanding and caring, and doctors’ communication/keeping patients informed have driven relentlessly upward.

**Improving Communication and Collaboration Across Care Teams: Reading Hospital System**

With one of the busiest emergency departments in Pennsylvania, it was challenging for Reading Hospital System (RHS) clinicians and staff to quickly locate one another to relay critical information. Finding both overhead paging and hospital-issued pagers ineffective, there was a need for a simple and seamless way to stay in contact with one another.

“We wanted to leverage our investment in technology to improve patient care in all its facets,” explained Jorge Scheirer, MD, vice president and chief medical information officer.

By deploying Vocera’s Collaboration Suite including a combination of wearable, hands-free badges and a secure smartphone-based secure text messaging platform, communication was streamlined between clinicians without causing confusion. Vocera’s communication solution allowed for physicians at RHS to instantly communicate with one another on their device of choice — smartphone or wearable badge — without creating HIPAA compliance issues that would otherwise have arose from the use of unsecure text messaging applications. With physicians and nurses no longer wasting time attempting to locate each other, communication and clinical quality was greatly improved.

**Boosting Patient Satisfaction with Leader Rounding: University of Chicago Medicine**

As part of an enterprise-wide commitment to improving patient satisfaction, University of Chicago Medicine (UCM) identified nurse leader rounding as an opportunity for improvement in care team collaboration. There was a need to capture the voice of the patient to drive employee engagement and accountability, give leaders insight into the patient experience, and highlight outstanding staff performance.

Using Vocera Care Rounds helped UCM enhance its commitment to improving the patient experience by hardwiring the process of standardized rounding and collecting data in real-time to address patient needs quickly. Within four months, nurses had conducted nearly 12,000 rounds on more than 9,500 patients. UCM was able to collect 2,858 compliments from patients in four months that would have gone unrecognized if they were not recorded with the Care Rounds product. Furthermore, UCM experienced a 39% increase in “likelihood to recommend” on Press Ganey patient satisfaction surveys.

**Improving Clinical Response Times: DMC Huron Valley-Sinai Hospital**

Part of the Detroit Medical Center system, DMC Huron Valley-Sinai Hospital is a 153-bed facility that combines the resources of a large institution with the intimacy of a community hospital. As a way to improve patient experience, leaders at Huron Valley-Sinai worked to address inconsistencies with nurse responsiveness, while also taking steps to limit environmental noise — including the hospital’s intrusive overhead paging system.

By deploying Vocera hands-free, wearable badges to nursing staff, Huron Valley-Sinai was able to eliminate the need for most overhead pages. These hands-free, lightweight devices enable clinicians to talk directly with each other simply by speaking the name of specific person, team, or function. Following the implementation of wearable Vocera Communication Badges, patient perception of the quietness of the hospital improved by 20%. Mobilization of teams as well as communication was increased. With greater communication between everyone within the organization, staff are more responsive to patients and satisfaction has improved as a result.

**Increasing Discharge Plan Adherence: Cullman Regional Medical Center**

Cullman Regional Medical Center (CRMC) in Alabama worked with Vocera to improve discharge communication with patients and engage them and their families more in the care plan. CRMC revamped its discharge process with the integration of Vocera Good to Go®, which allows nurses and other caregivers to record discharge instructions at the patient bedside. These instructions can be accessed by the patient, their caregivers, or family members by phone, mobile device, or computer from anywhere, at any time. The Good to Go solution allows patients to hear, see, and share their care plans with loved ones and other caregivers such as primary care physicians.

Recording discharge instructions, capturing images and videos, and making condition-specific educational materials available are all attributes of the Good to Go solution that help patients care for themselves post-hospitalization. As
a result, CRMC saw a 15% reduction in readmission rates, a 62% increase in HCAHPS scores for staff discussing help needed after discharge, and 63% HCAHPS increase in communication about symptoms to look for after discharge.

**Conclusion**

The experiences of the organizations described above show the critical role that integrated communication solutions play within a healthcare organization. The trends within the industry have heightened awareness about the importance of care coordination and the value of solutions used to facilitate better communication and collaboration across the continuum of care for every member of the extended care team.

Through the optimization of communications networks, health systems are able to create a continuous healthcare experience that improves care team and patient satisfaction and safety, while delivering greater efficiencies. As Accountable Care Organizations and population health management models continue to mature, building trust, relationships and connections are mission-critical and life-critical requirements. Solutions that are able to improve workflow communications across the patients’ healthcare experiences while tying data to meaningful analytics directly impact the quality of care.

Ultimately, a care team that is connected in real-time, anywhere, anytime, and on any device will be an integral component of healthcare in the near future. Rather than one tool or set of separate tools, an integrated solution will be necessary for organizations to achieve the new imperatives of healthcare.

“Continuous, real-time communication and collaboration is the new necessity in healthcare,” Shah says. “Vocera is the only vendor offering an enterprise-class communication and collaboration solution that spans the entire healthcare delivery spectrum. As care delivery models shift towards population health and ACO models, Vocera is empowering communication and coordination across healthcare that will reduce costs, increase revenues, and improve patient experiences.”

Vocera’s communication solutions have a proven track record of improving collaboration — both inside and outside the organization — while facilitating better collaboration between physicians, nurses, and patients. Health systems that implement Vocera are better able to address communication challenges across the patient’s journey to improve care coordination, and ultimately provide safer, higher quality outcomes.

**About Vocera**

Vocera empowers integrated, intelligent communication in healthcare, hospitality, energy and other mission-critical mobile environments. Widely recognized for developing smarter ways to instantly communicate and collaborate, Vocera offers a comprehensive portfolio of solutions that improve communications, collaboration, and staff efficiency throughout organizations. The Vocera Communication System is installed in more than 1,200 organizations worldwide. The Vocera portfolio improves workflow, quality, safety and outcomes while elevating the customer and patient experience. In addition to providing innovative technology, Vocera drives thought leadership and new standards to improve patient experience via its research collaborative, the Experience Innovation Network. Vocera is headquartered in San Jose, Calif., with offices in San Francisco, Tennessee, Canada, India, United Arab Emirates, and the United Kingdom. For more information, visit [www.vocera.com](http://www.vocera.com) and @VoceraComm on Twitter.

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