pulsara

It's About Time

Addressing the Communication Crisis in Emergency Healthcare

A Pulsara Digital Paper Series

Foreword

As an emergency room physician, I experience firsthand the impact of outdated communication systems—how they hamper good patient care and challenge even the most talented, dedicated, and well-trained medical professionals. In emergency situations, when seconds count, fast and accurate communication between care teams can mean the difference between life and death.

Too often, medical professionals don't have the tools they need to ensure the best outcomes for their patients. As you'll see in these pages, a crisis in communication is leading to hundreds of thousands of preventable deaths each year in hospitals and other healthcare settings across the United States. Perhaps what is most frustrating—but at the same time heartening—is that solutions to these problems do exist today. Innovative, progressive and patient-centered health systems have made changes to processes and implemented new technologies that improve communication and lead to better patient care.

We founded Pulsara because it didn't make sense that I was relying on a convoluted system of faxes and pagers to try to coordinate care for a heart attack patient, yet I could order a pizza, track a shipment and video chat with my children all on my mobile phone. We are dedicated to improving and streamlining communications between healthcare providers caring for the most critical patients. By building better communication systems we can increase the speed and efficiency of care for patients with time-critical needs, and we can dramatically improve their chances for recovery.

FOUNDER AND CEO, PULSARA

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When Things Go Wrong: Medical Error a Leading Cause of Death

Miscommunication is a common cause of medical errors, which result in 250,000 - 400,000 deaths every year in the United States.

Research suggests that medical errors play an even bigger role in preventable deaths in U.S. hospitals than previously estimated, and 80 percent of all serious medical errors involve miscommunication. Tools that help medical professionals communicate more quickly, accurately, and collaboratively are critical to saving lives.

More than fifteen years ago, the Institute of Medicine released a groundbreaking report on the incidence of medical errors in U.S. hospitals. The report suggested as many as 98,000 people die every year from medical errors.[1] Recent analysis from the Johns Hopkins School of Medicine says that report may have significantly underestimated the problem, putting the actual number closer to 250,000 - 400,000.[2] In fact, medical error is now considered the third leading cause of death in the U.S.

Miscommunication Between Health Professionals Contributes to Medical Errors

The Joint Commission, an independent, not-for-profit organization responsible for accrediting hospitals nationwide, has estimated that miscommunication between health professionals during transfers of care contributes to 80% of serious medical errors.[3]

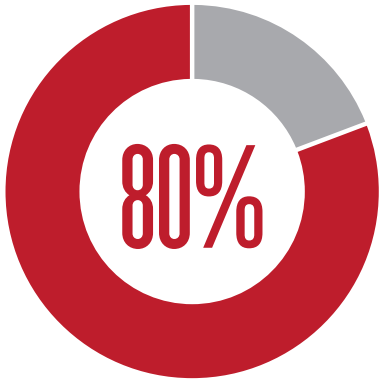
Communication during these care transfers is so critical to patient outcomes and experience that the Joint Commission developed The Targeted Solutions Tool™[3] to help hospitals review their current communication systems and build

stronger systems to prevent miscommunication and medical error.
The Targeted Solutions Tool includes a hand-off communications module. Using the information, hospital staff can:

- Easily **review the current state of communication** at care transfers,
- **Access customizable forms** to collect data on particular patient transitions,
- **Use tested and validated measurements** to assess where the organization needs to improve care transfer communication,
- **Choose focus areas** and identify critical information needed at those specific transfers and
- **Review existing guidelines** for assistance in establishing hand-off communication procedures.

Remedying Communication Breakdowns with New Systems
Once hospitals have identified specific areas where breakdowns in communication occur along the patient care journey, a number of tools exist to help remedy these challenges using secure, HIPAA-compliant platforms. Platforms built on mobile technology should be given special consideration, given the widespread use of smartphones and the ease of fast communication with mobile devices. When reviewing new platforms, healthcare organizations should examine their ability to:

- Guarantee secure, HIPAA-compliant communications,
- Attach images, lab results, etc.,
- Offer time-stamping of clinical actions and notifications,
- Provide data analysis options for later review of cases,
- Communicate with groups, including with one-touch alerts, and
- Record and track all communications.



Perecentage of serious medical errors due to miscommunication between health professionals during transfers of care.

Given recent analyses showing that medical errors now may be the third leading cause of death in the U.S. and miscommunication is a leading cause of those errors, healthcare organizations must act to improve communication between providers, particularly in crisis situations. The status quo is not acceptable—if we knew a disease was causing this many preventable deaths, we would not ignore it. Patients' lives often depend on fast and accurate information exchange and collaboration among healthcare professionals. Existing platforms, including mobile-friendly platforms, are available to aid healthcare organizations create faster, secure, HIPAA-compliant communication systems among the providers who work hard to deliver the best care to their patients.

How Tech Solves Problems in Healthcare

Some mobile technology solutions are well suited for bridging specific communication and operational gaps in healthcare—even if technology, on the whole, often frustrates caregivers.

Many healthcare providers complain of being frustrated by daily interactions with technology—including EHRs and ePCRs, patient portals and digital health trackers. But when designed right, applications that utilize mobile technology can be game changing.

Many EMS professionals and physicians report being frustrated by the usability of some of the technology platforms they interact with every day.[4,5] While these professionals recognize the potential of electronic records, patient portals and patient health data trackers to support more personalized, patient-centric care, they find the current tools largely fail to deliver on those promises. Furthermore, they can be cumbersome to use, and can actually slow down care processes—the opposite effect of what is intended. In a recent survey asking EMS providers about six ePCRs, they reported their current systems are usable but leave significant room for improvement.[2]

Tech Needs to Be Simple and User-Friendly

With technology evolving at a rapid pace, healthcare often winds up in a tech deficit, implementing platforms that work in the short term but cost more in the long run. Often an organization will implement multiple platforms to solve different problems and later discover that those systems are not interoperable. These types of technology “solutions” hinder clinical professionals’ ability to complete daily tasks and prove costly for healthcare organizations.

These challenges often stem, in part, from the fact that many hospital IT departments face a host of challenges, such as ensuring the security of personal devices and meeting HIPAA compliance and interoperability standards.

Creating technology solutions that meet the needs of patients and providers relies on developers focusing on concrete problems and whether technology can help alleviate those pain points.

Develop Tech To Simplify Processes and Improve Care

Healthcare tech needs to be developed with a focus on usability and on simplifying processes, rather than making them more complicated. Effective technology solutions for this industry need to focus on solving specific pain points in healthcare.

Given that nearly 80% of American adults own smartphones[6], mobile tech solutions that focus on solving concrete communication and operational challenges in healthcare will go a long way. For example, mobile tech platforms lend themselves well to helping medical professionals:

- **Connect with multiple care teams in real time,** including to alert them to prepare for incoming patients,
- **Share test results quickly** with multiple colleagues or teams,
- **Communicate with other healthcare professionals in parallel** rather than in series and
- **Time-stamp clinical actions** to allow for data collection and analysis of clinical systems and performance.

Creating technology solutions that meet the needs of patients and providers relies on developers focusing on concrete problems and whether technology can help alleviate those pain points. Mobile communication lends itself well to fast or real-time communication; targeted group communications; the ability to share images, test results and other key clinical information; and data tracking throughout the care continuum, all of which have a place in creating better systems of care. And with nearly every provider already using smart phones and apps in their daily lives, new platforms with mobile applications take advantage of equipment and knowledge already available to every caregiver.

Hospitals Deliver Better Care by Streamlining Communication

Hospitals dramatically reduce how long it takes to deliver life-saving care for heart attacks.

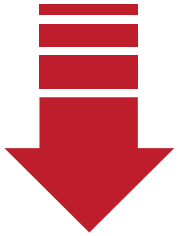
Communication and operational changes at hospitals, and within EMS systems, play key role in recent drop in the death rate from heart attacks.

Although heart disease is still the number one killer of American adults, in recent years the nation has witnessed a dramatic decrease in the death rate from heart attacks. From 2003 to 2013, the rate at which people in the U.S. died from heart disease dropped 38%.[7]

This striking improvement can be attributed to a number of reasons, including more effective treatments for heart disease and risk factors like high cholesterol and high blood pressure. In addition, fewer people are smoking these days. And notably, some hospitals have made sweeping changes in how they treat people having heart attacks. Many of those changes have not involved new drug therapies or procedures, but simply operational shifts that address patient flow and provider communication.

Some Hospitals Consistently Achieve Fast Treatment

Some of the improvements in hospital care came as the result of a national goal established by the American Heart Association and the American College of Cardiology to treat heart attack patients within 90 minutes or less of their arrival at the hospital.[8] But a few stand-out hospitals consistently met and exceeded the national goal, often by a lot, long before the AHA's campaign for faster treatment.



One hospital lowered its median response time for heart attack from **93 minutes to 71 minutes.**

Systematic Changes to Improve Time to Treatment

A group of cardiologists from Yale looked at the best performing hospitals to see what they were doing to speed heart attack treatment. They found these hospitals had been able to shave time off heart attack responses by instituting systematic operational changes, including:

- Having paramedics send electrocardiograms directly to the emergency room, rather than waiting to perform an ECG at the hospital;
- Allowing ER doctors to decide whether the patient was having a heart attack, rather than waiting on a specialist to make the call;
- Summoning the heart attack team to the hospital with a single notification rather than calling each member in sequence; and
- Creating systems for the hospital to continually measure its performance and improve its response times.

By employing these strategies, even hospitals in underserved areas have seen dramatic improvements. For example, the team at Our Lady of Lourdes, a mid-sized hospital in Camden, New Jersey, which was profiled by the New York Times, lowered its median response time for heart attack patients from 93 minutes in 2007 to 71 minutes in 2011. Today, Our Lady of Lourdes is able to open arteries and restore blood flow for some heart attack patients in under an hour. It's a difference that can save lives and prevent lifelong disability.

Mobile Tech Connects Care Teams For Faster Responses

Increasingly, healthcare organizations are looking to technology solutions that can instantly and seamlessly connect pre-hospital and hospital-based providers. Mobile technology offers an elegant solution for creating parallel notification systems, which allow paramedics or ER physicians to alert the cath lab, the cardiologist and all members of the STEMI team with the touch of one button. Using mobile-based apps, paramedics in the field can quickly alert emergency department staff and cardiology teams of a "Code STEMI" and share the patient's estimated arrival time with hospital staff. The EMS team also can transmit ECGs to multiple people, so the ER physician and cardiologist can view them before the patients are even on the way to the hospital. Single alert notifications help all members of the on-call team move quickly towards the hospital to provide life-saving care for the patient as soon as possible.

Provider Teamwork Can Lead to Better Patient Outcomes

Physician collaboration is associated with fewer patient deaths, readmissions and emergency room visits.

A study of patients who underwent coronary artery bypass grafting (CABG) found that when physicians collaborated more, patients had a 24 percent lower rate of emergency room visits and hospital readmissions and a 28 percent lower rate of death.[10]

Physician groups that worked more closely together in caring for patients who underwent coronary artery bypass grafting (CABG) procedures were able to produce better patient outcomes, according to recent research.[11] The study examined claims data for 251,630 patients who underwent CABG between 2008 and 2011; the patients received care from 466,243 physicians across more than a thousand health systems. At 60 days post-procedure, patients treated by physician teams with higher levels of cooperation had:

24.6% fewer emergency department visits,
24.4% lower readmission rates and
28.4% lower death rates.

These results further support the importance of care coordination among physicians and care teams, particularly in critical procedures like CABG, where diagnosis and information exchange need to happen rapidly and accurately.

A well-established and mobile-friendly communication system can help healthcare professionals communicate **quickly and transparently.**

Communication Critical to Teamwork and Coordination

Transparent communication is key for any team looking to work more closely together. In the case of medical teams responding to people who are having heart attacks or other medical emergencies, communication needs to be not just transparent but fast.

Rapid, meaningful coordination among teams caring for patients who have experienced a heart attack requires that:

- **Teams can readily and securely communicate** with one another (EMS, emergency room staff, specialty and surgical teams, post-op care teams),
- **Communication is transparent,** including allowing people to confirm whether other teams or professionals have received and acknowledged an alert or notification,
- **Communication is trackable,** which lets people double-check important information, holds care team members accountable and provides data for later analysis,
- All care teams have **fast access to complete patient information** and
- **Communication is practiced and analyzed,** using team drills.

The authors of the study on CABG and teamwork recognized that relying on claims data to determine the level of teamwork among physicians is a limitation. Future research could examine how healthcare professionals work together by directly observing their behavior in emergency care settings and measuring which behaviors and collaboration tools most influence positive patient outcomes. In addition, we must look at how much institutional commitment to collaboration impacts how well teams work together.

Better Communication Systems Support Better Teamwork In Crisis Situations

Particularly for patients who require an emergency CABG procedure, smart communication between their care teams is essential. In these cases where “time is muscle,” patients need to be transitioned from the pre-hospital providers to the emergency room staff to the cardiac care team as quickly as possible. In these crisis situations, a well-established and mobile-friendly communication system can help healthcare professionals communicate quickly and transparently to provide critical interventions quickly and safely.

Versatility of Mobile Communciation Can Help Prevent Medical Errors

Researchers find a significant number of communication failures at hospitals. Could they be contributing to preventable patient deaths and disability?

A study in Toronto found that over a two-month period, 14 percent of all pages went to the wrong physician and nearly half of those were emergent or urgent communications.

A study that examined communication failures at Sunnybrook Health Sciences Centre and the Toronto General Hospital in Toronto, Canada, found that over a two-month period, 14 percent of pages were sent to the wrong physician.[12] That's an estimated 4,300 misdirected pages each year—half of which are related to emergency or urgent matters.

While these findings are alarming, they may just be the tip of the iceberg. The researchers based their estimates on the number of times off-duty physicians were paged, which may be an underestimate of total errant pages sent. These pages that were sent to the wrong doctor can result in significant delays to patient care.

Outdated Systems Contribute to Miscommunication

At the two Toronto hospitals studied, health professionals relied on paper-based schedules to determine which physician to page. These outdated systems using paper can make it difficult to keep schedules up to date and are not responsive in real-time to scheduling changes. Furthermore, these systems provide no systematic feedback loop when errant pages are sent to the wrong person.

4,300

Estimated number of misdirected pages that were sent to the wrong physician.

Mobile-based Platforms Can Help Prevent Communication Errors

Mobile-based team communication can provide solutions to the types of communication errors and delays experienced by the hospitals study by:

Notifying Multiple Users

Using mobile tools, notifications can be sent to multiple numbers at once using a programmable and easily updated call schedule.

Making Real-Time Schedule Updates

Changes made to the schedule could update in real-time for all app users, preventing wasted minutes calling the wrong provider.

Using Read Receipts

App notifications can capitalize on read receipt features to make it possible for people to check whether or not notifications have been opened and read.

Sending Transparent Group Communication

Finally, group notifications using mobile-based tools also create transparent ways to communicate with multiple teams of professionals, making it clear to all what information is being shared and with whom.

Offering exceptional patient care and achieving good outcomes in difficult and emergent cases is enough of a challenge for health professionals. They shouldn't also have to worry about whether the call schedule is up-to-date, a page went through or the specialist is headed to the hospital. Smarter, mobile-based communication systems can help solve these problems and make it easier to quickly and transparently communicate with the right people, which ultimately leads to better patient care.

The Future of Healthcare Is Mobile

Healthcare systems must continue to adopt mobile-friendly platforms to meet users expectations and offer high-quality care.

Many industries have overhauled their businesses to meet consumers' expectations of using their mobile devices to do everything from checking in for a flight to ordering takeout food. The healthcare industry has been slower to adopt mobile-friendly platforms, but it is increasingly doing so to meet patients' and health professionals' needs. But simply taking current methods of communication and putting them on smartphones is not sufficient—platforms must capitalize on the many advantages mobile technology offers in order to truly transform and improve healthcare.

With smartphone ownership among American adults rising every year, people increasingly expect to conduct all aspects of their lives on their phones. Companies like Amazon, Delta, Starbucks, Domino's and virtually all news organizations—the list is endless—now deliver their customer services and products using mobile apps and mobile adaptive websites. These companies recognize that the future of their businesses depends on meeting needs of mobile-based consumers.

Healthcare Slow to Adapt

Traditionally, healthcare has not operated as a consumer-driven industry. On the whole, healthcare providers have been slower to adapt to mobile, consumer-centric platforms when compared to many other industries.

In many healthcare organizations, communication and information technology systems have been created using a number of different platforms that are not necessarily interoperable or mobile adaptable. System updates can be hampered by requirements to ensure HIPAA-compliance as well as the privacy and security of healthcare information.

Advantages of Mobile

The healthcare industry is increasingly moving toward mobile-based or mobile-friendly communication systems to replace the phone and fax. Medical professionals as well as patients will reap the benefits of this technology upgrade.

Some of the advantages of these mobile systems include:

Platform Continuity Smart mobile systems allow people to use only their phones to take any necessary action, from receiving alerts or reminders to communicating with colleagues to looking up patient records.

Unified Communication Instead of different members of a care team using different methods of communication, mobile systems allow everyone to communicate with each other at the same time—ensuring all members of the care team are on the same page.

Data Streaming Mobile-friendly data systems allow users to stream large amounts of data from the cloud and update data in real-time.

Digital Information Paper-based call sheets and other notes on critical patient information are still common in healthcare. With mobile systems, all information can be digitally exchanged, which makes it easily transferrable, shareable, searchable, and savable.

Location Tracking All mobiles devices are equipped with location-based tracking, which allows for better team coordination and notification—for example, by letting the team know the ETA of a specialist on-call.

Automatic Alerts Automatic mobile alerts can help healthcare professionals stay on top of patient needs by immediately notifying them of everything from new test results to changes in patient vitals to incoming emergent cases.

Instant Feedback Mobile-based systems allow for instant feedback. Immediate feedback rather than delayed response can speed patient care in many arenas such as specialist consults, patient follow-up, referrals, and medication orders. Providing feedback to other members of the continuum, such as emergency department staff and EMS personnel, can improve relationships by helping them feel like part of an integrated team.

Emergent Situations Demand Mobile

Emergency medical services is one area of healthcare where mobile-based systems could make a big difference in patient care. Often in EMS responses, time is critical. Rapid communication, data exchange, and alerts between healthcare teams can lead to faster patient care. In cases of heart attack, stroke, or trauma, faster care saves lives. Mobile platforms also ensure every member of a care team—from the ambulance to the emergency department, the pharmacy to the cath lab—is receiving the same information at the same time, making communication not only faster, but better.

With 80 percent of American adults now using a smartphone, most of us are familiar with the advantages and convenience of using mobile phones. As consumers, we have come to expect that we can conduct many aspects of our lives from the screen of our phone. Increasingly, the healthcare industry is moving to embrace the shift towards mobile to provide greater conveniences for patients and better communication systems for healthcare professionals. It's about time.

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Healthcare has been communicating the same way for decades.
That changes now.
IT'S ABOUT TIME
Cancel
New Patient
75
kg.
165
lb.
Images
3
Contacts
1
Vital Signs
Vitals
Labs
Labs
ALERT