IMPROVING CARE THROUGH HOSPITAL-EMS DATA EXCHANGE
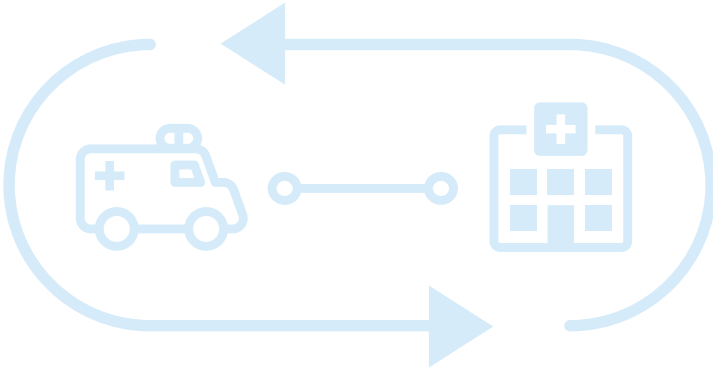
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Hospitals and emergency medical services improve clinical and operational performance by sharing critical information.

Interoperability has become a topic of considerable focus across healthcare. Many health systems are reaping the benefits of automated data exchange. Yet sharing of information between hospitals and EMS systems remains far from adequate, with fewer than half of EMS agencies participating in any sort of regular data exchange with hospitals.[1]

This doesn't have to be the case. In some systems, hospitals and EMS have overcome obstacles and now benefit from automated, real-time electronic exchange of data. But most important, patients and communities are reaping the benefits as well.

HEALTHCARE DATA INTEGRATION IS HERE TO STAY

Creating cohesive systems to share information in a diverse and complicated healthcare system is a challenge; nowhere is the patchwork of health delivery systems more evident than in the relationship between hospitals and EMS. EMS organizations frequently transport patients to multiple hospitals—and most hospitals receive patients from multiple EMS services, often with varying delivery models. Add first responder and air medical transport services to the mix, and the web of agencies, providers and information systems becomes tangled pretty quickly.

Despite this complexity, however, the Federal Health IT Strategic Plan made a specific point of describing the importance of hospitals sharing information with EMS:

> For example, EMS practitioners provide stabilizing care and transportation services; having access to a patient's salient clinical information as a first responder can improve patient health and safety. Access to linked outcomes data from hospitals can help EMS systems measure performance, improve their provision of care, and provide timely feedback to providers.[2]

In some ways, EMS is more ready for healthcare information integration than many of its partners on the healthcare continuum, thanks largely to the creation of a nationwide data standard that is approaching 100% adoption in the United States. Because of this

> ## EMS is more ready for healthcare information integration than many of its partners on the healthcare continuum.

standard, created under the National EMS Information System (NEMSIS), communities can establish health data exchanges with multiple EMS agencies, which may all use different electronic medical record systems, because they all speak the same language when it comes to data.

With technology no longer an excuse, real-time, bidirectional data sharing between hospitals and EMS is possible—and is already helping improve care in systems across the country.

FOUR WAYS HEALTHCARE SYSTEMS, PATIENTS AND PAYERS BENEFIT FROM HOSPITAL-EMS DATA EXCHANGE

1 | Improve Patient Safety

In one healthcare system in the southeast United States, integrating EMS and hospital records became a priority after a patient was sent home and later nearly died. Physicians who treated the patient in the hospital never saw the EMS record; if they had, they later said, the information documented by EMS would have changed how they managed the patient and potentially prevented him from being discharged.

"That is why we started exploring health data exchange—we could get information from EMS agencies and get it quickly," said one official at the hospital.

Worried that not having access to the whole picture of what EMS saw and did in the field could lead to a bad patient outcome, the hospital and EMS system implemented ESO's Health Data Exchange (HDE). **Now physicians anywhere in the hospital—from the ED to the ICU—can see EMS reports in the hospital's electronic health records as soon as paramedics complete them.**

Other hospitals, such as Mercy Hospital in St. Louis, not only incorporate EMS patient care reports in the patients' hospital records via HDE, but also use the system's bidirectional capability to send outcomes to EMS agencies, facilitating learning and quality-improvement initiatives.

2 | Improve Care Quality

EMS caregivers frequently care for acutely ill patients but never know the outcome, which makes it difficult for paramedics and EMTs to learn and improve assessment and diagnostic skills. For example, when an EMS provider diagnoses a STEMI, but then doesn't learn the patient's final diagnosis, she has no way of knowing, for example, whether activating the cath lab from the field led to a positive outcome, or if she misread the ECG.

A paramedic's ability to learn and improve from knowing patient outcomes can also make patient care in the emergency department more effective and efficient.

In addition, information exchange between hospitals and EMS agencies allows EMS medical directors to determine how well their agencies are performing. In Williamson County, Texas, Jeff Jarvis, MD, receives hospital outcomes for patients transported to one of the local hospitals. That enables him to ensure that STEMI patients, for example, are being recognized in the field and quickly transported to the hospital—allowing cardiologists to meet door-to-balloon time treatment goals.

"What we're trying to find out is what are our sensitivity, specificity, false positive and false negative rates and overall ability to recognize STEMI in the field," Jarvis says.[3]

In 2015, nearly half of hospitals received penalties rather than bonuses from CMS's value-based purchasing program.

3 | Optimize Operations and Billing

Ambulances frequently show up at hospitals with little information about the patient—especially extremely sick or seriously injured patients. Unconscious victims typically are unable to provide basic information—dates of birth, home addresses, social security numbers. While treating patients with these time-sensitive illnesses, such as trauma or sepsis, paramedics may be unable to search the scene of a car crash or a patient's home for this information and often arrive at the hospital with incomplete demographic information.

With bidirectional automated data exchange, patient demographic information is transmitted from the EMS record to the hospital, and from the hospital record to the EMS agency—making it accessible to registration clerks, nurses and billing staff in both organizations.

So whether the paramedics are able to retrieve patient information from firefighters or police still at the scene, or the hospital fills in the blanks by talking to a family member, everyone who needs it soon has the most accurate, up-to-date patient information, creating a more efficient system for patient tracking and billing.
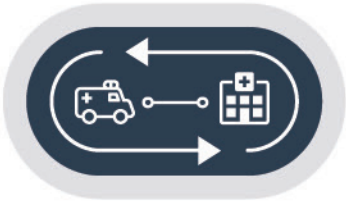
4 | Meet Clinical Benchmarks

Integrating EMS patient care reports into hospital records ensures that treatments performed by paramedics and EMTs in the field are properly recorded for STEMI, stroke, sepsis and other critical patients.

In one scenario, paramedics arrive at the hospital with a man complaining of crushing chest pain. Because the full dose of aspirin has already been given by EMS, nurses in the ED don't administer more. In the rush to get the patient assessed and off to the cath lab, though, they also neglect to chart in the hospital EMR that aspirin was given in the field.

A few days later, hospital quality assurance notices a STEMI patient didn't receive aspirin. They have no access to the EMS chart, so they don't realize it was given in the field. When they calculate service line performance measures, the case counts against the hospital.

In 2015, nearly half of hospitals received penalties rather than bonuses from CMS's value-based purchasing program.[4] With Medicare now potentially penalizing hospitals by 2 percent—and other payers looking to measure quality as well—every missed opportunity in documentation can be costly.
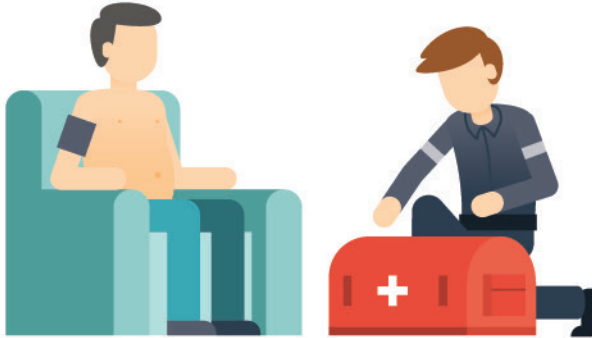
HEALTH DATA EXCHANGE

Sharing information helps both hospitals and EMS systems provide more effective patient care

✓ MEET CLINICAL BENCHMARKS

UPDATE!
EMS DATA
☑ RECEIVED ASPRIN

HOW IT WORKS

Paramedics perform a 12-lead ECG and administer aspirin in the field to a patient having a heart attack. Because the EMS crew documents these interventions, they automatically also appear in the patient's hospital record.

THE RESULT

Because it is clearly documented in the chart that the patient received aspirin in the field, the hospital is not faulted for failing to give aspirin in the emergency department.

✓ REDUCE DOOR-TO-TREATMENT TIME

HOSPITAL

ENTER   ENT

EMS QA/QI
YOU'VE GOT OUTCOMES

HOW IT WORKS

Paramedics who transported a "code stroke" access the patient's hospital records and compare the EMS differential diagnosis with the physicians'.

THE RESULT

Paramedic teams track results and facilitate continued learning, which helps reduce false positives and door to needle time.

✓ IMPROVE PATIENT SAFETY

HOW IT WORKS

The on-call cardiologist views the EMS report integrated into the hospital electronic medical record, sees that earlier today the patient's heart rate was too fast and paramedics treated her with medication to slow it down.

THE RESULT

Access to the EMS record helps the cardiologist understand the full scope of the problem and treatment, ensuring she prescribes the right medications and follow-up plan.

✓ OPTIMIZE OPERATIONS AND BILLING

HOW IT WORKS

Patient demographic information recorded by EMS appears in the hospital record, and additional information entered in the hospital chart can be accessed by EMS agency billing staff.

THE RESULT

The ability to review and verify demographic and insurance information streamlines the registration and billing processes for both the hospital and EMS service, increasing revenue.

EXCUSES USED TO AVOID INTEGRATING DATA—AND WHY THEY'RE WRONG

While data information exchange is happening among hospitals, EMS systems and other healthcare partners, a significant number of systems still face challenges in sharing data, not because of the limitations of technology, but because of concerns regarding risk or liability based on data security. Here are the most common concerns and why they shouldn't cause anxiety.

HIPAA

When hospital executives and EMS officials approach risk managers and lawyers about sharing data, they often hear the same response: "HIPAA." But the Health Insurance Portability and Accountability Act was specifically written to allow information sharing when appropriate, as in the case of direct patient care or quality improvement.

In fact, the federal agency charged with enforcing HIPAA—the U.S. Department of Health and Human Services—has published a letter affirming that hospitals can and should share patient outcomes with EMS.[5] HIPAA was enacted to protect patients, not to prevent them from receiving the most appropriate care by blocking providers' access to accurate, timely information necessary to provide that care.

Risk

With all the unsecure methods of sharing happening organically now—printed records, emails, exchanging passwords, faxes—setting up a secure and easy to audit method of exchanging hospital and EMS data is certainly an improvement, and something that should appeal to the people whose job it is to protect patient information.

> The federal agency charged with enforcing HIPAA—the U.S. Department of Health and Human Services—has affirmed that hospitals can and should share patient outcomes with EMS.

Integrated, automated data-exchange facilitates tracking of who is accessing the data—and, by giving every provider access to more accurate and up-to-date information, may reduce liability risk by leading to fewer communication errors and other potentially deadly mistakes.

Interoperability

Another common obstacle comes in the form of concerns from IT departments. Many communities are served by multiple hospitals and multiple EMS agencies, so setting up connections among all those different platforms can be time consuming and difficult.

But in the area of standardized data collection, EMS is potentially more advanced than the entire healthcare community. Because of the National EMS Information System, the vast majority of EMS transports in the United States are reported using electronic patient record systems that speak a common language.

By using a software-agnostic data exchange platform, hospitals can receive data from multiple EMS agencies using different patient care record systems via a "connect once, connect to all" network. Those NEMSIS-compliant systems send the same data—which means that no matter which ambulance service delivered the patient, nor which software it uses, the data is stored in the same standardized fields.

HOW ONE HOSPITAL AND EMS AGENCY TEAMED UP TO IMPROVE SEPSIS TREATMENT

In suburban Houston, data exchange between a local hospital and the Atascocita Volunteer Fire Department provides the department's EMS chief, Ed Roth, the ability to view hospital diagnoses and patient outcomes of people transported by his department's paramedics. When he sees a patient diagnosed and treated for sepsis, he immediately looks at his agency's EMS patient care report to see whether the paramedics initiated the department's sepsis protocol, which includes alerting the hospitals of a "Code Sepsis" and administering IV fluids.

Prehospital sepsis alerting and treatment is associated with faster times to treatment in the hospital—which can help the hospital meet its performance goals and ultimately lead to better patient outcomes.

In one case, an Atascocita Fire paramedic described one patient as a "generally sick person," using the primary impression "other" and symptoms such as "general weakness." The patient was later admitted for *E. coli* sepsis and stayed in the hospital for six days before being discharged on long-term antibiotics. Roth read through the hospital records and the EMS patient report, trying to figure out why the medics didn't call a Code Sepsis. It turned out that rather than running a fever—one of the criteria for calling a Code Sepsis—the patient had a below-normal temperature when admitted in the emergency room.

"That case gave us a chance to talk to the team about how initially people will run a fever, but sometimes as sepsis progresses it can develop into cold shock," says Roth. "In this case, it meant we were further behind the ball than we should be. It was a teaching moment."

Teaching moments like these will lead to improvement efforts and have a significant impact on the ability of prehospital care providers to work with hospitals to achieve care goals.

THE WAY FORWARD

For too long, the healthcare community has operated in silos, with hospitals, physician practices, EMS services and other organizations working together, but not sharing critical information. Now, caregivers of all types have recognized how information is critical to patient care. Both EMS services and hospitals collect vast amounts of data, yet only a few have taken advantage of secure, automated methods of exchanging that data. Recommended steps for moving forward include:

- **Start a dialogue between EMS and hospital stakeholders** on how shared data would improve performance in the community;

- **Explore technology solutions available** on the market, looking for agnostic options that would allow more entities to participate;

- **Strive for sharing of discrete data,** not just viewing of records, to facilitate data analysis;

- **Look for similar implementations** in other communities to benchmark performance;

- **Become familiar with the Federal Health IT Strategic Plan,** particularly where it specifically calls out EMS and disaster medicine as needed integration points for community hospitals;

- **Learn about the EMS Compass project,** a nationwide EMS data project sponsored by the National Highway Traffic Safety Administration (NHTSA) and designed to benchmark the EMS profession. Many of the measures require hospital outcome data for reporting.

It's time for hospitals and EMS services everywhere to recognize what many innovative communities have already discovered—that real-time, electronic data exchange can eliminate errors, improve efficiency and benefit providers, payers and patients.

AFTERWORD

"A fully functional U.S. health system must be a technologically and culturally connected enterprise that facilitates the easy electronic movement of information. A solid health IT infrastructure will help to accelerate the interpersonal connections between each participant, and the information that moves between them. Health IT availability and use among providers that were not eligible for the Medicare and Medicaid EHR Incentive Programs lags behind those providers that were eligible for the programs. These providers, including behavioral health, emergency medical services (EMS), long-term and post-acute care, play an integral role in helping to keep individuals healthy and have numerous situations that necessitate collaboration and sharing of information with the greater health community. Often individuals who receive services and care from these providers are among the most vulnerable, and the rich information available from these providers can have significant impacts on individuals' health and their care decisions with others in the health enterprise.

For example, EMS practitioners provide stabilizing care and transportation services; having access to a patient's salient clinical information as a first responder can improve patient health and safety. Access to linked outcomes data from hospitals can help EMS systems measure performance, improve their provision of care, and provide timely feedback to providers."

—Office of the National Coordinator for Health Information Technology (ONC) Office of the Secretary, United States Department of Health and Human Services: Federal Health IT Strategic Plan 2015-2020. http://healthit.gov

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