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SPOTLIGHT SERIES

Hospital-EMS Interoperability and Market Intelligence

Harness the power of emergency medical services (EMS) transport data to:

- Inform business and market strategy
- Manage capacity and throughput
- Increase operational efficiencies
- Support service line planning and growth
- Q&A with our sponsor, ImageTrend

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INTEGRATING PATIENT DATA FROM EMS TO ENHANCE EMERGENCY DEPARTMENT OPERATIONS AND PLANNING

Across the country, hospital emergency departments (EDs) provide critical care to patients during life-threatening crises. Thanks to the Emergency Medical Treatment and Labor Act of 1986 (EMTALA), EDs are required to treat every person who comes through their doors.[1] As a result, an estimated 155 million people visit the ED each year, with many of those patients arriving via emergency medical services (EMS) transport.[2]

EDs provide vital services to their communities; yet, between ongoing hospital closures and the need to treat patients with increasingly complex medical issues, EDs across the country currently face significant challenges. They must contend with insufficient capacity, longer patient wait times and gridlock as patients wait for beds to become available in other parts of the hospital.[3]

"Most EDs in America are running like an airline — they are at 105% capacity. You find patients boarding in the hallways, sometimes for days, before they are moved to a medical-surgical floor," said Rob Havasy, Senior Director, Informatics Strategy at HIMSS. "Capacity and surge planning is one of the biggest issues EDs are dealing with today."

The need for expanded intelligence

Data analytics, however, can help, said Havasy. Advanced data analytics enable today's healthcare organizations to do everything from monitor patient outcomes to forecast community health needs. But analytics are only as smart as the data included in the models. That's why health systems that can gather and include pertinent data from outside the four walls of the hospital are in a better position to plan for ED capacity, as well as potential patient surges.

"When it comes to emergency medicine, different places have different characteristics," he explained. "[The patients] tend to have different injuries — some have more burns, some have less — depending on the surrounding community. And those trends can change. For example, a new construction project in town might mean there are going to be more workplace injuries. That impacts planning."

By collecting data to understand those community trends, hospitals can better prepare their EDs. Predictive analytics can help them with challenges ranging from adequate staffing, both in the ED and other parts of the hospital, to the procurement of appropriate supplies.

The addition of data from EMS, the transport organizations that bring a significant proportion of patients to the ER each day, can make those models even more meaningful. The resulting integrated analytics can offer keen insights to not only better manage capacity but improve coordination across the care continuum.

"Timely insights from connected ambulances allow hospitals to better anticipate and prepare for incoming patients, ensuring that critical cases reach the right teams and resources without delay," said Havasy. "For larger health systems, real-time data flows support coordinated patient allocation across facilities,

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helping deliver high-quality care where and when it's needed most. This level of connectivity allows care teams to focus on the best outcomes for every patient, while making hospital capacity planning smoother and more effective."

State-wide EMS transport data complements healthcare organizations' existing ED, registry and operational data sets. When these data come together, they provide greater visibility into operations. To start, providers can gain important medical context before the patient reaches the doors of the ED to improve the quality of care. But this kind of integrated data also supports real-time analysis of patient flow, referral sources and patterns and performance issues.

Beyond capacity and throughput planning

When healthcare organizations have access to bi-directional data exchange between EMS and hospitals, they gain the intelligence required to better plan capacity, align referrals and respond to potential patient surges with confidence. But knowledge of near real-time EMS transport patterns can also assist with market share capture and service line growth planning. A quick look at recent healthcare news coverage demonstrates not only the need for this kind of operational visibility but how healthcare organizations can benefit when they can make more data-driven decisions.

- Recent reporting by *WHYY* describes the fallout of a large hospital closure in Delaware County, Pa. Other hospitals in the area must now contend with increased EMS response and transport times, as well as ongoing capacity issues in their emergency facilities. Local officials have sounded the alarm, stating that hospitals in the area require additional planning and resources to continue providing the highest quality care to local patients, many of whom may now require transport to hospitals at a much greater distance away to receive necessary treatment.[4]
- In an article in *Healthcare IT News*, McGill University Health Center describes the importance of moving from "data as reporting" to "data as action." The health system has worked to provide direct access to centralized data to a wider group of employees to help them find new ways to improve the quality of care and reduce costs. While the ability to access key clinical and administrative data without organizational bottlenecks is relatively new, the health system reports that employees are already identifying crucial performance gaps through self-service data analytics to help the organization meet its goal of cutting its budget by 5% without sacrificing service volumes or patient care.[5]
- More and more, hospitals are focused on acquiring patient market share and preserving the loyalty of local consumers. Yet, to gain the data-driven insights to support that goal, organizations must find ways to access critical information which is "fragmented" across a variety of different databases and information technology (IT) systems. When Lehigh Valley Health Network decided to move from historical reporting to active management using enhanced data analytics, the health system was able to bring together the necessary data to develop a comprehensive savings strategy for perioperative services that led to $2.5 million of realized savings. Most importantly, as the organization shared with *Healthcare IT News*, it was able to do so while keeping patient safety and quality a top priority.[6]
- The National Emergency Medical Services Information System (NEMSIS), a national program that collects, stores and shares EMS data, is seeing improved interoperability between EMS and hospital emergency departments, with more hospital outcome data now being included in EMS patient care reports. The ability to share this data not only supports vital clinical feedback loops, allowing clinicians to provide faster, more informed care, but also offers data-driven insights with the power to improve healthcare operations and reimbursement. Yet, despite the gains achieved, NEMSIS reported that there are still low rates of data exchange in many states. The greater healthcare ecosystem would benefit from increased data exchange between EMS services and healthcare organizations in the future.[7]
- Reporting by the Associated Press highlighted that one in six visits to the ED required a wait of four or more hours. More and more, hospitals must rely on "boarding," or having patients wait for admission, sometimes in hallways or overflow areas. Given that half of boarded patients are over the age of 65 years, emergency medicine practitioners are sounding the alarm. With the number of dementia diagnoses growing across the country, health experts warn that EDs across the country are unprepared to manage these complex cases. Hospitals need to find a way to better plan for and manage capacity, as well as throughput, to provide the right care for these patients.[8]

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An evolving role for EMS

Having access to informative data can allow healthcare organizations to take a more strategic approach to planning both in the ED and across the hospital. Havasy said that increased interoperability between hospital electronic medical record (EMR) and EMS' electronic prehospital care report (ePCR) systems could help improve care coordination as well as support performance improvement for all parties. This will be especially important as the role of emergency medical technicians evolves, moving away from stabilization and transport to being the first front of patient care.

"The goal, ultimately, is to have these more advanced frontline paramedics, who are trained in emergency medicine, to bring the edge of care to the ambulance," he explained. "That will allow advanced care to start even earlier to benefit the patient."

As more health systems approach this target, the ability to share patient information between EMRs and ePCRs will become an imperative to ensure patient safety and the highest quality of care. In the meantime, however, hospitals will still benefit when they add near real-time EMS transport intelligence to their analytics platforms.

"This becomes a matter of coordination between disparate entities," said Havasy. "You need the right data on hand to not only see what is happening at your hospital, but other hospitals in the community. Then you can start looking for the insights that will allow for more strategic, more informed planning."

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Q&A

Enhanced Operations through Market Intelligence

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When healthcare organizations can leverage vital patient information from emergency medical solutions (EMS) transport data, they can better plan for capacity, align referrals and support service line growth. Josh Walters, Vice President at Government Solutions at ImageTrend, discusses the power of connected software and data solutions for EMS, fire, hospitals and public health entities to helping healthcare organizations improve operations.

What is Market Intelligence and how does EMS transport data complement existing emergency department (ED), registry and operational datasets?

Market Intelligence is an EMS analytics platform that helps hospitals see beyond their own four walls to understand how patients move through the healthcare system before they come to the ED.

Unfortunately, hospitals don't always have a clear picture of the volume of patients they may encounter via EMS, or the details of those patients. This information is complementary to the data they likely already collect, like claims data. It's a detailed dataset about the patient that can be accessed in near real-time to share information ranging from what medications or procedures were provided to the patient under EMS care to how the patient paid.

What are some of the top use cases where Market Intelligence measurably helps hospitals?

One of the most popular involves market share. Having access to EMS transport data can help hospitals understand where to best invest resources. For example, some hospitals may be looking at creating a freestanding ED, or perhaps a competitor is, and this data can help them understand how those decisions might influence market share volumes, both in terms of the volume of patients and the types of patients coming to them.

It's important to understand that you need more than just the EMS data from your own hospital to do this. To truly understand market share and market volume, you need to see data across your broader market. Market Intelligence allows you to visualize this data and use it to predict what volume might look like in the future — and how you might influence that volume going forward.

How does working through state-level data connections simplify hospital onboarding, data rights/agreements, and overall coverage?

This is a big advantage for hospitals as it's a one-stop shop. They don't have to go from agency to agency or only look at data at a regional level. Because ImageTrend has partnerships with state EMS offices, we get all the data they might collect. Hospitals can avoid having to work out agreements with different agencies because our platform streamlines all the data rights to provide broader and more consistent coverage. Hospitals no longer have to extrapolate conclusions based on little pockets of data. Market Intelligence offers access to the kind of data that provides a look at the whole picture.

For health systems ready to get started, what does a 90-day implementation plan look like?

We start with discovery so we can understand what the customer wants to do with this type of data. We spend time identifying goals, metrics of success and the markets they are interested in. Once we have all that defined, we then identify key stakeholders in the organization to help champion the platform and do a pilot. Those champions will receive training to help the greater organization understand this new dataset, how to access it and how to use the tools to pull out the insights they need.

Once that's in place, we can look at rolling out access to more folks in the organization through additional training and interactive sessions. Then we wrap up the implementation plan by meeting with stakeholders to ensure they can meet the goals they have identified, and how our tools and data are assisting them. While that concludes our 90-day implementation plan, ImageTrend has an excellent customer support team that is available 24/7 after that. We are happy to answer any questions, enable new users and help with any new or bigger projects hospitals are interested in taking on in the future.

ImageTrend

About ImageTrend

ImageTrend provides connected software and data solutions for EMS, fire, hospitals, and public health. Our platform spans ePCR/incident documentation (Elite), trauma/burn/stroke/cardiac registries (Patient Registry), and the Health Information Hub for secure, bidirectional EMS–hospital data exchange using HL7. ImageTrend Market Intelligence, built on the biospatial platform, delivers near-real-time insights into EMS transports and referral patterns to support capacity planning and growth. With integrated analytics, reporting, and U.S.-based support, ImageTrend helps organizations turn operational and clinical data into consistent, actionable information.