

# Health System Transformation Through EMS Data Integration

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**Emergency Medical Services (EMS)** data represents a critical, yet underutilized, resource with significant potential to transform public health surveillance, support the delivery of health and social services, and improve health outcomes. Investing in the integration of this near real-time data source will provide visibility into patient needs that remain hidden in traditional clinical settings, driving better care coordination, efficiency, and resource allocation.

## The Data Gap: Unlocking Hidden Health Needs

EMS systems operate as a crucial interface between health care and communities, often functioning as a safety net service for individuals without insurance or those in communities with limited health care resources. EMS encounters provide a unique view of patients' living environments and health-related social needs (e.g., housing instability or lack of access to primary care).

Despite this value, limited integration means that EMS encounter data are often omitted from traditional health care data systems. This omission creates a serious information gap:

- **Non-transport encounters are invisible:** Data suggest that approximately 25-35% of EMS encounters do not result in transport to a hospital or other destination. This means patient information from over a quarter of EMS encounters—including patient vitals, medications administered, and EMS clinician impressions—are not shared outside the EMS system.
- **Real-time intelligence is lost:** EMS data are typically available in near real-time (within eight hours of an encounter) at the state level. This speed makes EMS data an excellent source to understand health disparities and inform timely, community-level interventions. Currently, this information is excluded from analyses that monitor patient utilization and from total cost of care estimates.
- **Geographic disparities are obscured:** Because EMS data can be analyzed down to the census tract level, it provides unmatched geographic specificity to pinpoint where non-acute conditions (such as low-acuity behavioral health needs or ambulatory care sensitive conditions) are driving utilization, highlighting care gaps in underserved and marginalized communities.



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### Applications for Health System Transformation

Integrating EMS data allows health systems and payers to advance population health management by gaining a complete picture of their patient populations. High-quality, real-time EMS data:

Area of impact	Value proposition
<b>Cost reduction &amp; efficiency</b>	Identify patients who use EMS for non-urgent needs and redirect them to preventive or community-based services, reducing unnecessary Emergency Department (ED) visits and cutting EMS transport and hospital admission costs.
<b>Quality improvement &amp; care coordination</b>	Enable health systems to proactively coordinate care and address gaps by tracking EMS patient encounters, supporting timely follow-up and targeted prevention, and reducing hospitalizations and readmission for high-risk patients.
<b>Health outcomes &amp; resource allocation</b>	Highlight geographic and community-level health disparities and social needs that are otherwise unrecognized, enabling more targeted resource allocation, including community benefit investments.

### The Solution: An EMS Integration Pathway Pilot

Historically, little coordinated work has been done to integrate EMS data due to the focus on electronic health record sharing within traditional settings and the unique technical challenges faced by EMS. Our initiative addresses this by implementing a technical framework for bidirectional data exchange between EMS agencies and health systems.

The Center for Health and Research Transformation (CHRT) worked with Emergent Health Partners (EHP) and Advanced Health Technology Solutions (AHTS) to develop the technological infrastructure.

- Bidirectional flow:** This framework allows for EMS agencies to establish an active care relationship with their patients. EHP now receives Admission, Discharge, and Transfer (ADT) event notifications for community paramedic (CP) patients, enabling CPs to conduct timely follow-up after hospital visits.
- Real-time notifications:** A critical pilot with Henry Ford Health's Clinically Integrated Network (Mosaic CIN) and EHP is demonstrating the daily transmission of treatment in place EMS data—the encounter data that historically never reached traditional health care providers.
- Actionable data for providers:** Mosaic CIN receives automatic ADT-like notifications for their patients who are treated in place by EHP. This near real-time information, including EMS provider impressions, will be used by physicians to conduct follow-up and outreach, a process designed to reduce the likelihood of future hospitalizations.

This technological innovation demonstrates how EMS data integration can transform care coordination, supporting proactive management and comprehensive visibility into patient care across settings.

### Scalability and National Impact

This work aims to set the stage for broader adoption of EMS data integration. The technical and process improvements developed through partnerships with state agencies (MDHHS) and national organizations (NEMSIS) are designed for statewide and national dissemination.

Embracing this collaborative, data-driven approach will enhance patient outcomes and set the stage for a more connected, equitable, and proactive health care system across Michigan and nationally.