

Orange County EMS Bi-Directional Data Exchange Project

OVERVIEW: Orange County Emergency Medical Services (OCEMS) developed a groundbreaking process that exchanges patient data bi-directionally, sending the EMS electronic patient care record (ePCR) into the receiving hospital's electronic health record (EHR) and receiving patient outcome data back.

CHALLENGE: There is an enormous and growing amount of data available in the health field, but organizing, integrating, and analyzing it for patient care improvement remains a gap. In the EMS world, EMS ePCRs are uploaded to our data management platform, OC-MEDS (Orange County Medical Emergency Data System). In turn, the outcome data on those patients is also required to be entered into OC-MEDS by the hospital (Emergency Receiving Center, ERC). In practice, it is often difficult for emergency department (ED) providers to manually access EMS ePCRs on the patients they receive, causing a blind spot in care. Further, the burden of manually entering hospital patient outcome data into OC-MEDS has made compliance spotty at best. Also, that outcome data is not easily accessed by EMS providers for analysis of care and quality improvement purposes.

SOLUTION: OCEMS developed the Bi-Directional Data Exchange Project to help solve those challenges to patient care. Funding was obtained from a portion of the Centers for Disease Control Epidemiology and Laboratory Capacity Grant that the county received. These funds were used to contract with our OC-MEDS vendor, ImageTrend, to make the necessary connections, as well as help cover the costs to the hospitals for implementation. Months were spent introducing the project to the EMS providers and ERC hospitals and getting commitments from them to participate. ImageTrend used their new Health Information Hub (HIH) to make connections between the EMS agencies and the hospitals' EHR systems. Because each EHR system is unique, there was a separate integration process required with each hospital system. With the connection in place, when the EMS crew drops off a patient and posts the ePCR to OC-MEDS (done before the crew leaves), the ePCR flows into the HIH and then is passed into the hospital EHR as a PDF file within minutes. In the other direction, when patient outcomes are entered

into the hospital EHR system, including procedures and diagnoses, that data flows into the HIH and back to the OC-MEDS and to the EMS provider ePCR. This allows providers to see the patient outcome and compare their primary impressions and treatment to the patient's in-hospital diagnoses and treatment.

INNOVATION: This project is the first of its kind in California, and among the first in the country, for this kind of data connection. It is a major first step in implementation of a system-wide health information exchange (HIE), which is a national goal for healthcare. This project allows for rapid access to patient information by both hospital staff and EMS providers, leading to better patient care.

RESULTS: Over 2 years, we were able to successfully implement the project with 21 of our 24 ERC hospitals and are working with the rest to onboard them. We have almost finished getting all our fire agency and 911 ambulance providers onboard. ED providers have automated access to posted ePCRs, allowing them to quickly gather information that EMS providers obtained in the field. EMS providers and OCEMS have received outcome data on tens of thousands of transports as it is entered into the hospital EHRs. OCEMS and EMS provider agencies are already processing some analysis on outcomes that have been received, including metrics such as stroke, heart attack, trauma, and severe infection recognition.

REPLICABILITY: The most significant barrier to implementation of this project was the motivation to take the time and effort to do it. Our vendor has a Health Information Hub in place, and they worked with us and our hospital systems to implement the connections, something other counties can accomplish (most use the same vendor). The hospital systems most often used internal information technology personnel to implement the project, though some contracted the project out. With some funding and enough determination, this project can be replicated in all Local EMS Agencies (LEMSAs) in California.

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ADDITIONAL MATERIALS: Please visit the website for more details

<https://www.ochealthinfo.com/ems/OC-MEDS/HIH>