Driving Improvement by Bridging the EMS and Hospital Data Gap

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Speaker Introduction

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Medical Director
Williamson County EMS

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Medical Director
Davie Fire Rescue
Conflict of Interest

Jeff Jarvis, MD
  Travel Reimbursement

Peter Antevy, MD
  Travel Reimbursement
Agenda

• The problem - data sharing between EMS and hospitals
• A case for interoperability
• Value of data sharing for all parties
• Driving improvement
Learning Objectives

• Describe the clinical and operational benefits of linking EMS and hospital data for emergency department patients

• Discuss the value of EMS data to the hospital system

• Describe the importance of patient outcome data on EMS performance improvement strategies

• Discuss how the sharing of EMS and hospital data can be used to drive population health strategies in a mobile integrated health system

• Assess opportunities in your own system for process improvement through integration and sharing of EMS and hospital data
Realizing the Value of Health IT

EMS and Hospital Data Sharing

- Treatment/Clinical
  - Hospital needs EMS data
    - Continuity of care
    - System QI initiatives
- Electronic Secure Data
  - Traditional data sharing
    - Free lance
    - No controls
- Savings
  - Very labor intensive
  - Detracts from other tasks
History of EMS Data

- Field Data Collection  1990’s

- National EMS Information System  - 2001
  - Objectives
    - Implement EHR in every EMS agency
    - Implement State registry in every state
    - Implement National Data Warehouse
  - 585 Data Elements
  - Thousands of coded values

- Performance Measures
“These providers…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.”

“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.”
Linking EMS and Hospital Care

- Major focus on continuity of patient experience
  - First medical contact to definitive therapy
  - Aligned care plans
  - Complete health record
  - Joint performance improvement
  - Population health focus

The Joint Commission standard RC.02.01.01 EP 2

“The medical record contains the following information:…
(Bullet 11) Any emergency care, treatment, and services provided to the patient before his or her arrival.”
Linking EMS and Hospital Care

The Problem

The Goal

• First medical contact to definitive therapy
• Aligned care plans
• Complete health record
• Joint performance improvement
• Population health focus
A Case for Interoperability

• One to Many Connection
  – Agnostic approach, Connect to everyone

• Remove the paper
  – Eliminate manual processes and paper
  – Valuable patient information in near real time
  – Increase volume of outcomes shared

• Embed the data (Next Steps)
  – EMS data is discrete and stored within the EMR
  – Clinical decision support from pre-hospital data
  – Business intelligence
Capital Area Trauma Regional Advisory Council (CATRAC)

- Austin, Texas and 11 surrounding counties
- 501c3
- STEMI, Stroke, Trauma, Preparedness Coordination
- 5 Hospital Systems
  - Meditech – HCA
  - Cerner - Ascension, Adventist, CHS
  - Epic - Baylor/Scott and White
- 9 EMS Agency Participants
- Funded regional clinical data interoperability plan
Broward County Florida

- Four initial agencies
  - Intermedix
    - Davie Fire Rescue
    - Hallandale Beach Fire Rescue
    - Hollywood Fire Rescue
  - ESO Solutions
    - Miramar Fire Rescue
  - Adding Pembroke Pine Fire Rescue (Medusa Siren)
- Hospital partner - Memorial Health System - Epic
- Grant funds for EMS connections
How it works...
The Exchange

EMS Sends
- PDF of Patient Encounter
- PDF of Patient ECG
- Discrete Data available
  - Demographic and Billing
  - Vitals and Procedures
  - Assessment and Narrative
  - History, Allergies, Medications
  - Incident Location Data
  - Up to 585 Data Elements

Hospital Sends
- Demographic and Billing
- Diagnosis and Disposition
- Patient Acuity Scores
- Vitals
- Procedures w/Results
- Lab Results
- Imaging Results

* Facility determines final list of data to be shared with EMS
Access to EMS Patient Data

• Continuity of Care
• Risk Mitigation
• Disease Specific Certification
  – Systems of Care
  – Registry Abstraction
• Quality/Core Measure Reporting
• Gold Mine of Business Intelligence
Business Intelligence

• Get to Know Your #1 Referral Source
  • Plot cases by pick-up locations
  • Volume by service line or referrer
  • Payer by service line or referrer
  • Reason your facility was selected
  • Trending of referrer data over time
System PI Example

• Review from First Medical Contact

• Prehospital STEMI Management
  • 12 Lead Performance
  • Time to 12 Lead
  • Time to STEMI Alert
Automated Outcome Reporting
Return on Investment

• Pre-implementation Estimate – Service Line Level
  – Weekly staff hours searching for records = 35.5
  – Cost savings estimated $32,000 annually
  – Staff time now available for other tasks
    • Patient rounding
    • Staff education
    • Physician interaction
Provider Learning

- Feedback is essential
- Role based portal
- Limited dataset for assigned patients
- Sepsis example
Case Example

- 74 year old female
- Multiple EMS transports
- Sepsis and Data Sharing initiates implemented
System Quality

Question:
• How often does EMS call a STEMI alert?

Better Question:
• How often is the appropriate EMS bundle given?

Even Better Questions:
• What is the accuracy of EMS activation?
• Does adherence to the bundle improve outcomes?
<table>
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<th>Hospital Disposition</th>
<th>Hospital Admission</th>
<th>Incident Date</th>
<th>Transported To - Destination</th>
<th>Primary Impression</th>
<th>EMS Primary Impression</th>
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</table>

**STEMI**

<table>
<thead>
<tr>
<th>EMS Primary Impression</th>
<th>1 - Hospital STEMI</th>
<th>2 - No Hospital STEMI</th>
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<td>2 - No EMS STEMI</td>
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<td><strong>Total</strong></td>
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Next Steps

• Need for additional data elements
  – CPC scores
• Integration of discrete data into the hospital EHR
• Direct integration of EMS data into registries
Realizing the Value of Health IT

EMS and Hospital Data Sharing

- Treatment/Clinical
  - EMS data for continuity of care
  - Resource system QI

- Electronic Secure Data
  - Prescribed dataset
  - Security, automated transmission

- Savings
  - Enhanced EMS reimbursement
  - Reduced man hours
Questions

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