Knowledge Network
Connecting EMS to the HIE and ED

22 September 2017
Knowledge Network

What is the Knowledge Network?

Peer assistance program and forum for collaboration

Monthly webinars

– Presentations by Members or guest speakers
– Discussion on topics of importance to Members
– Member meetings

Send topic ideas info@ca-hie.org

Visit www.ca-hie.org/resources/knowledge-network for more information including past recordings, and additional resources
Reminder

Webinars are recorded and made available on our web site

Mute yourself if you do not wish to be recorded.
Today’s Topic

Connecting EMS to the HIE and ED

CalEMSA awarded a grant from ONC of $2.7M in July 2017 to advance HIE statewide during a disaster and regionally in daily EMS.

Support the creation of technology, infrastructure, and cooperative agreements to enable EMS providers on scene to exchange patient health information with local hospitals.
<table>
<thead>
<tr>
<th>EMSA’s Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Search</strong></td>
</tr>
<tr>
<td>Paramedics and EMTs may look up and display patient problem list, medications, allergies, POLSE, and DNR in the field on ePCR screen</td>
</tr>
<tr>
<td>• Improve clinical decision-making</td>
</tr>
<tr>
<td>• Improve patient care</td>
</tr>
<tr>
<td><strong>Alert</strong></td>
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<tr>
<td>Display patient information on hospital dashboard at ED to alert and share incoming patient information to assist in time-sensitive therapies</td>
</tr>
<tr>
<td>• Improve decision support</td>
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<tr>
<td>• Better care transitions</td>
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<tr>
<td>• Improve patient care</td>
</tr>
<tr>
<td><strong>File</strong></td>
</tr>
<tr>
<td>Incorporate ePCR data into hospital EHR in HL7 format (using NEMSIS 3.4 CDA standards)</td>
</tr>
<tr>
<td>• Build better longitudinal patient record</td>
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<tr>
<td><strong>Reconcile</strong></td>
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<tr>
<td>Receive patient disposition information from hospital EHR to add to EMS provider patient record</td>
</tr>
<tr>
<td>• Improve population health</td>
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</tbody>
</table>
Today’s Speakers

Mark Branning
Program Manager for SAFR
San Diego Health Connect

Ken Riomaless
Director of HIE Operations
OCPRHIO
All lines are muted

Please hold questions until the end of the presentations
A SAFR Transition

CAHIE Knowledge Network

Mark Branning
San Diego Health Connect

September 2017
What is SAFR?
Real-time Connection ambulance to ED

• **SEARCH** – paramedics search HIE pre-hospital
• **ALERT** – real-time data to ED
• **FILE** – electronic submission of medic’s report
• **RECONCILE** – hospital to ePCR, eg eOutcomes
Goal of SAFR

Save lives & improve care coordination

W.A.T.E.R.
Pre-hospital

Question for you
SEARCH
1. Search for the patient in the HIE

2. Query the HIE for
   - Problems
   - Meds
   - Allergies
   - Encounters
Full Name
SDHCSHARED  SDHCPATIENT

Date of Birth
01/01/1956

SSN #

Race

Same as Incident  Homeless  Resides in Area

Home Address

City, St, Zip

County, Country

Driver License  Phone #s

...
Full Name: SDHCSHARED SDH
Date of Birth: 01/01/1956
Race:
Same as Incident:
Home Address:
City, St, Zip:
County, Country:
Driver License:
Phone #s:
Att
Full Name
SDHCASHARED SDHC

Date of Birth
01/01/1956

Race

Same as Incident

Home Address

City, St, Zip

County, Country

Driver License

Phone #s

Info
Pay
Insu
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<tr>
<th><strong>Full Name</strong></th>
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<td><strong>Date of Birth</strong></td>
<td>01/01/1956</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
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<tr>
<td><strong>Same as Incident</strong></td>
<td></td>
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<tr>
<td><strong>Home Address</strong></td>
<td></td>
</tr>
<tr>
<td><strong>City, St, Zip</strong></td>
<td></td>
</tr>
<tr>
<td><strong>County, Country</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Driver License</strong></td>
<td></td>
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<tr>
<td><strong>SSN #</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Phone #s</strong></td>
<td></td>
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</table>

**Patient History**
Retrieving patient history from San Diego Health Connect. This may take a few minutes.

**Ok**
<p>| | |</p>
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<td></td>
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<tr>
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NEW - Previous Encounters
01/31/2017 17:38

NEW - Import patient history

Ok
**Full Name**

SDHCSHARED SDH

**Date of Birth**

01/01/1956

**Race**

Same

**Home Address**

City, St, Zip

**County, Country**

**Driver License**

**Phone #s**

**Previous Encounters**

Poway Women's Care
04/21/2016
Ambulatory

Sharp Rees Stealy
08/25/2015
Outpatient

Sharp Rees Stealy
06/10/2015
Outpatient
<table>
<thead>
<tr>
<th>Medication</th>
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<tr>
<td><strong>metFORMIN hydrochloride 500 MG Oral Tablet</strong></td>
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<tr>
<td><strong>Lisinopril 30 MG Oral Tablet</strong></td>
</tr>
<tr>
<td><strong>celecoxib 200 MG Oral Capsule</strong></td>
</tr>
<tr>
<td><strong>atorvastatin 10 MG Oral Tablet</strong></td>
</tr>
<tr>
<td><strong>Lisinopril 40 MG Oral Tablet</strong></td>
</tr>
<tr>
<td><strong>Levothyroxine Sodium 0.088 MG Oral Tablet</strong></td>
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</tbody>
</table>
SEARCH Benefits

• HIE information can be imported in the ePCR reducing entry time and improving accuracy

• Destination hospital selection is influenced by having ‘previous encounters’ available

• FYI 808 paramedics & Fire have been trained

• Available for any run regardless of destination
SEARCH Stats

~1400 patient searches/day
>60% match
~150 HIE requests/day (probs, meds, alg, enc)

<table>
<thead>
<tr>
<th></th>
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<tr>
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<td>42</td>
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<td>1630</td>
<td>42</td>
<td>76</td>
<td>42</td>
<td>30</td>
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<tr>
<td>Last 15 Days</td>
<td>816</td>
<td>43</td>
<td>84</td>
<td>59</td>
<td>45</td>
</tr>
</tbody>
</table>
A – ALERT
Data sent real-time

Ambulance updates:
1. Narrative
2. EKGs
3. Vital signs
### EMS Expected Patients

<table>
<thead>
<tr>
<th>Patient ID</th>
<th>CC</th>
<th>Exp</th>
<th>Temp?</th>
<th>EdRef</th>
<th>EdDisp</th>
<th>Tel For</th>
<th>Time in Exp</th>
<th>Exp #</th>
<th>Run #</th>
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<tbody>
<tr>
<td>1</td>
<td>EMS Patient</td>
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<tr>
<td>2</td>
<td>EMS Patient</td>
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<td>3</td>
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<td>7</td>
<td>EMS Patient</td>
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<td>8</td>
<td>EMS Patient</td>
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<td>9</td>
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<td>10</td>
<td>EMS Patient</td>
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Note: EMS Expected Patients refers to patients expected to arrive from EMS (Emergency Medical Services).
EMS Narrative in ‘Review Visit’
EMS Narrative in “Chart Review”
Full 12 Lead EKG in Real-Time

Click on Link for EKG
Full 12 Lead EKG in Real-Time
We Made a Difference

16 minutes arrival to cardiac stenting!

(door to needle)
Middle-aged person called 9-1-1 after developing sweating, dizziness and shoulder pain. Was found to be in shock and quickly assessed including a 12-lead EKG that showed pt was experiencing an inferior wall ST-elevation myocardial infarction. The crew quickly started an IV and gave fluids and a medication to improve pt’s blood pressure while transmitting the EKG to the hospital’s radio room.

A UCSD MICN was able to view the EKG from the ED screen and inform the ED physician about the inbound patient including showing her the EKG. Consequently a cardiologist was present upon arrival of the patient… pt went for emergent cardiac stenting soon thereafter and is doing very well.
Benefits of Alert

• No additional effort by paramedics
• Real-time data is seen in ED staff in their EMR
• Reduction in paramedics’ time on phones & radio
• Stent example

Currently only for UCSD runs; KP then Rady
San Diego – Final Grant Metrics

Goal was 10%

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“the data is here, where is the patient?”
Benefits of FILE

• Full NEMSIS report is sent electronically from the ePCR to the hospital’s EMR

• Reduces face-sheet waiting times

• Greatly reduces faxing

• Currently only for UCSD runs; KP then Rady
## San Diego – Final Grant Metrics

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</table>
Ambulance/Agency/Other
- Billing
- eOutcomes

for quality analysis
Benefits of RECONCILE

Updated demographics, billing, and eOutcomes

- Reduces billing times

- Paramedic satisfaction, e.g., timely ED Disposition

- Currently only for UCSD runs; KP then Rady
San Diego – Final Grant Metrics

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Moving Forward

- Decision was to continue and expand post Grant
- More EDs
- More Agencies
Designing our EMS System with HIE

September 22, 2017

Ken Riomales, Director HIE Operations

Better Patient Care Through Innovation
Who is OCPRHIO?

- Founded in 2006 in Orange County
- Geographic area as far south as San Diego County up to Santa Cruz County.
- Patient population of approximately 4 Million
Goal

- Electronically connect EMS transport agencies to receiving hospitals via Regional HIE for the purpose of accessing and sharing patient health care information to improve:
  - Clinical decision making
  - Referral Coordination
  - Dissemination of real time data... right data, right time, right place...

- Implement a technical workflow that meets the criteria for...
  - Search
  - Alert
  - File
  - Reconcile
What they want...

EMS Agency

Bi-directional Data Exchange

Hospital
What’s out there...

- Too many connections
- Multiple technologies to account for
- Lack of standardization
Where to Start?

- Engage local EMS agency
  - Formalize the Project
  - Promote the mindset and change the paradigm

- Identify Current Workflow
  - Talk to Medics – What do they do?
  - Start talking about possible integration

- Review and Capture Requirements
  - Don’t try and boil the ocean!
  - Be realistic

- Assess Technical Feasibility
  - Leverage Existing Technology
• HIEs *eliminate* the multiple connectivity required to only *one* connection point
NEMSIS vs. CCD/A

• Dealing with the minutia of data cross-walking and file formatting

• Not all XML’s are created equal

• Proper ingestion of data
HIE/EMS Demonstration
(Next Slide)

Video May also be viewed online at:
https://youtu.be/j7VIv5YYKt0
Future Plans

- Expansion of current EMS integration to other transport agencies
- Incorporate more eOutcome data for EMS Agencies
Thank you for your time.

Questions?
Questions?
Next Month

A New Look at Economic Barriers to Interoperability

Julia Adler-Milstein
Associate Professor
Center for Clinical Informatics and Improvement Research
UC San Francisco