A SAFR Transition

Enhancing
Pre-hospital Care Coordination

SAFR

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Agenda

1. End-user perspective/requirements
2. SAFR: function and benefits
3. Toolkit available

Clinical End-users

- Paramedic
  - I need patient data in the field

    "what do you do if you have an unconscious patient and no family members around"

  - Problems, meds, allergies, encounters, POLST
- ED staff
  - Get data pre-arrival, especially on STEMIs
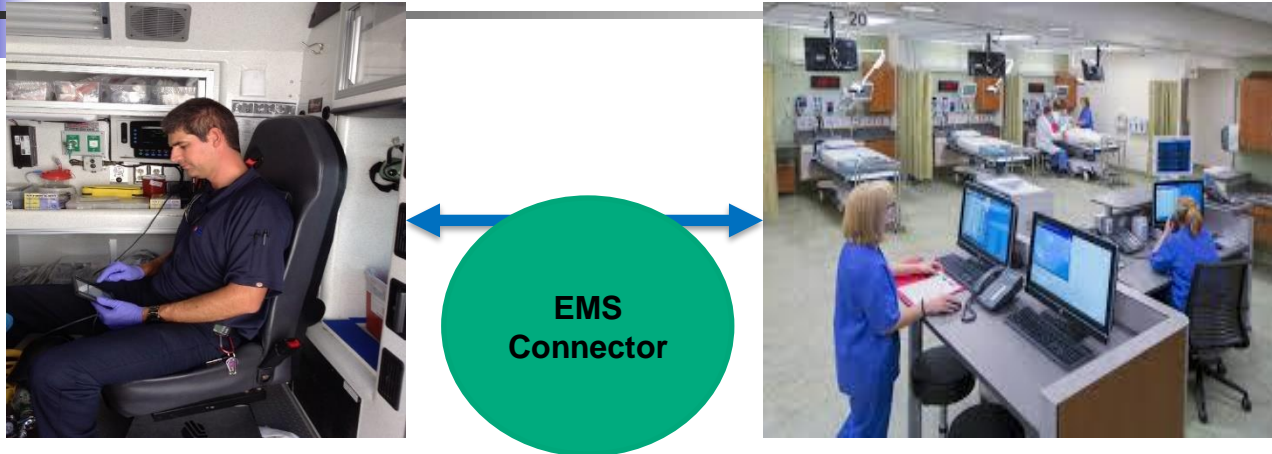 - In my native EMR, not a separate system

What is SAFR?

1. **Functions**
2. **Benefits**
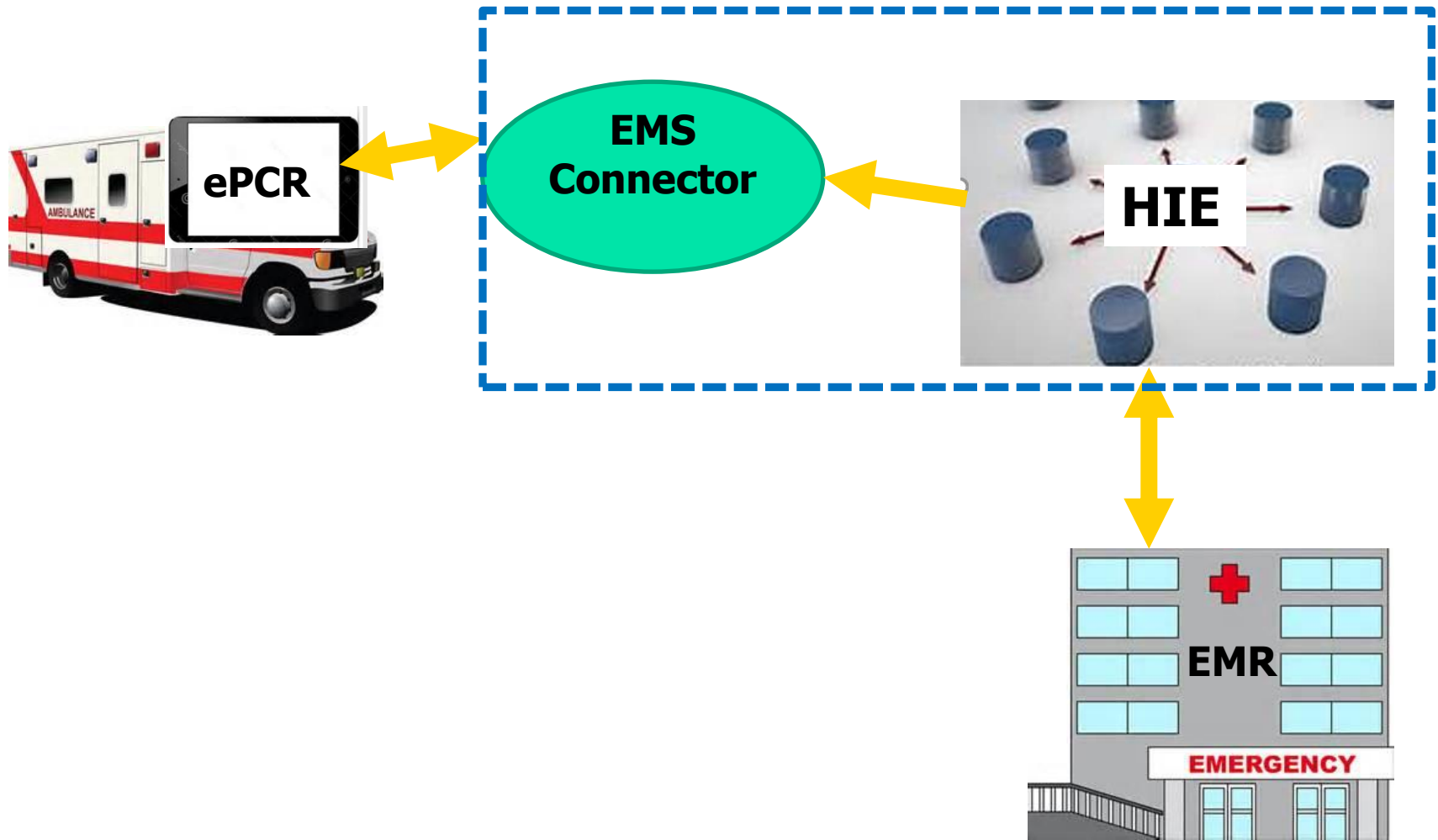3. **Stats**

What is SAFR?
Real-time Connection Ambulance - ED

EMS Connector

- **SEARCH** – paramedics search HIE pre-hospital
- **ALERT** – narrative, EKGs, VS, real-time to ED
- **FILE** – electronic submission of medic's report
- **RECONCILE** – hospital to ePCR, eg eOutcomes

Players

+EMS SAFR
Actual Participants
$9,322,541.80

- ❖ 5 Awardees
- ❖ 12 Counties
- ❖ 1 RHIO
- ❖ 7 HIOs
- ❖ 9 LEMSAs
- ❖ 40 EMS Providers
- ❖ 28 Hospitals

San Mateo County
   $1,005,687.38
- 1 County
- 1 HIO
- 1 LEMSA
- 2 Hospitals
- 2 EMS providers

Santa Cruz County
   $338,213.61
- 1 County
- 1 HIO
- 1 LEMSA
- 2 Hospitals
- 2 EMS Providers

San Diego County
   $1,274,000
- 1 County
- 1 HIO
- 1 LEMSA
- 6 Hospitals
- 19 EMS Providers

SacValley MedShare
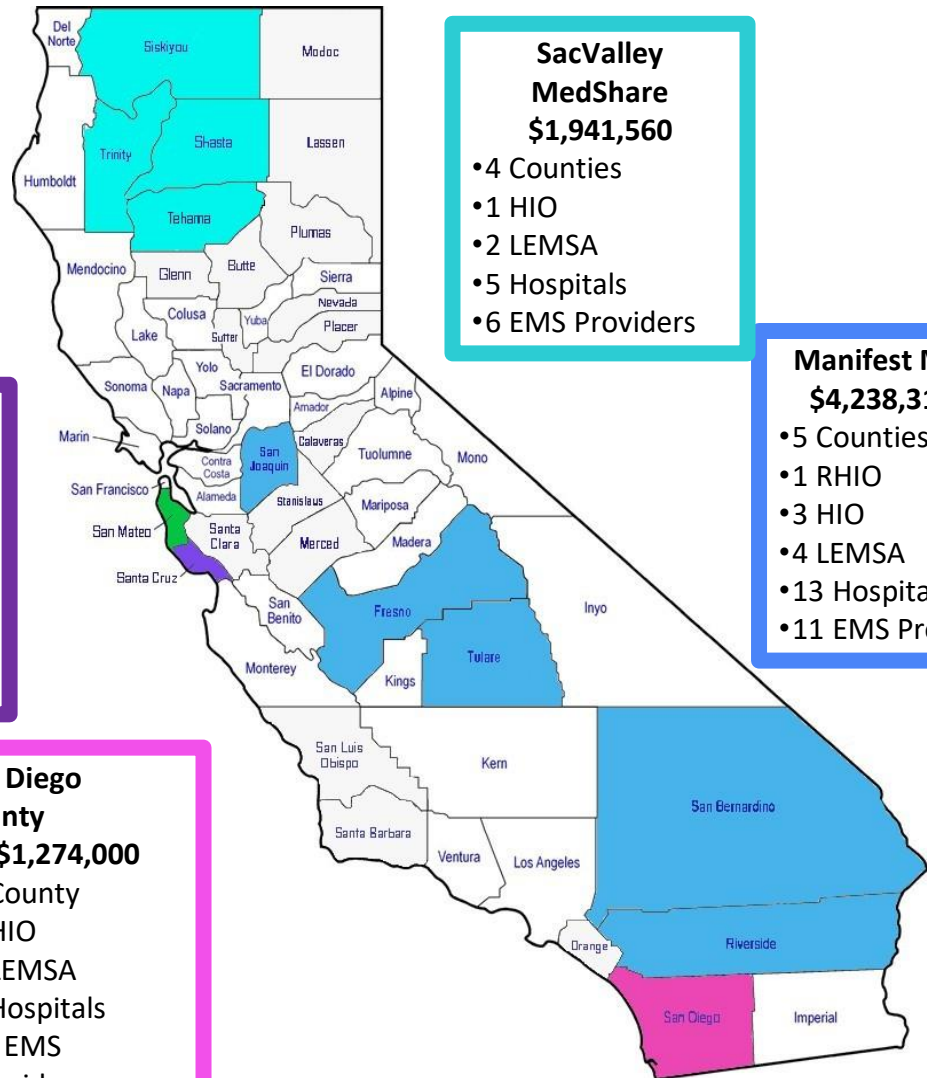**$1,941,560**
- 4 Counties
- 1 HIO
- 2 LEMSA
- 5 Hospitals
- 6 EMS Providers

Manifest MedEx
   $4,238,312.41
- 5 Counties
- 1 RHIO
- 3 HIO
- 4 LEMSA
- 13 Hospitals
- 11 EMS Providers
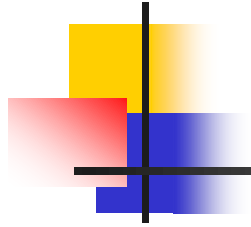
FROM A PARAMEDIC'S PERSPECTIVE

S - SEARCH

1. Search for the patient in the HIE

2. Query the HIE for
- **Problems**
- **Meds**
- **Allergies**
- **Encounters**
- ***POLST (optional)***

0 Local Records

| Inc | | Hist |

Full Name

SDHCSHARED SDHCPATIENT

Date of Birth

01/01/1956

SSN #

Info

Race

Resp

☐ Same as Incident

☐ Homeless

Resides in Area

PQRS

Home Address

CAD

City, St, Zip

County, Country

MdDv

Driver License

Phone #s

Att

Info   **Pay**   **Insu**

Exam

VS

RX

Proc

Narr

Sig

...

Inc

Info

Resp

PQRS

CAD

Dspo

MdDv

Att

Full Name

SDHCSHARED SDH

Date of Birth

01/01/1956

Race

☐ Same as Incident

Home Address

City, St, Zip

County, Country

Driver License

Possible patient matches from SD Health Connect

SDHCSHARED SDHCPATIENT
Male
01/01/1956
838 SEVA DRIVE
SAN DIEGO, CA 92103

No match

Ok

Resides in Area

Phone #s

Hist

Exam

VS

RX

Proc

Narr

Sig

...

Info   **Pay**   **Insu**

➕　　　　　　　**0 Local Records**　　　　　✏️　❌

Inc

Full Name
SDHCSHARED SDHCPATIENT

Hist

Info

Date of Birth
01/01/1956

SSN #

Exam

Resp

Race

VS

PQRS

☐ Same as Incide...　　　　in Area

RX

┌─────────────────────────────────────┐
│ **PATIENT HISTORY**   │
│   │
│ Retrieving patient history from San Diego │
│ Health Connect. This make take a few minutes. │
│   │
│   [**Ok**]   │
└─────────────────────────────────────┘

CAD

Home Address

Proc

Dspo

City, St, Zip

Narr

MdDv

County, Country

Sig

Att

Driver License

Phone #s

...

Info　　**Pay**　　**Insu**

Inc

Info

Resp

PQRS

CAD

Dspo

MdDv

Att

Full Name

SDHCSHARED SDH

Date of Birth

01/01/1956

Race

Same

Home Add

City, St, Z

County, Country

Driver License

Info **Pay** **Insu**

Messages

Previous Encounters
01/31/2017 17:38

NEW - Import patient history

PREVIOUS ENCOUNTERS

```
Poway Women's Care
04/21/2016
Ambulatory

Sharp Rees Stealy
08/25/2015
Outpatient

Sharp Rees Stealy
06/10/2015
Outpatient
```

Ok

Hist

Exam

VS

RX

Proc

Narr

Sig

Phone #s

...

Confirm Current Medications
Select all that still apply

Medication: **metFORMIN hydrochloride 500 MG Oral Tablet**

Medication: **Lisinopril 30 MG Oral Tablet**

Medication: **celecoxib 200 MG Oral Capsule**

Medication: **atorvastatin 10 MG Oral Tablet**

Medication: **Lisinopril 40 MG Oral Tablet**

Medication: **Levothyroxine Sodium 0.088 MG Oral Tablet**

Select All **Cancel**

<- Prev

Next ->

Benefits of SEARCH

Paramedics

- Search for patients automatically
- Request Problems, Meds, Allergy, Encounters, POLST from all participants
- Reduces data entry – HIE data loaded into ePCR
- Destination hospital influenced by previous encounters

Patients

- Better chance they will be taken to "their" ED
- Feel like the community is looking out for them

Issues

- Connectivity dead spots
- Training – medics not starting the chart in the field

SEARCH Stats

- San Diego
  - UCSD, Rady, Sharp
  - 14 of 22 agencies
- Patient Search
  - >1400 searches per day
  - >80% match
- Clinical Search
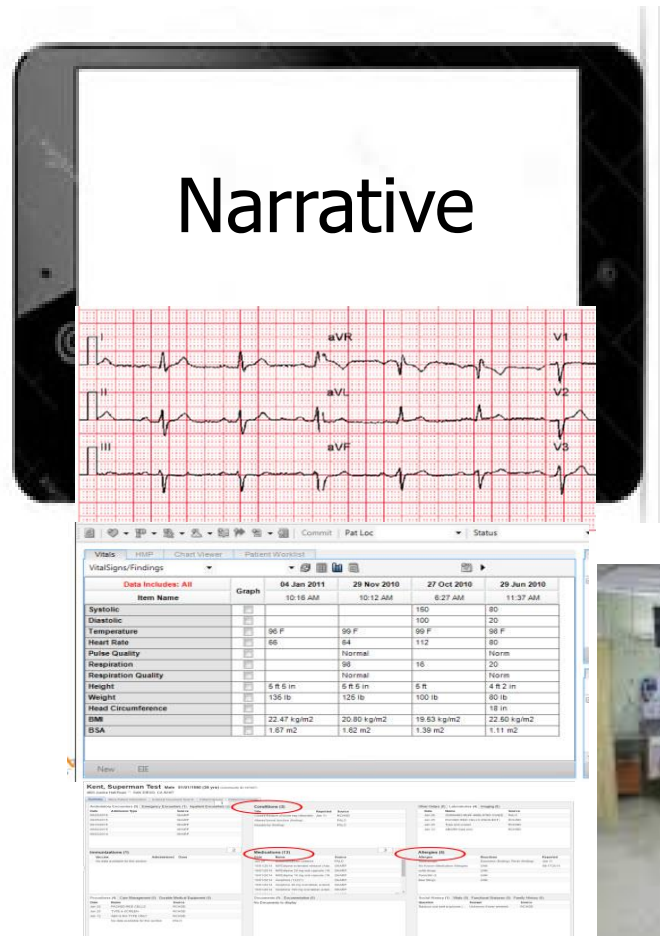 - ==650x== per day paramedics query the HIE!

FROM THE ED'S PERSPECTIVE

Physicians, nurses, ED Managers...

A – ALERT
Data sent real-time

Narrative

Longitudinal
record from HIE

Ambulance updates:
1. **Narrative**
2. **EKGs**
3. **Vital signs**

41   My Incomplete Notes   My Overdue Encounters

Epic | ED Manager | Track Board | ED Map | In Basket | ED Chart | Patient Station | Encounter | Patient Lists | WEB REF | UpToDate | Web Links | Help Desk   Print | Log Out

TST

ED Manager (Hillcrest Emergency) - Last Refresh Time: 7/11/2017 8:43:27 AM

Refresh | Review Visit | My Note | Procedure Note | Progress Note | EKG | Orders | Discharge | Admit | Vitals/Pain | Results Review | AVS | Sign Out | Handoff | Tx Team | Comments | Tracking | Form Reprints | EMS Hub | Expect Tmp Pt

POD A   x33018 (2 of 18 occupied)

Bed	New	Patient	CC	A	Total Time	RN	MD	Att	Tech	Reg	Comment
01		Choctaw, Aka360 (U)	multiple trauma		358:09					Y	
02											
03		Events, Statusesdispos	Weakness	3	307:30	NURSE		Emerge		N	
04A											
04B											
05A											
05B											
05C											
24											
T01											
T02											
T03											
T04											
T04A											

POD B   x33039 (4 of 14 occupied)

Bed	New	Patient	CC	A	Total Time	RN	MD	Att	Tech	Reg	Comment
06		Test, Bonnie (F)	Cough		620:13					N	
07A											
07B		Pittman, Events (M)	Headache- New Onse	3	307:37	NURSE		Emerge		N	
08A											
08B											
09											
10		Syndromic, Test E (F)			306:31					N	
11A											
11B											
12A											
12B											
T05		Test, Incubus (M)	TEST FROM CLINIC		549:48					N	
T06											
T07											

POD C   x33048 (2 of 9 occupied)

Bed	New	Patient	CC	A	Total Time	RN	MD	Att	Tech	Reg	Comment
14A											
14B		Andrew, Gohappy (M)	Headache Re-evaluat		983:01					N	
15											
16A											
16B		Hillcrest, Test F (U)			16:24					N	
17											
18											
19											
20											

POD D   x33063 (2 of 10 occupied)

Bed	New	Patient	CC	A	Total Time	RN	MD	Att	Tech	Reg	Comment
21											
22											
23											
25		Emshubpatient, Admit			549:31					N	
26											
27											
28		Insulinfive, Donottouch	I need an insulin drip		166:49					Y	
T08											
T09											

Triage (1 of 9 occupied)

Bed	New	Patient	CC	A	Total Time	RN	MD	Att	Tech	Reg	Comment
TRIAGE		Cadence, Dragonfruit (	chest pain		1316:58					N	
TRIAGE											
TRIAGE											

OTF & ED to Trauma TXFR (0 of 36 occupied)

Bed	New	Patient	CC	A	Total Time	RN	MD	Att	Tech	Reg	Comment
HOD											

WAITING (1)

Patient	New	CC
Zzzasap, Txteam (M)		Abdominal Pain

EMS Expected Patients

EXPECTED (5)

PATIENT	CC	Exp	Temp?	Ext Ref	Txfr from	Time in Exp.	Unit #	Flags	Run #
Emshubpatient, One (M)						306:39			777788
Emshubpatient, Two (M)			Y			306:38			666688
Unknown, Ems (M)			Y			00:00			201703
Unknown, Ems (M)			Y			00:00			201703
Unknown, Ems (U)			Y			00:00			1855EI

Current Staff (11)

Attending
- Abbott, Joel E, DO
- Ed Stage Two, Attending Physician
- Emergency, Attending (Ucsd), MD
- Killeen, James Patrick, MD
- Ratigan, Emmett David, MD

ED Tech
- Ed Stage Two, Tech
- Emergency, Tech (Ucsd)

ED Charge Nurse
- Boerner, Laura, RN

ED Float
- Ed Stage Two, Registered Nurse

Registered Nurse
- Aaro, Julie, RN
- Emergency, Nurse (Ucsd), RN

ATTENDING (UCSD) EMERGENCY

8:43 AM

8:43 AM
7/11/2017

EMS Narrative in 'Review Visit'

Review Visit

REVIEW
- MD First Touch
- Triage Summary
- Allergies
- Home Medications
- History
- Care Everywhere

MD First Touch

Time taken: 0847 7/11/2017 Values By

Show: Row Info | Last Filed | All Choices

▽ **MD First Touch**

▷ **MD Core Measure**

MD First Touch | Patient seen by MD at time entered above

Restore | Close F9 | Cancel | Previous F7 | Next F8

▽ **Triage Summary**

Unknown, Ems #80000754 (Acct:N/A) (-- U) PCP: None

EMS Hub Vitals

Date and Time	Temperature	Temperature Method	Systolic Blood Pressure	Diastolic Blood Pressure	Method of blood pressure measurement	Pulse Rate	Pulse Rhythm	Pulse Oximetry	Cardiac Rhythm	Who
03/09/17 1457	36.6 C	Oral	105 mm [Hg][	65 mm[Hg][	Cuff-Automated	60 beats/minute	Regular	96 Unit%	--	EOE

EMS Vitals Cont.

Date and Time	Respiratory Rate	Respiratory Effort	Level of Responsiveness	Blood Glucose Level	Carbon Dioxide	Revised Trauma Score	Who
03/09/17 1457	15 breaths/minute	Normal	Alert	60	--	--	EOE

EMS Hub Narrative

EMS Narrative filed by EPIC ELECTRONIC INTERFACE at 3/14/2017 10:56 AM

Author: EPIC ELECTRONIC INTERFACE   Service: (none)   Author Type: Resource
Filed: 3/14/2017 10:56 AM   Date of Service: 3/14/2017 10:56 AM   Status: Addendum
Editor: Electronic Interface To Epic, Ancillary System
Related Notes: Original Note by Electronic Interface To Epic, Ancillary System filed at 3/9/2017 3:14 PM

Primary Impression: Headache- HA;
Date/Time of Assessment: 03/09/2017 14:57;

Crew: Neil Pena; Date/Time: 03/09/2017 14:58; Prior Care: No; Medication
Given: Aspirin; Route: Oral (PO); Dosage: 500; Units: Milligrams; Response:
 Improved; Complication: None;

CC:

HPI:
Provider's Primary Impression: Headache

ATTENDING (UCSD) EMERGENCY

41 My Incomplete Notes   My Overdue Encounters

Epic ED Manager Track Board ED Map In Basket ED Chart Patient Station Encounter Patient Lists WEB REF UpToDate Web Links Help Desk

Print Log Out

TST Search

Unknown, Ems
Age unknown, Unknown
MRN: 80000754
CSN: 33000005732

CC: None
Last HT: None
Last WT: None
Last BMI: None

Allergies: Unknown: Not on File
Code: Not on file
Iso: None
Infection: None

FYIs: None
Attending: None
MyChart: Inactive

PCP: None
PCR: None
Visit Cvg: None
LOS: 0 (H:0 E:0)

Temp: None
HR: None
Resp: None
BP: None
O2: None

Pref Languag...

Chart Review

? ▪ Close ✕

Encounters SnapShot Labs Imaging Surg/Anes Procedures Meds Notes/Trans Cardiology Other Orders LDAs Media Adv. Care Planning Episodes Letters Consents Admin Referrals Misc Reports

SnapShot
Summary
Chart Review
Results Review
History

☑ Preview ▾ ☑ Refresh (8:47 AM) ☰ Select All ☰ Deselect All ☷ Review Selected ❤ ECG Comparison ⬛ Route

⚙ Filters ☑ Hide Cancelled ☐ Echo/TEE ☐ EKG ☐ 24 Hour BP ☐ Holter/Event Monitor ☐ Angiograms ☐ EP/Pacemaker Eval

	Date	Descr
📎	03/09/2017	EMS

EMS EKG REPORT (Order 126354189)

Scan on: 3/9/2017 by: of:

File View

☐ Keep viewer on top   ☐ Best fit

⊕ ⊖ ✥ ▾ ◯ 🖨 ▾

ZOLL® E Series® Defibrillator 12-Lead Report
10:52:26 01 NOV 13

PATIENT NAME: SF
PATIENT ID: 201311011051
PATIENT AGE: 41
PATIENT SEX: Male

Vent Rate: 68   Normal sinus rhythm
P Duration: 126 ms   Left axis deviation
PR Interval: 206 ms   Abnormal ECG
QRS Duration: 106 ms   *** Unconfirmed ***
QT/QTc: 380/404 ms
P-R-T Axis: 56 -38 29

DEVICE ID: AMR SDC SPR
RECORDED: 10:52:26 01 NOV 13

10:52:26 01 NOV 13
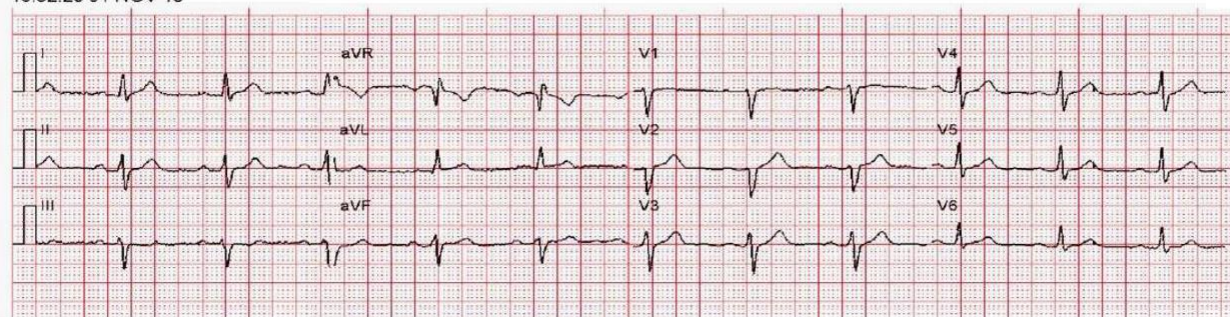
ary System

Full 12 Lead EKG in Real-Time

126354189)

Cardiology Procedures
Authorizing: EPIC ELECTRONIC INTERFACE

d Order Details
Order
Status
Completed

Zoom 100%   Click and drag to zoom. Right click for more options.

Electronically Authorized By   Electronically Ordered By
EPIC ELECTRONIC   Electronic Interface To Epic,

My Note
Progress Note
Procedure Note
Observation
EKG Note

Review Visit

Manage Orders

DC/Transfer

Admit

Arrival

🔧 Customize

More ▸

8:48 AM
7/11/2017

We Made a Difference

**16 minutes arrival
to cardiac stenting!**

(door to needle)

Benefits of ALERT

ED

- Real-time information displayed in ED EMR
- Better care, cardiac stent example
- Reduction in data entry
- Cost reductions

Paramedics

- Less verbal communication
- No more photos of EKGs sent to ED

Issues

- Connectivity
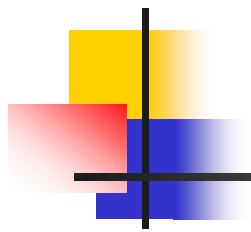- Some vitals machines require medic to do a send command

Alert Stats

>80% of the time data sent pre-hospital

Ie at least one medic note, VS, or EKG

Quote

"the data is here,
where is the patient?"

34

FROM THE PARAMEDIC'S AND ED'S PERSPECTIVE

FILE

F - FILE

@TOC Record
- **Narrative**
- **Vitals**
- **More**

@TOC Record
- **Narrative**
- **Vitals**
- **More**

HIE/EMS Connector

i.e. PCR (pre-hospital care report)

Hyperspace - HC EMERGENCY DEPT - TST - ATTENDING (UCSD) EMERGENCY

Epic | ED Manager | Track Board | ED Map | In Basket | ED Chart | Patient Station | Encounter | Patient Lists | WEB REF | UpToDate | Web Links | Help Desk   Print   Log Out

TST   Search

Unknown, Ems
Unknown, Ems
Age unknown, Unknown
MRN: 80000754
CSN: 33000005732

CC: None | Allergies: Unknown: Not on File | PCP: None | Temp: None | Pref Languag...
Last HT: None | Code: Not on file | PCR: None | HR: None
Last WT: None | Iso: None | Attending: None | Resp: None
Last BMI: None | Infection: None | Visit Cvg: None | BP: None
| | MyChart: Inactive | O2: None
| | FYIs: None | LOS: 0 (H:0 E:0)

Chart Review   ? ─ Close ✕

Encounters | SnapShot | Labs | Imaging | Surg/Anes | Procedures | Meds | Notes/Trans | Cardiology | Other Orders | LDAs | **Media** | Adv. Care Planning | Episodes | Letters | Consents | Admin | Referrals | Misc Reports

SnapShot
Summary
Chart Review
Results Review
History

Review Visit
My Note
Progress Note
Procedure Note
Observation
EKG Note
Manage Orders
DC/Transfer
Admit
Arrival

Preview ▾ | Refresh (8:48 AM) | Select All | Deselect All | Review Selected | Lab Flowsheet | Flowsheet | Apply Default Sorting | ECG Comparison | Financial | View/Play | Load Remaining | OnBase Documents

Filters | Adv Dir/POLST/COAST

Import Date/Time	Document Type	Description	Enc Date	Comment	File Attached to
03/09/2017 15:03	Electronic EMS Ru...		03/09/2017		03/09/2017 Hospital Encounter

Document on: 3/9/2017 by: of:

Patient Name: ,

WATER
Prehospital Patient Record
1748 San Diego Avenue
San Diego, California 92110

Incident Date: Unit: AMB 058   CAD #: EM14143814   QCS #:   Base:

Patient Information
Provider Impression

Primary Impression: Headache- HA   Primary Symptom:
Secondary Impressions:

Narrative

Summary of Events

Primary Impression: Headache- HA;
Date/Time of Assessment: 03/09/2017 14:57;

Crew: Neil Pena; Date/Time: 03/09/2017 14:58; Prior Care: No; Medication Given: Aspirin; Route: Oral (PO); Dosage: 500; Units: Milligrams; Response: Improved; Complication: None;

Patient Vitals

Time	B / P	HR	T°	RR	Effort	Left Lung	Right Lung	SpO2 / Qualifier	EtCO2	GCS	Pain	CVA Scale	BG
14:57	105 / 65	60	36.6	15	Normal	Clear	Clear	96 /		15		Negative	60

Medications Administered

Time	Meds	Dose	Route	Crew	Auth	Response	PTA
14:58	Aspirin	500 Milligrams	Oral (PO)	NP		Improved	No

Procedures

Time	Skills	Size	Success	Crew	Auth	Response	PTA
14:57	Blood/Glucose Analysis		Yes	NP	Protocol (SO)	Unchanged	No
14:57	Pulse Oximetry		Yes	NP	Protocol (SO)	Unchanged	No

Injury

Media Information   File: IC-ucsd-tst-4664153.PDF

File Link
Document on 3/9/2017 3:03 P...   **Click on Link for Full Report**

Key Information

Document ID	File Type	Document Type	Description
IC-ucsd-tst-4664153.PDF	Document	Electronic EMS Run Sheet	

Import Information

Attached At	Date	Time	User	Dept
Encounter Level	3/9/2017	3:03 PM		

Encounter
Hospital Encounter on 3/9/17

Full EMS (PCR) Report in Chart Review

ATTENDING (UCSD) EMERGENCY   8:49 AM

8:49 AM
7/11/2017

Benefits of File

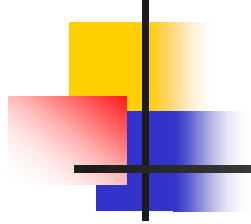**Medics: SAFR vs Verbal TOC Communication**

- Reduction in time
- Improvement in accuracy

ED Staff: SAFR vs Verbal TOC Communication

- Ditto
- "PCR" report is in EMR earlier for viewing by all
- No faxing, scanning, uploading required
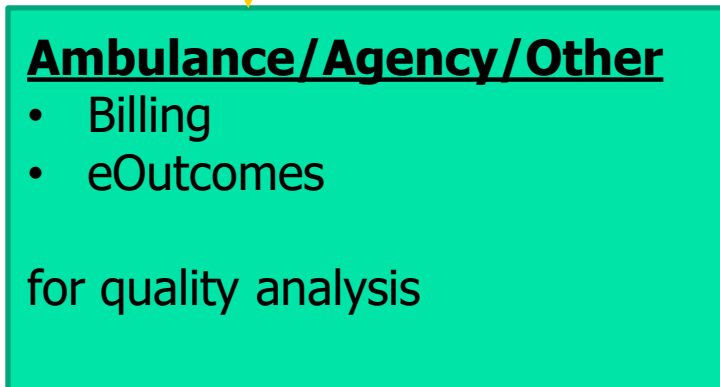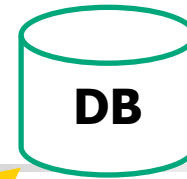- Earlier decision making, better outcomes

Issues

- Untimely closing of the run by the medic
- ED staff still using faxes

FROM THE PARAMEDIC'S AND AGENCY'S PERSPECTIVE

RECONCILE

R - RECONCILE

DB

EMS Connector

ePCR

HIE

Ambulance/Agency/Other
- Billing
- eOutcomes

for quality analysis

- **Admit**
  - Demog
  - Billing
- **Discharge**
  - Outcomes

EMR

EMERGENCY

Benefits of RECONCILE and FILE

- **Agency**
  - Clean demographics, billing, eOutcomes
  - Reduces billing times
  - Reduced phone calls to the ED/hospital billing

- **Paramedic satisfaction**, eg timely ED Disposition

- **UCSD ED Study:** FILE & RECONCILE savings
  not having to prep & scan prehospital EMS reports and revenue reversals due to late/missing EMS documentation of nearly ***$230,000 annually***.

eOutcomes

Hospital captures,   converted to NEMSIS equivalent

PV1-36	eOutcome.01 Emergency Department Disposition
PV1-36	eOutcome.02 Hospital Disposition
	eOutcome.09 Emergency Department Procedures
ADT-DG1 segments (where PV2-12="E")	eOutcome.10 Emergency Department Diagnosis
ADT - PV1-44	eOutcome.11 Date/Time of Hospital Admission
	eOutcome.12 Hospital Procedures
ADT - DG1 segments	eOutcome.13 Hospital Diagnosis
	eOutcome.14 Total ICU Length of Stay
	eOutcome.15 Total Ventilator Days
PV1-36 - use for 4317013.	eOutcome.17 Outcome at Hospital Discharge
	eOutcome.16 Date/Time of Hospital Discharge
ADT - PV1-45	eOutcome.06 Emergency Department Chief Complaint
ADT - PV2-3	eOutcome.07 First ED Systolic Blood Pressure
	eOutcome.08 Emergency Department Recorded Cause of Injury
	eOutcome.05 Other Report Registry Type
ADT-PID-18	eOutcome.04 External Report ID/Number
MSH	eOutcome.03 External Report ID/Number Type

RECONCILE Stats

- **Varies by hospital –** *this is an issue*

- **Demographics and billing >80%**

- **ADT and Discharge Diagnosis - high**

- **Other eOutcomes - varies**

Agenda

1. End-user perspective/requirements
2. SAFR: function and benefits
3. Toolkit available

SAFR "Toolkit" from the Grant

- A version of this PowerPoint ie inservice
- Technical specs which we will post in IHE
- Interface Listing
- Effort/resource estimates to bring various SAFR scenarios live eg Epic hospitals
- Hospital Kickoff agenda
  - Roles and Responsibilities
  - Effort projections

eOutcomes Discussion

- ED to agency
- Agency to LEMSA
- LEMSA to state
- State to National
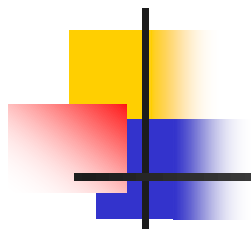
MARK BRANNING

Mbranning@san.rr.com

858.395.7946