

STAR Program

Quarters 1 and 2 of 2014

City and County of San Francisco
Emergency Medical Services Agency

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What is STAR?

- STAR is STEMI and ROSC
- STEMI = ST Elevation Myocardial Infarction
- ROSC = Return of Spontaneous Circulation
- Program went live on January 7th, 2013
- STAR is a coordinated effort by EMS and hospitals to streamline care for patients from the time of first prehospital contact to discharge from the hospital

STAR Center Designation

- Standard care for all ambulance patients
- Cardiac Cath Lab for STEMI patients
- Continue therapeutic hypothermia for ROSC patients in ED, cath lab and ICU
- Data delivery to EMS Agency
- STAR Subcommittee participation

STAR Centers in San Francisco

- California Pacific Medical Center
(Pacific Campus)
- Kaiser Permanente Medical Center
(Geary Campus)
- San Francisco General Hospital
- St. Mary's Medical Center
- University of California at San Francisco
Medical Center (Parnassus Campus)

Case Definition of STEMI

EMS PROTOCOL 010: CHEST PAIN

DEFINITION OF ST-ELEVATION MYOCARDIAL INFARCTION (STEMI)

1. EKG shows ST segment elevation of at least 1 mm in two contiguous leads; AND/OR the EKG Reading is

ACUTE MI or

STEMI SUSPECTED

2. Other similar language; AND/OR

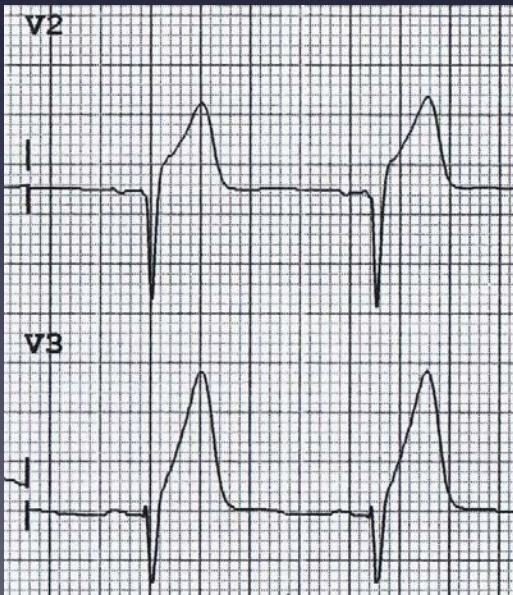
3. Paramedic interprets EKG as a STEMI.

STEMI

- Measures of data reporting accuracy/completeness
- % completion of data field on all records

STEMI Q 1 & 2: 2014 Overview, Age and Gender

- STEMI cases: (137)
- 26% (35/137) Female
- 74% (102/137) Male



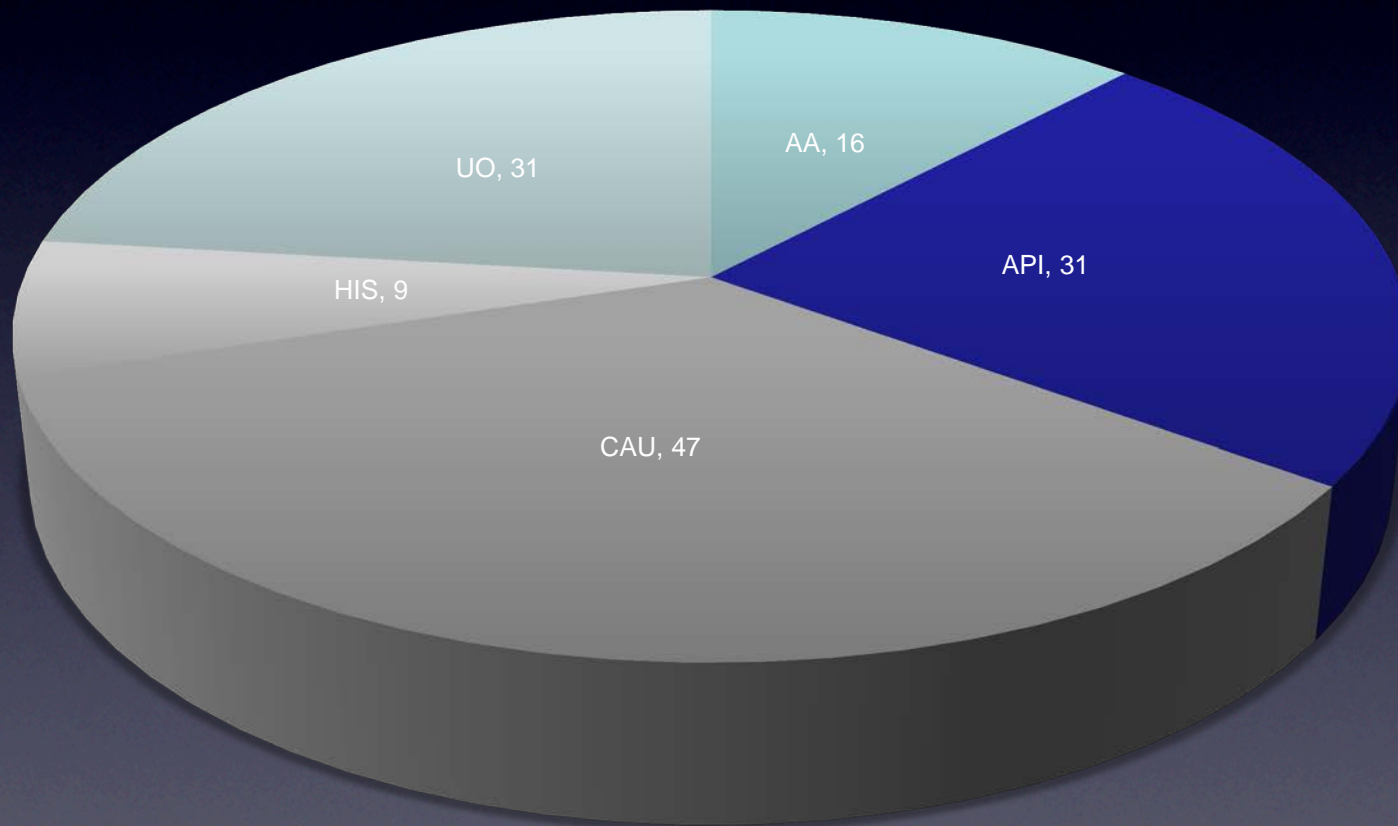
Age distribution:

<50 years: 17% (23/137)
50-74 years: 51% (70/137)
75 + years: 32% (44/137)

(Figures in parentheses are YTD)

STEMI Q 1,2 2014

Ethnicity



Q1,2 STEMI's Transported by EMS

American Medical Response: 12% (16/137)

King American: 18% (24/137)

San Francisco Fire Department: 65%
(89/137)

Total (137)

ProTransport-1 (transfers only): 6% (8/137)



Q 1,2 STEMI Data by Hospital

Total Cases in Q 1,2 of 2014: 137

Total Cases Reported to EMS in Q 1,2 of 2014:137

Total Cases to Cardiac Cath Lab 1Q: 43/77 (56%)
*

Average D2B time	(59) min
Average E2B time	(87) min'

(Figures in parentheses are YTD)

Q1,2 STEMI Data by Hospital

	A	B	C	D	E
Patients	(9)	(43)	(15)	(15)	(26)
Number to CCL	(NR)	(25/43)	(NR*)	(8/15)	(NR)
Average D2B	(NA) min	(54) min	(NA) min	(73) min	(NA) min
Average E2B	(NA) min	(87) min	(NA) min	(NA') min	(NA) min



Q 1,2 STEMI Data: Aspirin

- (65 or 67%) with 70% reporting given aspirin by EMS
- (32) not given (Reasons: Patient refused, bleeding history, vomiting, ROSC, done by sending MD, etc.)



Hypotension and Nitroglycerin

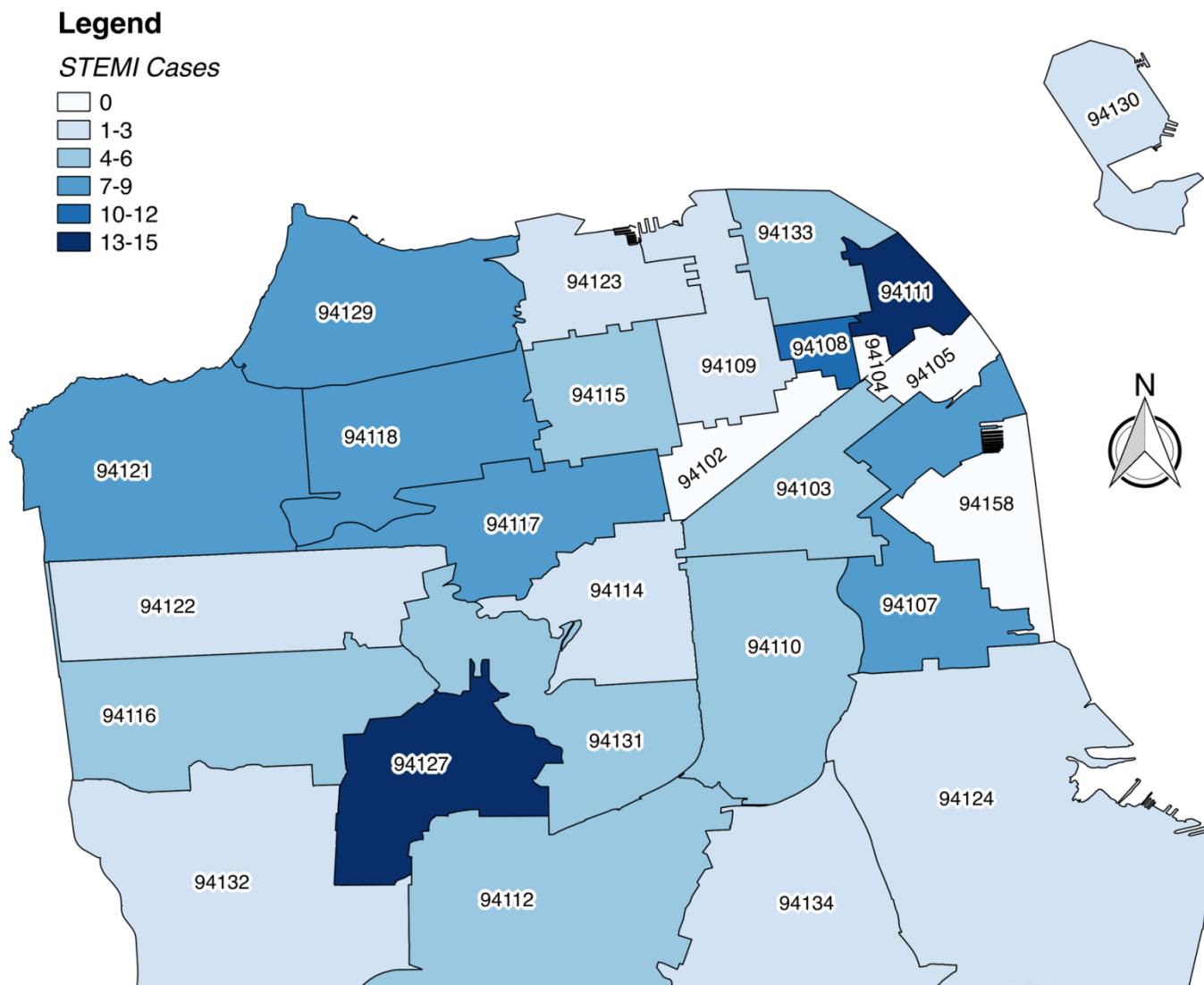
- Patients who experience >30 mm Hg drop in systolic blood pressure
- Exclusions: cardiac arrests; transfers
- 19/41 (46%) with 30% reporting
- Data changes needed in order to report this



EKG Done

- 126/137 (92%) with 100% reporting

STEMIs by Location



STEMI Data: ICD Codes

(49/49) reported cases - ICD codes on discharge from hospital

410 (Myocardial Infarction): (26/49) 53%

786.5 (Chest Pain): (5/49) 10%

Other: GI Bleeds, CHF, etc. (18/49) 37%

This indicates that medics were correct at least 63% of the time

ROSC (Post-Cardiac Arrest)



ROSC Case Definition

- CPR performed for non-perfusing rhythm at least once during care
- Pulses restored at least once during care

ROSC data collection

- On STAR spreadsheets distributed to EMS providers, then sent to hospitals
- In nation-wide CARES data base
- Measures of data reporting accuracy/completeness

Q 1,2 ROSC: Age and Gender

Total Cases: (174)

Age range:
Newborn - 99

Female: 62% (66/174)

Male 38% (108/174)

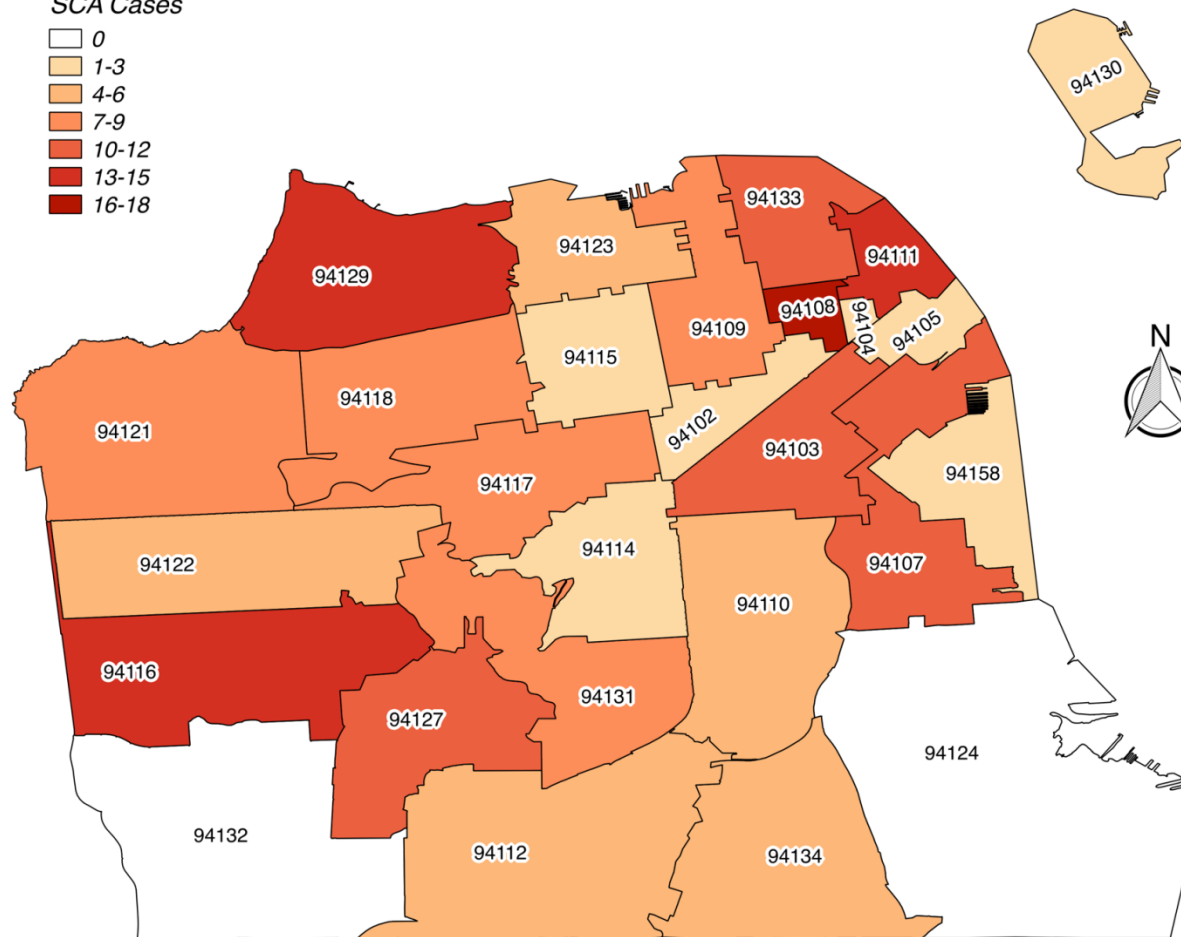
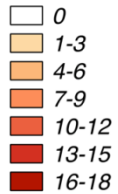
Q 1,2 ROSC Time Intervals

- Response Interval: 7:21 with 16% reporting
- On Scene Interval: 31:07 with 16% reporting
- Transport Interval: 8:43 with 16% reporting
- At hospital Interval: not yet measured

ROSC By Location

Legend

SCA Cases



Q 1,2 ROSC Destinations

Hospital	Number of ROSC patients
A	3 (1%)
B	34 (15%)
C	15 (7%)
D	55 (25%)
E	31 (14%)
ME	46 (21%)
UO	39 (17%)

Therapeutic Hypothermia

41/177 (23%) of cases
were cooled with 56%
reporting

Survivors
(12/139*)
(all causes)



Photo © USAF 2011

(TBD) who were cooled survived

(TBD) who were *not* cooled survived

ROSC & 12 Lead EKGs

(35/140) or 25% had 12 leads done with 79% reporting

(7/35*) or 20% had a STEMI

12 Lead ECGs are often impractical for unstable patients but are a best practice

*cases with complete 12-lead field



Photo © Justin Beck: Flickr

Q 1,2 ROSC Utstein Data Outcomes

Category	Number	Rate
Resuscitations attempted	169	
Cardiac etiology	139	
Bystander witnessed arrest	54	
Discharged alive CPC 1 or 2	5	9.3%
Initial rhythm VF or VT	14	44%*
*1 record of 10 admitted to hospital incomplete		

STAR system issues

for Subcommittee

- Data reporting: STAR spreadsheets and CARES data base (for ROSC patients)
- Interpretation of “stable” vs “unstable” STEMI patients. Policy 5000 def.:
 - Inadequate ventilation/airway issue
 - Hypotension with shock
 - Status epilepticus
 - Acute deteriorating LOC

STAR system issues

- Accuracy of STEMI interpretation by EMS system
- Would require new data field: hospital EKG interpretation

Recommendations

- Next steps: improve data collection issues by EMS providers and hospitals by adding one week to hospital process time and maintain accurate, single point of contact for hospital data
- STEMI and cardiac arrest outcomes for 2014 in DPH Annual Report to city
- Compare with national standards of care

Recommendations

- Evaluate barriers to care for patients
- Evaluate differences in care by time period
- Evaluate differences in care by location
- Funding plan for 12 lead EKG transmission

CPR Consortium

- Update on CPR Consortium training activities pending

Questions?



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