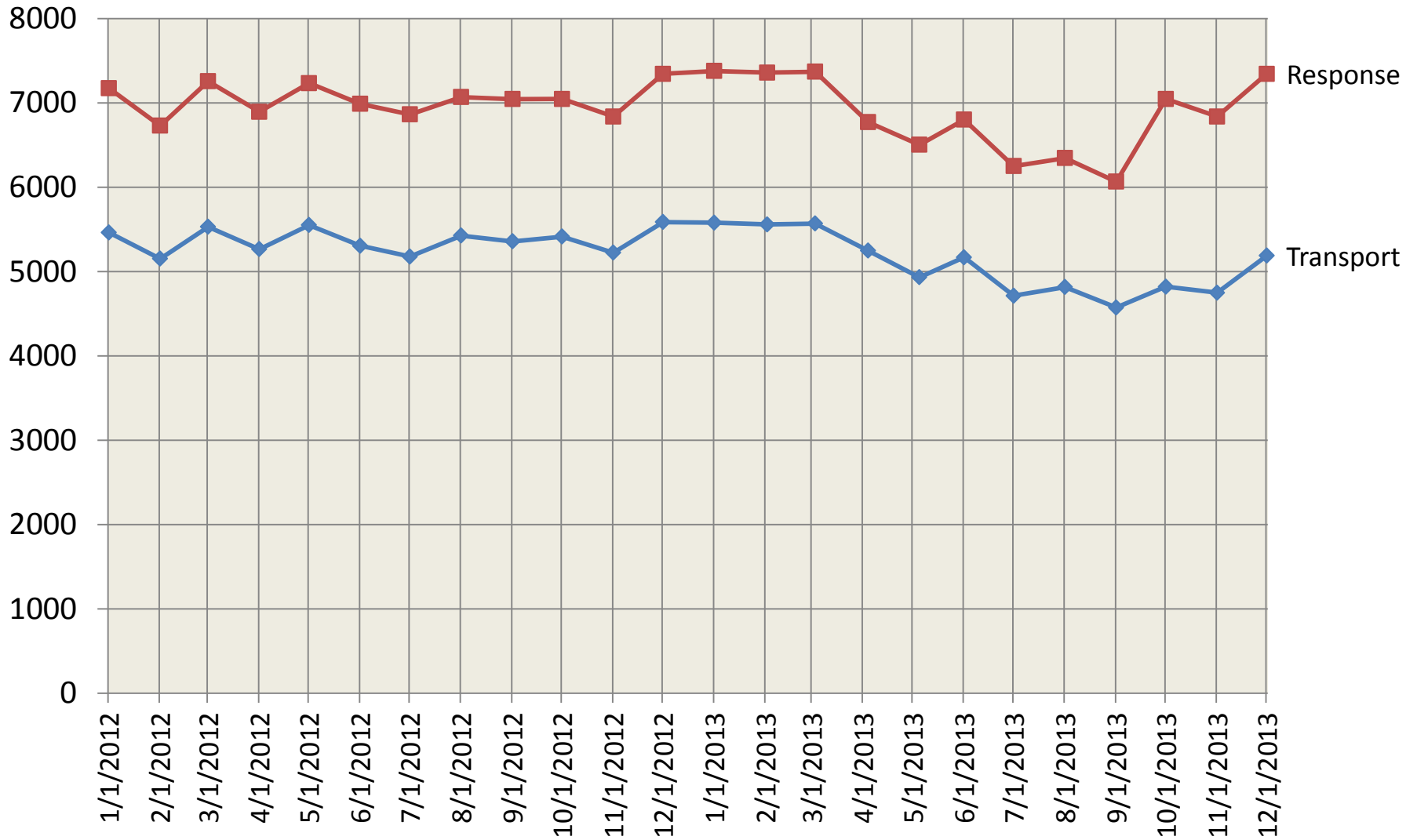


*System Utilization*  
2013

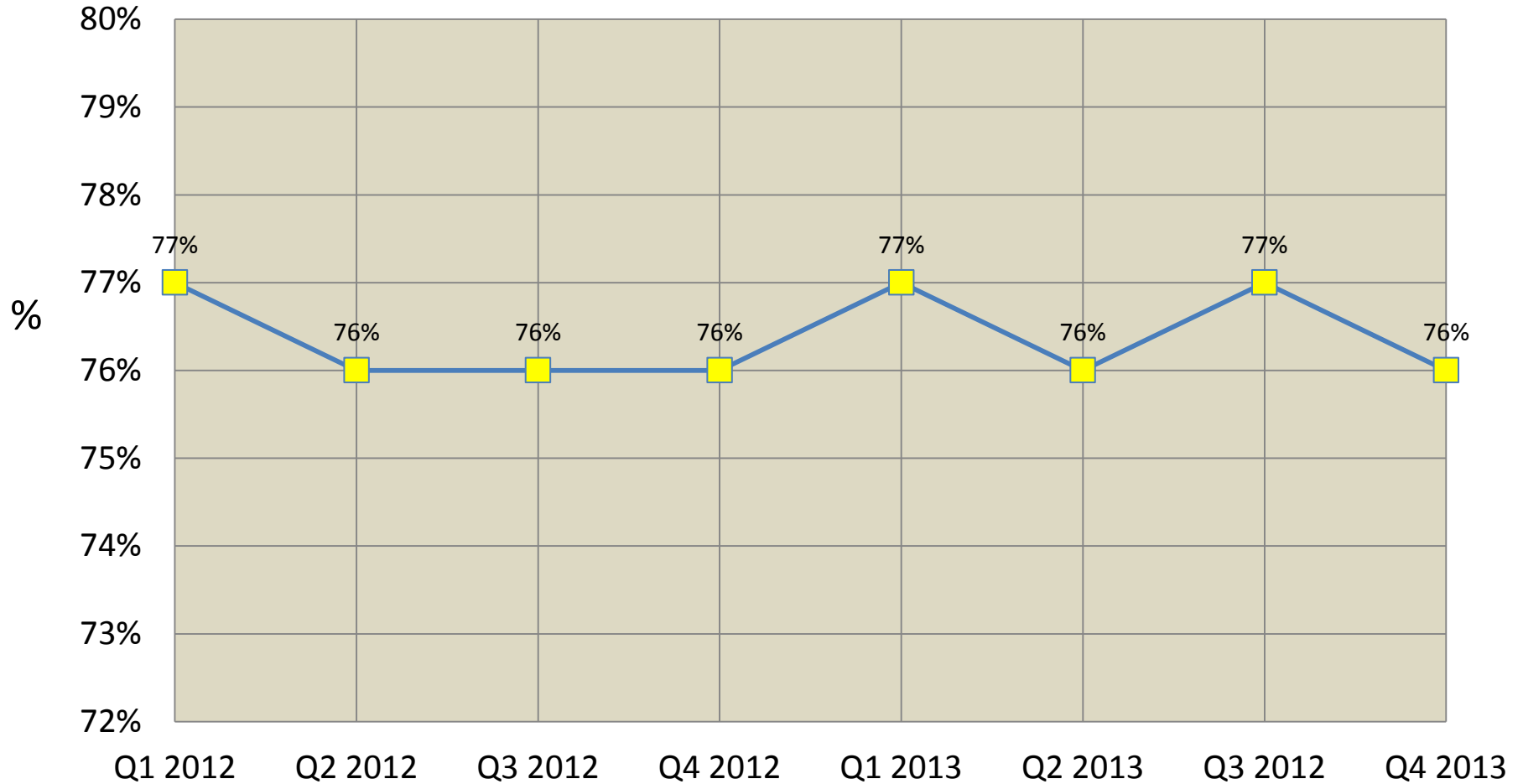
# Contra Costa County 911 Ambulance Response and Transport By Month 2012 Through 2013

(2013 Data excludes SRVFD)



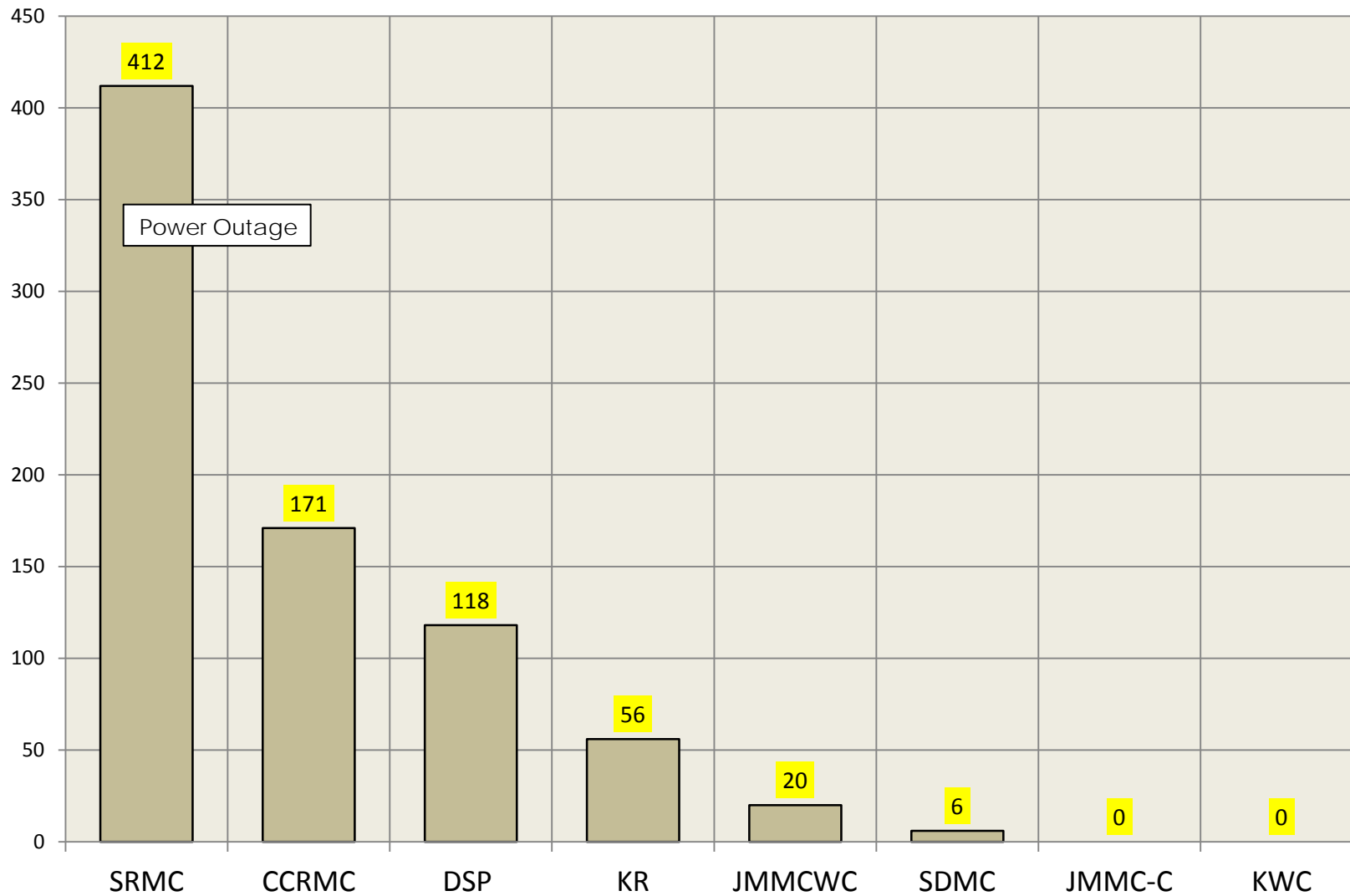
# Contra Costa County 911 Ambulance % Transport per Response by Quarter 2012 Through 2013

Mean=76.1%  
(2013 Data excludes SRVFD)



# Contra Costa Hospitals EMS Diversion by Cumulative Hours 2013

N=584 hr.'s

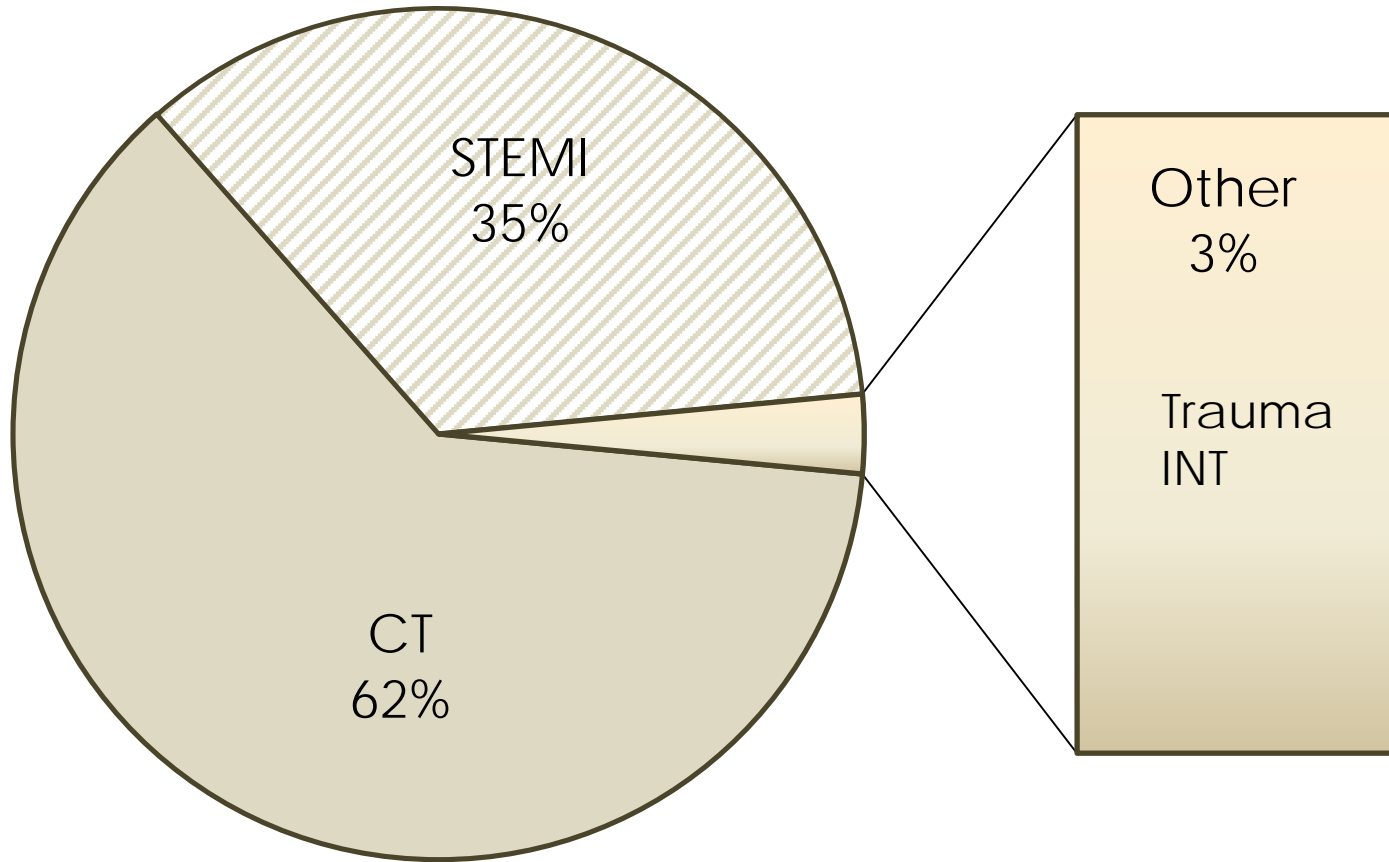


Contra Costa Hospitals EMS Diversion  
Mean Daily Hours by Month 2013

| 2013          | CCRMC   | DSP     | JMCON   | JMWC    | KRICH   | KWC     | KANT    | SRRMC   | SDMC    | Total   |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| January       | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:29:30 | 0:00:00 | 0:00:00 | 0:12:38 | 0:02:08 | 0:04:08 |
| February      | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:17:12 | 0:00:00 | 0:00:00 | 2:34:00 | 0:00:00 | 0:16:47 |
| March         | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:59 | 0:00:00 | 0:00:00 | 0:00:00 | 0:14:36 | 0:08:23 |
|               |         |         |         |         |         |         |         |         |         |         |
| April         | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:04:38 | 0:00:00 | 0:00:00 | 0:08:31 | 0:00:00 | 2:10:27 |
| May           | 0:00:06 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:21:48 |
| June          | 1:42:04 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:18:26 | 0:06:13 | 2:10:46 |
|               |         |         |         |         |         |         |         |         |         |         |
| July          | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:04:14 | 0:00:00 | 0:00:00 | 0:47:53 | 0:00:00 | 0:15:06 |
| August        | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:16:22 | 0:00:00 | 0:00:00 | 1:08:30 | 0:00:00 | 0:22:08 |
| September     | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 1:47:26 | 0:00:00 | 0:18:22 |
|               |         |         |         |         |         |         |         |         |         |         |
| October       | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:04:47 | 0:00:00 | 0:00:00 | 0:11:03 | 0:00:00 | 0:07:55 |
| November      | 0:08:28 | 0:00:00 | 0:00:00 | 0:00:00 | 0:12:12 | 0:00:00 | 0:00:00 | 0:37:09 | 0:00:00 | 0:14:40 |
| December      | 0:00:00 | 0:00:00 | 0:00:00 | 0:00:00 | 0:14:36 | 0:00:00 | 0:00:00 | 1:11:42 | 0:00:00 | 0:36:43 |
|               |         |         |         |         |         |         |         |         |         |         |
| <b>Totals</b> | 1:50:38 | #REF!   | 0:00:00 | 0:00:00 | 1:44:30 | 0:00:00 | 0:00:00 | 8:57:18 | 0:22:57 | 7:07:13 |
| Mean Month    | 0:09:13 | 0:00:00 | 0:00:00 | 0:00:00 | 0:08:42 | 0:00:00 | 0:00:00 | 0:44:46 | 0:01:55 | 0:35:36 |

Contra Costa EMS 2013  
% Hospital Diversion by Type

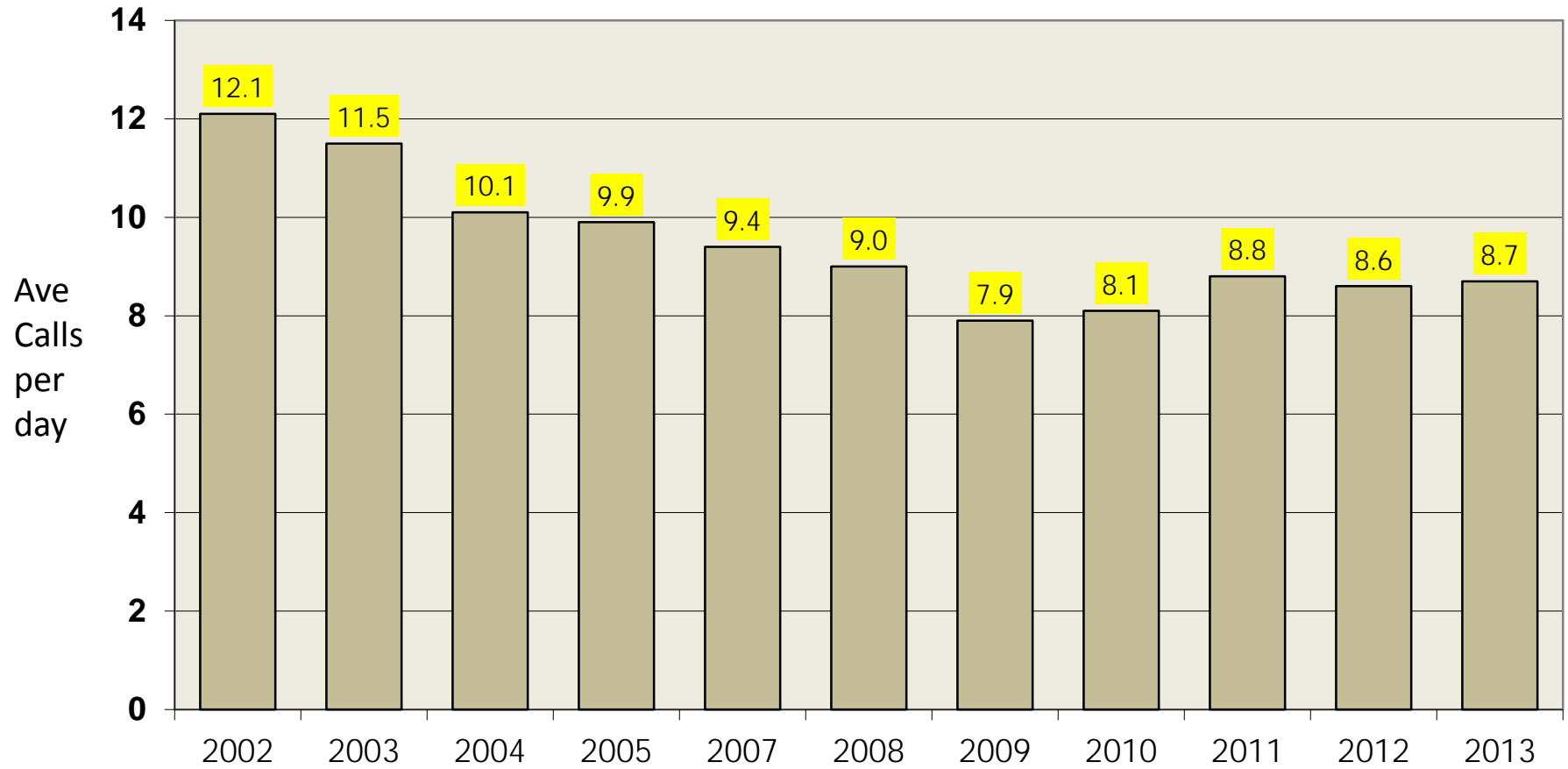
N=842 hrs.



*Base Hospital  
2013 Report*

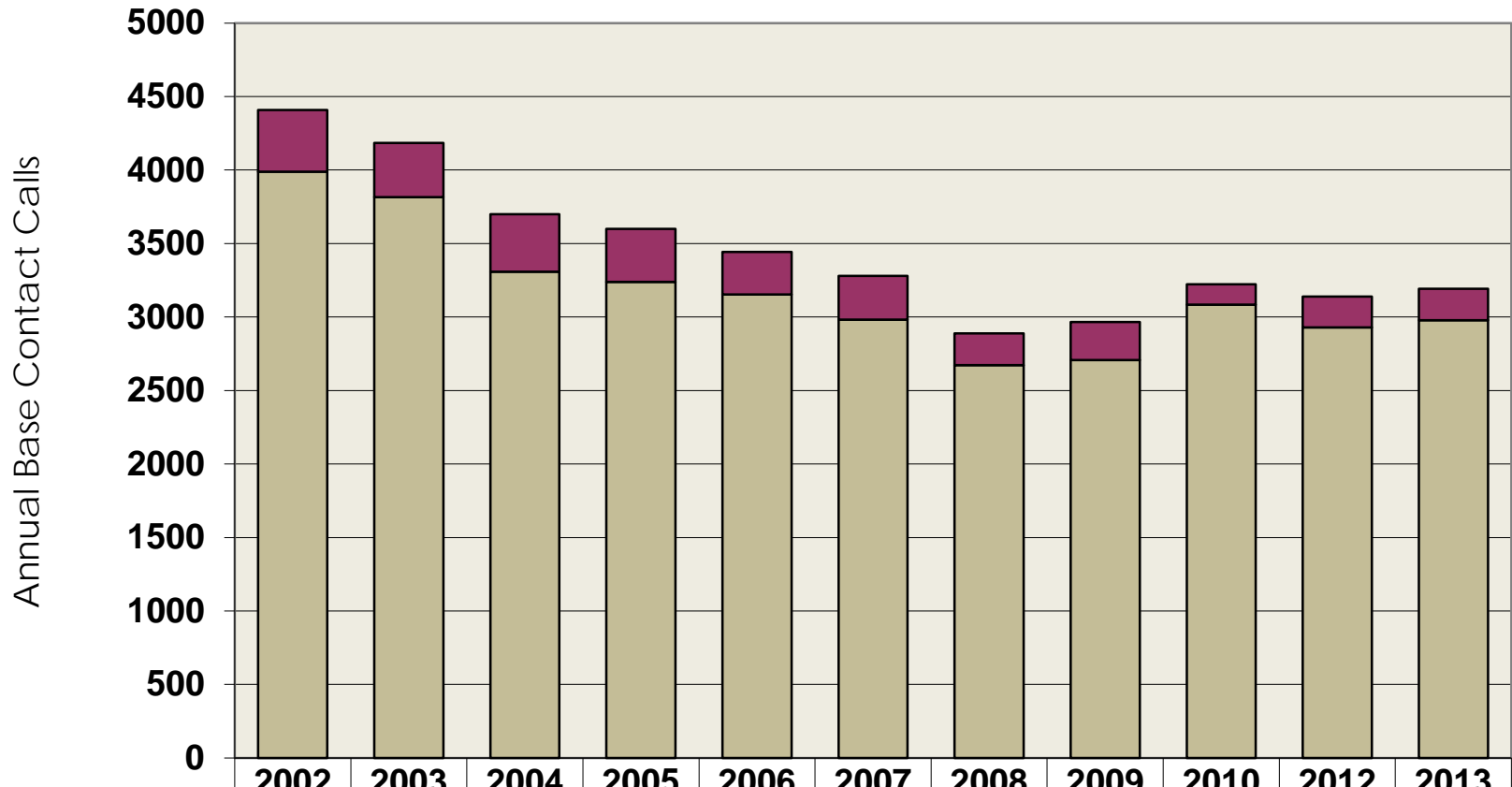
# Base Hospital Mean Daily Calls By Year to 2013

N=1587





## Base Contact for Adult vs. Pediatric Patients 2013



|                          | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2012 | 2013 |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
| <b>■ Pediatric Calls</b> | 421  | 369  | 390  | 360  | 290  | 297  | 216  | 258  | 138  | 209  | 214  |
| <b>■ Adult Calls</b>     | 3988 | 3815 | 3309 | 3239 | 3153 | 2983 | 2673 | 2708 | 3084 | 2930 | 2979 |

Note: Pediatric age 14 or below

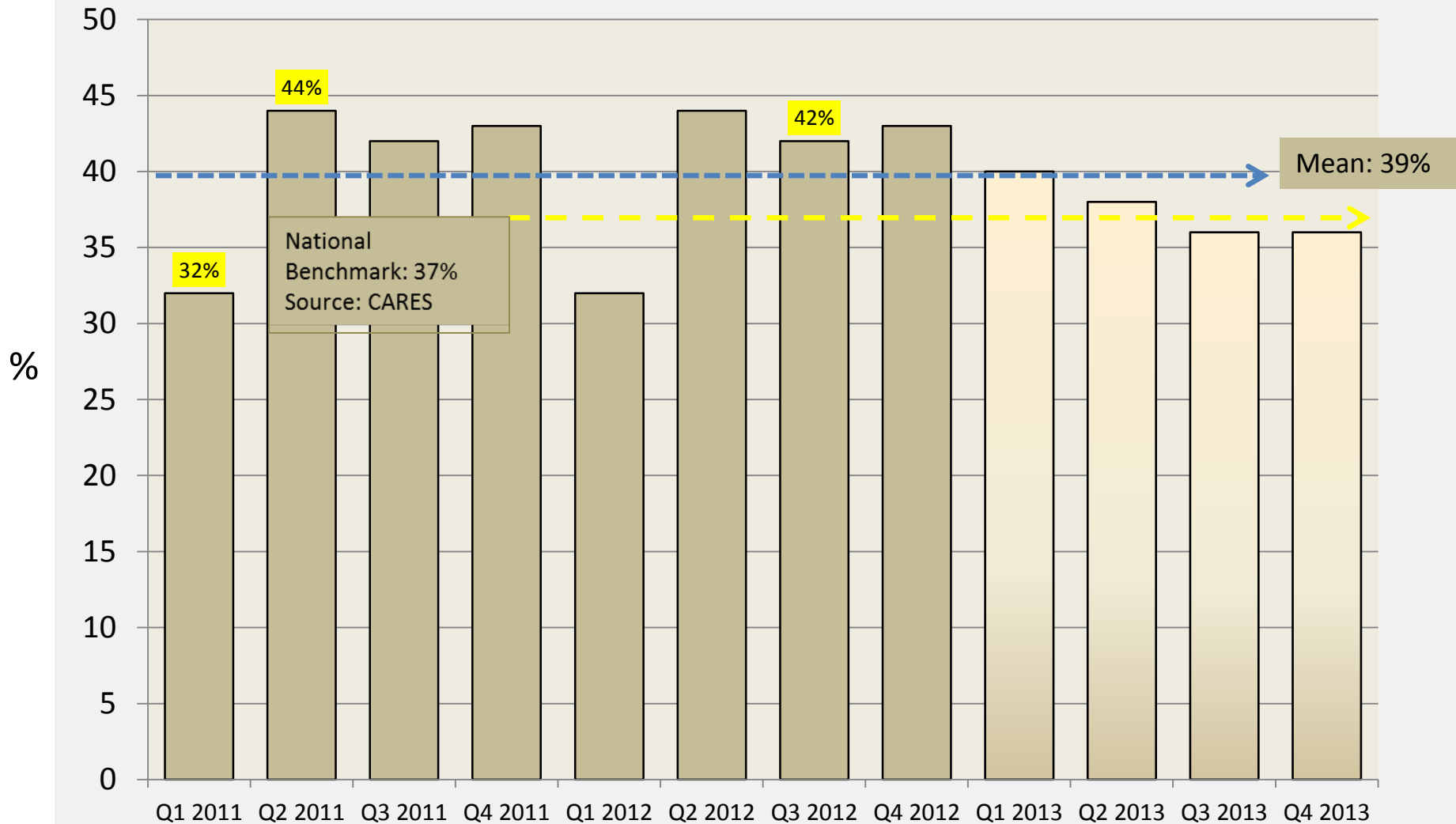
# *Cardiac Arrest* *2013*

Data Source: CARES Registry through June 2012.

Excludes Medical Facilities (hospitals, clinics, SNF); Excludes arrest after EMS arrival

# % Bystander Initiated CPR By Quarter 2011 through 2013

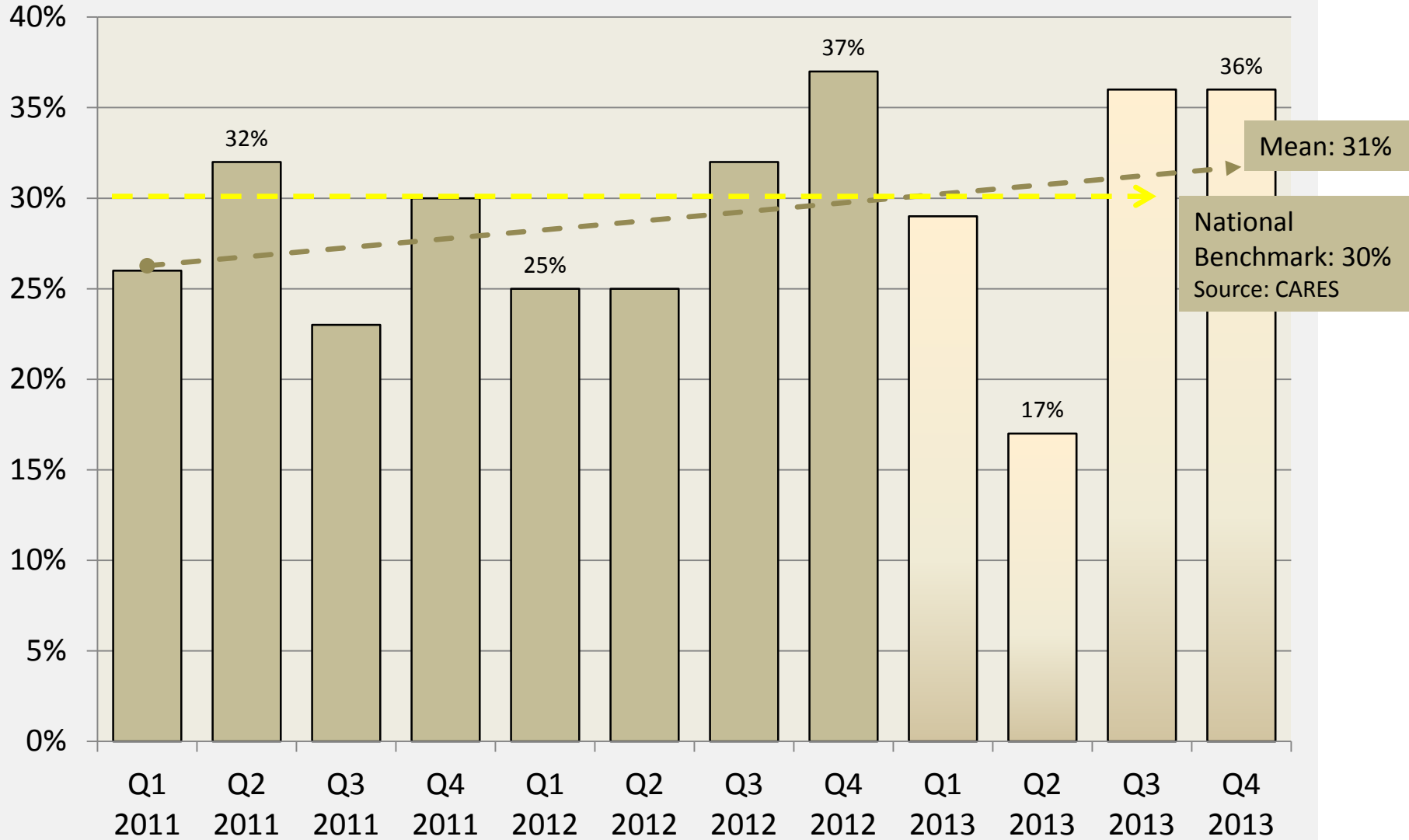
2013 N= 469 CA of Cardiac Etiology



# Cardiac Arrest Survival - Utstein Standard

## By Quarter 2011 – 2013

N= 469 2013 CA resuscitations attempted



### National Cardiac Arrest CARES Registry Data vs. Contra Costa Data

01/01/2013-12/31/2013 AMR and NonAMR

|   | National CARES Data |         | Contra Costa CARES Data |  |
|---|---------------------|---------|-------------------------|--|
|   |                     | Percent | Number                  |  |
| Total Number of Cardiac Arrests of Cardiac Etiology | 30841               |         | 469                     |  |
| Overall Cardiac Arrest Survival                     | 8.6%                | 7.6%    | 36/469                  |  |
| Bystander Witnessed Arrest Survival                 | 12.8%               | 11.1%   | 25/224                  |  |
| Utstein (VF/VT Witnessed) Survival                  | 26.0%               | 25.6%   | 20/78                   |  |
| Utstein (VF/VT) Survival with Bystander CPR or AED  | 30.0%               | 35.5%   | 50                      |  |
| Unwitnessed Arrest Survival                         | 3.7%                | 1.0%    | 2/189                   |  |
| Witnessed Arrests - Frequency of rhythm             | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 35.0%               | 34.8%   | 78/224                  |  |
| Other   | 31.6%               | 33.4%   | 75/224                  |  |
| Asystole  | 33.2%               | 31.6%   | 71/224                  |  |
| Unwitnessed - Frequency of rhythm                   | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 13.9%               | 16.4%   | 31/189                  |  |
| Other   | 24.3%               | 28.0%   | 53/189                  |  |
| Asystole  | 62.4%               | 55.5%   | 105/189                 |  |
| EMS Witnessed - Frequency of rhythm                 | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 24.8%               | 22.4%   | 13/58                   |  |
| Other   | 51.2%               | 58.6%   | 34/58                   |  |
| Asystole  | 23.8%               | 18.9%   | 11/58                   |  |
| Survival Rate - Witnessed - by Rhythm               | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 25.9%               | 25.6%   | 20/78                   |  |
| Other   | 8.4%                | 5.4%    | 34/58                   |  |
| Asystole  | 3.0%                | 1.4%    | 1/70                    |  |
| Survival Rate - Unwitnessed - by Rhythm             | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 14.1%               | 6.4%    | 2/31                    |  |
| Other   | 4.5%                | 0.0%    | 0/52                    |  |
| Asystole  | 1.1%                | 0.0%    | 0/115                   |  |
| Survival Rate - EMS Witnessed - by Rhythm           | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 35.9%               | 38.4%   | 5/13                    |  |
| Other   | 9.6%                | 8.8%    | 3/34                    |  |
| Asystole  | 9.0%                | 9.0%    | 1/11                    |  |
| Witnessed Arrests                                   | 39%                 | 47%     | 222                     |  |
| Unwitnessed Arrests                                 | 50%                 | 40%     | 189                     |  |
| EMS Witnessed Arrests                               | 11%                 | 13%     | 58                      |  |
| Total   | 30841               |         | 469                     |  |

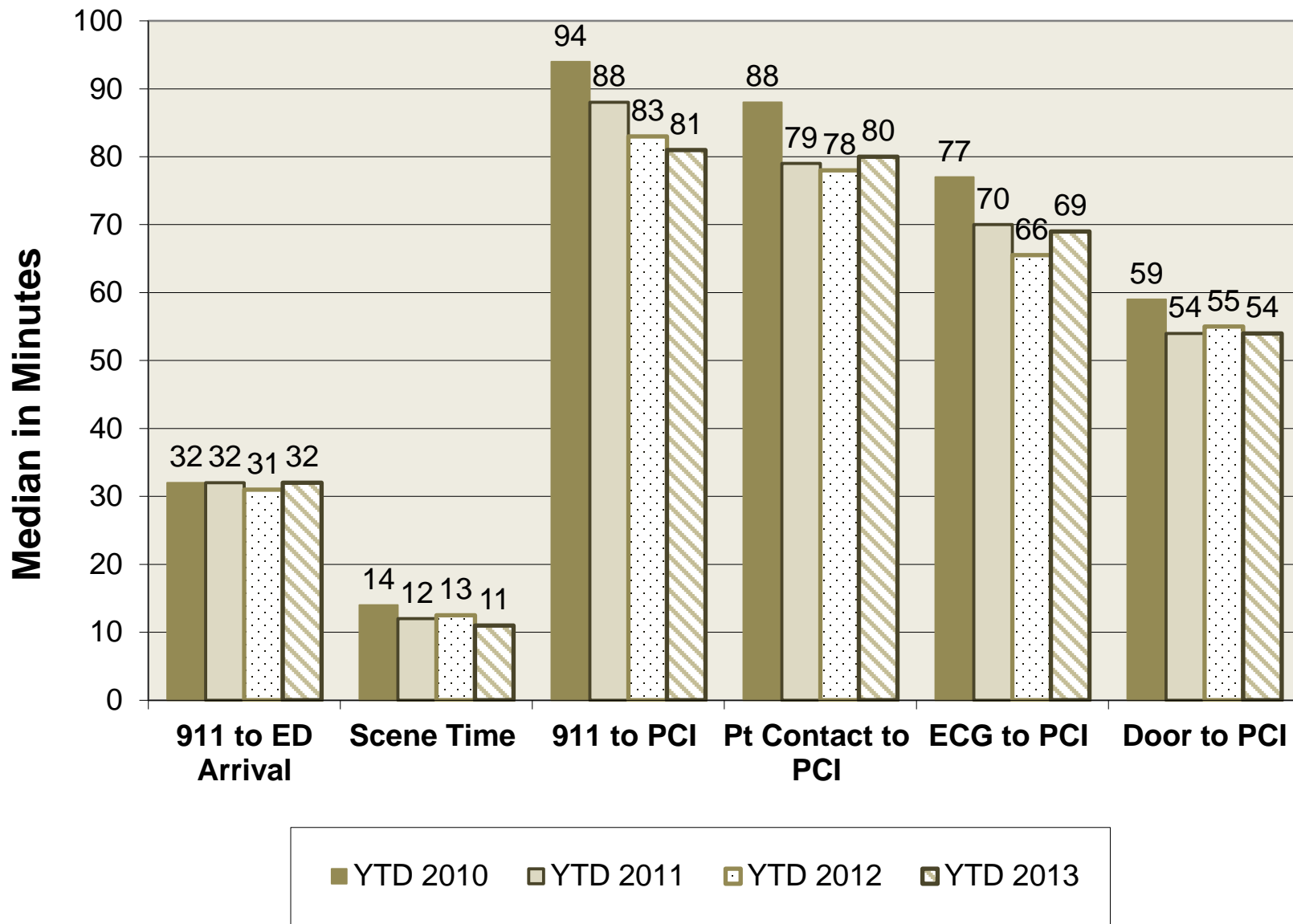
### National Cardiac Arrest CARES Registry Data vs. Contra Costa Data

01/01/2012-12/31/2012

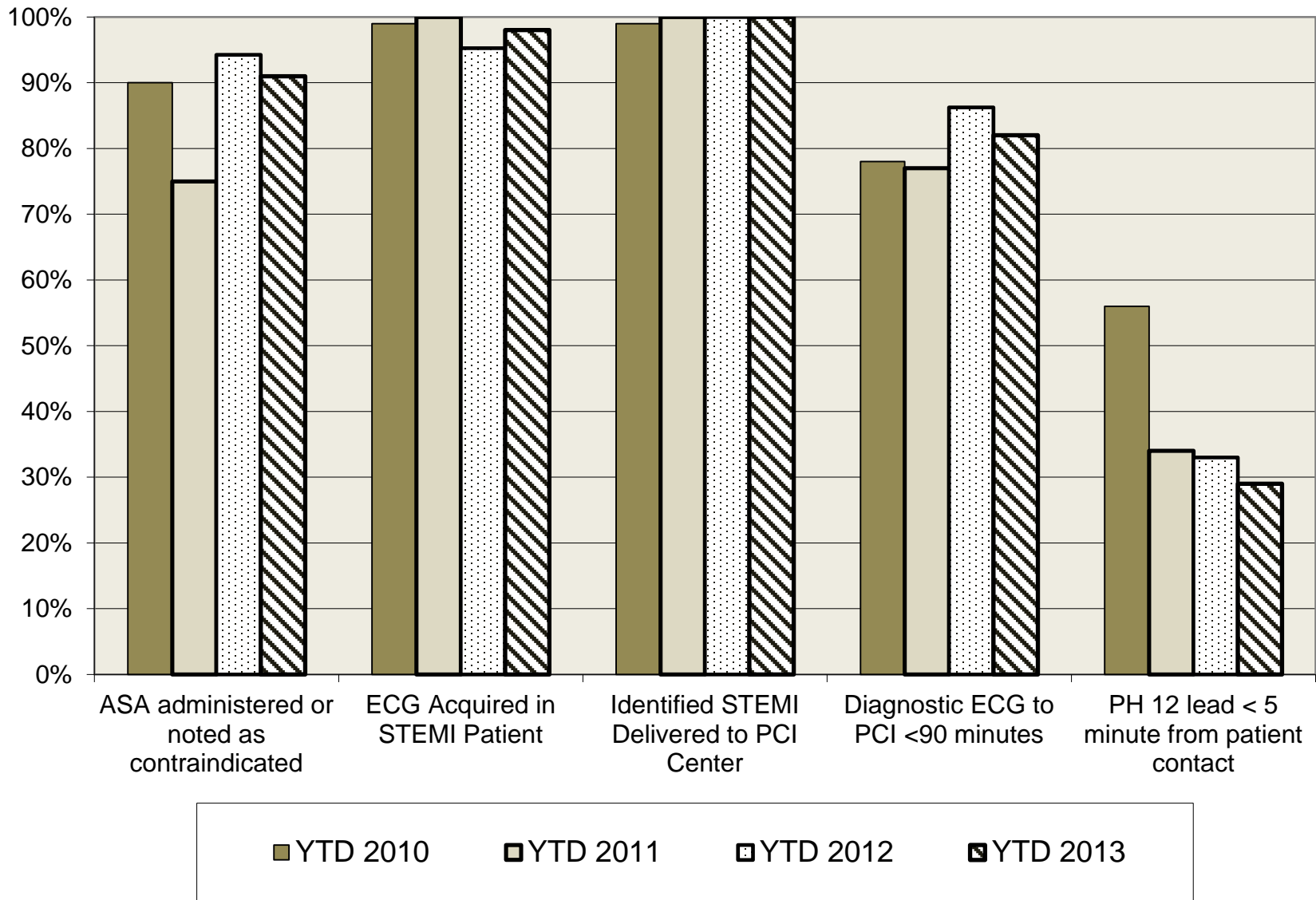
|   | National CARES Data |         | Contra Costa CARES Data |  |
|---|---------------------|---------|-------------------------|--|
|   |                     | Percent | Number                  |  |
| Total Number of Cardiac Arrests of Cardiac Etiology | 28253               |         | 509                     |  |
| Overall Cardiac Arrest Survival                     | 10.4%               | 10.8%   | 55/509                  |  |
| Bystander Witnessed Arrest Survival                 | 16.0%               | 15.6%   | 40/257                  |  |
| Utstein (VF/VT Witnessed) Survival                  | 32.6%               | 31.0%   | 32/103                  |  |
| Utstein (VF/VT) Survival with Bystander CPR or AED  | 38.4%               | 41.7%   | 60                      |  |
| Unwitnessed Arrest Survival                         | 4.5%                | 3.9%    | 8/206                   |  |
| Witnessed Arrests - Frequency of rhythm             | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 36.1%               | 40.0%   | 103/257                 |  |
| Other   | 30.3%               | 26.4%   | 68/257                  |  |
| Asystole  | 33.9%               | 33.4%   | 86/257                  |  |
| Unwitnessed - Frequency of rhythm                   | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 13.9%               | 15.5%   | 32/206                  |  |
| Other   | 23.5%               | 18.9%   | 39/206                  |  |
| Asystole  | 62.4%               | 65.5%   | 135/206                 |  |
| EMS Witnessed - Frequency of rhythm                 | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 24.3%               | 10.8%   | 5/46                    |  |
| Other   | 51.6%               | 45.6%   | 21/46                   |  |
| Asystole  | 62.4%               | 65.5%   | 13/46                   |  |
| Survival Rate - Witnessed - by Rhythm               | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 32.6%               | 31.0%   | 32/103                  |  |
| Other   | 10.3%               | 8.8%    | 6/68                    |  |
| Asystole  | 3.4%                | 2.3%    | 2/86                    |  |
| Survival Rate - Unwitnessed - by Rhythm             | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 16.3%               | 12.5%   | 4/32                    |  |
| Other   | 5.8%                | 7.6%    | 3/39                    |  |
| Asystole  | 1.2%                | 0.7%    | 1/135                   |  |
| Survival Rate - EMS Witnessed - by Rhythm           | National            |         | Contra Costa            |  |
| VF/VT (Shockable)                                   | 41.3%               | 41.6%   | 5/12                    |  |
| Other   | 13.0%               | 0.0%    | 0/21                    |  |
| Asystole  | 10.7%               | 15.3%   | 2/13                    |  |
| Witnessed Arrests                                   | 38%                 | 50%     | 303                     |  |
| Unwitnessed Arrests                                 | 51%                 | 40%     | 206                     |  |
| EMS Witnessed Arrests                               | 10%                 | 9%      | 46                      |  |
| Total   | 28253               |         | 509                     |  |

*STEMI System*  
*Q1 2013 Report*

# Contra Costa Emergency Medical Services STEMI System Prehospital Performance Intervals 2010-2013

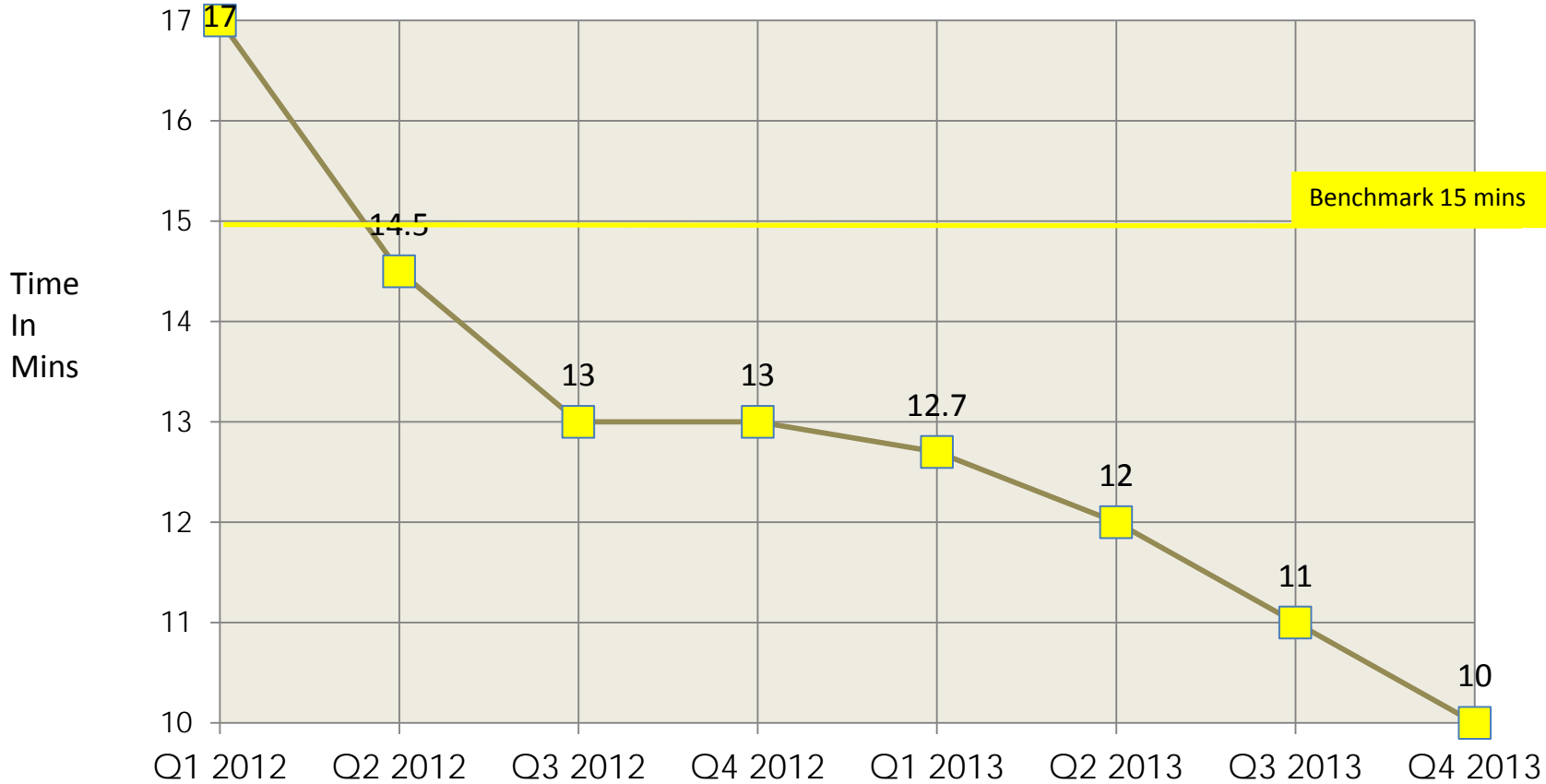


# Contra Costa Emergency Medical Services STEMI System Performance Prehospital Patient Care Benchmarks





# Contra Costa STEMI System Median Prehospital Scene Time Interval Run Chart Analysis by Quarter 2012-13

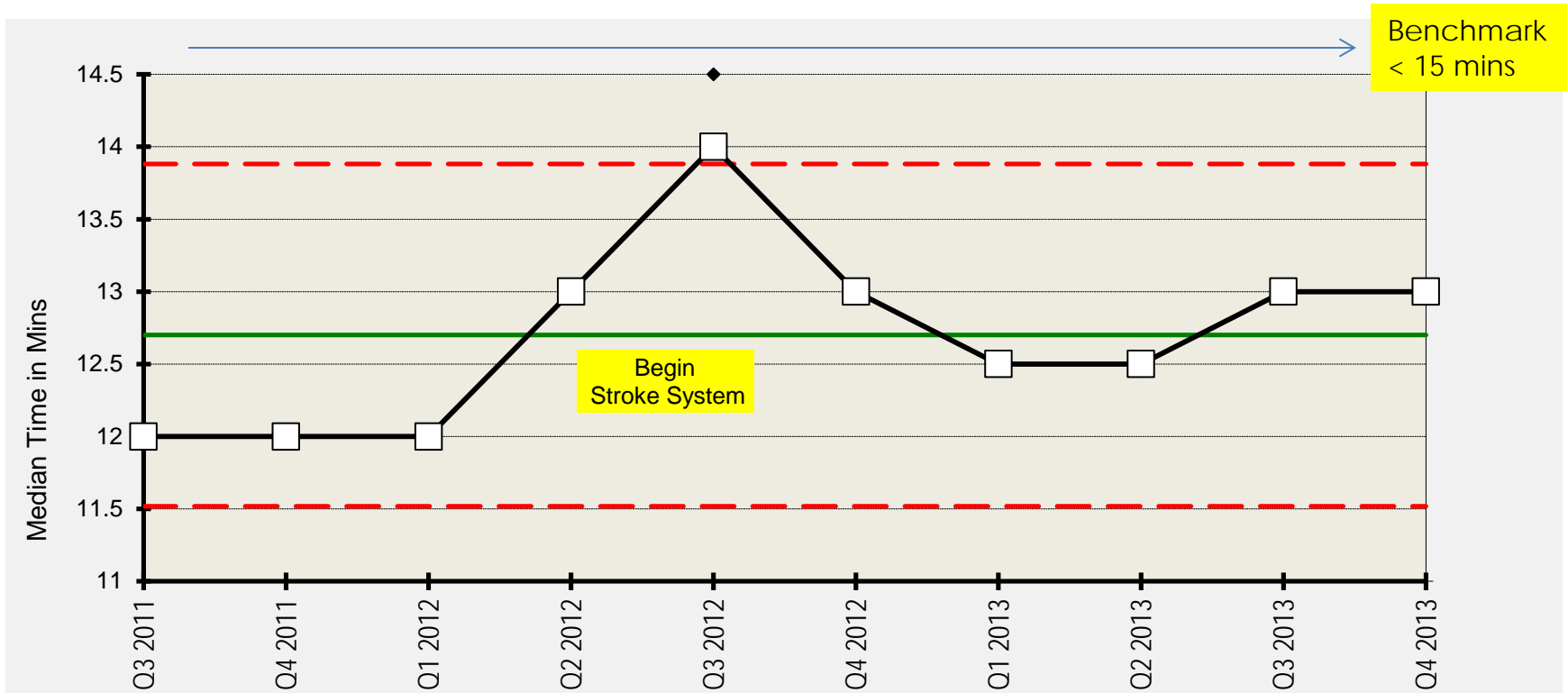


# *Stroke System 2013*

# Stroke Scene Median Time Interval

## Run Chart Analysis by Quarter 2011-2013

N=1263 Stroke Assessments in 2013



### Special Cause Detected

Avg of Data Shown 12.7  
 Median Data Shown 12.75  
 Sigma for Limits 0.3940  
 Base for Limits Average MR

### Chart Type: Chart for Individuals

Centerline: 12.70 Process Limits: Lower: 11.52 Upper: 13.88

A: 1 Beyond Control Limit  
 B: 9 On One Side of Average  
 C: 6 Trending Up or Down  
 D: 14 Alternating Up & Down

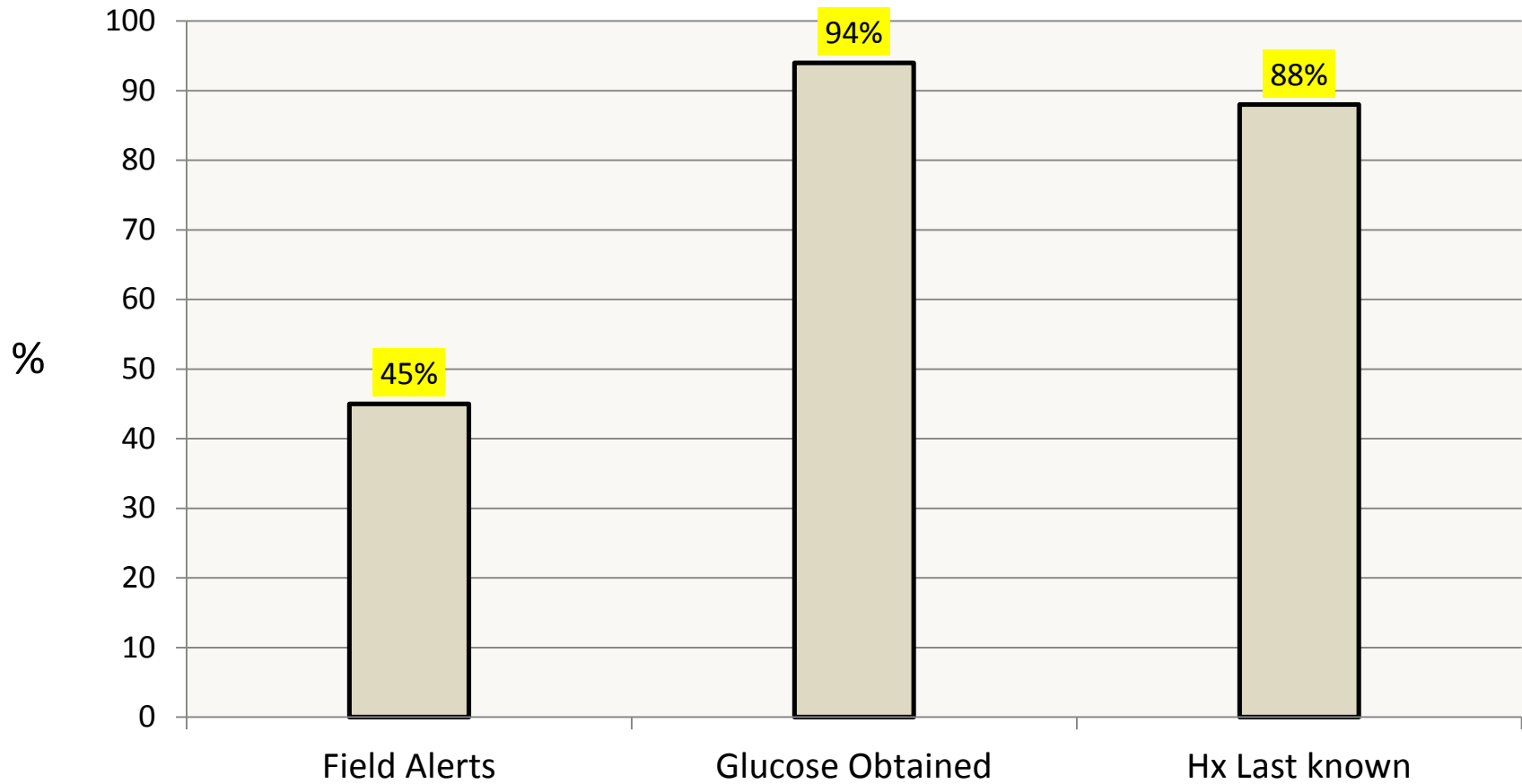
Database Column

1

E: 2 of 3 Beyond 2 Sigma  
 F: 4 of 5 Beyond 1 Sigma  
 G: 15 Within 1 Sigma  
 H: 8 Outside 1 Sigma  
 X: Excluded or Missing Data

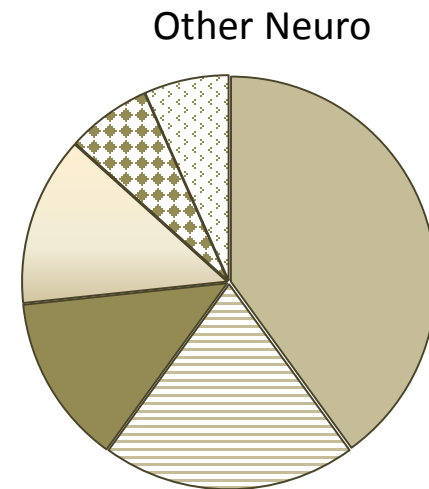
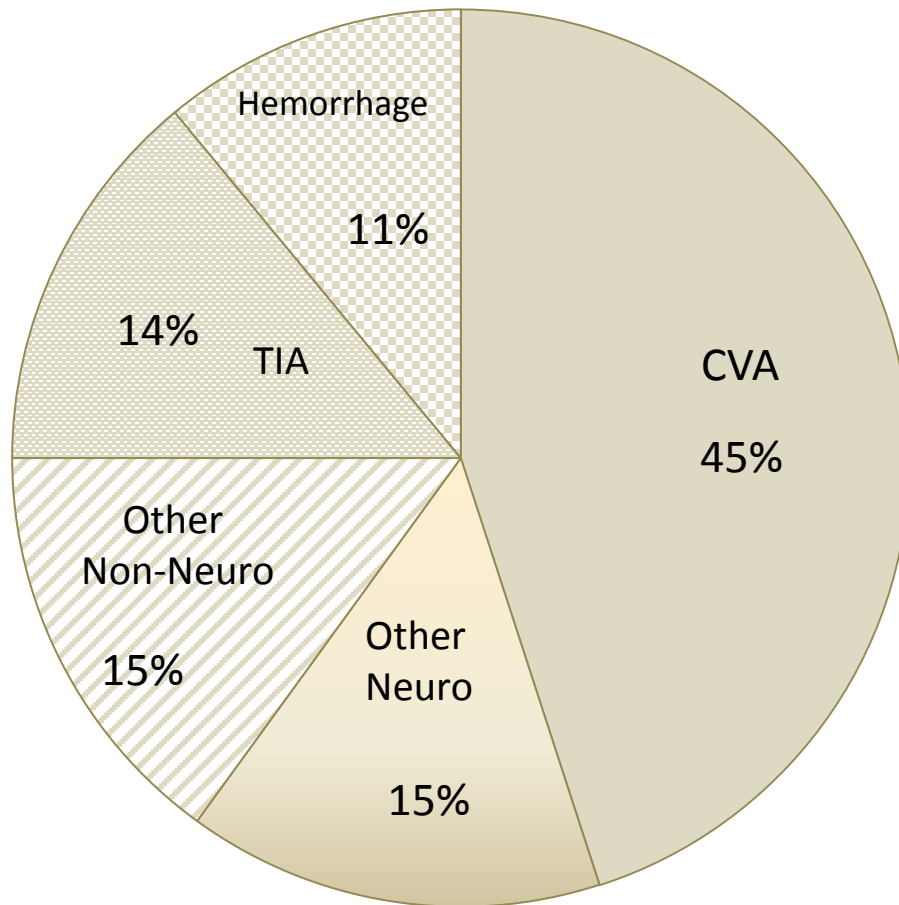
# Contra Costa County Stroke System 2013 Field Stroke Guideline Compliance

N=1263 Stroke Assessments 2013



# Contra Costa County Stroke System Disposition of Stroke Alerts 2013

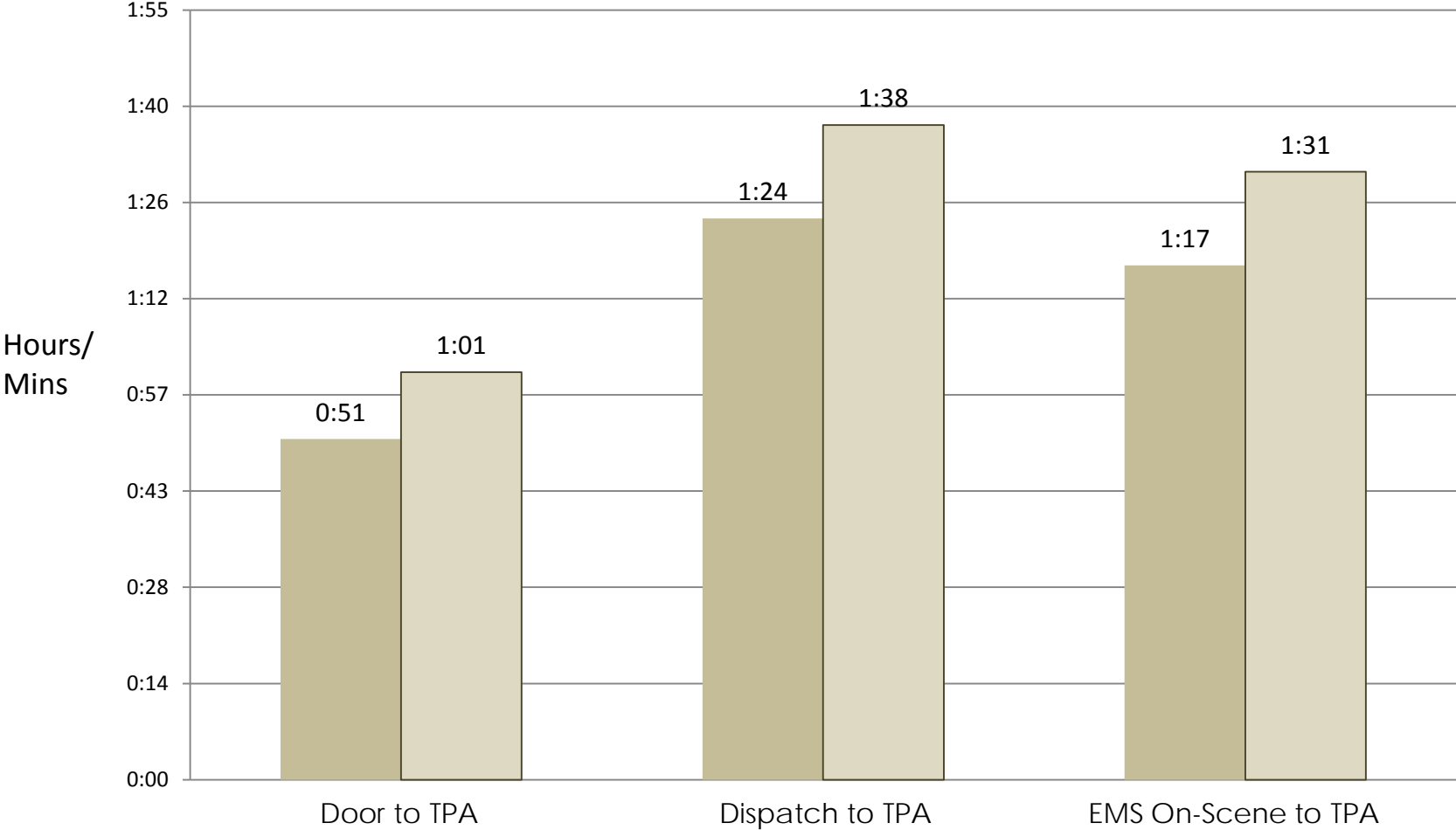
N=579



- Seizures
- ALOC
- Sepsis
- Enceph
- Headache
- Weakness

# Contra Costa County Stroke System TPA System Metrics 2013

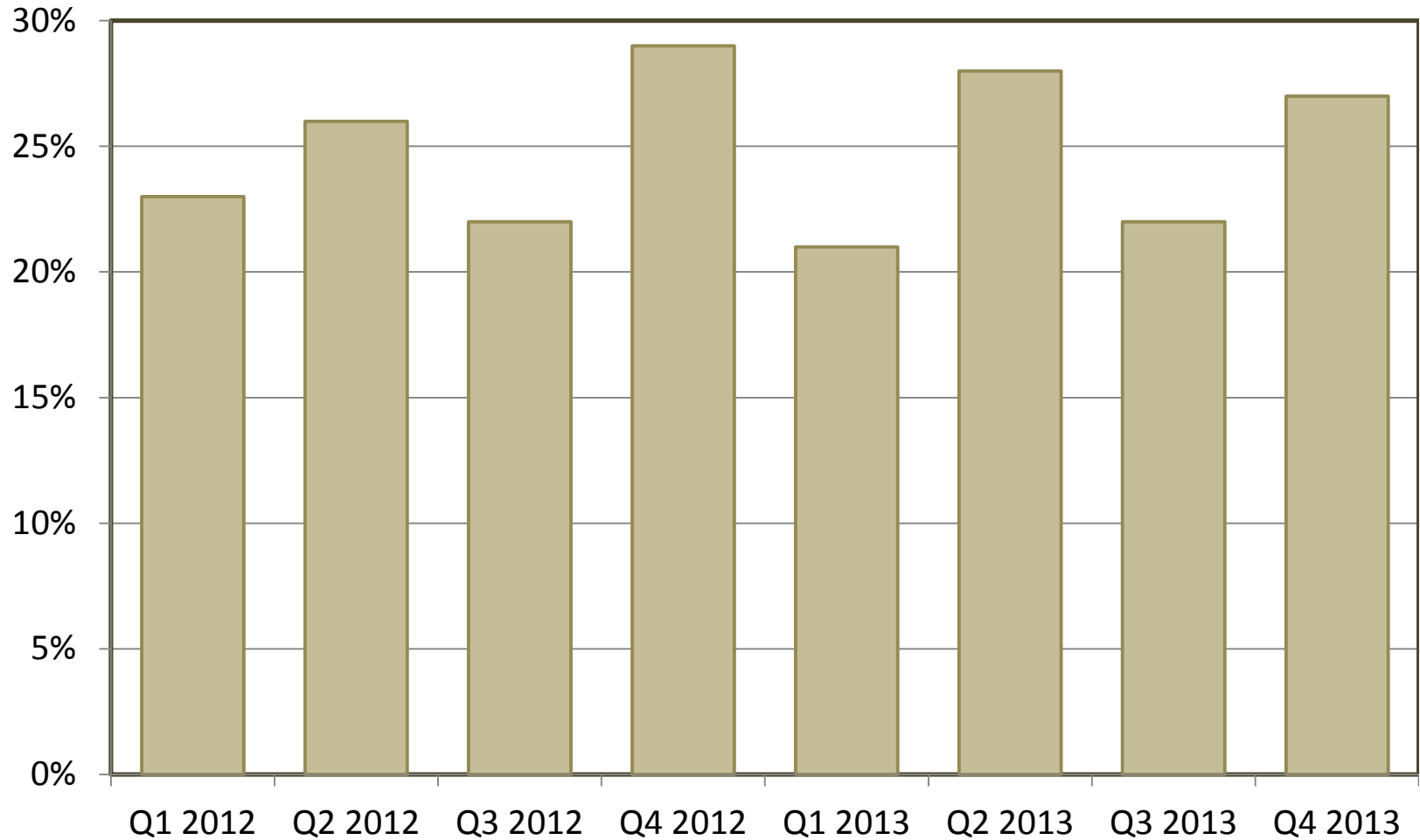
N=121



*Trauma System*  
2013

# Trauma System % Discharge Based on Injury Severity Score (ISS) Shown by Quarter 2012-13

N= 2780 Total Trauma Patients  
Source: Contra Costa Trauma registry

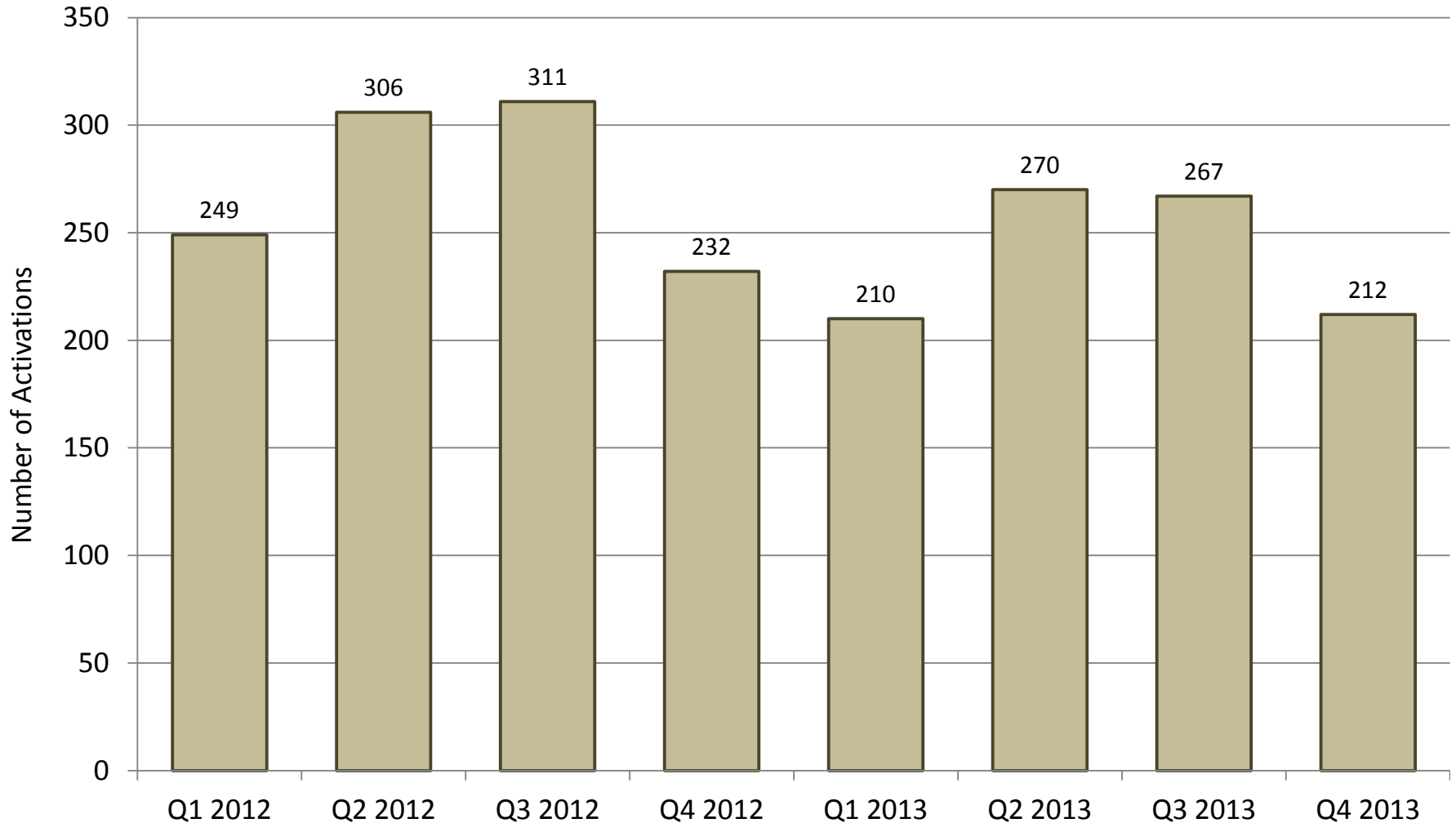




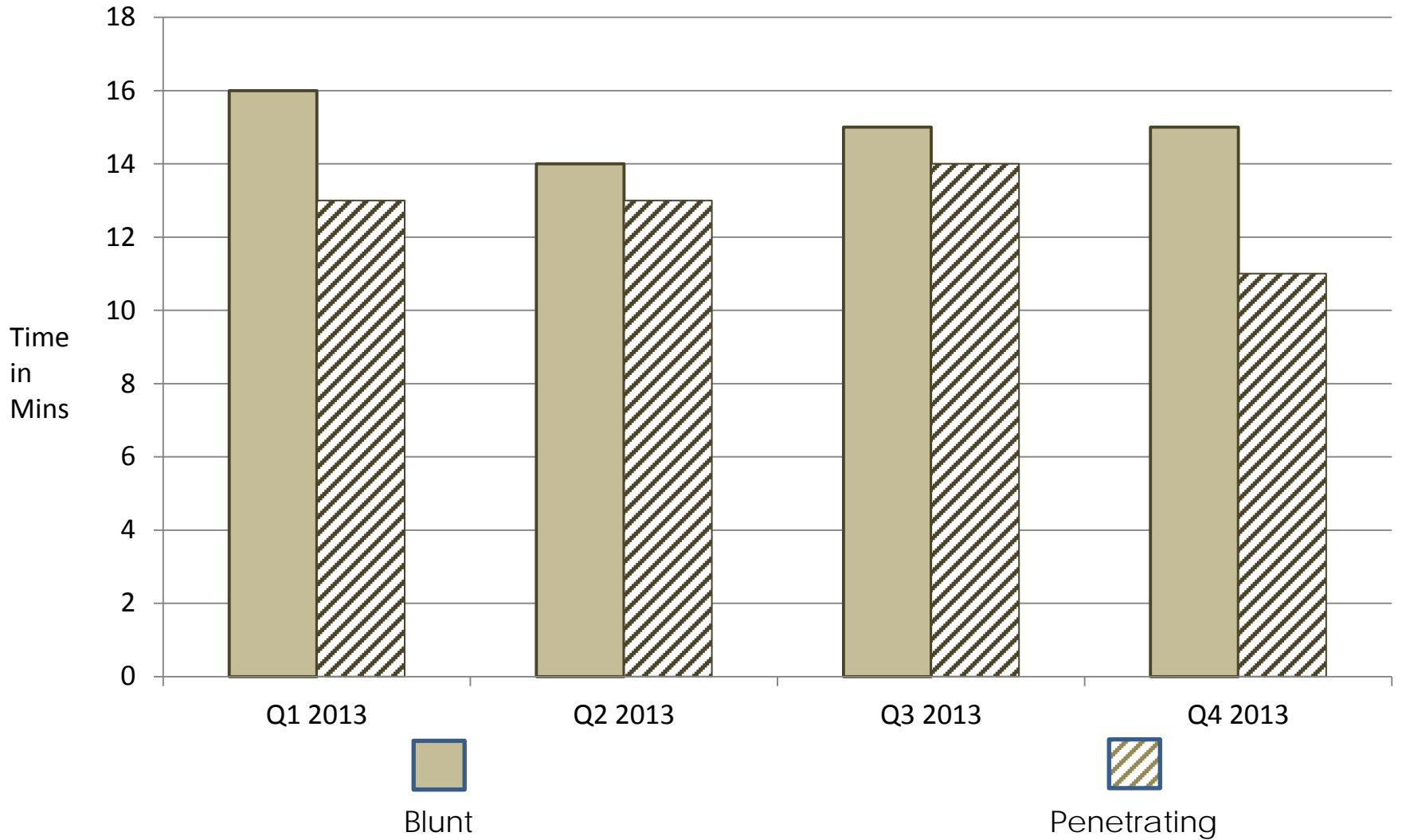
# Trauma System Activations

Based on Injury Severity Score (ISS)  
Shown by Quarter 2012-13

N= 2780 Total Trauma Patients  
Source: Contra Costa Trauma registry

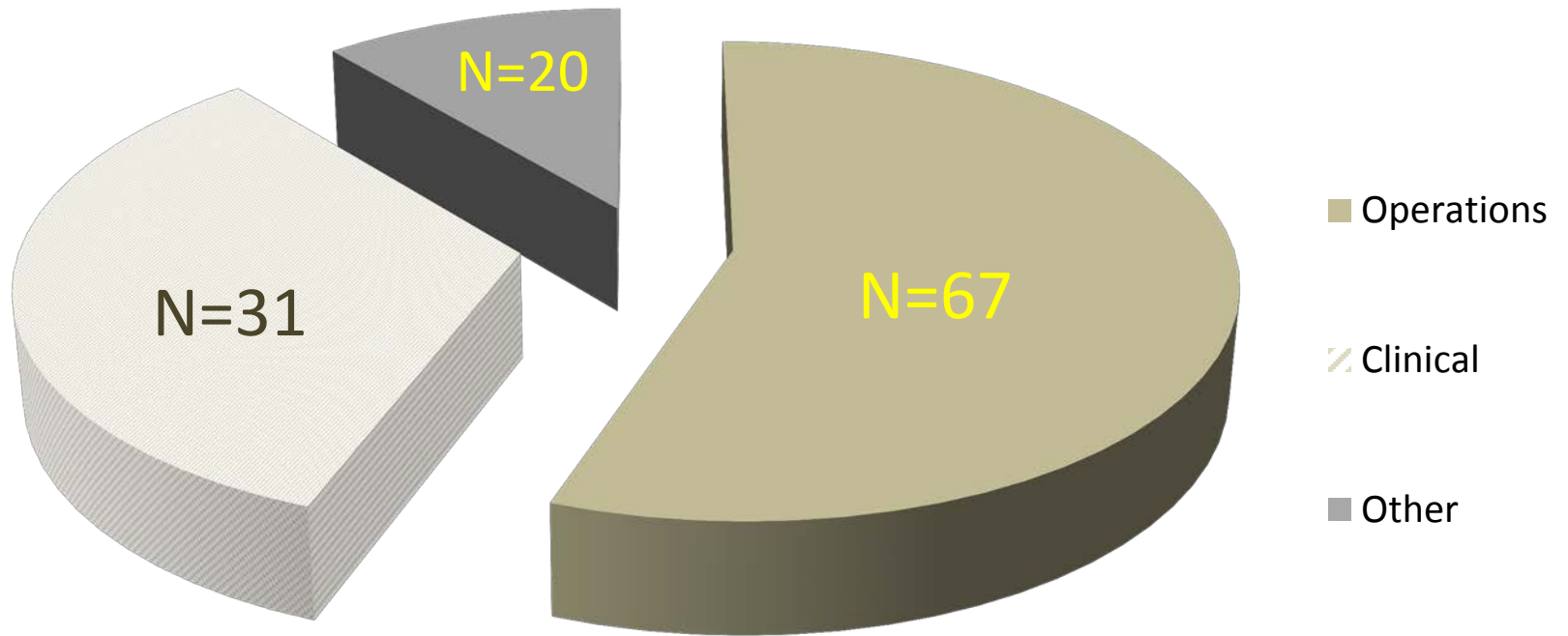


Trauma System  
Mean Prehospital On Scene Time Interval  
Blunt vs. Penetrating Trauma  
By Quarter 2013

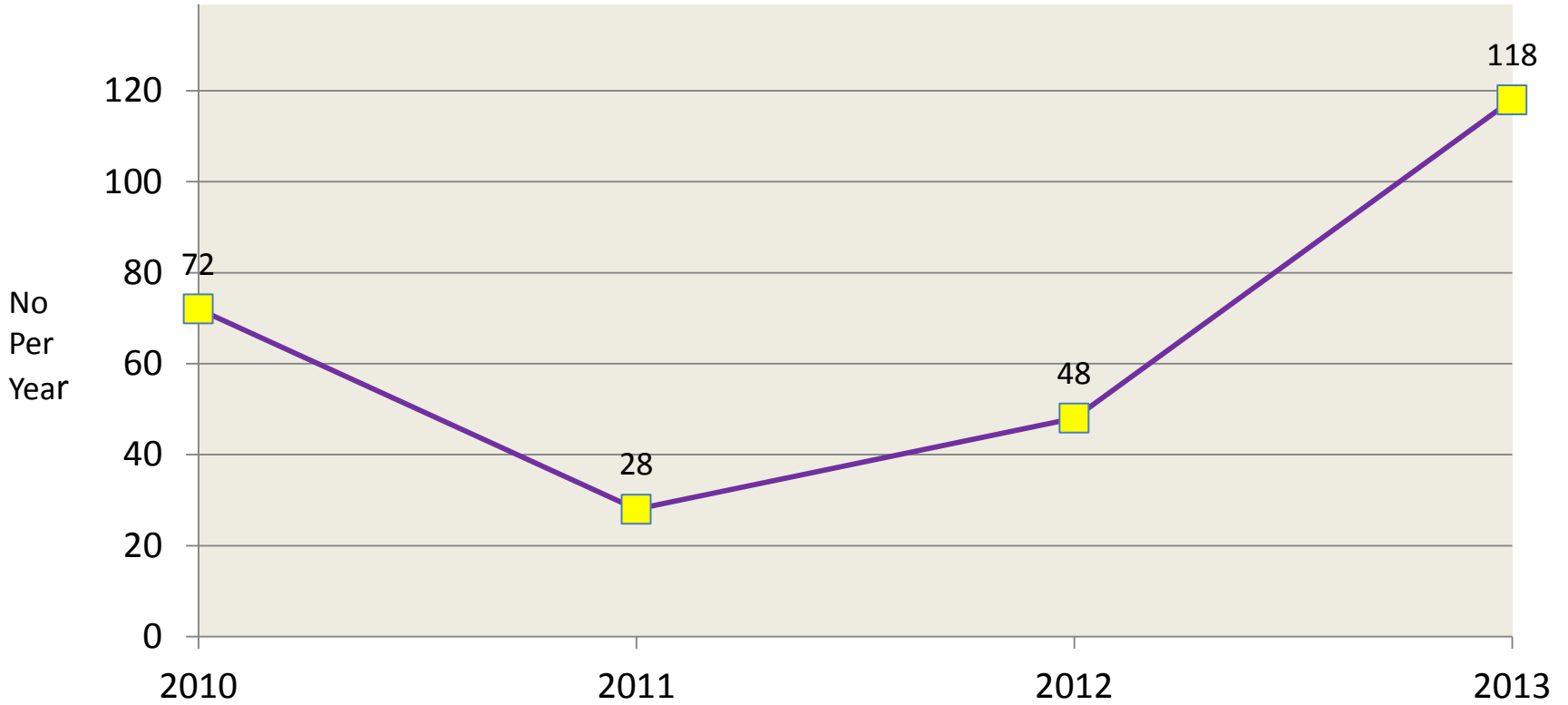


*Patient Safety*  
*Q2 2013*

Contra Costa EMS Patient Safety Events  
by Frequency and Type  
2013: N=118



# Contra Costa EMS Reported Patient Safety Events by year 2010 to 2013

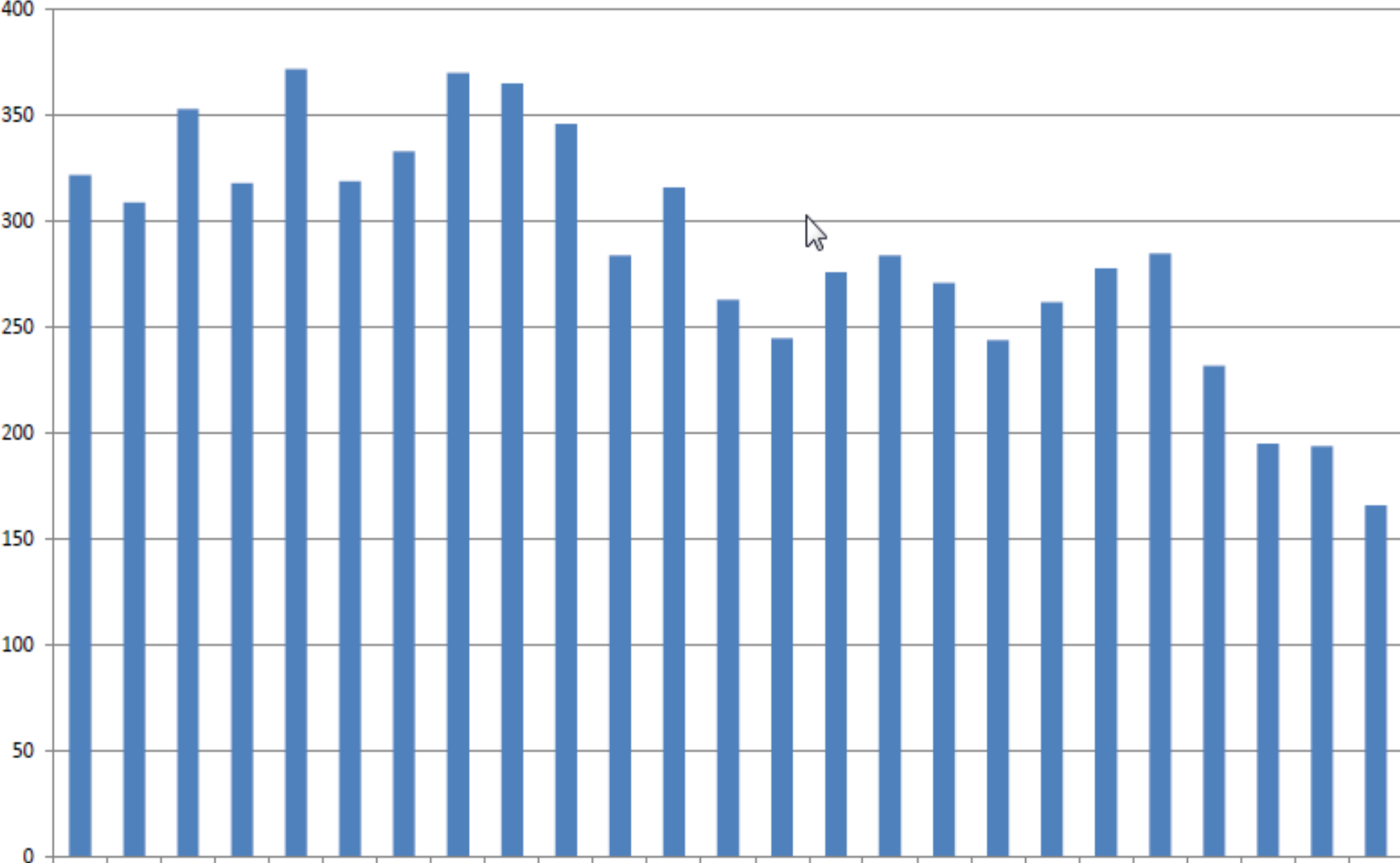


# 2014-15 Quality Initiatives

| PROJECT TITLE                                    | OUTCOME STATEMENT  | Phase I  | Phase II   | Phase III  | Phase IV  | Phase V   | Phase VI  |
|--|--|--|--|--|---|---|---|
|  |  | Staff Research & Review  | Task Team QLC Review   | Approval & Planning  | Implement & Monitoring  | Outcome   | Sustaining                                      |
| <b>Field Advisory Forum</b>                      | To provide a forum for increased flow and exchange of pertinent clinical and operational information between EMS field personnel and agency staff. | Staff is currently gathering scheduling and planning for inaugural meeting   | Members at large will be appointed   | Program objective and members will be announced at the Quality Leadership Committee (QLC) meeting scheduled for March 2014 | The first Field Advisory Forum (FAF) is scheduled to meet in late March or early April of 2014 to assess value.           | After the first three (3) meetings – staff and members will assess the value and productivity of the FAF                                | To be determined                                |
| <b>High Performance Cardiac Arrest &amp; CPR</b> | To increase the quality of CPR provided to patients in cardiac arrest.   | Indicators to measure quality such as compression, ratios, depth, & pauses for shock developed and data pulled.  | Training program developed with staff and implementation plan completed.   | Initial indicators to be presented to Quality Leadership Council (QLC) in March 2014                                       | The same initial quality indicators will be reviewed by staff and QLC Mar & Sep 2015                                      | To be determined  | To be determined                                |
| <b>EMS Patient Off-Load Time Reduction</b>       | To monitor and reduce the “hand-off” times between Emergency Department (ED) and 911 ambulances in Contra Costa County                             | Current measures reflect that during high volume periods, patients arriving by 911 ambulance are often waiting longer than 30 minutes for off-load to ED | The measures and other pertinent information are reviewed by internal staff and county wide Quality Leadership Committee (QLC) | Letter to all hospitals and ambulance providers sent out to announce more intense monitoring and feedback on this issue.   | Reports will be updated monthly and hospital leadership will receive an email with a link to the report when it is posted | EMS Staff and QLC will measure in six months to evaluate reduction in off-load times.   | To Be determined                                |
| <b>Spinal Motion Restriction</b>                 | To implement changes in “Spinal Immobilization” that will improve patient care and comfort.  | Staff researched current trends in “spinal immobilization” and identified potential issues within Contra Costa County.                                   | Task team was developed which included field providers. Developed new treatment guideline and equipment.                       | Proposed changes reviewed with QLC, MAC and other EMS Committees. Funding for equipment through Measure H.                 | Training of all EMS personnel in Q4 of 2013. Implementing use of new equipment and treatment guideline January 1, 2014.   | Spinal Motion Restriction (SMR) use rates will be monitored in AdHoc reports as part of QLC. SMR will be compared to historical trends. | To be determined.                               |
| <b>Pediatric Medication Safety</b>               | To check sustainability of our documented reduction in pediatric medication inaccuracies and to measure and sustain improvements                   | -Data to be queried June 2014 & reviewed by EMS Staff --Published in EMS Best Practices  | The information will be reviewed by internal staff and former task team leads  | The information will be reviewed by Quality Leadership Council (QLC) at Sept 2014 meeting.                                 | Staff and QLC will evaluate data and indicators for progress  | To be determined June 2014 if error rate continues to drop and improve  | Further action may be required to sustain gain. |
| <b>Video Laryngoscopy Trials</b>                 | To implement and evaluate the efficacy of Laryngeal videography for the purposes of increasing efficiencies of airway management                   | Equipment has been demonstrated at various EMS public meetings and training sessions.  | Specific providers are currently piloting this adjunct at both local and national levels.                                      | Medical Director has approved the trial evaluations. QLC advised March 2014 meeting  | Providers to report out to MD and record information on the procedure. Timeline to still be determined                    | To be determined  | To be determined                                |

*Adhoc Studies*  
*Current Initiatives*  
2013

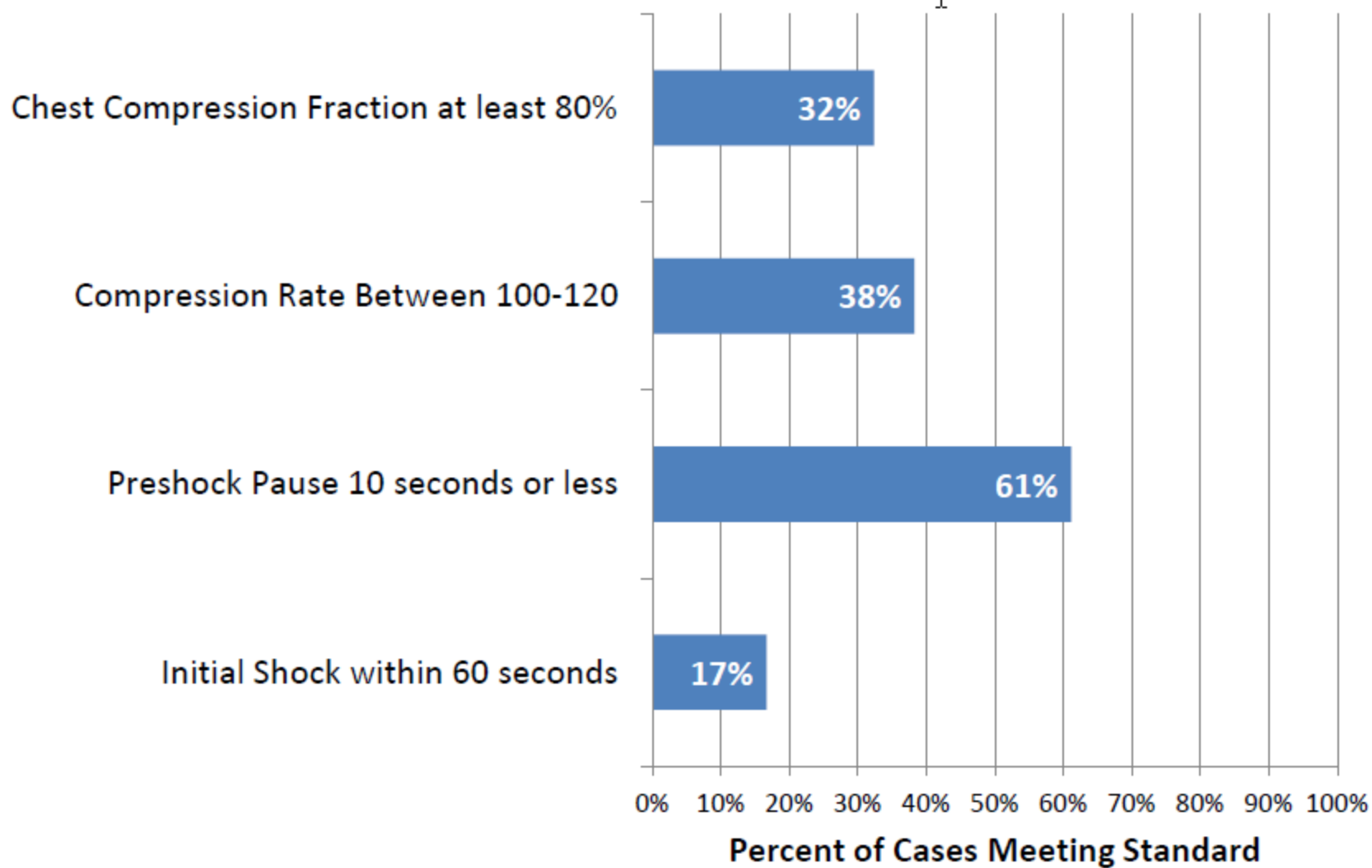
# Spinal Immobilization Counts - AMR



Jan 2014 (prorated)



### Summary - CPR Quality Measurements Contra Costa County - 2014 (Jan thru March 5)



Total Cases = 34

Total Shocks - Preshock Pause = 54

Initial Shock Cases = 12

# END REPORT 2013