Countywide Emergency Department 9-1-1 Ambulance Patient Transfer of Care Report

Prepared by:

Contra Costa Emergency Medical Services

Visit us at www.cccems.org

11/15/2014

Contra Costa Emergency Medical Services (EMS) System Performance Expectation

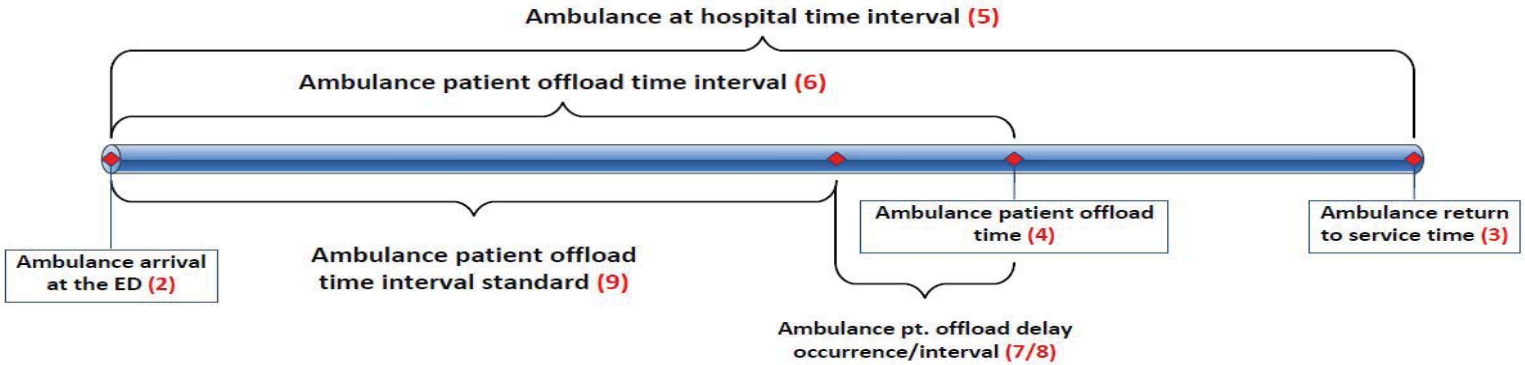
EMS Policy #40: Hospitals designated as an EMS receiving facility in Contra Costa County shall be prepared to receive patients transported by 9-1-1 county ambulance providers and accept these patients upon arrival. The patient transfer of care performance expectation for the EMS System is 20 minute or less; 90% of the time.

Countywide Hospital Performance (Nov 2013 to Oct 2014)

90th Percentile of All Facilities[1]
Patient Transfer of Care occurs between 18 to 21 minutes 9 out of 10 times

Description of Patient Transfer of Care (TOC)

The California Hospital Association and the EMS Administrators of California have proposed the following graphic to describe the intervals associated with patient transfer of care. In Contra Costa County our metric of patient transfer of care or handoff time is equivalent to the ambulance patient offload time interval.



[1] San Ramon Regional Medical Center is not included in the all facilities reporting. San Ramon Regional Medical Center is served primarily by San Ramon Fire Protection District who does not collect this information.

Hospital Capacity and EMS Transfer of Care (TOC)

Emergency departments (ED's) have different capacities and utilization. Between 13-16% of all emergency department volume is transported by EMS with up to 80-87% of emergency department visits categorized as walk-in or self-transport. Typically 10% of ALL emergency department patients require admission while patients brought in by EMS are admitted up to 40% more often due to their acuity. Improving EMS patient transfer of care improves patient safety and the quality of both pre-hospital and emergency department care. Hospitals are encouraged to compare themselves to like facilities in patient volume and ED capacity.

County Wide Emergency Department Capacity and Utilization	ED BEDS	OSHPD TOTAL REPORTED ED VISITS 2013	OSHPD ED VOLUME PER ED BED 2013[2]	TOTAL EMS TRANSPORTS 2013 (All Contra Costa County Transports)[3]	PERCENT OF EMS TRANSPORTS BY TOTAL ED VISITS 2013	DAILY AVERAGE 2013 (All Contra Costa EMS Transports)
Contra Costa Regional Medical Center[4]	20	58,677	2934	10,829	18%	29.7
Doctors Medical Center	25	40,384	1615	8,053	20%	22.1
John Muir-CONCORD	32	50,565	1580	8,119	16%	22.2
John Muir-WALNUT CREEK	47	45,663	972	8,684	19%	23.8
KAISER ANTIOCH	34	42,845	1260	5,003	12%	13.7
KAISER RICHMOND	15	40,065	2671	5,161	13%	14.1
KAISER WALNUT CREEK	52	54,228	1043	7,231	13%	19.8
SAN RAMON REGIONAL	12	16,909	1409	2,181	13%	6.0
SUTTER DELTA	32	51,748	1617	8,142	16%	22.3
TOTAL	269	401,084	1491	63,403	16%	173.7

[2] The American College of Emergency Physicians (ACEP) recommended standard is one emergency department treatment station (bed) for 2000 visits
[3] This data includes all Contra Costa emergency ambulance transport data for San Ramon Fire and Moraga Orinda Fire Departments and AMR.
[4] Includes Contra Costa Regional Psychiatric Emergency Patient Volume

The Contra Costa EMS System TOC Safety Initiative: Data Sharing for Improvement

Contra Costa Emergency Medical Services (EMS) recognizes the enormous strain and crowding that many hospital emergency departments face daily. However, delays in the timely transfer of care of patients[5], brought by 9-1-1 emergency ambulance, are known to increase risk to the patient and adversely impact the availability of providing emergency ambulance services throughout the county. It is important that all hospitals receiving emergency ambulances recognize the following:

- Every day approximately 10% of Contra Costa EMS patients experience patient transfer of care delays.
- These delays affect over 6,200 patients per year.
- EMS/ED transfer of care delays of greater than 20 minutes also delay how quickly the patient is seen by an emergency department physician.
- When delays in patient transfer of care are more than 30 minutes occur, ED efforts to return the ambulance to service must be undertaken by those closest to the patient.
- When two or more emergency ambulances experience delays greater than 30 minutes (known as stacking) the community's 9-1-1 ambulance response may be adversely affected.
- All emergency ambulance providers have strict response time performance requirements resulting in stiff financial penalties when delays in response occur.
- **Hospitals with inpatient workflow practices that support emergency department throughput consistently demonstrate shorter patient transfer of care times and experience significantly fewer excessive delays (never events) regardless of spikes in normal day to day emergency department volume.**

To effectively collaborate and manage the patient safety issues associated with patient handoff delays, transfer of care standards and performance metrics were established for the Contra Costa EMS System. The EMS policy # 40 *"EMS Prehospital-Emergency Department Transfer of Care Standards"* is available at http://cchealth.org/ems/pdf/policy40.pdf. Contra Costa EMS encourages all of our EMS System partners to use this information to create effective strategies to support timely patient handoff.

[5] Delays in timely transfer of care are also known as "offload" or patient "handoff" delays.

The Institute of Medicine, National Quality Forum, Centers for Medicare & MediCal and National Association of EMS Physicians all recommend establishing benchmarks, metrics and engaging in data sharing to support patient safety between EMS System stakeholders.

The County EMS System standards for patient handoff between Emergency Department (ED) and 9-1-1 ambulance personnel for all Contra Costa Community Hospitals include:

- Conducting 9-1-1 transported patient handoff as soon as possible upon ambulance arrival;
- Activating appropriate measures to effectively manage ED saturation
- Reducing 9-1-1 ambulance stacking during peak conditions.
- Treating handoff delays of 60 minutes or more as "Never Events".
- Practicing optimal patient handoff times of 20 minutes or less

The Contra Costa EMS System patient handoff standards reflect more than 4 years of EMS System stakeholder participation. Effective January 1st, 2015, EMS will begin posting these reports publicly at www.cccems.org website at appropriate intervals. We would like to thank all of our Contra Costa community hospitals for making this a high priority in their organizations. Questions about this report should be directed to Contra Costa EMS by visiting us at www.cccems.org or calling 925 646-4690.

The Metrics

Transfer of care time interval: Time from ambulance arrival on hospital premises to documented transfer of care. Transfer of care is defined as the patient being physically off the gurney and EMS personnel having completed an appropriate verbal report to hospital staff (where EMS crew has no further direct patient care duties). Any activity performed after the patient care transfer occurs is not included, e.g. clean up of ambulance and completion of prehospital patient care record.

Data elements used in reporting: Arrival of ambulance time is defined as the time the ambulance reaches hospital property and captured as an automated data point using a link to the ambulance CAD (Computer Aided Dispatch). Transfer of care time is the time that the EMS provider documents as the point in time where the patient is both physically off the gurney and the ED staff have received a verbal patient report.

Fractile Performance: Measurement of percentage of time interval associated with completed transfer of care (e.g. 90% of patients with transfer of care within 20 minutes).

Average patient handoff time (min): The average time in minutes it takes to handoff patients at an individual facility or group of facilities.

Total number of patients: The total count of patients transported to the individual facility or group of facilities during the data collection interval.

90% Percentile (min): The amount of time (in minutes) associated with patient transfer of care for 9 out of 10 patients for a facility or group of facilities.

"Never Events" by Facility: The total count of EMS patient care transfers (handoffs) taking 60 minutes or longer. This information is displayed by year and year to date.

Demographic Patient Data associated with "Never Events": These charts and tables capture descriptive information about patients who experience "Never Events" and includes the paramedic's primary impression, patient's age, sex, and ethnicity.

The Standards and Benchmarks

The following are the standards and benchmarks for the Contra Costa County EMS System in support of prompt ambulance and emergency department patient transfer of care:

- Optimal patient care transfer of care (handoff or drop time) time: 15 minutes 90% of the time
- Delayed patient care transfer of care (handoff or drop time) time: 30 minutes or more
- A "Never Event" for patient care transfer (handoff): 60 minutes or more

Management of Delays in Patient Transfer of Care

Contra Costa EMS works with emergency ambulance, hospital and emergency department leadership to assure prompt patient transfer of care in the emergency department. Prompt transfer of patient care enables timely definitive care and the return of 9-1-1 emergency ambulance assets to availability for the next emergency call. The Contra Costa EMS Agency provides routine reports on patient handoff to hospitals, ambulance providers, the Contra Costa Emergency Medical Care Committee and the County Board of Supervisors.

Contra Costa EMS encourages hospitals to measure overcrowding as part of internal quality and patient safety efforts to improve ED/Hospital throughput. Two resources that have demonstrated value in this area include the use of the California Emergency Department Overcrowding Scale (CEDOCS) or the National Emergency Department Overcrowding Scale (NEDOCS). Both scales provide an objective assessment of ED overcrowding, and may be useful in helping hospitals to reduce ambulance offload delays. These tools incorporate measurement of patient census, ED bed count, ED admits, in-patient bed counts, door-to-bed time in the ED, longest wait for admission and number of patients receiving 1:1 care in the ED. The score provides a measure of overcrowding that can be used to provide an early warning to hospital personnel when overcrowding is worsening. Many hospitals have developed internal response plans to address patient flow based on these overcrowding scores. By managing flow issues early, crowding can be addressed and ambulance offload delays may be minimized.

Report Limitations

This report is based on computerized dispatch and electronic patient care records for 9-1-1 ambulance data from American Medical Response (AMR). AMR provides approximately 90 % of all emergency ambulance transports within the County. The report does not include patient handoff data from Fire ambulance providers, non-emergency ambulance providers or out of county emergency ambulance providers.

Data for patient transfer of care reporting is not available from San Ramon Fire and Moraga Orinda Fire Transport Providers. Transports from these providers may significantly add to the emergency ambulance volume as they provide up to 10% of the emergency ambulance services in the county. In particular San Ramon Regional Medical Center is served almost exclusively by the San Ramon Fire Department is not included in this report while Kaiser Walnut Creek, John Muir Walnut Creek and Contra Costa Regional Center would be most affected by additional transports provided by fire ambulance providers. If fire department transfer of care data becomes available in the future it will be included in this report.

Doctor's Medical Center closed to emergency ambulance traffic on August 7, 2014 and was downgraded to a Stand-by Emergency Department by CDPH Licensing and Accreditation on August 25, 2014. Data collection on ambulance transfer of care stopped on Aug 7, 2014.

AMR Transports in Contra Costa Resulting in Never Events
(> 1 Hour Patient Handoff Time) 8/1/2013 thru 10/31/2014
EMS System Goal: Reduce or Eliminate Patient TOC Never Events

Patient transfer of care delays of 60 minutes or more are considered "never event" within the Contra Costa EMS System. This data reflects the total number of patient transfer of care of an hour or longer.

Number of Never Events by Hospital

Never Events by Facility (>1 Hour Drop Time)	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 10/31/2014)	*Grand Total*
CCRMC	2	12	***14***
CCRMC - PES	6	22	***28***
John Muir - Concord	8	16	***24***
John Muir - Walnut Creek	3	13	***16***
Kaiser - Antioch	4	9	***13***
Kaiser - Richmond	1	13	***14***
Kaiser - Walnut Creek	2	5	***7***
Sutter Delta	36	261	***297***

Never Events Demographics

Never Events (>1 Hour Drop Time) By Patient Gender	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 10/31/2014)	*Grand Total*
Female	32	208	***240***
Male	30	143	***173***

Never Events Demographics Continued

Never Events (>1 Hour Drop Time) By Patient Ethnicity	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 10/31/2014)	*Grand Total*
Asian	2	14	***16***
Black/African American	19	91	***110***
Caucasian	29	176	***205***
Hispanic or Latino	11	45	***56***
Other Race	1	25	***26***

Never Events (>1 Hour Drop Time) By Patient Age	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 10/31/2014)	*Grand Total*
0-9	1	8	***9***
10-19	5	15	***20***
20-29	7	35	***42***
30-39	5	33	***38***
40-49	8	49	***57***
50-59	10	61	***71***
60-69	10	63	***73***
70-79	8	36	***44***
80-89	4	38	***42***
90-100	4	12	***16***
> 100	0	1	***1***

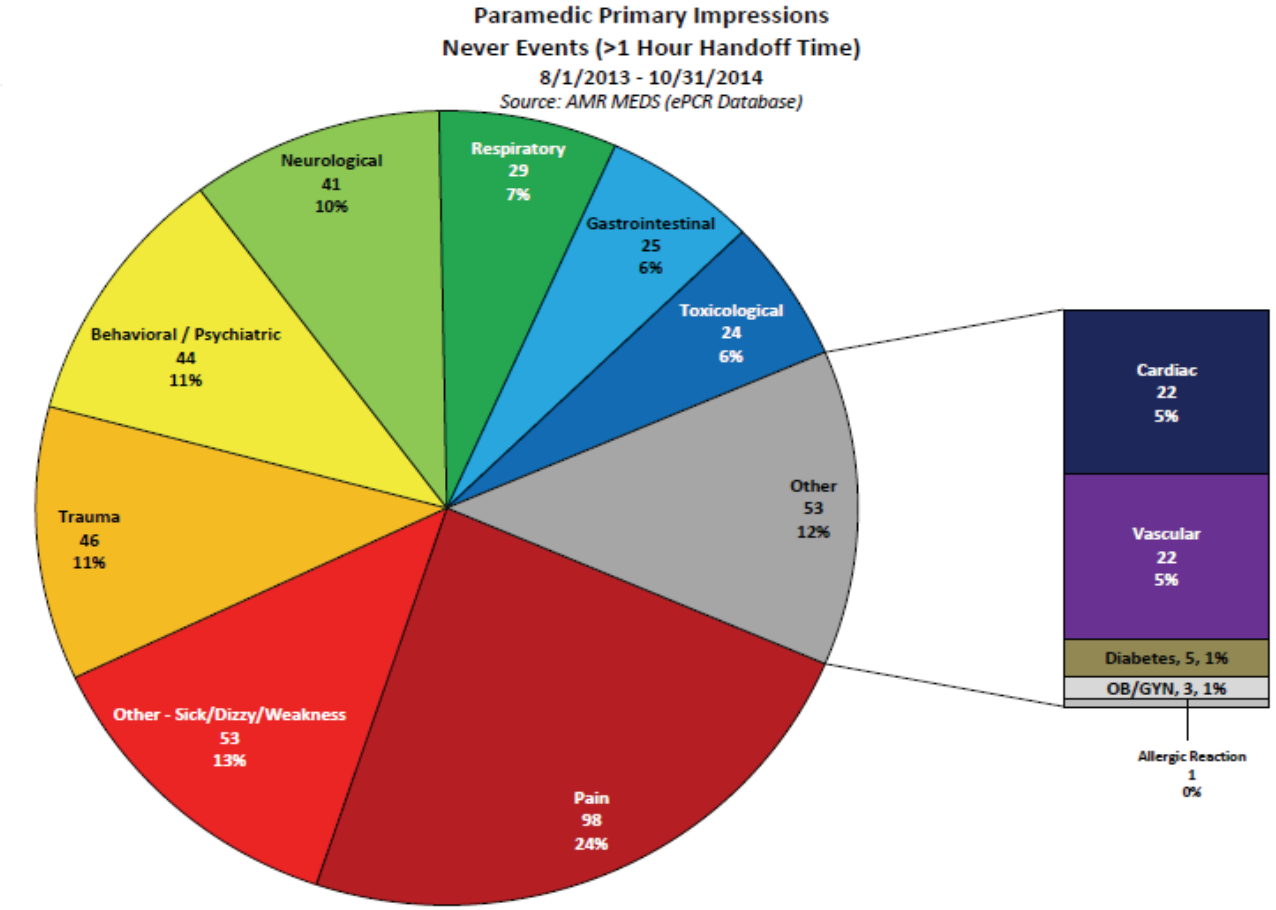
Understanding the Clinical Characteristics of "Never Event" Patients May Assist Hospitals in Identifying At-Risk Populations

Paramedic Primary Impressions Never Events (>1 Hour Drop Time)	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 10/31/2014)	*Grand Total*
Pain	15	83	***98***
Other - Sick/Dizzy/Weakness	11	42	***53***
Trauma	5	41	***46***
Behavioral / Psychiatric	7	37	***44***
Neurological	5	36	***41***
Respiratory	4	25	***29***
Gastrointestinal	5	20	***25***
Toxicological	3	21	***24***
Cardiac	5	17	***22***
Vascular	1	21	***22***
Diabetes	0	5	***5***
OB/GYN	0	3	***3***
Allergic Reaction	1	0	***1***

Many of these conditions may be minor; however no patient should wait more than one hour for EMS/ED transfer of care.
In California, when 9-1-1 is contacted the ambulance provider is required by law to take the patient to an emergency department although up to 60% of all EMS transports are "treat and release" within 24 hours. Future EMS and Hospital partnerships could redirect patients to non 9-1-1 resources and encourage the use of alternative primary or urgent care settings more appropriate for the patient condition. Such options could play an important role in conserving EMS ambulance and Emergency Department resources for the sickest of patients.

“Never Events” Affect a Wide Range of Patient Conditions

Patients with low, moderate or high acuity conditions can experience prolonged patient transfer of care events of greater than an hour. Patients with low acuity conditions may be better served by urgent care or same day appointments. Paramedic primary impressions are not verified clinical diagnoses. Paramedic primary impression categories reflect the field paramedic assessment of the patient prior to the Emergency Department.



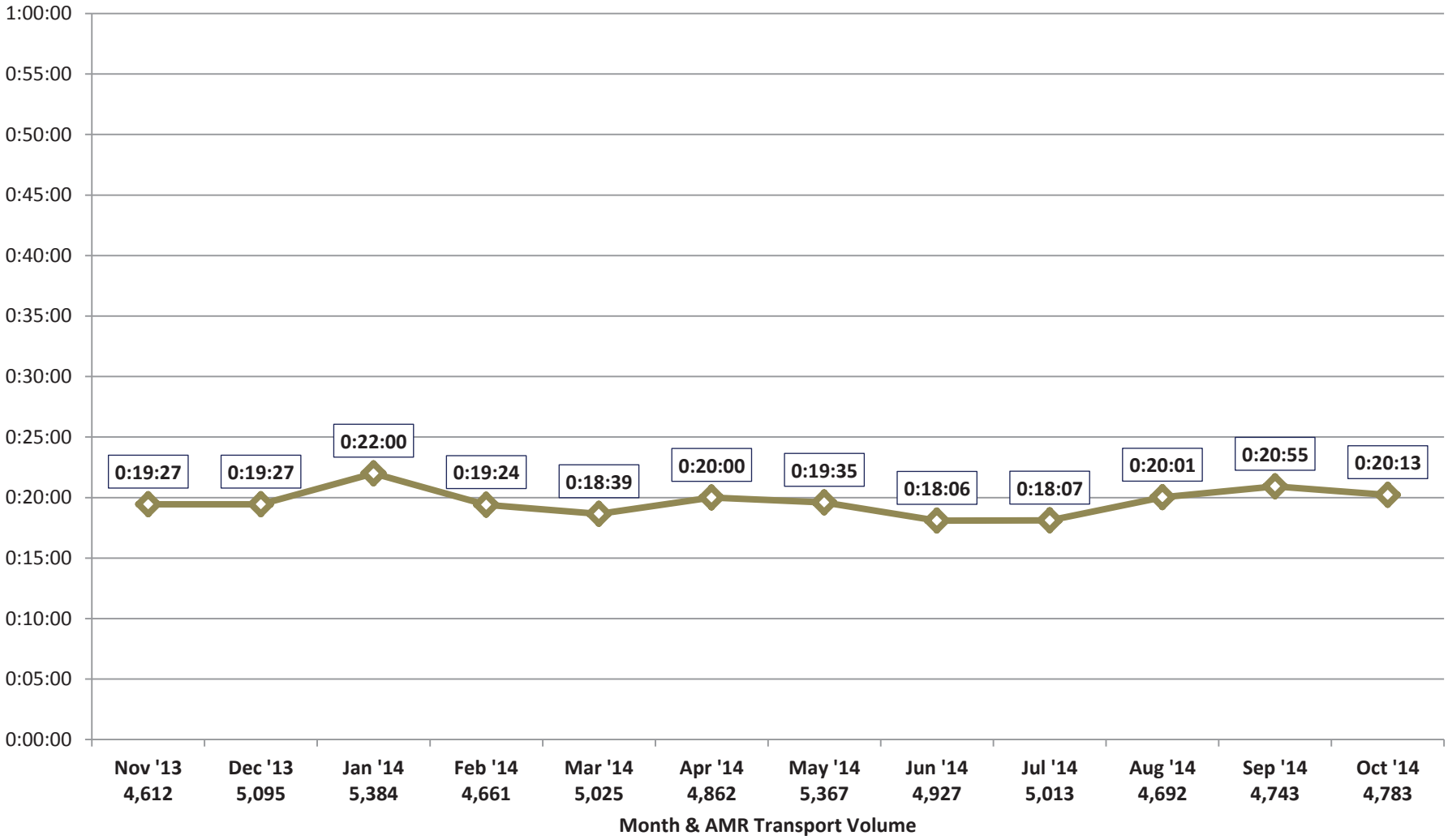
- Trauma “Never Event” data reflect patients who do not have major trauma by paramedic impression

CONTRA COSTA
HEALTH SERVICES

Patient Handoff Times by Facility
90th PERCENTILE OF ALL FACILITIES
November 2013 - October 2014

59,164 Transports (4,930 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

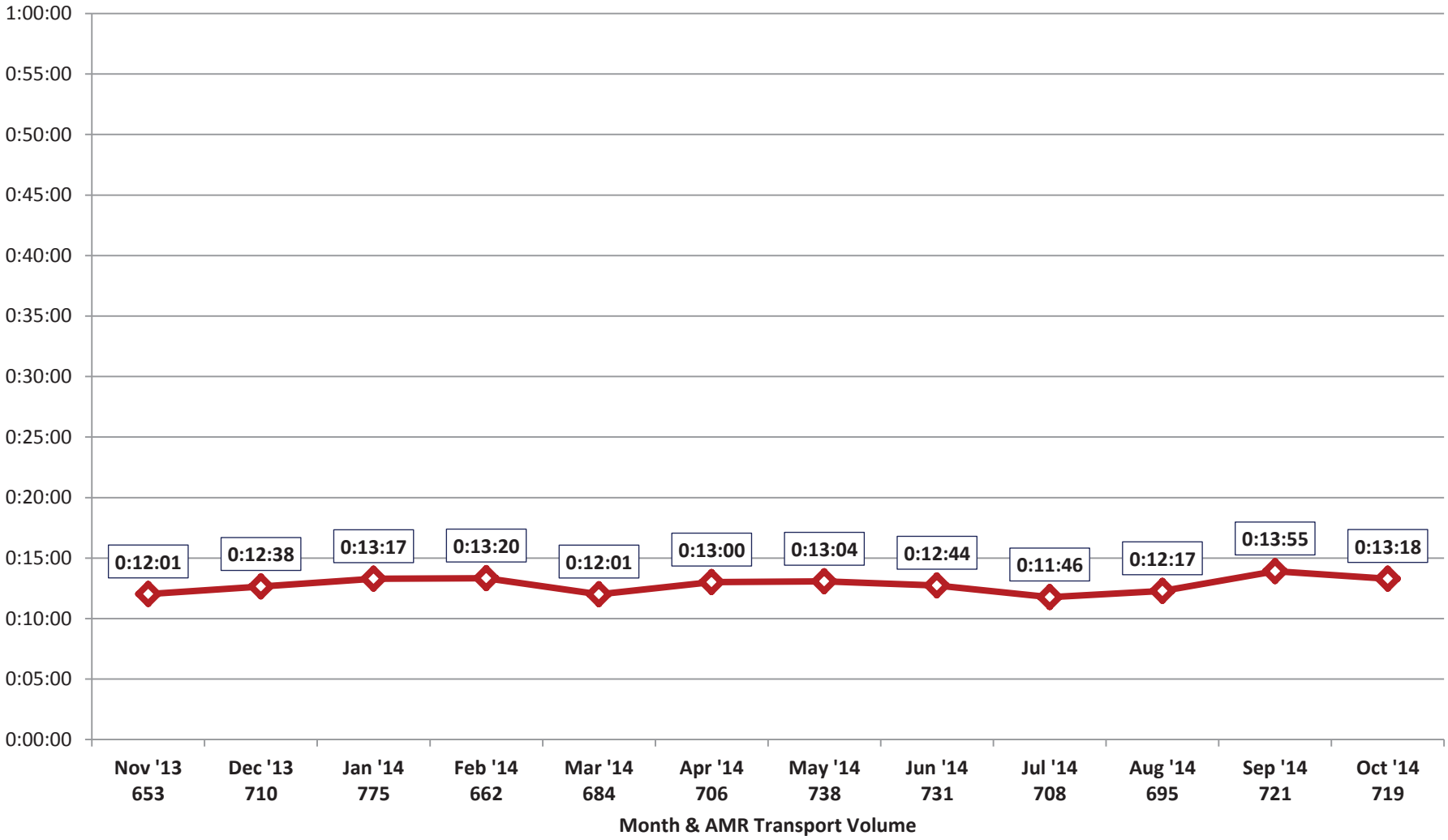
Patient Handoff Times by Facility (90th Percentile)

John Muir - Concord

November 2013 - October 2014

8,502 Total Transports (709 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

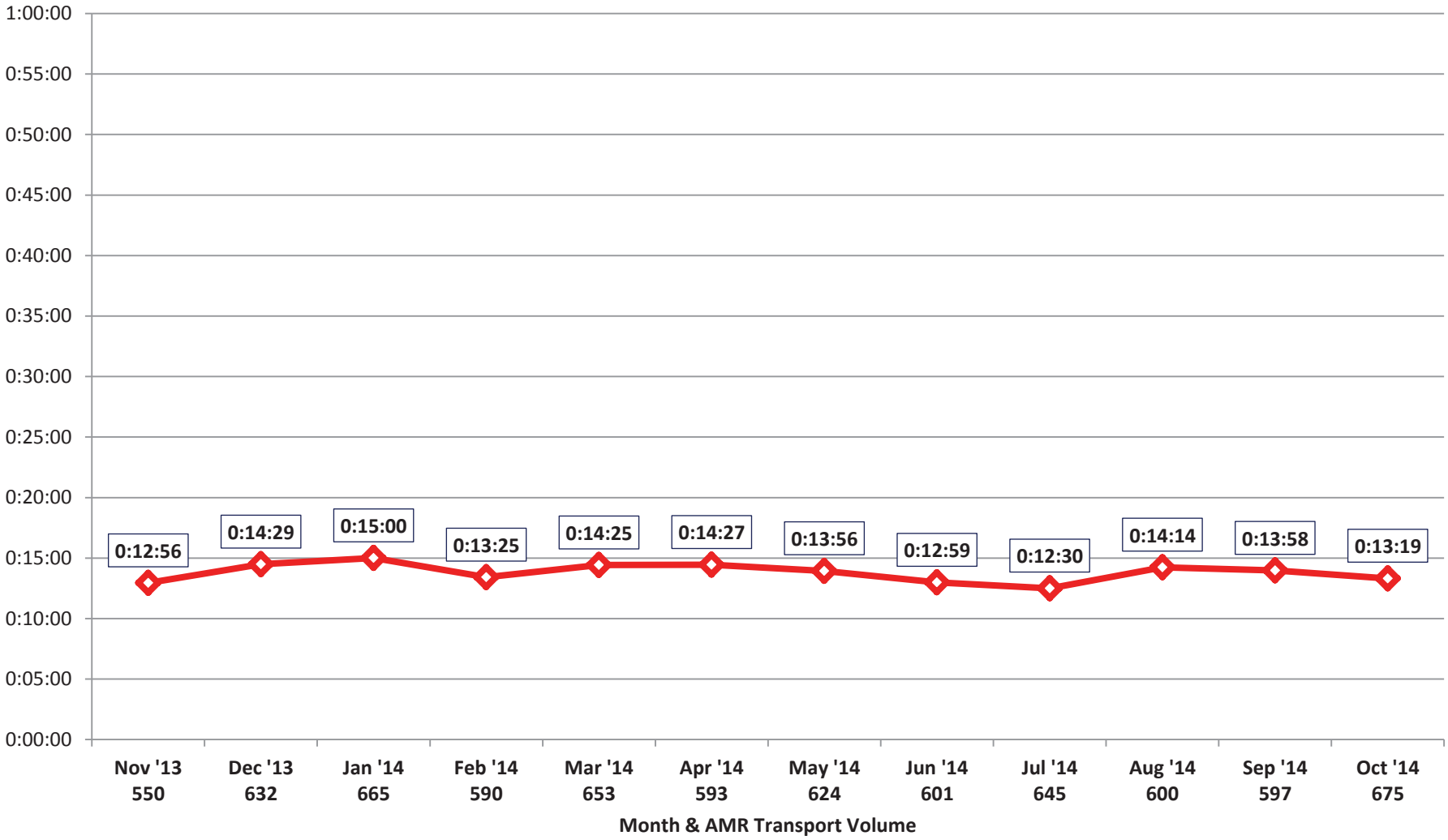
Patient Handoff Times by Facility (90th Percentile)

John Muir - Walnut Creek

November 2013 - October 2014

7,425 Total Transports (619 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

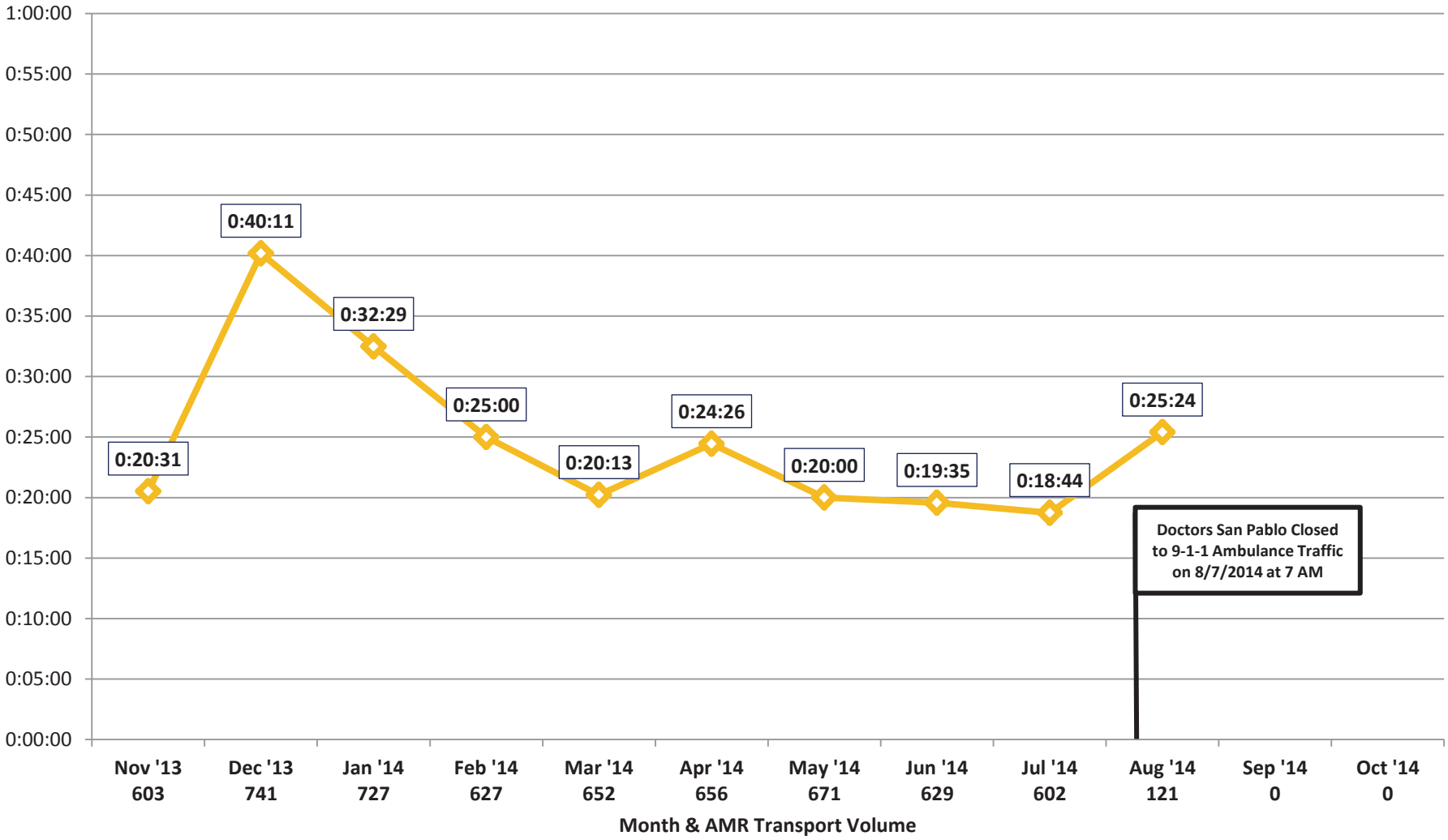
Patient Handoff Times by Facility (90th Percentile)

Doctors San Pablo

November 2013 - October 2014

6,029 Total Transports (502 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

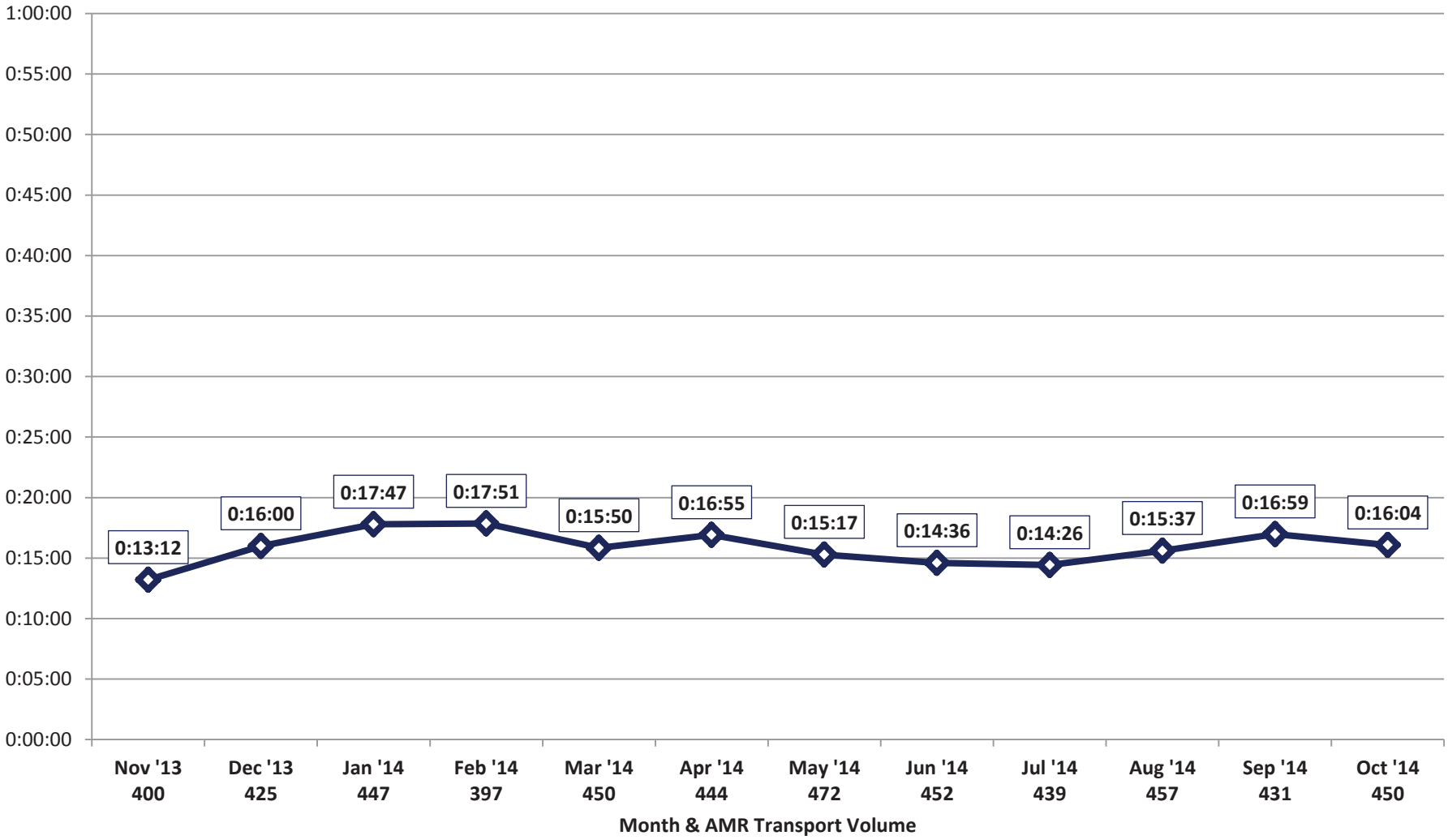
Patient Handoff Times by Facility (90th Percentile)

Kaiser - Antioch

November 2013 - October 2014

5,264 Total Transports (439 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

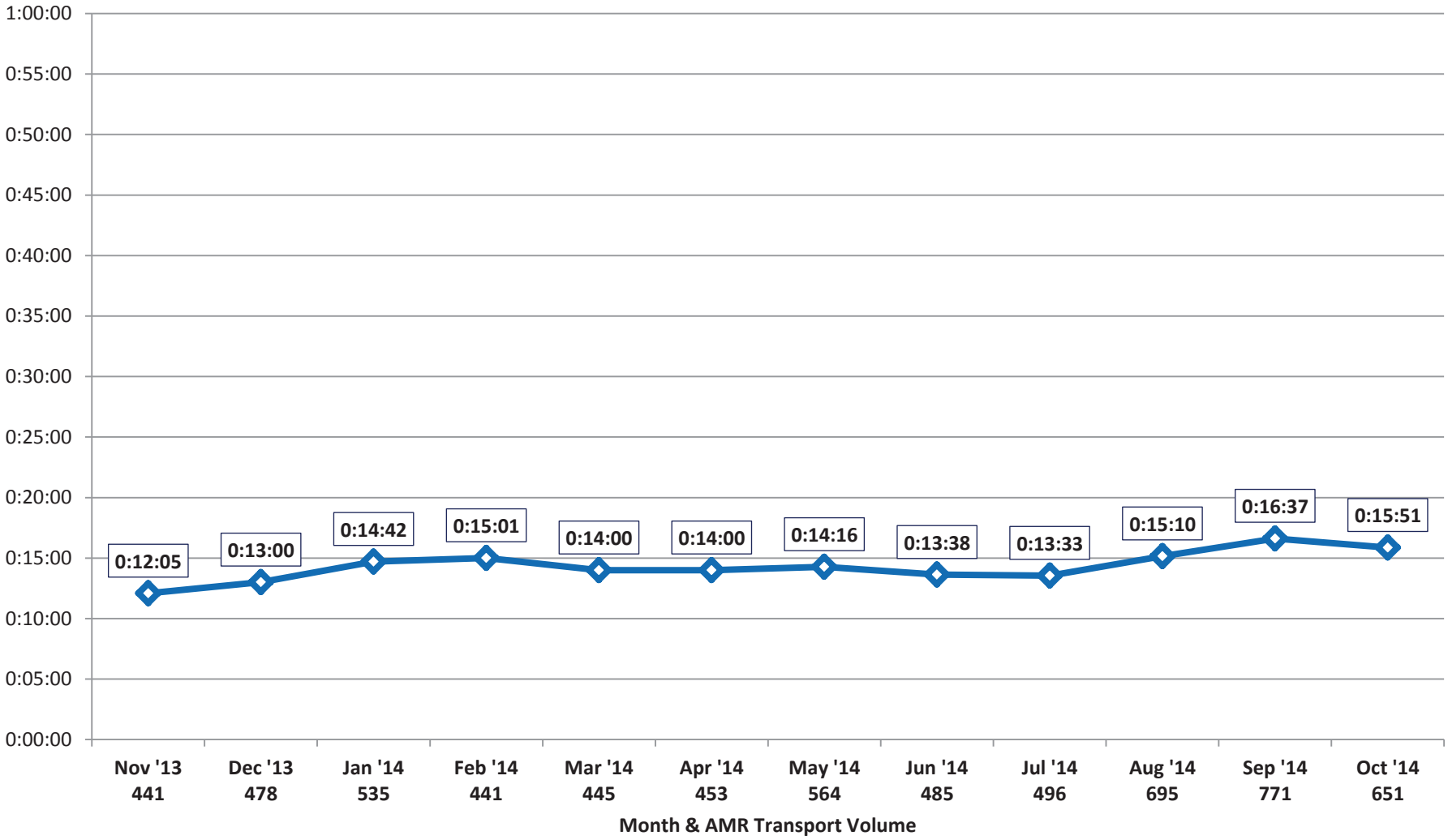
Patient Handoff Times by Facility (90th Percentile)

Kaiser - Richmond

November 2013 - October 2014

6,455 Total Transports (538 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

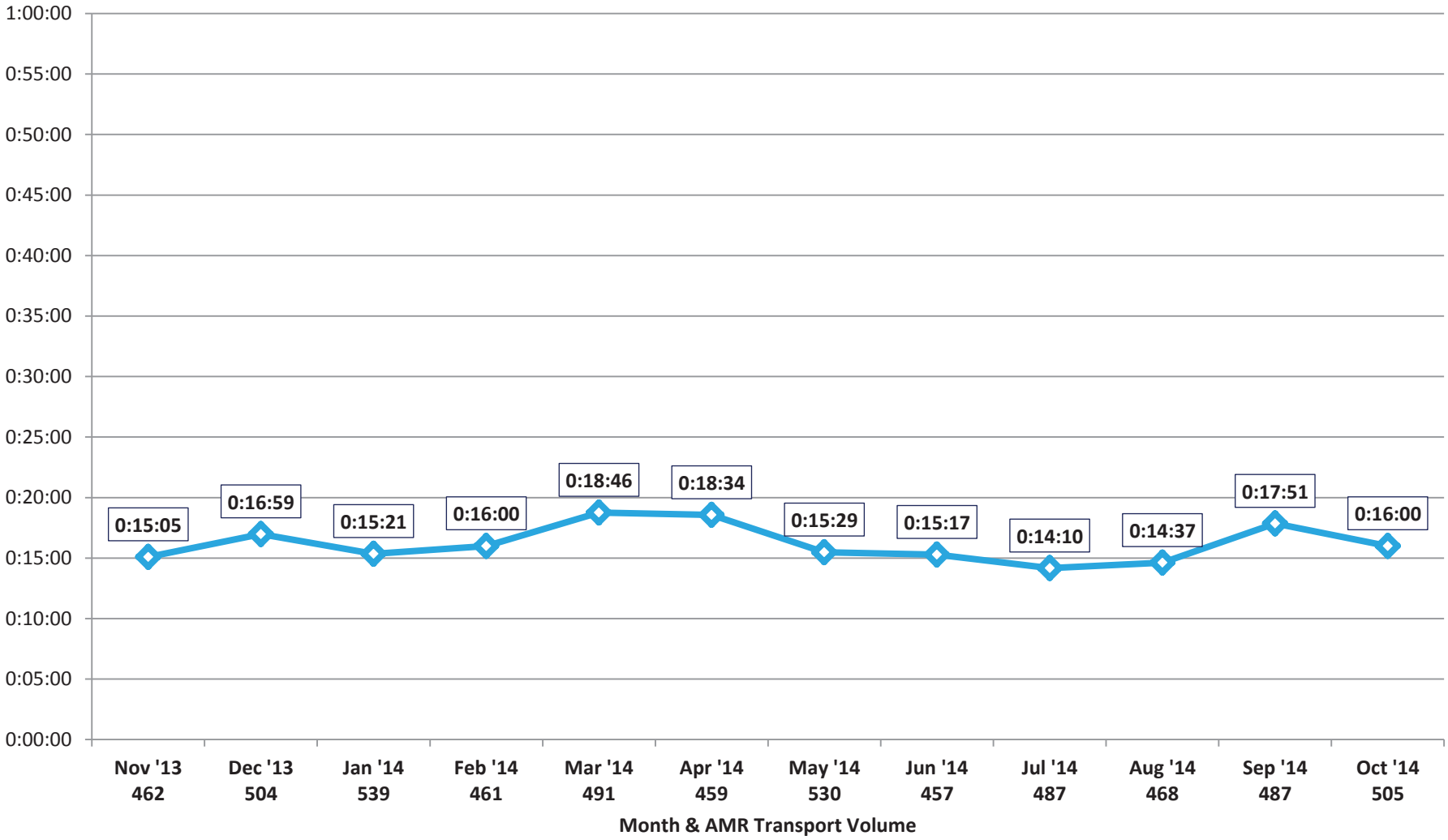
Patient Handoff Times by Facility (90th Percentile)

Kaiser - Walnut Creek

November 2013 - October 2014

5,850 Total Transports (488 per Month)

Source: AMR MEDS (ePCR Database)

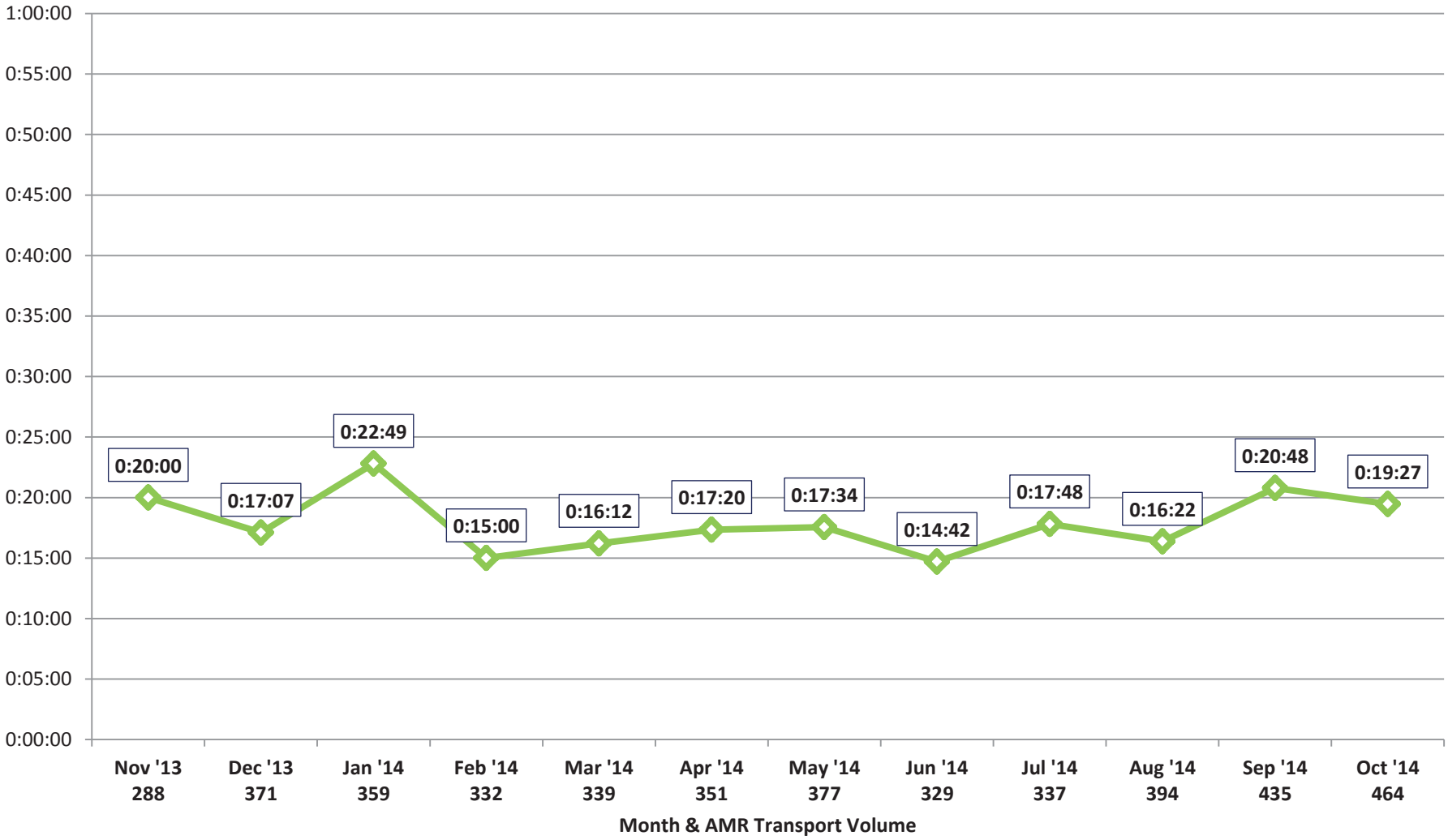


CONTRA COSTA HEALTH SERVICES

Patient Handoff Times by Facility (90th Percentile)
Contra Costa Regional Medical Center
November 2013 - October 2014

4,376 Total Transports (365 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

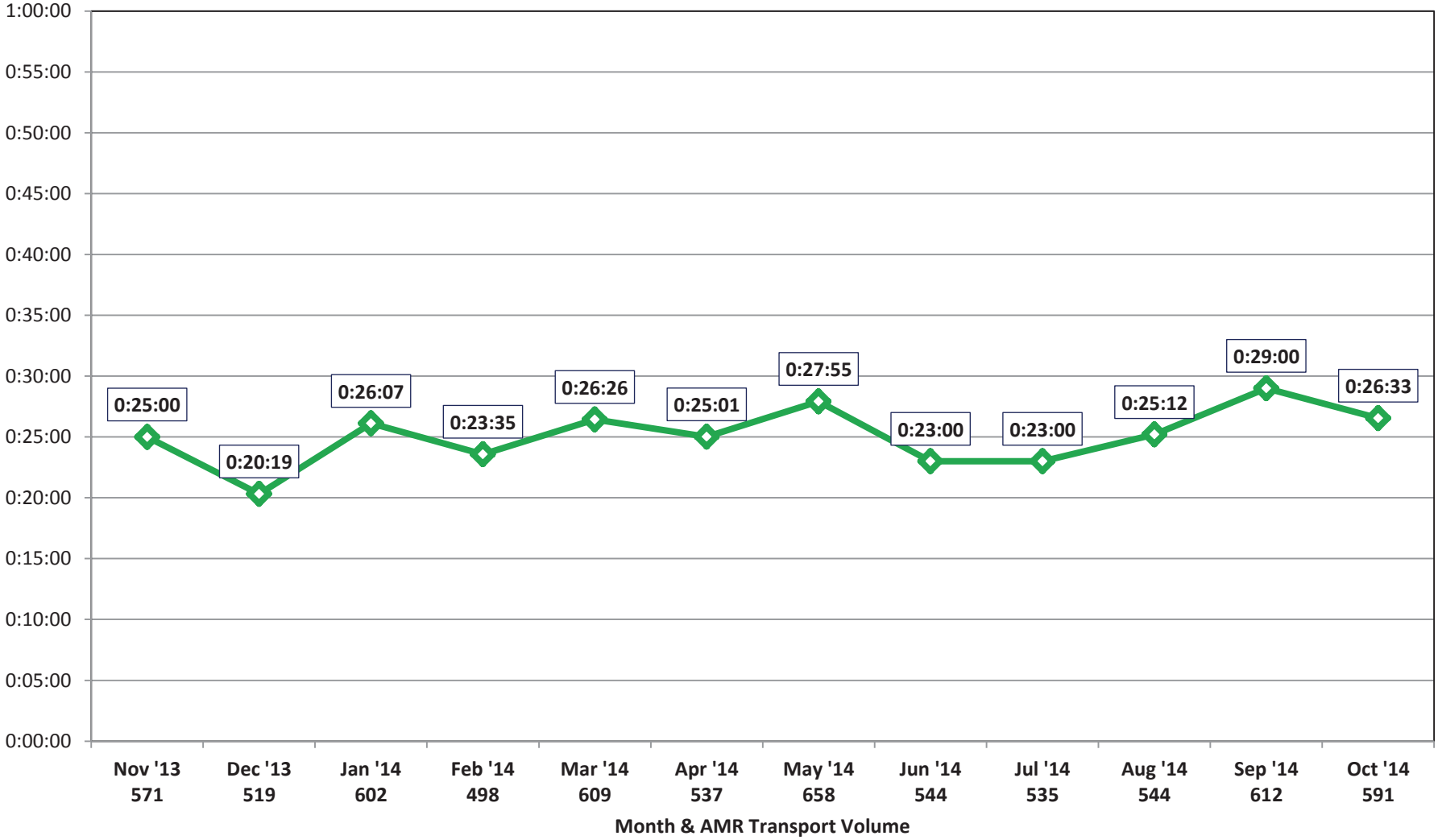
Patient Handoff Times by Facility (90th Percentile)

CCRMC - PES

November 2013 - October 2014

6,820 Total Transports (568 per Month)

Source: AMR MEDS (ePCR Database)



CONTRA COSTA HEALTH SERVICES

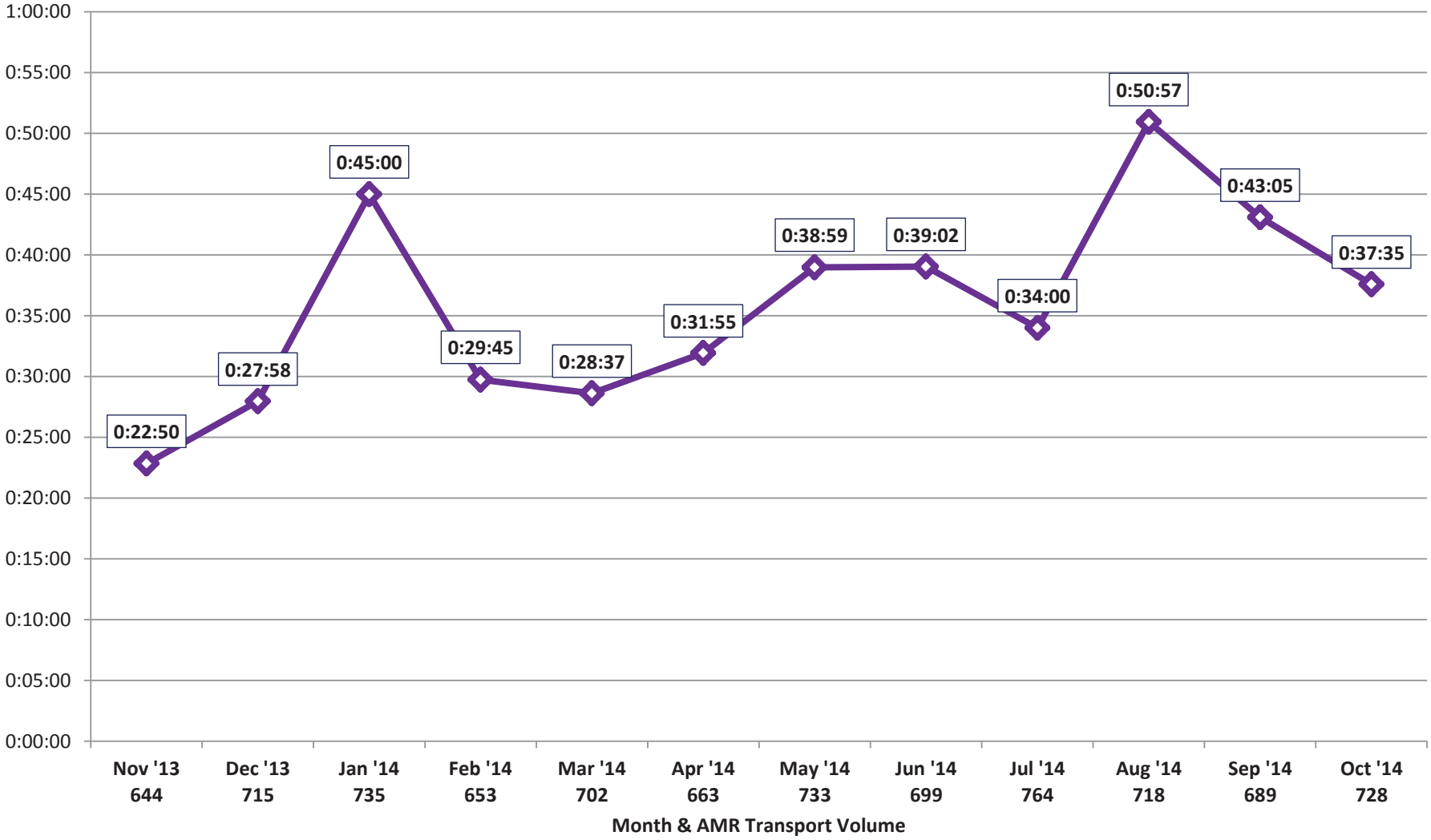
Patient Handoff Times by Facility (90th Percentile)

Sutter Delta Medical Center

November 2013 - October 2014

8,443 Total Transports (704 per Month)

Source: AMR MEDS (ePCR Database)

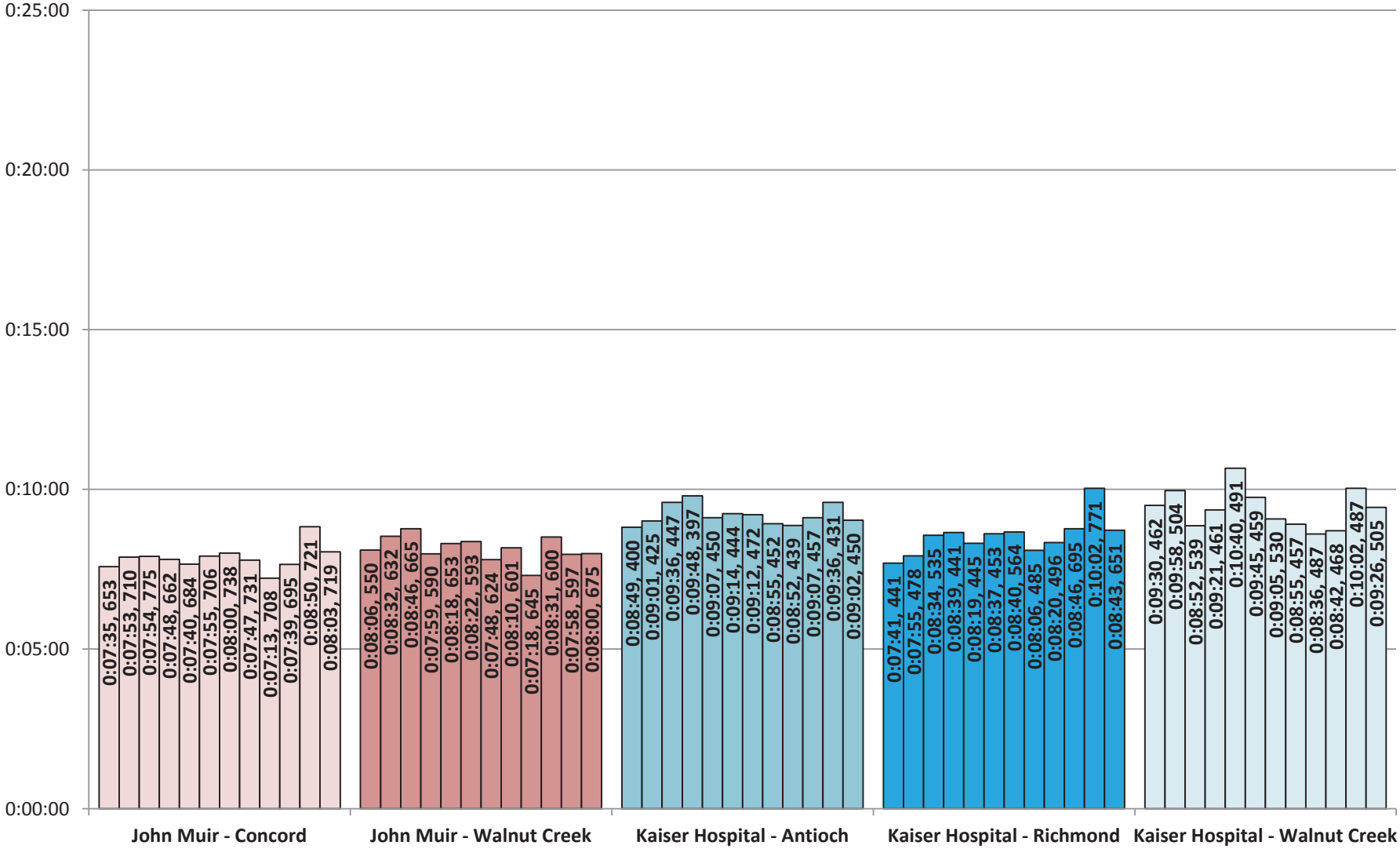


CONTRA COSTA HEALTH SERVICES

Patient Handoff Times by Facility
November 2013 - October 2014 by Month

33,496 Total Transports

Source: AMR MEDS (ePCR Database)

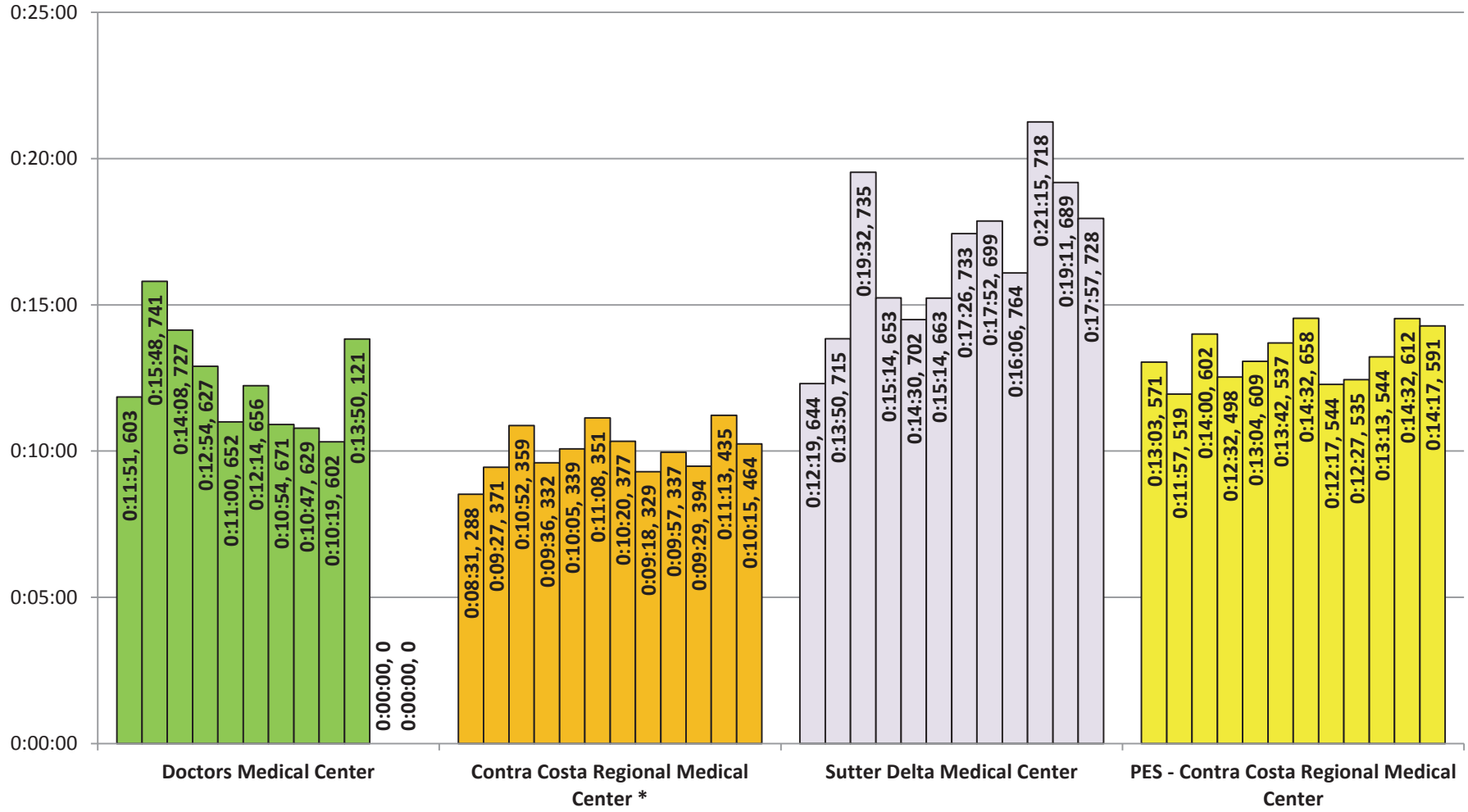


CONTRA COSTA HEALTH SERVICES

Patient Handoff Times by Facility
November 2013 - October 2014 by Month

25,668 Total Transports

Source: AMR MEDS (ePCR Database)



**Note: CCRMC data may include patients who were actually taken to PES. Contra Costa EMS is working to more accurately identify whether patients were taken to CCRMC ED or PES.*