



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

**Prepared by:**

**Contra Costa Emergency  
Medical Services**

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**7/15/2015**

# Contra Costa Emergency Medical Services (EMS) System Performance Expectation

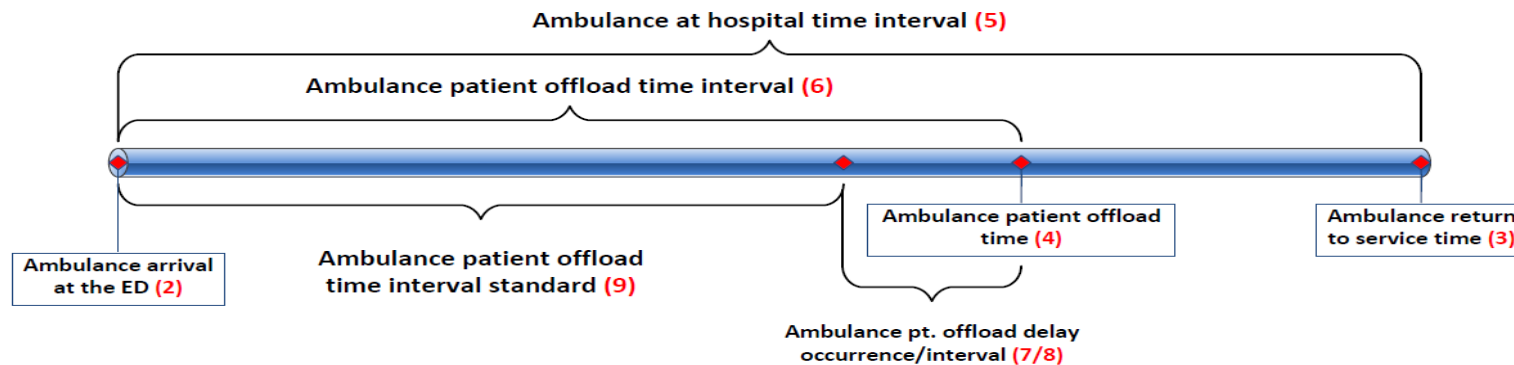
*EMS Policy #40: Hospitals designated as an EMS receiving facility in Contra Costa County shall be prepared to receive patients transported by 9-1-1 county ambulance providers and accept these patients upon arrival. The patient transfer of care performance expectation for the EMS System is 20 minute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

## Countywide Hospital Performance (June 2014 to May 2015)

90 <sup>th</sup> Percentile of All Facilities <sup>1</sup>
Patient Transfer of Care occurs between 18 to 26 minutes 9 out of 10 times

### Description of Patient Transfer of Care (TOC)

EMS patient transfer of care is known to improve the availability of 9-1-1 ambulances and patient safety. 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.



<sup>1</sup> 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. During 2014 Contra Costa County Community Hospitals received 11-19 percent of their patients via EMS with vast majority of all emergency department patients transporting themselves to a local emergency department for primarily urgent and sometimes routine medical care. In 2014 there were 2,379 **less** EMS transports to Contra Costa Hospitals. Typically 10 % of ALL emergency department patients require admission while patients brought in by EMS admission rates can be as high as 40% due to their medical condition. During 2014 overall emergency department admission rates (walk in and EMS combined) averaged between 13 to 14% in Contra Costa. Although ED crowding is a statewide and national problem patients transported by EMS are not the cause.

County Wide Emergency Department Capacity and Utilization	ED BEDS	OSHPD TOTAL REPORTED ED VISITS 2014	OSHPD ED VOLUME PER ED BED 2014 <sup>2</sup>	TOTAL EMS TRANSPORTS 2014 (All Contra Costa County Transports) <sup>3</sup>	PERCENT OF EMS TRANSPORTS BY TOTAL ED VISITS 2014	DAILY AVERAGE 2014 (All Contra Costa EMS Transports)
Contra Costa Regional Medical Center <sup>4</sup>	20	56,920	2846	10,538	19%	29
Doctors Medical Center <sup>5</sup>	25	35,717	1429	4,224	12%	12
John Muir-CONCORD	32	52,747	1648	9,345	18%	26
John Muir-WALNUT CREEK	47	45,406	966	8,008	18%	22
KAISER ANTIOCH	34	45,922	1351	5,259	11%	14
KAISER RICHMOND	15	50,303	3354	6,289	13%	17
KAISER WALNUT CREEK	52	55,128	1060	6,907	13%	19
SAN RAMON REGIONAL	12	17,230	1436	2,021	12%	6
SUTTER DELTA	32	48,630	1520	8,433	17%	23
<b>TOTAL<sup>6</sup></b>	<b>269</b>	<b>408,003</b>	<b>1517</b>	<b>61,024</b>	<b>15%</b>	<b>167</b>

<sup>2</sup> The American College of Emergency Physicians (ACEP) recommended standard is one emergency department treatment station (bed) for 2000 visits

<sup>3</sup> This data includes all Contra Costa emergency ambulance transport data for San Ramon Fire and Moraga Orinda Fire Departments and AMR.

<sup>4</sup> Includes Contra Costa Regional Psychiatric Emergency Patient Volume

<sup>5</sup> Doctors Medical Center Closed to EMS Traffic on August 7, 2014 and the Hospital Closed on April 21, 2015.

<sup>6</sup> EMS Transport totals do not include transports to out of county hospitals. 28% of West County EMS transports go to Hospitals outside Contra Costa County.

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

Contra Costa Emergency Medical Services (EMS) recognizes the challenges that many hospital emergency departments face managing the increase in patient volume associated with many citizens using the Emergency Department (ED) for primary and urgent care. However, delays in the timely transfer of care of patients<sup>7</sup>, 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:

- Approximately 10% of all 9-1-1 patients in Contra Costa experience some level of transfer of care delays when they arrive at the hospital.
- Delays of greater than one hour are considered **“Never Events”** within the Contra Costa EMS system because they are **“preventable”**.
- In 2014 **“Never Events”** affected some 401 patients of all ages at a rate of 5.24 times for every 100 patients.
- When delays of more than 30 minutes occur, efforts by ED staff closest to the patient need to occur to prevent further delays in patient care.
- When two or more emergency ambulances experience delays greater than 30 minutes (known as stacking) a community’s 9-1-1 ambulance response may be adversely affected.
- 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.

The Institute of Medicine, National Quality Forum, Centers for Medicare & Medicaid Services, National Association of EMS Physicians and the California Hospital Association/Emergency Medical Services Authority Ambulance Patient Offload Delay Collaborative all recommend establishing benchmarks, metrics and engaging in data sharing to support patient safety between EMS System stakeholders.

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<sup>7</sup> Delays in timely transfer of care are also known as “offload” or patient “handoff” delays.

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 were established after 4 years of EMS System stakeholder participation. Beginning in January 1<sup>st</sup>, 2015, EMS began to post public reports at [www.cccems.org](http://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](http://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 can be minimized or eliminated.

## **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. As fire department ambulance 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. Data collection on ambulance transfer of care stopped on Aug 7, 2014. On April 21, 2015 the hospital closed all emergency department, inpatient and outpatient services.

## AMR Transports in Contra Costa Resulting in Never Events (> 1 Hour Patient Handoff Time) during 2014 and 2015 YTD 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)	2014 Never Events Grand Total	2014 Total Number of EMS Transports Received	Never Event Rate per 100 Transports	Average Number of Daily CCEMS Transports	Never Events 2015 YTD (1/1/2015-5/31/2015)
CCRMC	15	6,694	0.22	18	26
CCRMC - PES	34	4,796	0.71	13	22
John Muir - Concord	19	9,345	0.20	26	2
John Muir - Walnut Creek	17	8,008	0.21	22	11
Kaiser - Antioch	10	5,259	0.19	14	10
Kaiser - Richmond	13	6,289	0.21	17	3
San Ramon <sup>8</sup>	0	2,021	0.00	6	0
Kaiser - Walnut Creek	8	6,907	0.12	19	13
Sutter Delta	285	8,433	3.38	23	169
<b>Total</b>	<b>401</b>	<b>57,752</b>	<b>5.24</b>	<b>158</b>	<b>256</b>

<sup>8</sup> Limited to AMR data, San Ramon Fire never event data not available.



## Never Events Demographics

Never Events (>1 Hour Drop Time) By Patient Gender	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 12/31/2014)	2015 (1/1/2015- 5/31/2015)	<i>Grand Total</i>
Female	32	235	144	<b>411</b>
Male	30	166	112	<b>308</b>

Never Events (>1 Hour Drop Time) By Patient Ethnicity	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 12/31/2014)	2015 (1/1/2015- 5/31/2015)	<i>Grand Total</i>
Asian	2	17	10	<b>29</b>
Black/African American	19	106	66	<b>191</b>
Caucasian	29	200	121	<b>350</b>
Hispanic or Latino	11	49	40	<b>100</b>
Other Race	1	29	19	<b>49</b>

Never Events (>1 Hour Drop Time) By Patient Age	2013 (8/1/2013 - 12/31/2013)	2014 (1/1/2014 - 12/31/2014)	2015 (1/1/2015- 5/31/2015)	<i>Grand Total</i>
0-9	1	9	5	<b>15</b>
10-19	5	21	9	<b>35</b>
20-29	7	41	33	<b>81</b>
30-39	5	37	32	<b>74</b>
40-49	8	58	31	<b>97</b>
50-59	10	65	42	<b>117</b>
60-69	10	70	39	<b>119</b>
70-79	8	41	27	<b>76</b>
80-89	4	42	25	<b>71</b>
90-100	4	16	13	<b>33</b>
> 100	0	1	0	<b>1</b>

## 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 - 12/31/2014)	2015 (1/1/2015- 5/31/2015)	Grand Total
Pain	15	96	40	<b>151</b>
Other - Sick/Dizzy/Weakness	11	50	22	<b>83</b>
Trauma	5	45	16	<b>66</b>
Behavioral / Psychiatric	7	51	25	<b>83</b>
Neurological	5	36	15	<b>56</b>
Respiratory	4	26	12	<b>42</b>
Gastrointestinal	5	24	15	<b>44</b>
Toxicological	3	25	14	<b>42</b>
Cardiac	5	17	14	<b>36</b>
Vascular	1	23	12	<b>36</b>
Diabetes	0	5	2	<b>7</b>
OB/GYN	0	3	1	<b>4</b>
Allergic Reaction	1	0	1	<b>2</b>

**Many of these conditions may be minor; however no patient should wait more than one hour for EMS/ED transfer of care.**

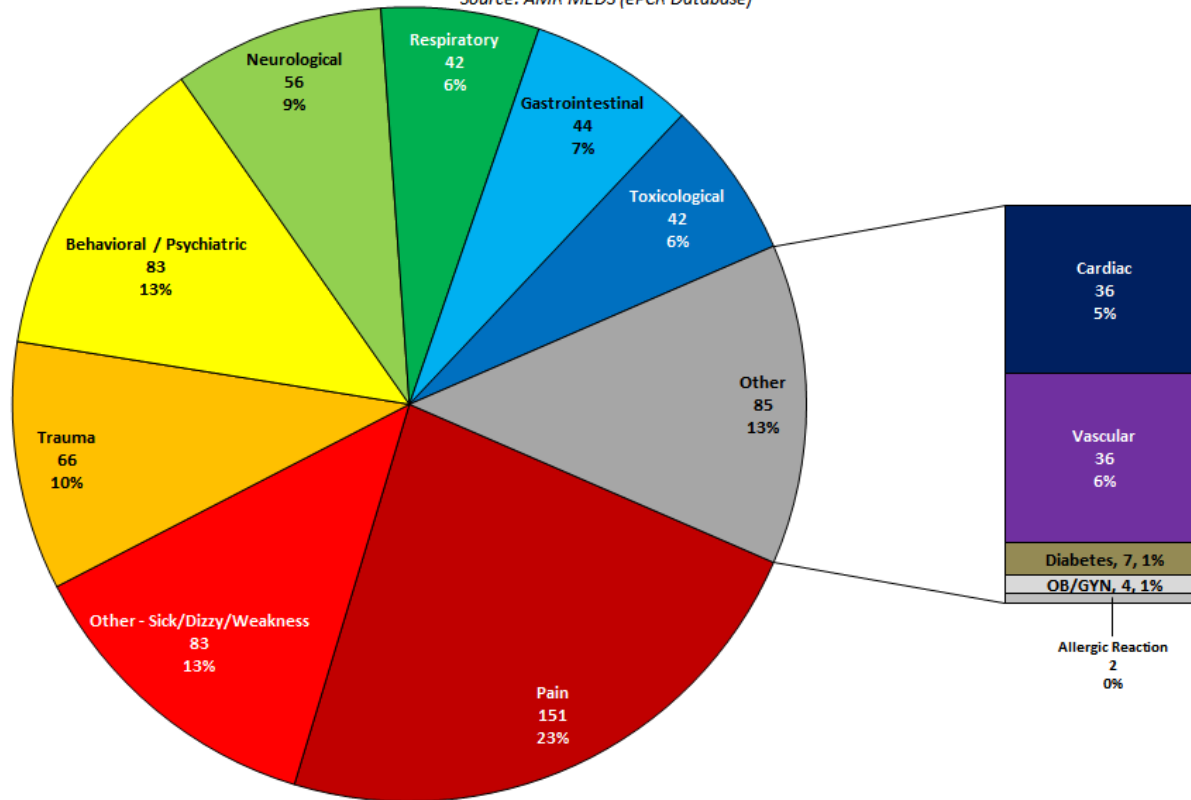
In California, when 9-1-1 is contacted the ambulance provider is required by law to take the patient to an emergency department although up to 60% of all EMS transports are “treat and release” within 24 hours. Future EMS and Hospital partnerships could redirect patients to non 9-1-1 resources and encourage 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.



**Paramedic Primary Impressions  
Never Events (>1 Hour Handoff Time)  
8/1/2013 - 5/31/2015**  
*Source: AMR MEDS (ePCR Database)*



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

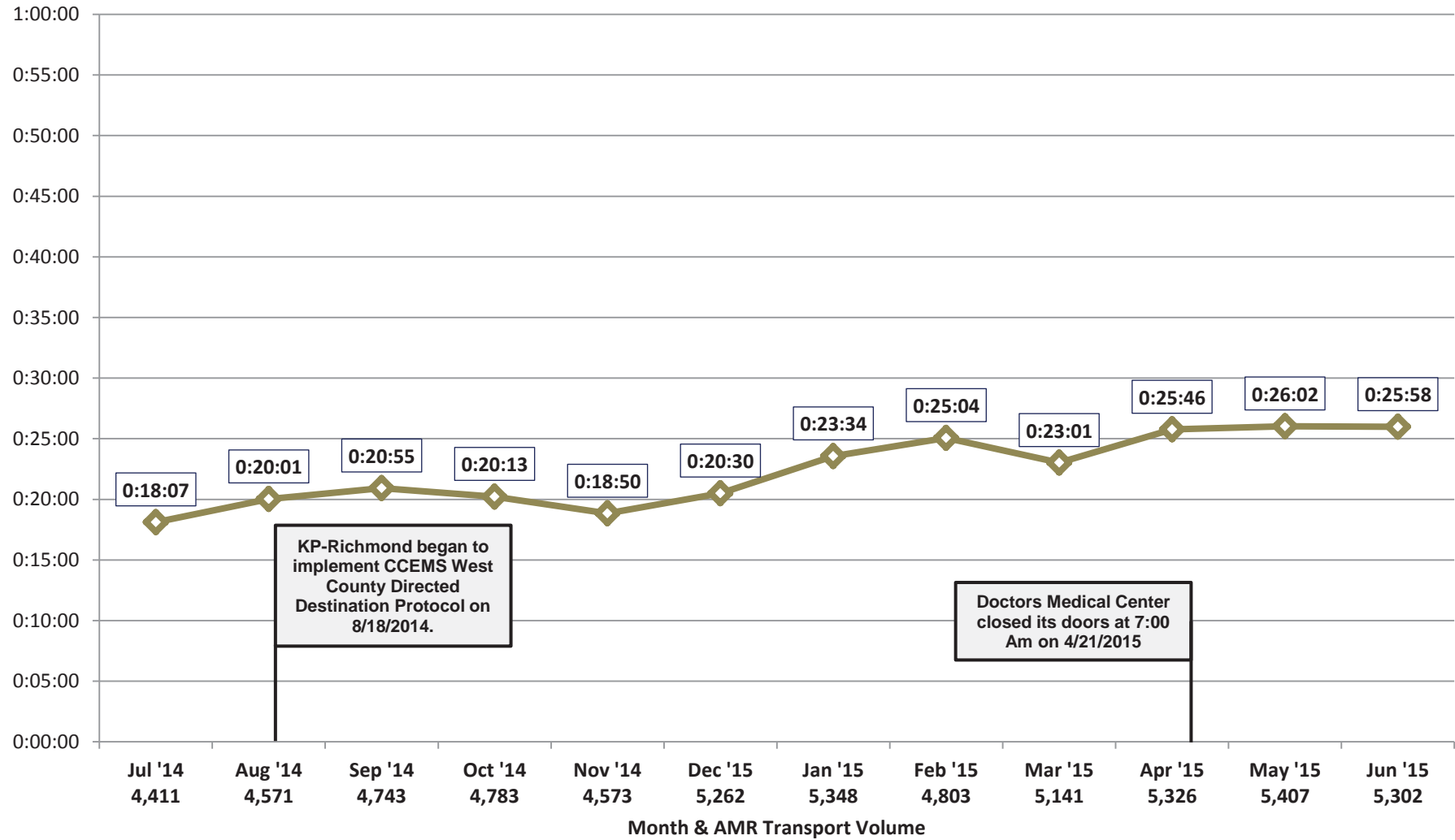


## Patient Handoff Times by Facility 90th PERCENTILE OF ALL FACILITIES

July 2014 - June 2015

59,670 Transports (4,973 per Month)

Source: AMR MEDS (ePCR Database)



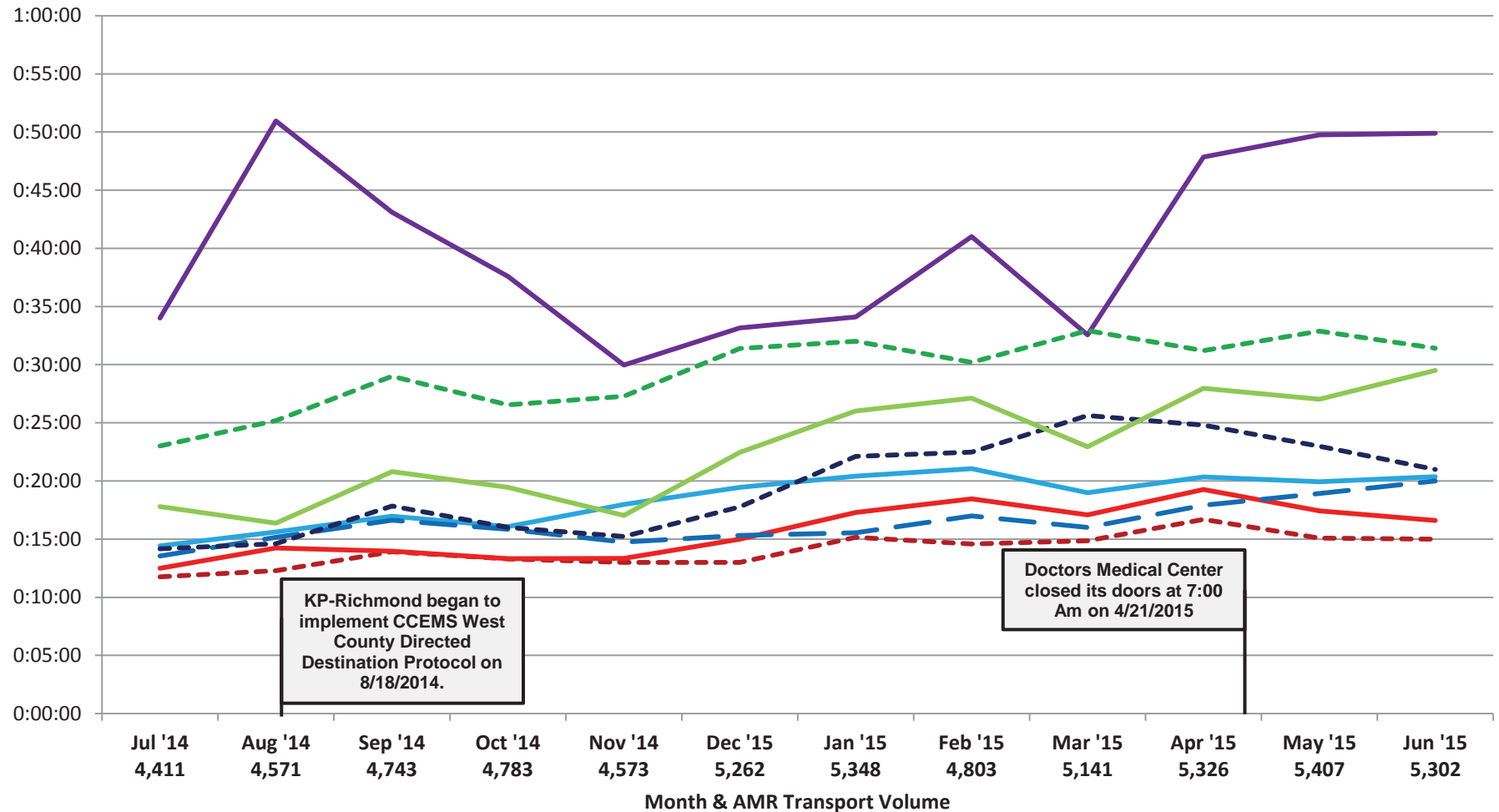


# Patient Handoff Times by Facility (90th Percentile)

July 2014 - June 2015

Source: AMR MEDS (ePCR Database)

- - - John Muir - Concord
- John Muir - Walnut Creek
- Kaiser Hospital - Antioch
- · - Kaiser Hospital - Richmond
- - - Kaiser Hospital - Walnut Creek
- Contra Costa Regional Medical Center
- Sutter Delta Medical Center
- - - PES - Contra Costa Regional Medical Center





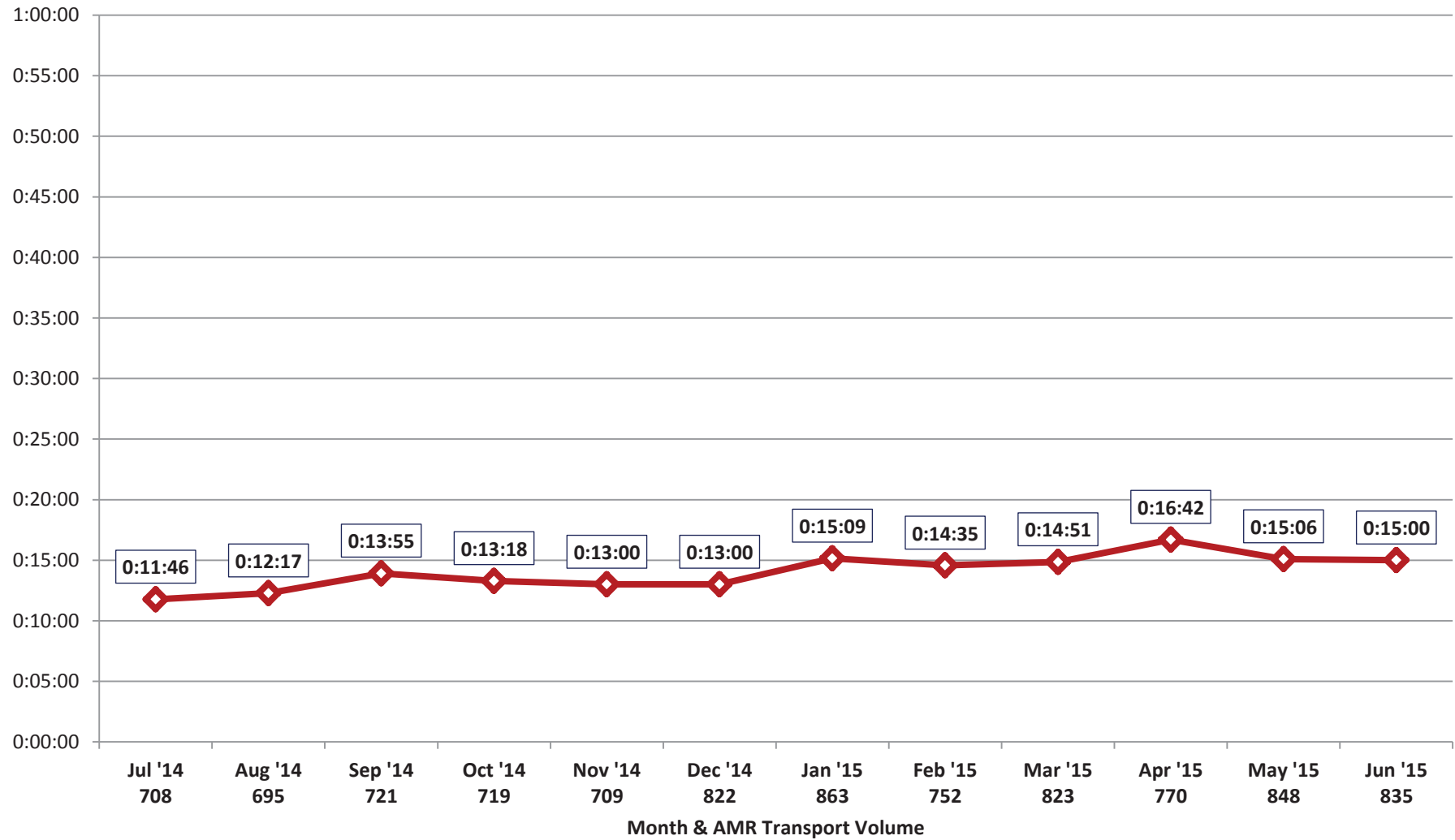
## Patient Handoff Times by Facility (90th Percentile)

### John Muir - Concord

July 2014 - June 2015

9,265 Total Transports (772 per Month)

Source: AMR MEDS (ePCR Database)





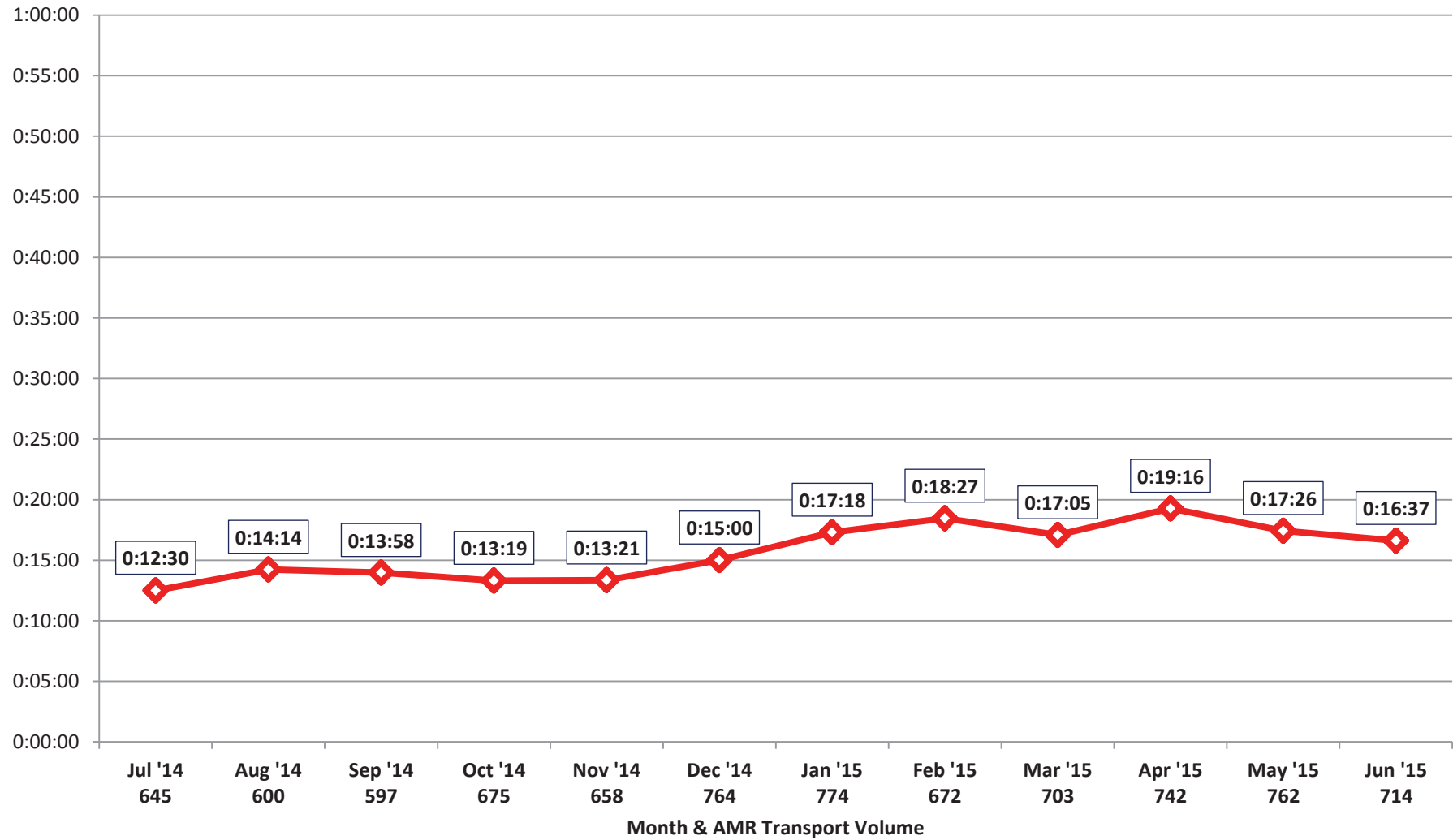
## Patient Handoff Times by Facility (90th Percentile)

### John Muir - Walnut Creek

July 2014 - June 2015

8,306 Total Transports (692 per Month)

Source: AMR MEDS (ePCR Database)





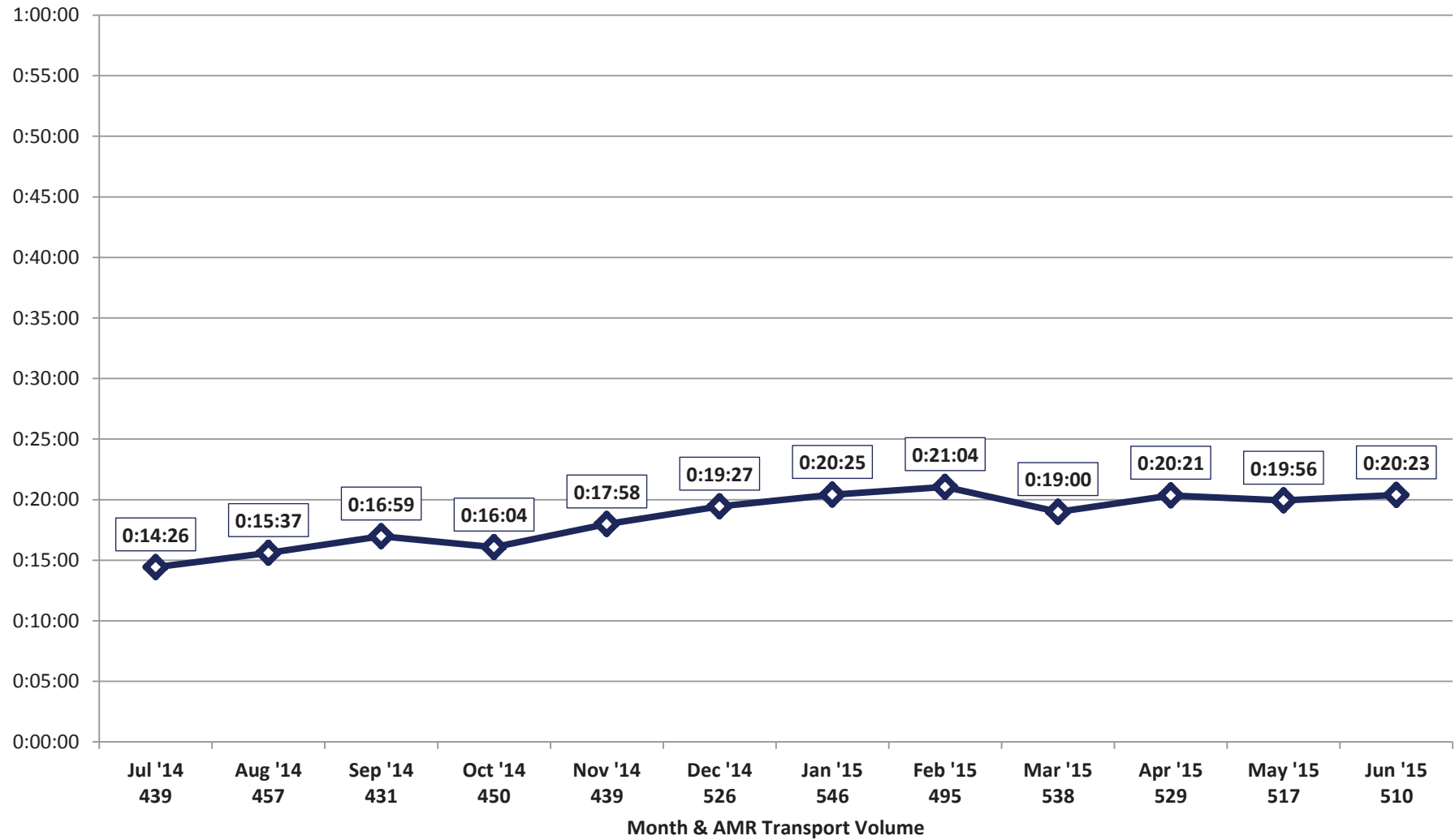
## Patient Handoff Times by Facility (90th Percentile)

### Kaiser - Antioch

July 2014 - June 2015

5,877 Total Transports (490 per Month)

Source: AMR MEDS (ePCR Database)







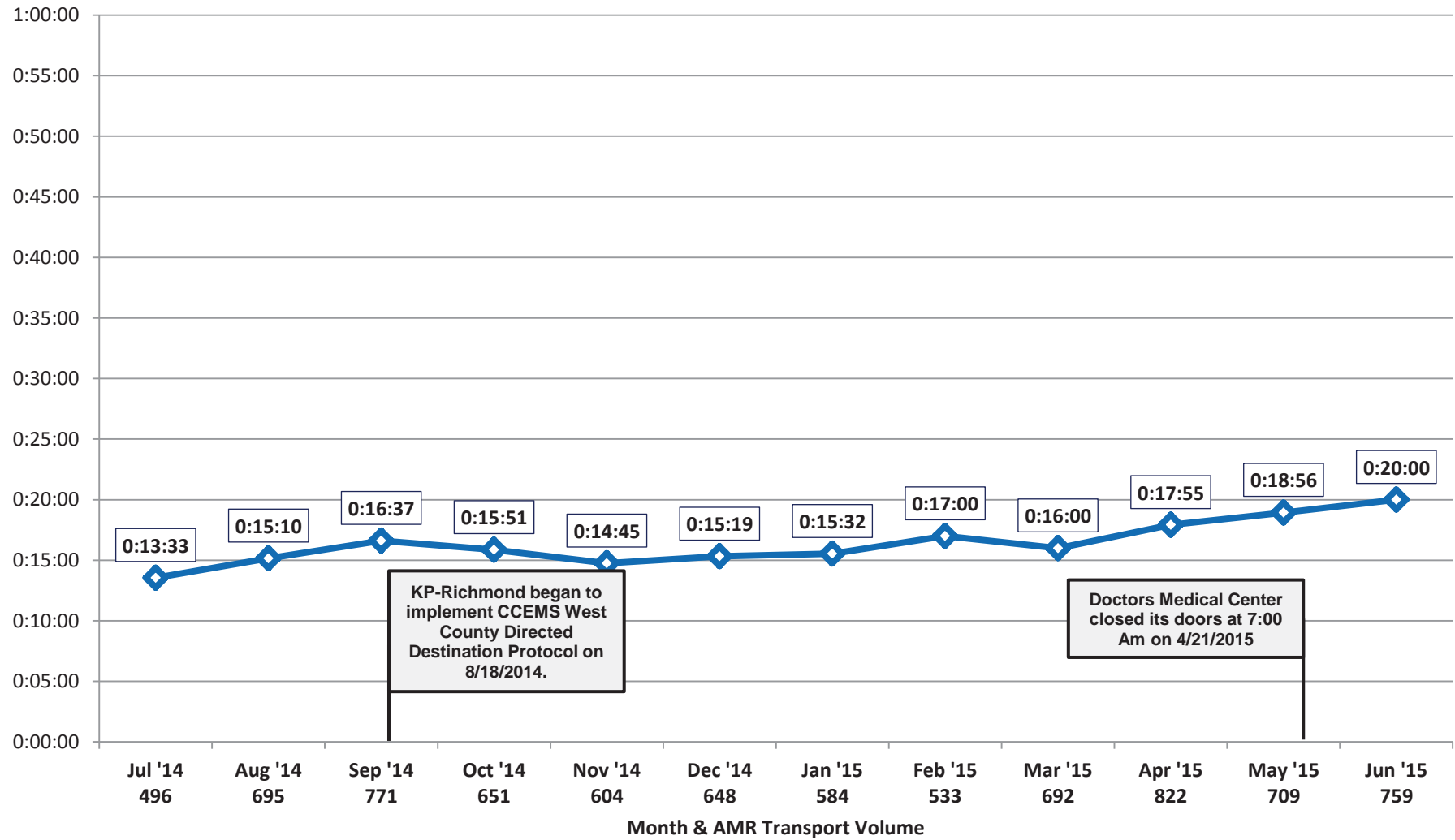
# Patient Handoff Times by Facility (90th Percentile)

## Kaiser - Richmond

July 2014 - June 2015

7,964 Total Transports (664 per Month)

Source: AMR MEDS (ePCR Database)





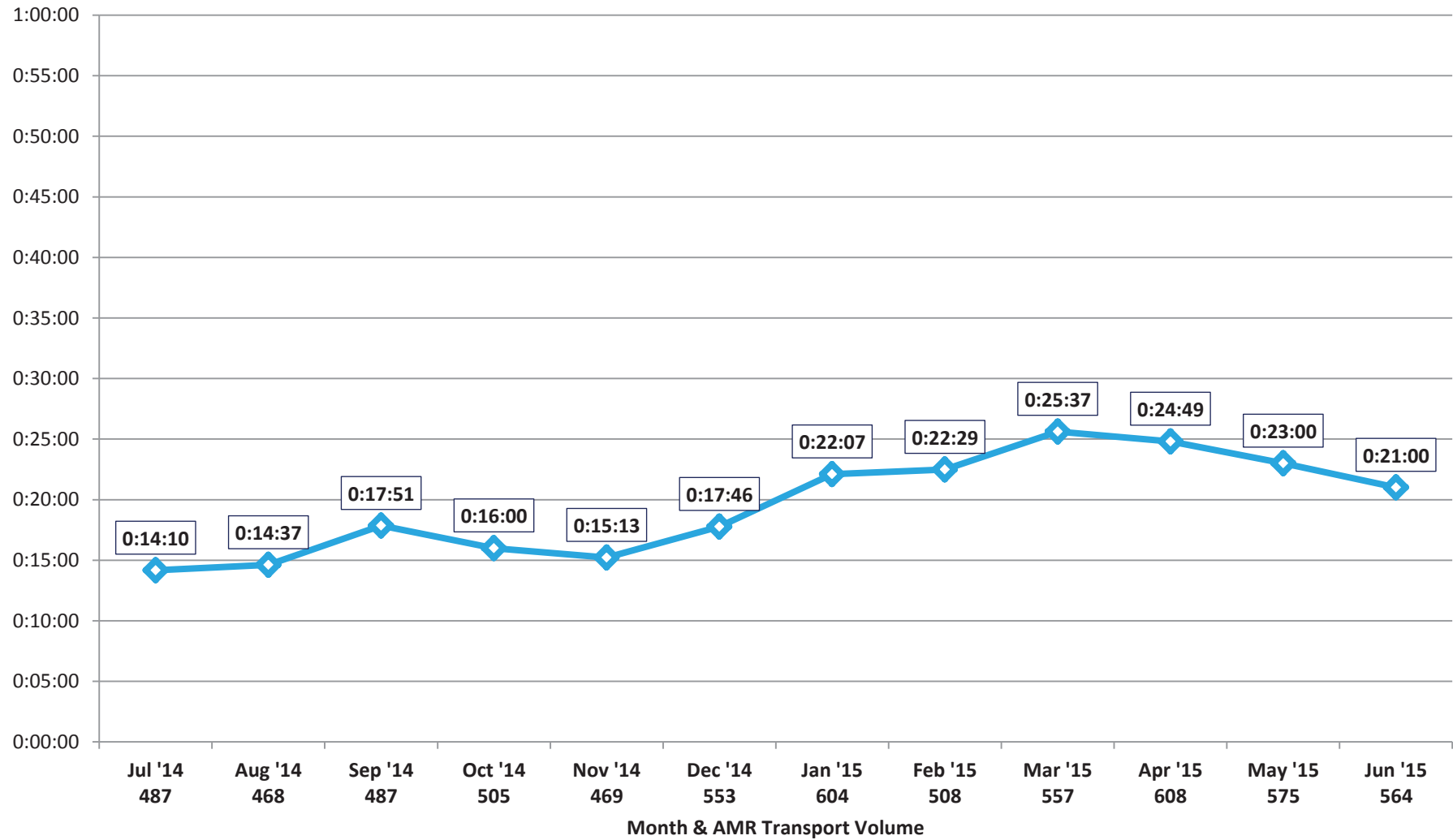
## Patient Handoff Times by Facility (90th Percentile)

### Kaiser - Walnut Creek

July 2014 - June 2015

6,385 Total Transports (532 per Month)

Source: AMR MEDS (ePCR Database)





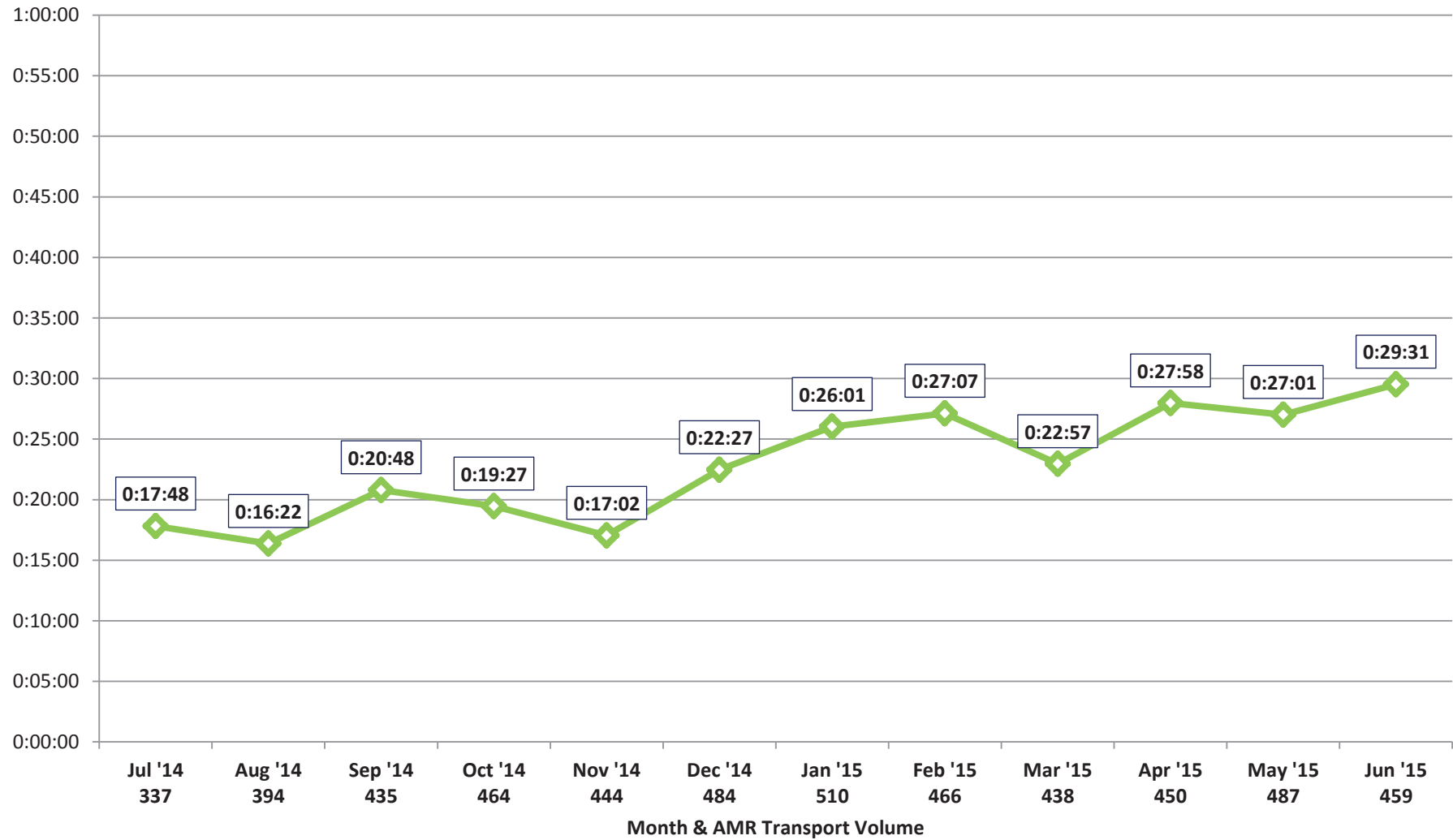
## Patient Handoff Times by Facility (90th Percentile)

### Contra Costa Regional Medical Center

July 2014 - June 2015

5,368 Total Transports (447 per Month)

Source: AMR MEDS (ePCR Database)





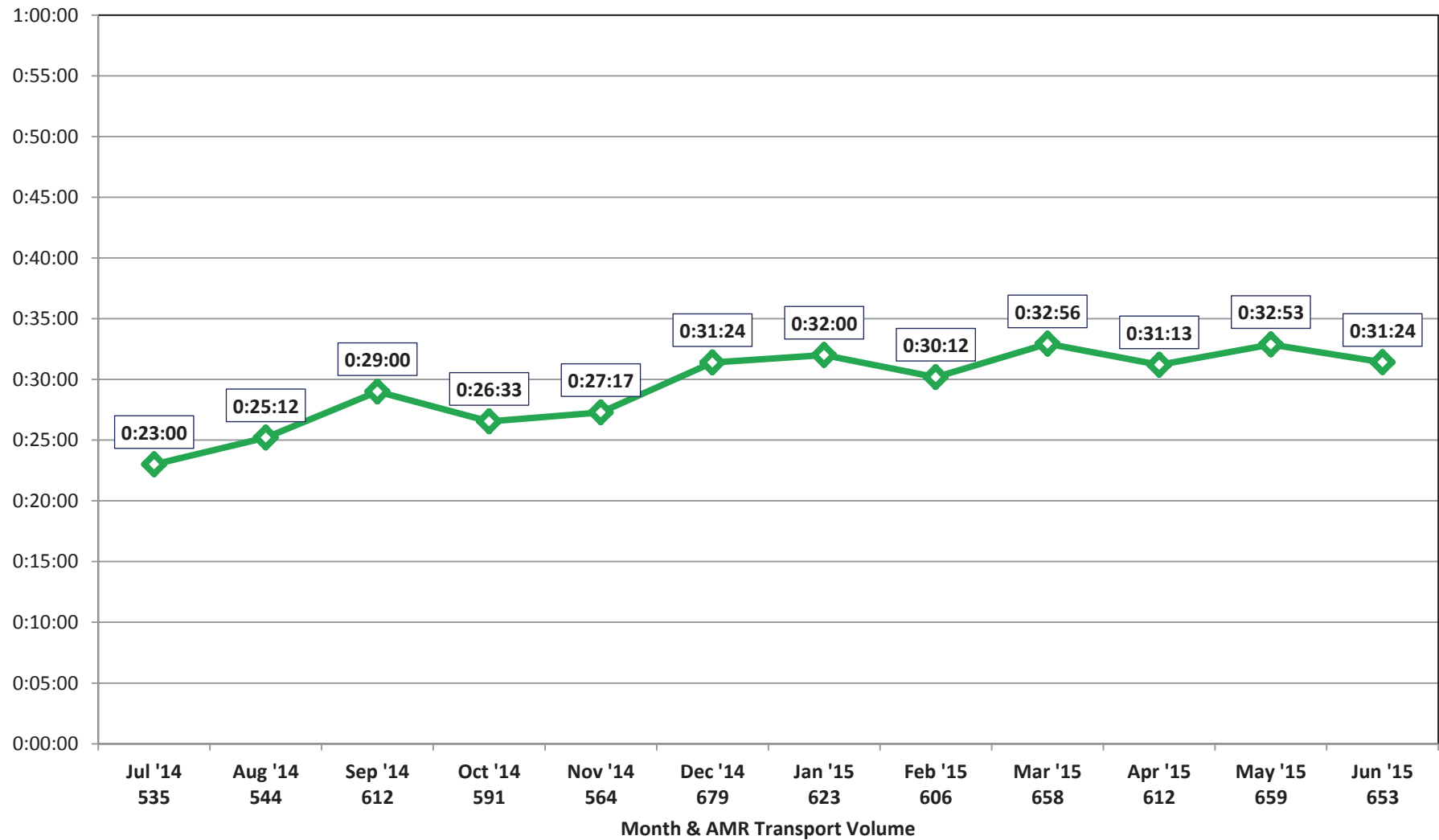
# Patient Handoff Times by Facility (90th Percentile)

## CCRMC - PES

July 2014 - June 2015

7,336 Total Transports (611 per Month)

Source: AMR MEDS (ePCR Database)





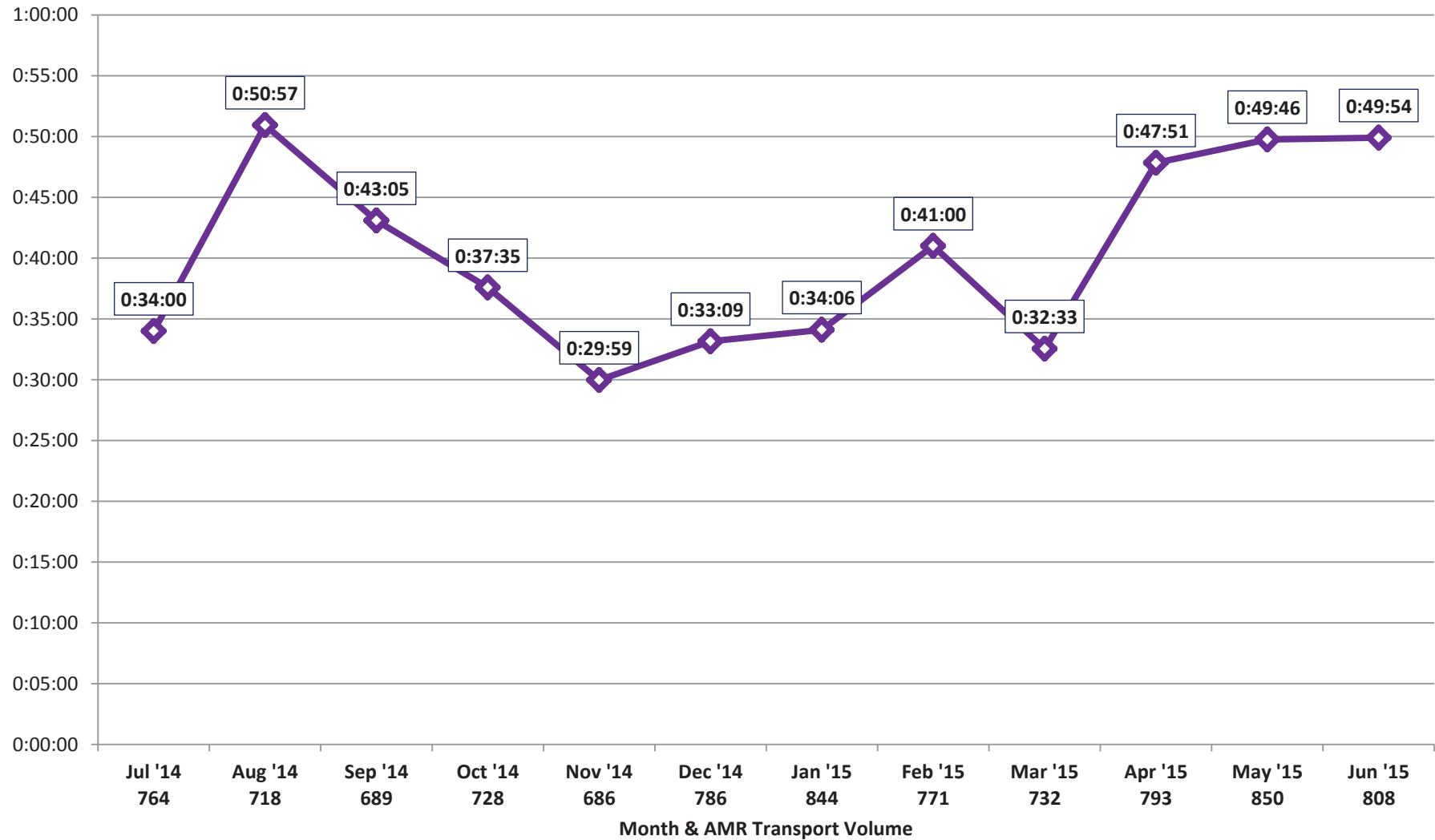
## Patient Handoff Times by Facility (90th Percentile)

### Sutter Delta Medical Center

July 2014 - June 2015

9,169 Total Transports (764 per Month)

Source: AMR MEDS (ePCR Database)



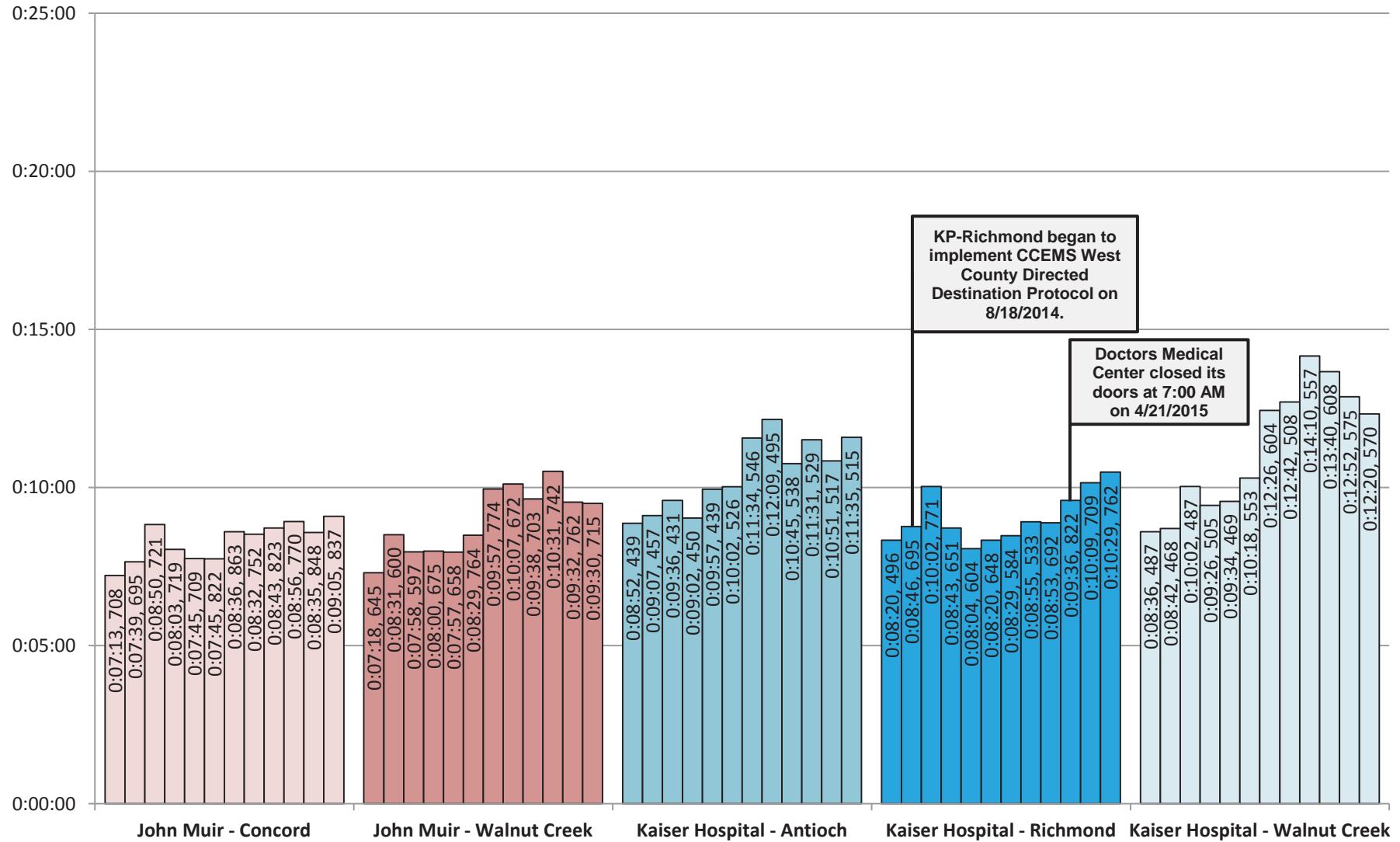


# Average Patient Handoff Times by Facility

## July 2014 - June 2015 by Month

37,814 Total Transports

Source: AMR MEDS (ePCR Database)



KP-Richmond began to implement CCEMS West County Directed Destination Protocol on 8/18/2014.

Doctors Medical Center closed its doors at 7:00 AM on 4/21/2015

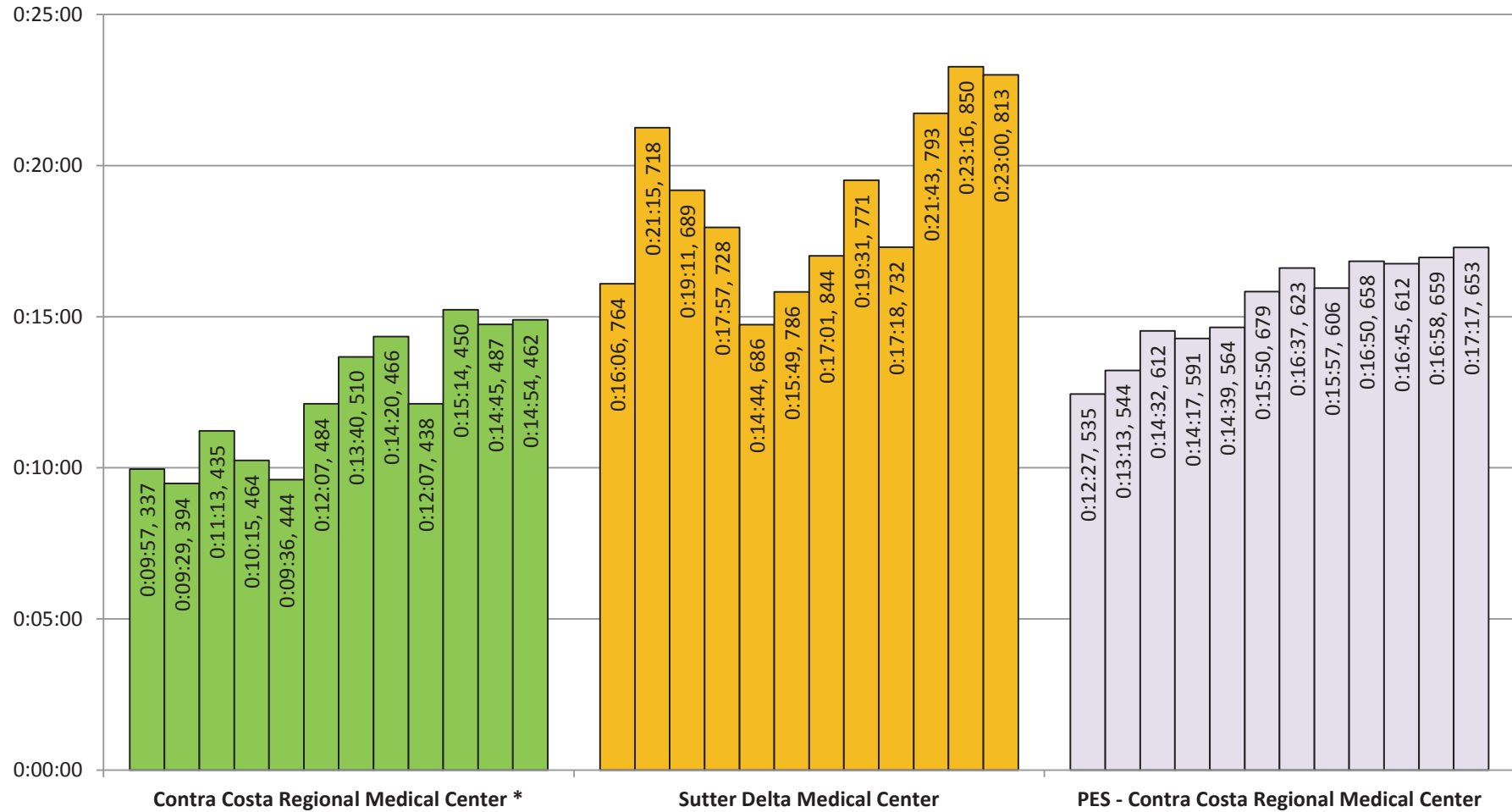


# Average Patient Handoff Times by Facility

## July 2014 - June 2015 by Month

21,881 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.