



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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8/22/2017

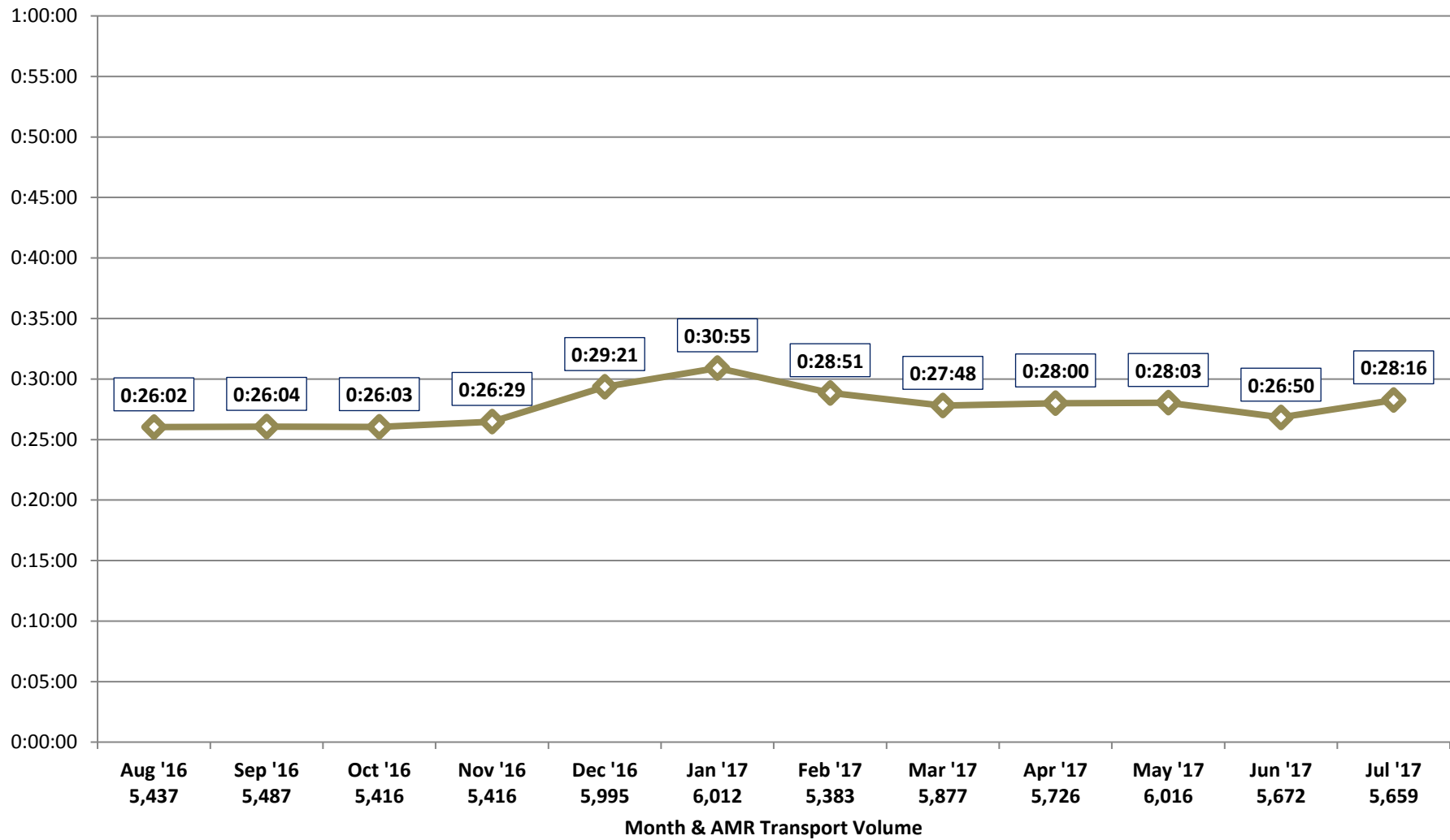


Patient Transfer of Care Times by Facility 90th PERCENTILE OF ALL FACILITIES

August 2016 - July 2017

68,096 Transports (5,675 per Month)

Source: AMR MEDS (ePCR Database)



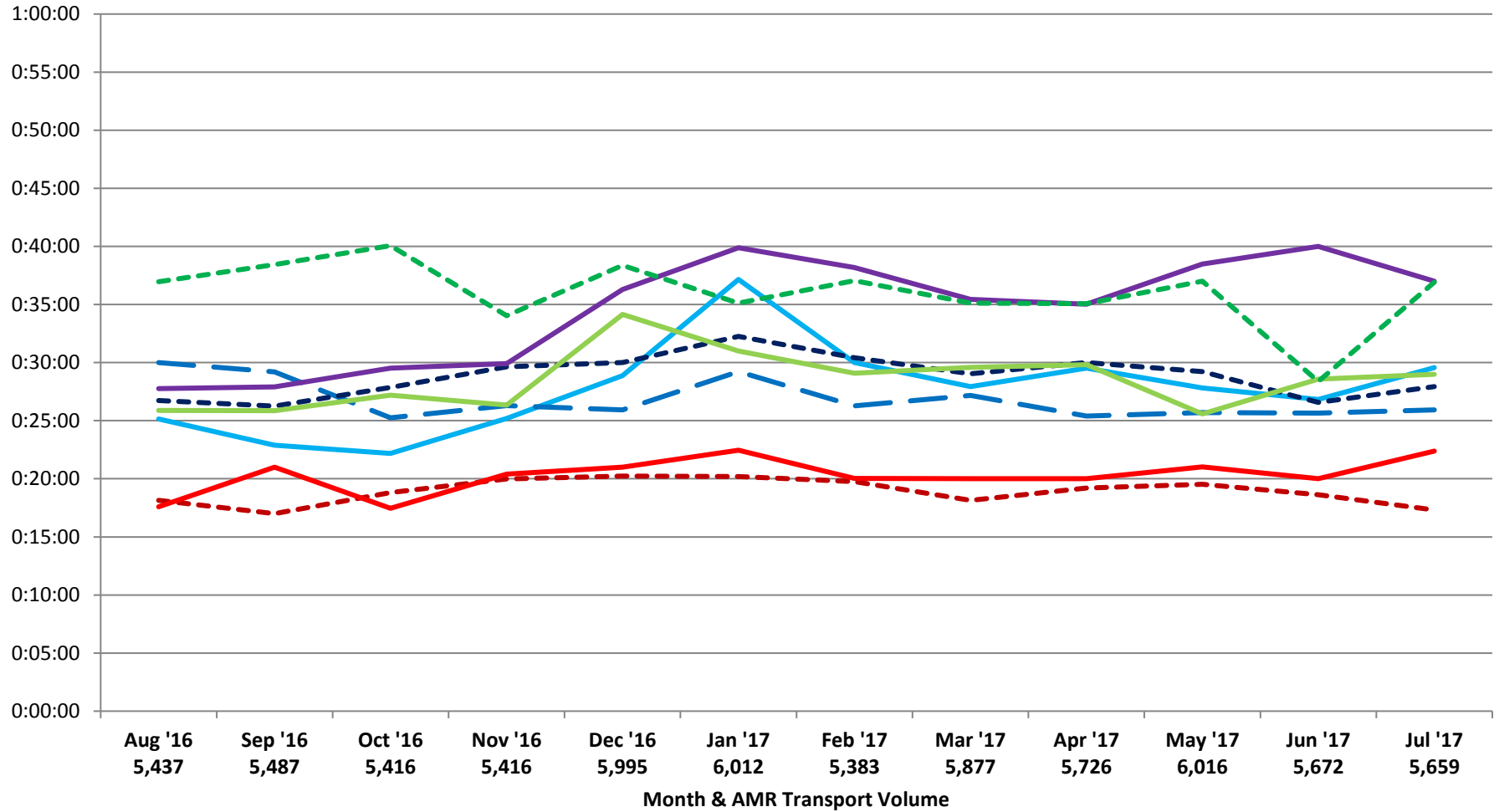


Patient Transfer of Care Times by Facility (90th Percentile)

August 2016 - July 2017

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



Contra Costa Emergency Medical Services (EMS) System Performance Expectation

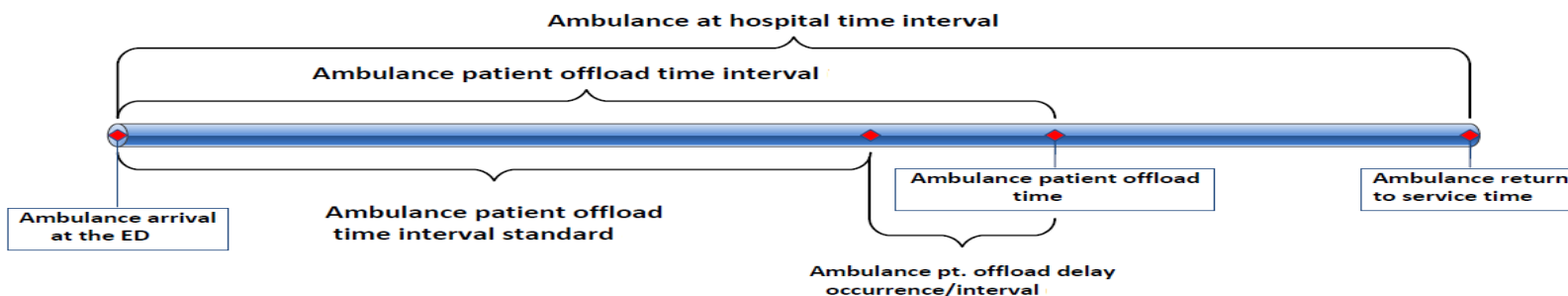
EMS Policy #40: Hospitals designated as an EMS receiving facility in Contra Costa County shall be prepared to receive patients transported by 9-1-1 county ambulance providers and accept these patients upon arrival. The patient transfer of care performance expectation for the EMS System is 20 minute or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

Countywide Hospital Performance (June 2016 to July 2017)

90th Percentile of All Facilities¹
Patient Transfer of Care occurs between 26-31 minutes 9 out of 10 times

Description of Patient Transfer of Care (TOC)²

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.



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.

² Source: California Hospital Association, Aug 2014, 1st edition "Toolkit to Reduce Ambulance Patient Offload Delays in the Emergency Department" pp: 33-38.

The Metrics: How We Measure Hospital Transfer of Care (TOC) Performance

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 as a total count by year, year to date and rate per 100 transports for each facility.

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 data represents a report of a simple count that has not been evaluated for disparities nor compared with the normal demographics seen in hospital emergency departments.

The Standards and Benchmarks

The following are the TOC standards and benchmarks of the Contra Costa County EMS System have been established to support prompt ambulance and ED patient transfer of care times:

- Optimal patient transfer of care time: 15 minutes 90% of the time
- Delayed patient transfer of care: 30 minutes or more
- A “Never Event” for patient transfer of care: 60 minutes or more

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

Contra Costa Emergency Medical Services (EMS) recognizes the challenges that many hospital EDs face managing the increase in patient volume associated with many citizens using the ED for primary and urgent care. However, delays in the timely transfer of care of patients³, 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:

- Everyday a significant number of 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**”.
- 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.

³ Delays in timely transfer of care are also known as “offload” or patient “handoff” delays.

- 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 ED 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 ED 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 # 4010 “*EMS Prehospital-Emergency Department Transfer of Care Standards*” is available at <http://cchealth.org/ems/pdf/policy4010.pdf>. Contra Costa EMS encourages all of our EMS System partners to use this information to create effective strategies to support timely patient transfer of care.

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.

The County EMS System standards for patient handoff between 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 1st, 2015, EMS began to post public reports 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.

Management of Delays in Patient Transfer of Care

Contra Costa EMS works with emergency ambulance, hospital and ED leadership to assure prompt patient transfer of care in the ED. 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

Prior to 2017 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 ambulance services in collaboration with Contra Costa Fire Protection District for approximately 92 % of all emergency ambulance transports within the County. The report did not include patient handoff data from San Ramon or Moraga Orinda emergency ambulance providers, non-emergency ambulance providers or out of county emergency ambulance providers.

Data for patient transfer of care reporting is not fully captured in the hospital trends reports from San Ramon Fire and Moraga Orinda Fire Transport Providers. However data from these two 9-1-1 ambulance providers is reflected in the ED/EMS utilization and “never event” (EMS-ED delays of > 60 minutes) data.

ED annual utilization data is based on hospital data reported to the Office of Statewide Health Planning and Development (OSHPD). On August 7, 2014 Doctor's Medical Center Emergency Department was closed to emergency ambulance traffic and the hospital ceased all operations and closed permanently on April 21, 2015 and is no longer included in these reports.

Never Events (APOT > 60 minutes) by Hospital: A Simple Count

Ambulance Patient Offload or Transfer of Care times (APOT) are considered “Never Event s” in the EMS System. Never Events are serious, largely preventable patient safety incidents. The factors that Ambulances support first medical response throughout the Contra Costa EMS System and delays associated with Never Events affect ambulance availability for the next 9-1-1 response in local communities. As August 21, 2017 these excessive delays continue to increase dramatically.

County Wide Emergency Department TOC Never Event Summary	2014 NEVER EVENTS	2015 NEVER EVENTS	2016 NEVER Events	2017 NEVER EVENTS YTD AS OF 8/21/2017
Contra Costa Regional Medical Center	15	35	85	97
Contra Costa Regional Psychiatric Emergency	34	42	79	70
John Muir-CONCORD	19	8	22	14
John Muir-WALNUT CREEK	17	22	36	20
KAISER ANTIOCH	10	19	40	38
KAISER RICHMOND	13	47	125	36
KAISER WALNUT CREEK	8	19	37	12
SAN RAMON REGIONAL [1]	NA	NA	9	4
SUTTER DELTA	285	318	185	195
COUNTYWIDE TOTAL	401	483	618	486

[1] Ambulance TOC Never Event Data for San Ramon and Moraga Orinda Fire included as of 2016

ED Crowding and EMS Utilization: ED crowding is a statewide and national problem but EMS appears not to be the cause.

Contra Costa County emergency departments (EDs) have different capacities and utilization. Emergency Department patients typically arrive at the ED via personal vehicle for urgent and routine medical care. 9-1-1 EMS transports to Contra Costa Hospitals fluctuate from year to year but increases are primarily associated with population growth and not higher utilization of EMS services. During 2016 Emergency Departments reported a countywide decrease of 43,246 ED encounters. However during the same period 9-1-1 ambulance delays of > 60 minutes increased dramatically.

While local data suggests that patients brought by EMS may have hospital admission rates as high as 40% due to their clinical condition, overall hospital admission rates for both ambulance and walk in ED patients reported to the state are less than 10% countywide.

Year	2009	2010	2011	2012	2013	2014	2015	2016
County wide ED Encounters (All Hospitals) [includes PES]	371,492	376,719	391,485	424,431	394,217	411,022	425,037	381,791
In and Out of County wide EMS Transports (All Providers) [includes PES]	58,292	59,534	61,390	64,527	64,133	64,870	73,064	76,376
In County EMS Transports (All Providers) [includes PES]								70,738
EMS Transport Percent of all ED Encounters [2016 In County Transport Destinations]	15.7%	15.8%	15.7%	15.2%	16.3%	15.8%	17.2%	18.5%
Number of ED Stations/Beds [Doctors San Pablo closed 2015]	227	243	267	267	269	269	244	260
Number of ED Encounters per ED station	1,637	1,550	1,466	1,590	1,465	1,528	1,742	1,468

County Wide Emergency Department Capacity and Utilization YTD 2016	ED BEDS (2016) updated	OSHPD TOTAL ED ENCOUNTERS BY FACILITY (2016) [5]	OSHPD ED VOLUME PER ED BED 2016 [1]	EMS TRANSPORTS 2016 BY FACILITY (All EMS Transports) [2]	PERCENT OF IN COUNTY EMS TRANSPORTS BY TOTAL IN COUNTY ED VISITS 2016 [2]	AVERAGE DAILY NUMBER OF CCEMS TRANSPORTS 2016 [2]	2016 NEVER EVENTS [4][7]	2016 NEVER EVENT RATE PER 100 TRANSPORTS [4] [7]	PERCENT OF ALL EMS TRANSPORTS IN 2016 [9]
Contra Costa Regional Medical Center (CCRMC) [10] INCLUDES PES	26	47,786	1,838	13,544	28.3%	37	164	1.2	17.7%
John Muir-CONCORD	32	52,425	1,638	9,827	18.7%	27	22	0.2	12.9%
John Muir-WALNUT CREEK	44	41,223	937	10,526	25.5%	29	36	0.3	13.8%
KAISER ANTIOCH	35	52,713	1,506	6,458	12.3%	18	40	0.6	8.5%
KAISER RICHMOND [6]	27	64,860	2,402	10,273	15.8%	28	125	1.2	13.5%
KAISER WALNUT CREEK	52	53,657	1,032	8,194	15.3%	22	37	0.5	10.7%
SAN RAMON REGIONAL [7]	12	15,627	1,302	2,112	13.5%	6	9	0.4	2.8%
SUTTER DELTA	32	53,500	1,672	9,804	18.3%	27	185	1.9	12.8%
OUT OF COUNTY				5,638		15	170	3.0	7.4%
IN-COUNTYWIDE TOTAL [4]	260	381,791	1,468	70,738	18.5%	194	618	0.9	92.6%
COUNTYWIDE + OUT OF COUNTY TOTAL				76,376		209	788	1.0	100.0%
Contra Costa PES (CCRMC) [3]	15	10,534	702	4,176	39.6%	11	79	1.9	6%

Never Events Demographics: Who are the patients affected?

Never Events (>1 Hour Drop Time) By Patient Gender	2015	2016	2017
Female	265	280	242
Male	218	281	252

Women may be affected more than men

Never Events (>1 Hour Drop Time) By Patient Age	2015	2016	2017
0-9	5	7	6
10-19	22	27	34
20-29	57	57	50
30-39	58	74	59
40-49	60	68	46
50-59	91	77	88
60-69	74	82	79
70-79	51	63	55
80-89	43	69	60
90-99	22	35	19
100-109	0	2	0

All ages are affected

Never Events (>1 Hour Drop Time) By Patient Ethnicity	2015	2016	2017
Asian	7	10	16
Black/African American	131	120	134
Caucasian	228	291	226
Hispanic or Latino	85	91	65
Other Race	32	49	55

All ethnicities are affected

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

Paramedic Primary Impressions Never Events (>1 Hour Drop Time)	2015	2016	2017
Pain	101	87	89
Behavioral / Psychiatric	63	109	97
Trauma	69	81	55
Other - Sick/Dizzy/Weakness	56	63	63
Neurological	42	46	34
Toxicological	41	43	26
Respiratory	30	38	32
Vascular	24	37	39
Gastrointestinal	33	27	28
Cardiac	17	15	18
Diabetes	2	10	6
OB/GYN	2	0	1
Allergic Reaction	2	2	1
Environmental	1	3	1

Patients with a
variety of
conditions are
affected

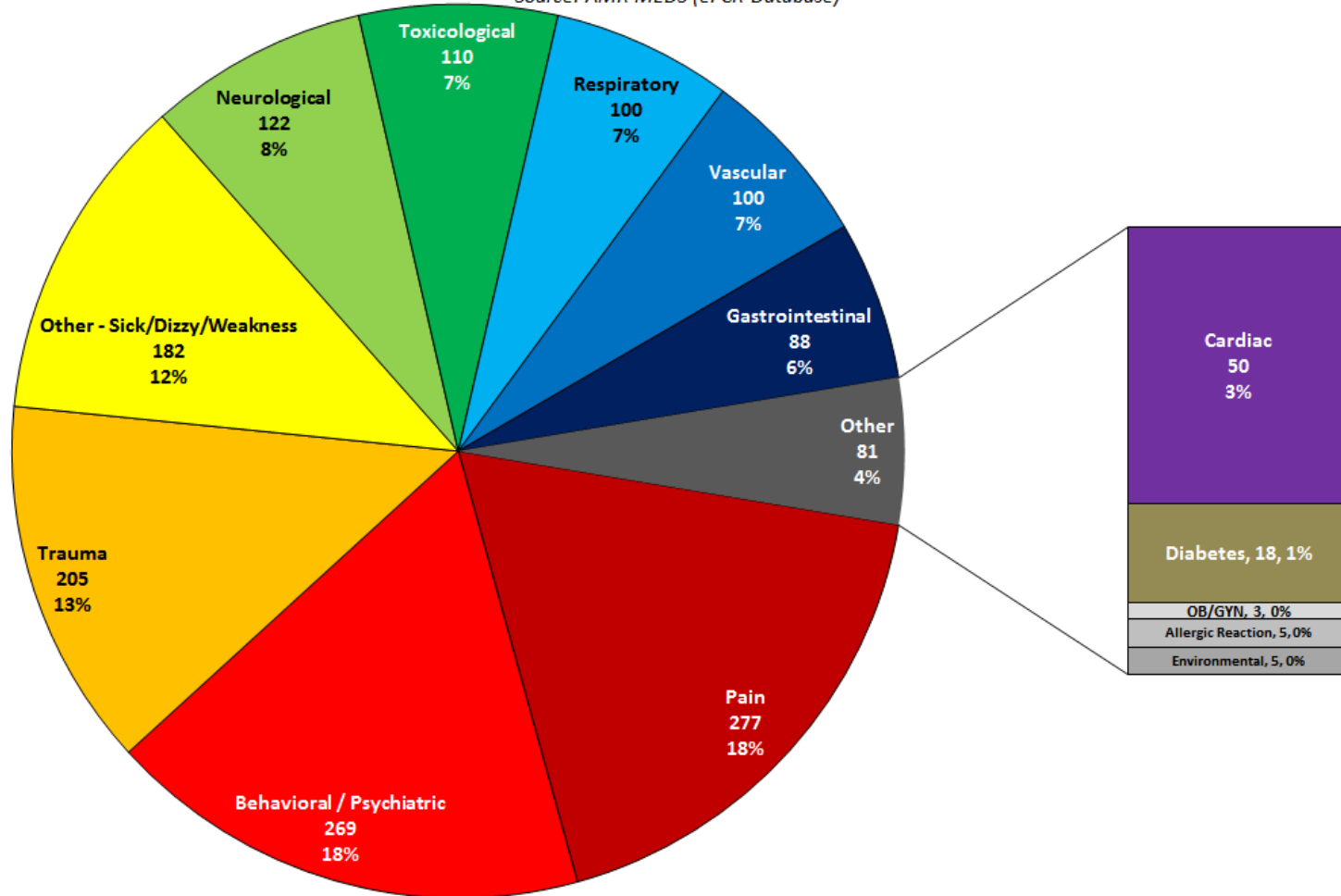
While many of these conditions may be minor no patient should wait more than 60 minutes for EMS/ED transfer of care if they are brought in by EMS. In California, when 9-1-1 is contacted, the EMS ambulance provider is required by law to take the patient to an ED although up to 60% of all EMS transports 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 ED resources for the sickest of patients. However until the laws governing EMS services would need to change to create alternatives.



**Paramedic Primary Impressions
Never Events (≥1 Hour Patient Transfer of Care Time)
1/1/2015 - 7/31/2017**

Source: AMR MEDS (ePCR Database)





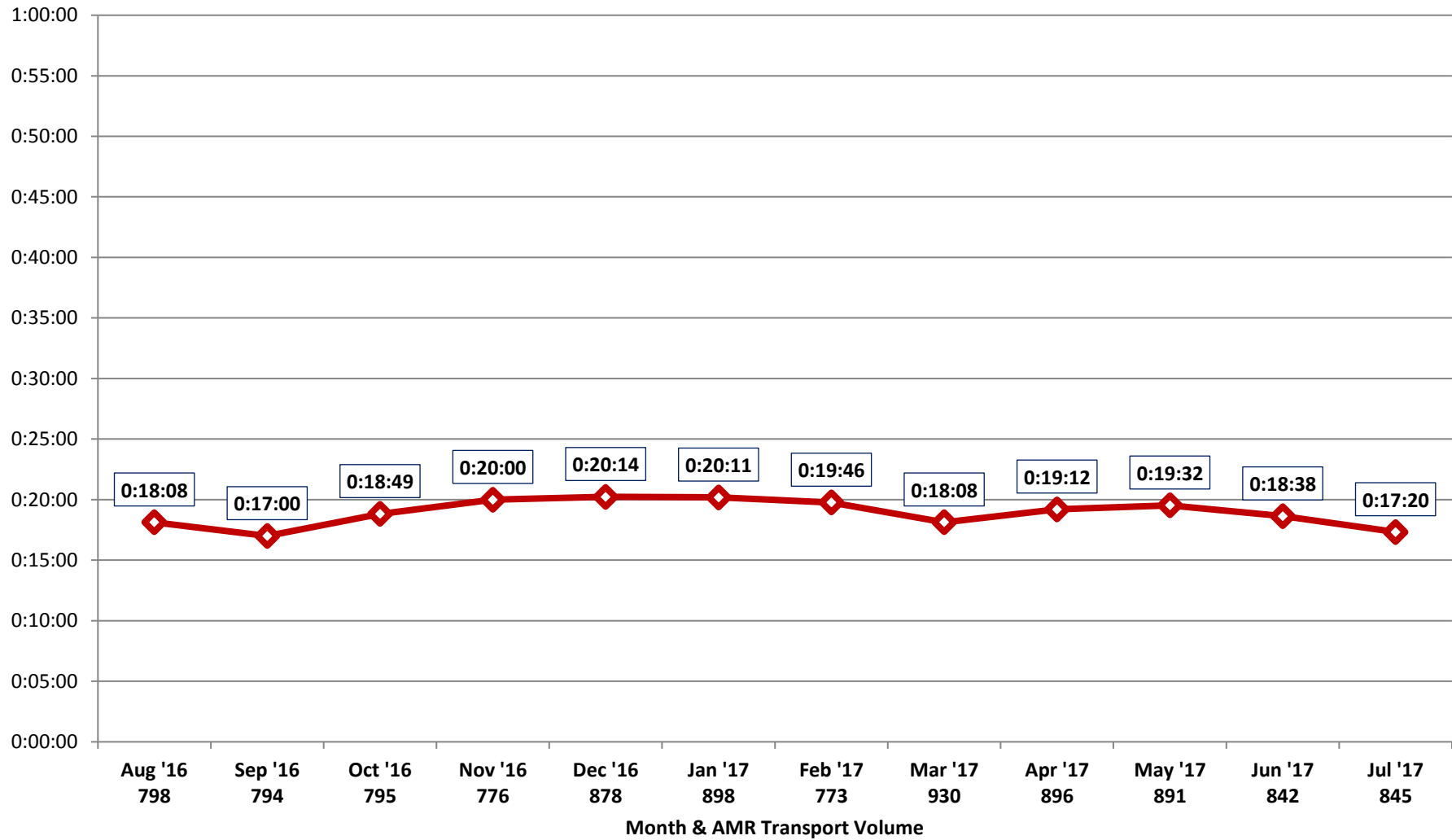
Patient Transfer of Care Times by Facility (90th Percentile)

John Muir - Concord

August 2016 - July 2017

10,116 Total Transports (843 per Month)

Source: AMR MEDS (ePCR Database)





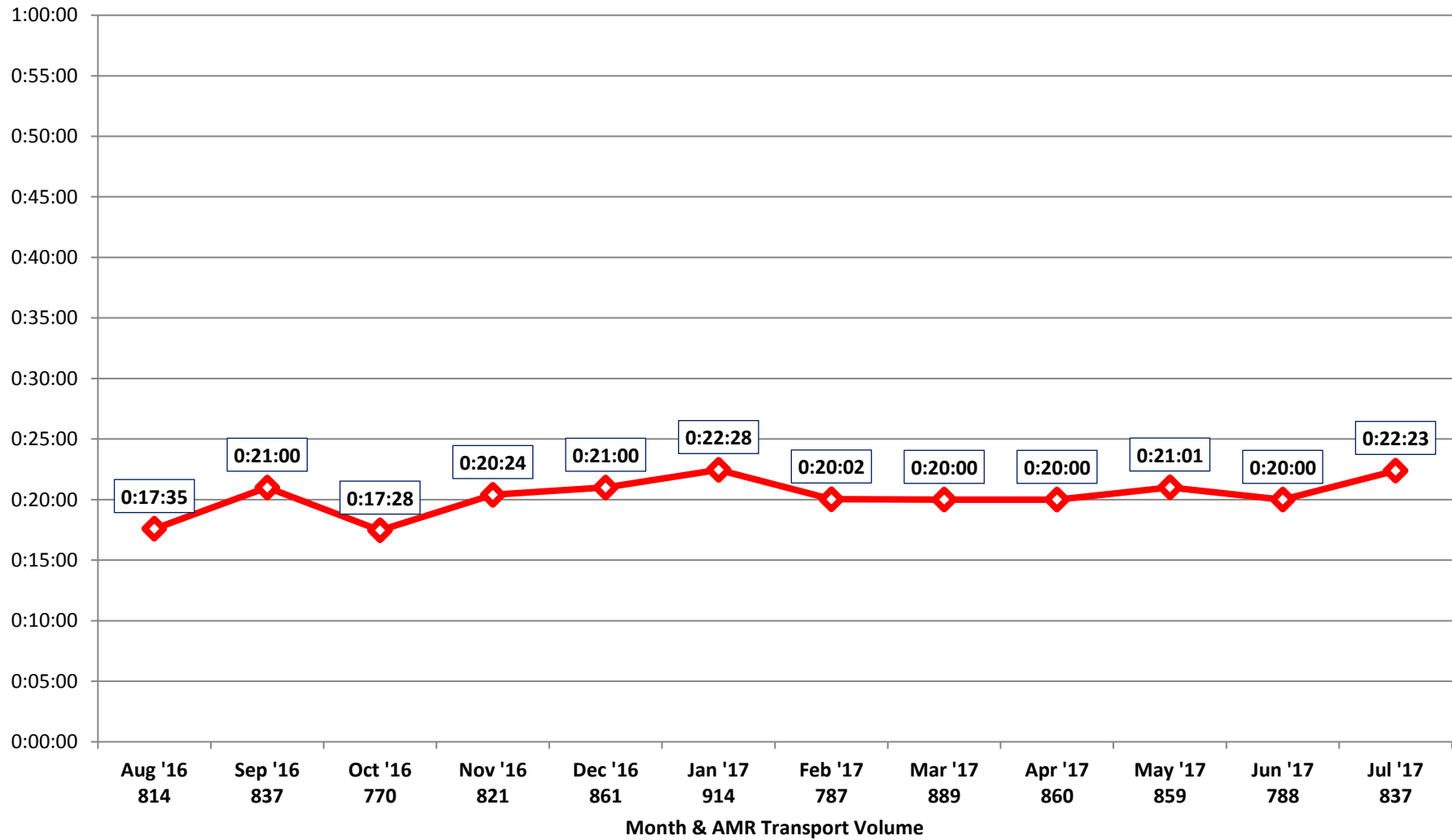
Patient Transfer of Care Times by Facility (90th Percentile)

John Muir - Walnut Creek

August 2016 - July 2017

10,037 Total Transports (843 per Month)

Source: AMR MEDS (ePCR Database)





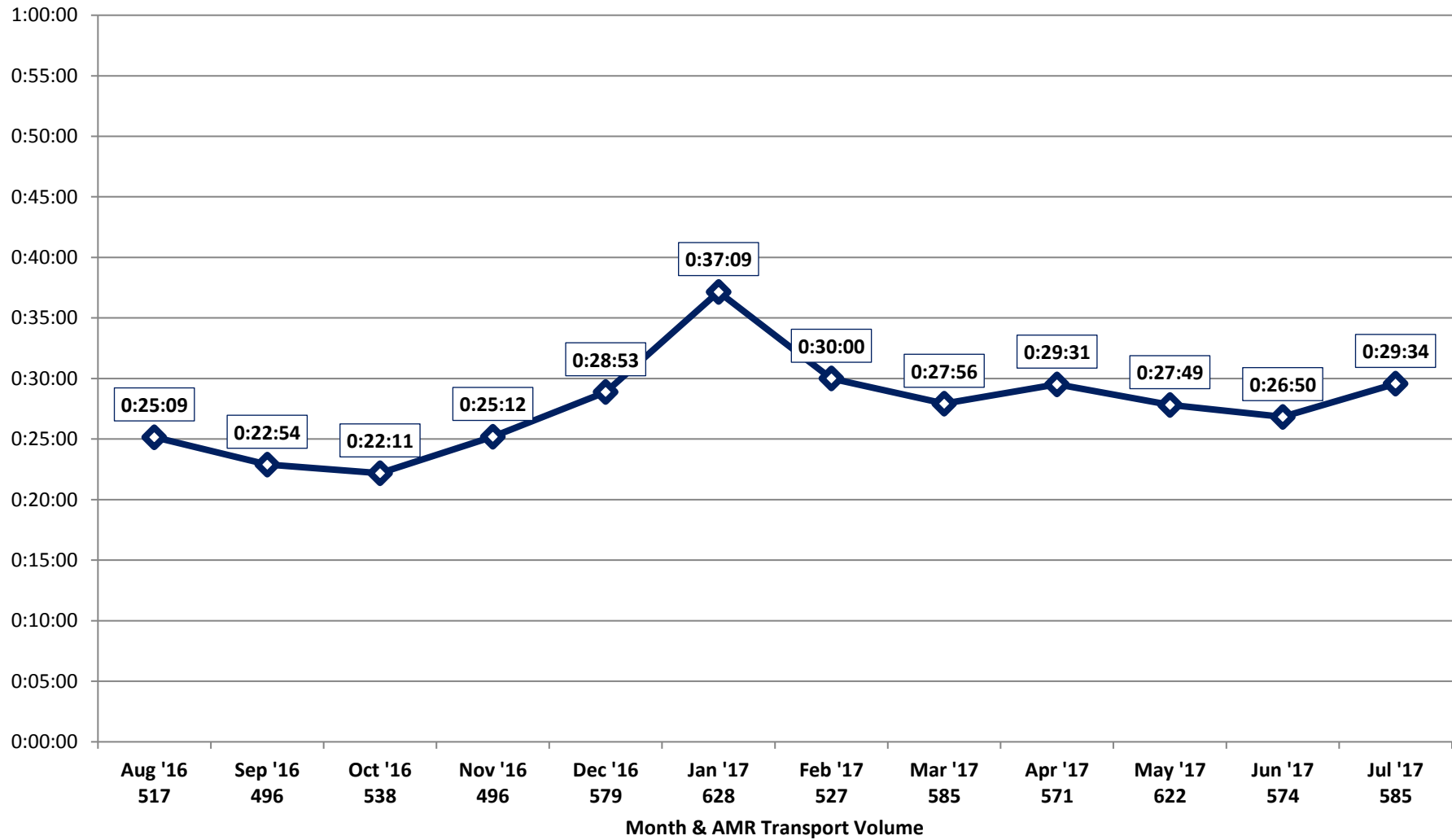
Patient Transfer of Care Times by Facility (90th Percentile)

Kaiser - Antioch

August 2016 - July 2017

6,718 Total Transports (560 per Month)

Source: AMR MEDS (ePCR Database)





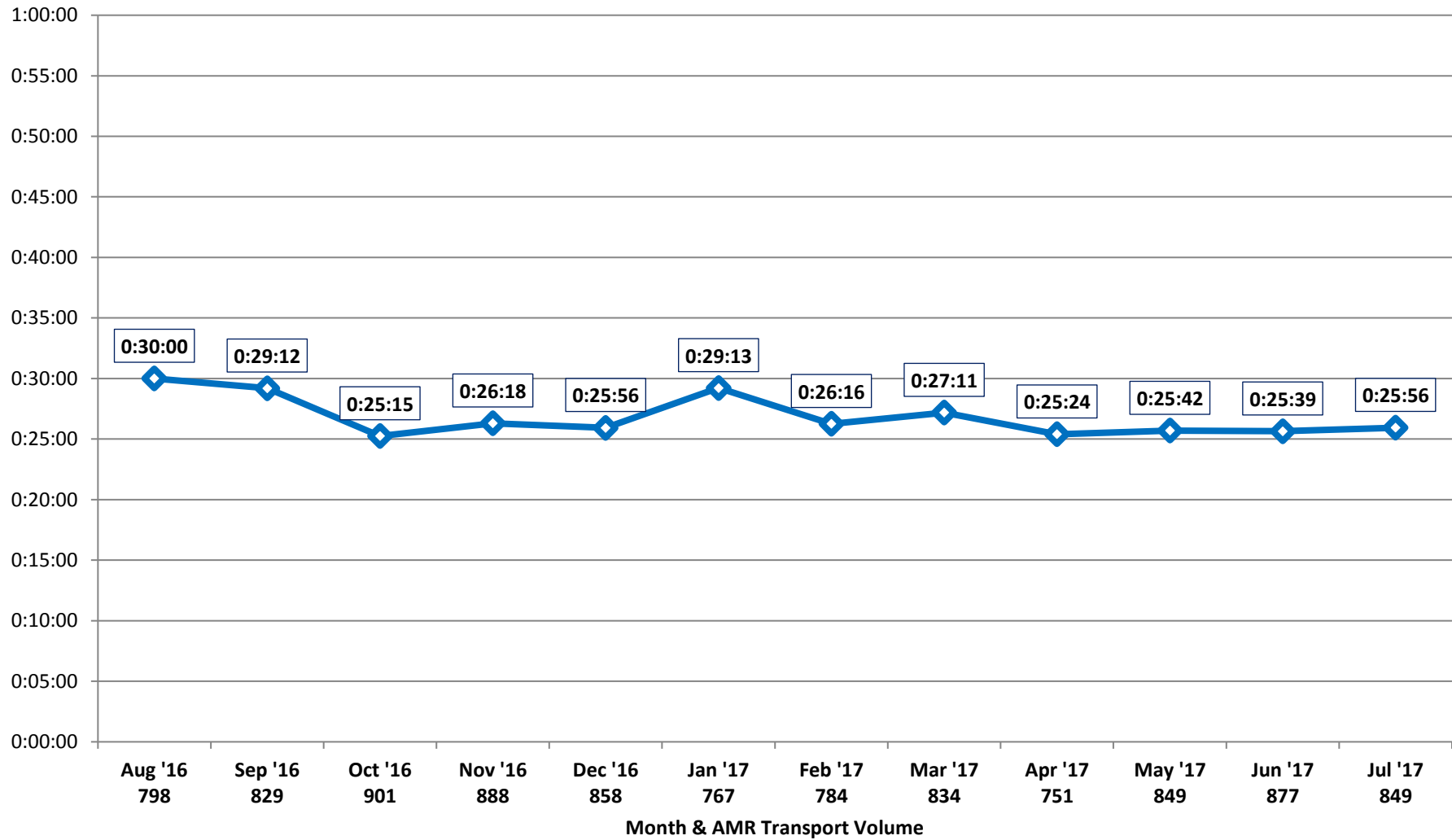
Patient Transfer of Care Times by Facility (90th Percentile)

Kaiser - Richmond

August 2016 - July 2017

9,985 Total Transports (832 per Month)

Source: AMR MEDS (ePCR Database)





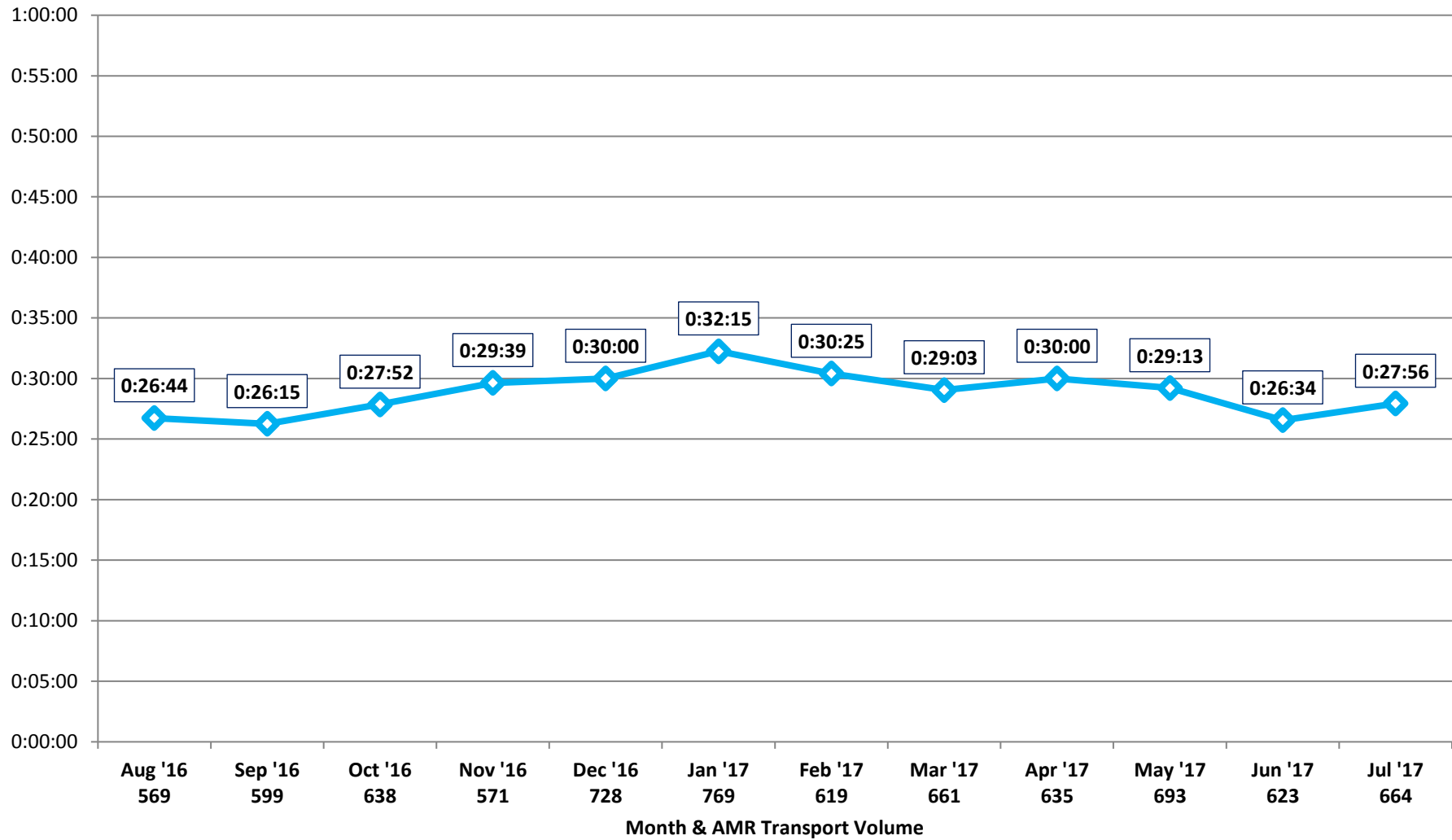
Patient Transfer of Care Times by Facility (90th Percentile)

Kaiser - Walnut Creek

August 2016 - July 2017

7,769 Total Transports (647 per Month)

Source: AMR MEDS (ePCR Database)





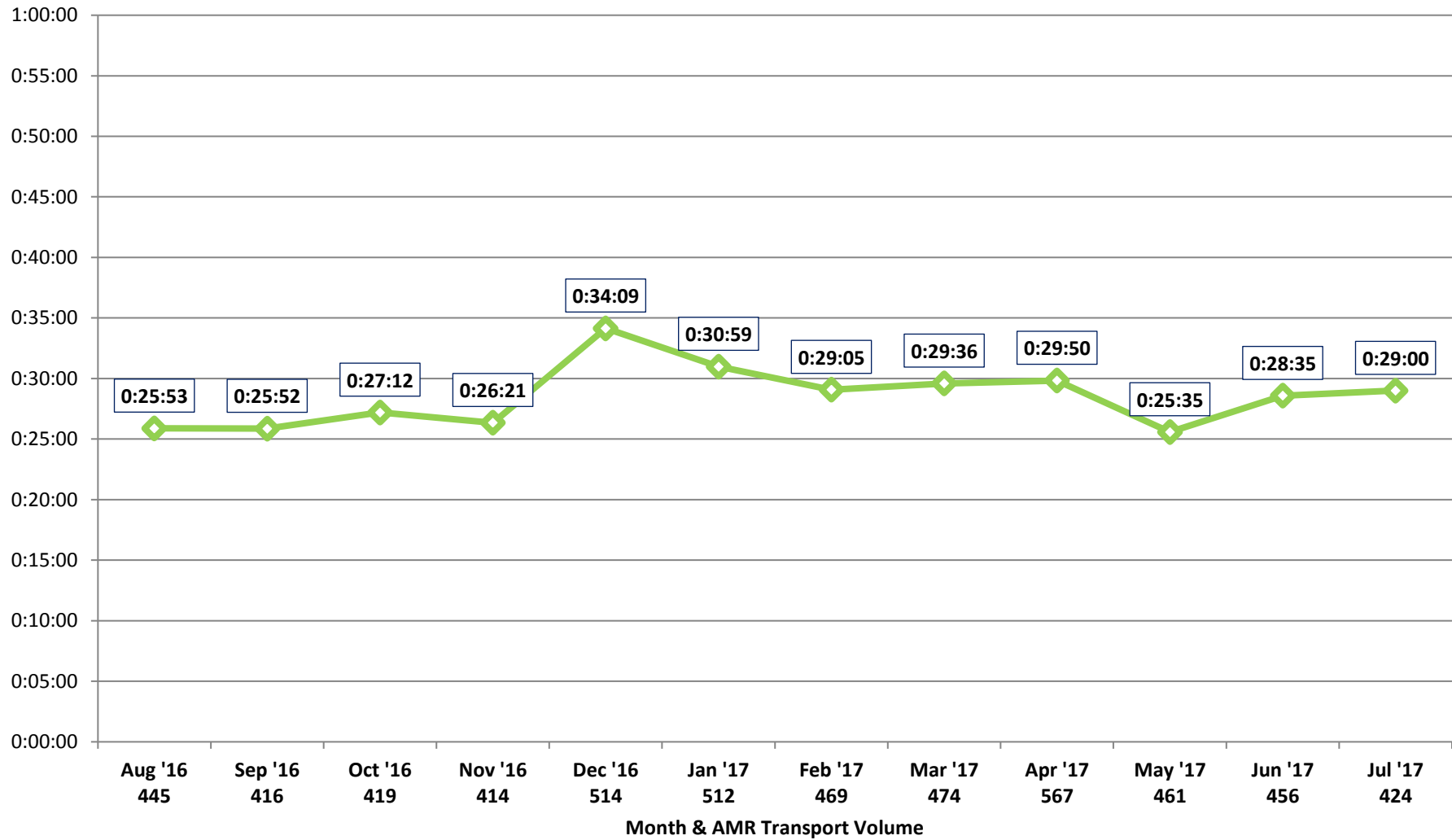
Patient Transfer of Care Times by Facility (90th Percentile)

Contra Costa Regional Medical Center

August 2016 - July 2017

5,571 Total Transports (464 per Month)

Source: AMR MEDS (ePCR Database)





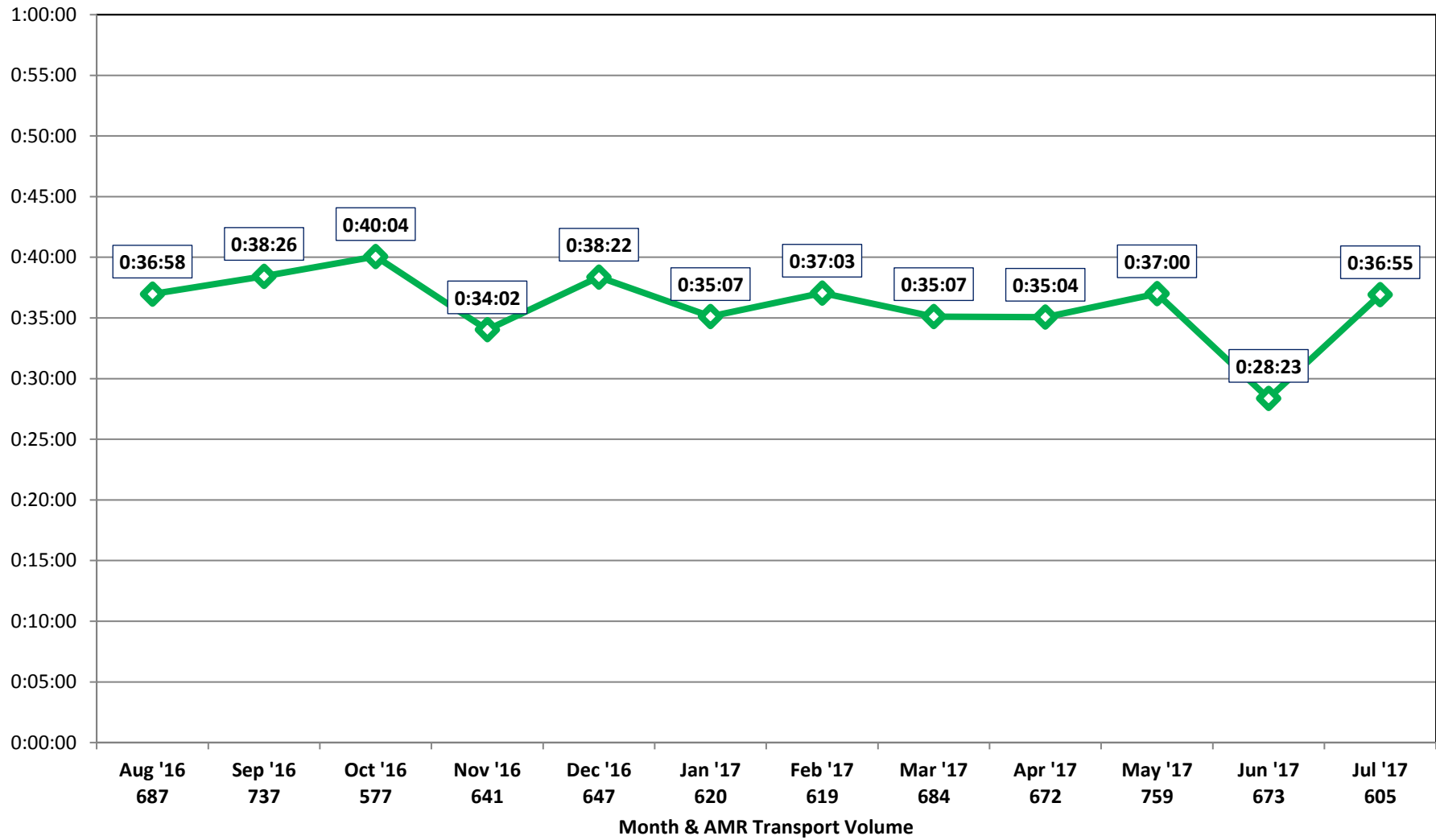
Patient Transfer of Care Times by Facility (90th Percentile)

CCRMC - PES

August 2016 - July 2017

7,921 Total Transports (660 per Month)

Source: AMR MEDS (ePCR Database)





Patient Transfer of Care Times by Facility (90th Percentile)

Sutter Delta Medical Center

August 2016 - July 2017

9,979 Total Transports (832 per Month)

Source: AMR MEDS (ePCR Database)

