

**SACRAMENTO COUNTY**  
**2019 QUALITY IMPROVEMENT PROGRAM ANNUAL UPDATES**  
**October 15, 2020**

In accordance with State of California Title 22 – Division 9, Chapter 12, EMS System Quality Improvement.

**Quality Improvement Program (Quality Improvement Plan or QIP)**

The QIP provides comprehensive evaluations of prehospital patient care. Participants include representatives in communications, public and private transportation, Emergency Medical Services (EMS) training, and hospital emergency medical care. The QIP identifies areas needing improvement, takes steps to correct deficiencies, and recognizes excellence in performance and delivery of care.

**Description of Agency**

Sacramento County Emergency Medical Services Agency (SCEMSA) is located at 9616 Micron Ave, Suite 960, Sacramento, CA and oversees the hospitals and emergency medical providers servicing the Sacramento County area. Sacramento does not hold any Exclusive Operating Area (EOA) agreements. We are an equal opportunity county and strive for equality and transparency within the Agency.

Providers within the Sacramento County EMS System include:

- Twenty-one (21) approved prehospital EMS Providers
- Nine (9) hospitals including three (3) trauma centers
- Forty-seven (47) Training Programs consisting of Emergency Medical Technician, Paramedic, Mobile Intensive Care Nurse, Continuing Education and Title 22, Division 9, Chapter 1.5 Optional Scope program that includes naloxone administration by Law Enforcement First Responders.

**2019 Overview**

SCEMSA continues to work diligently to define consistent documentation standards and improve the quality and accuracy of data reporting capabilities to meet or exceed the State of California standards. With ten (10) different ePCR platforms in use, every provider is submitting data to the CA EMS Information System (CEMSIS) using the latest Schematron on each ePCR platform. As an extension to the data initiative established in 2017, SCEMSA has implemented the Cause of Injury / Symptoms / and Location Lists released by EMS Authority (EMSA). We continue to monitor documentation compliance and trend improvements via QI Audits and documentation dashboards in system monitoring.

**2019 Update**

The Technical Advisory Group (TAG) is the multi-stakeholder group that advises the Quality Improvement Program (QIP). During 2019, the TAG continued to focus on optimizing data collection and documentation practices to provide the highest quality data for quality improvement.

TAG Developments / Focus 2018:

- Medications / Procedures / Hospital Codes
- Sepsis Dashboard
- STEMI Dashboards
- Stroke Dashboard

TAG Developments / Focus 2019:

- Cardiac Dashboard
- Focus on faxing ECGs to receiving PCI facilities
- Monitoring new medications and changes in policy to measure their efficacy

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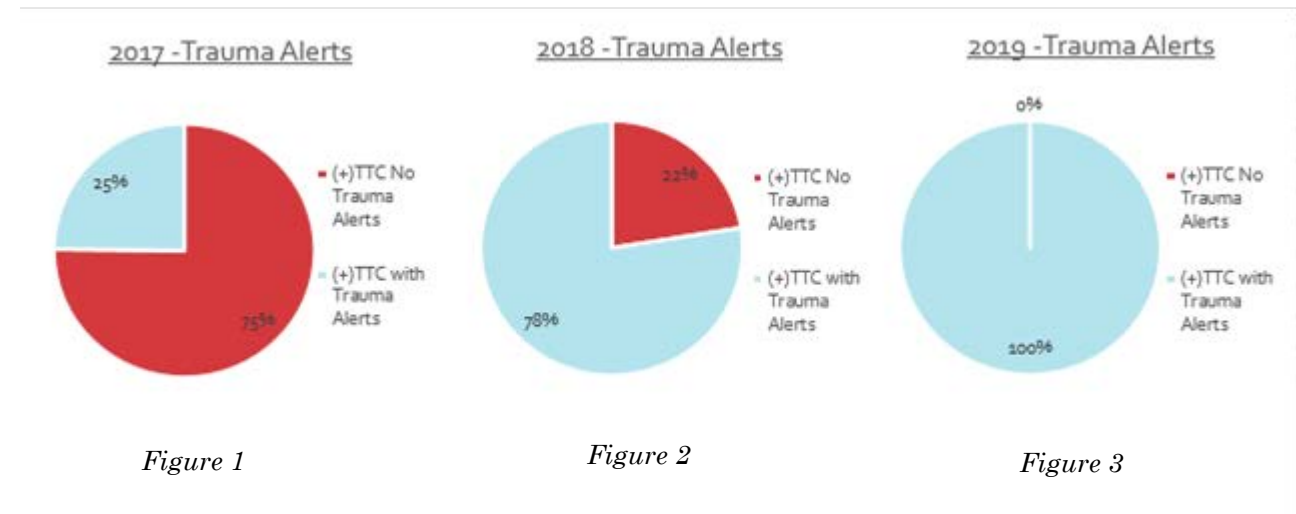
Medical and Operational Advisory Committee (MAC/OAC)

The MAC/OAC includes all system wide stakeholders and provides input on education, training, quality improvement, and data collection. Accomplishments in 2019 include:

- Addressing system challenges
- Policy reviews and updates
- Optional Scope Policy Reviews
- Implementation of policies
- Education and training for new equipment

Trauma Alerts

Progress includes Prehospital Trauma Alert notifications in patients with positive Trauma Triage Criteria. Marked documentation progress is shown below:



During 2017 there were 1,681 EMS incidents documented as positive trauma triage criteria, of which only 417 received a Trauma Alert notification. In 2018 there were 2,648 incidents documented as trauma triage criteria, of which 2,053 incidents (78%) received a Trauma Alert notification. In 2019 there were 2,108 incidents meeting critical trauma triage criteria with 100% documented trauma alert.

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**2019 QUALITY IMPROVEMENT PROGRAM ANNUAL UPDATES**  
**October 15, 2020**

**Cardiac Arrest Dashboards**

The Cardiac Arrest dashboard (Figure 4) monitors incidents of cardiac arrest and treatment. The table shows improvement throughout the year in Pre-Arrival Alert notifications. There was also marked improvement in the documentation of airway management and a decrease in items not recorded.

Year / Month	19 Feb	19 Mar	19 Apr	19 May	19 Jun	19 Jul	Aug/Sept	19 Oct	Nov	Targets
<b>Cardiac Arrest</b>	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	SYSTEM TOTAL	
Total # of field CPA, by Primary Impression of CPA	119	142	131	133	141	350	108	113		
Average response time for ALL CPAs (unit dispatched to EMS at patient side)	6.92	6.88	6.56	6.59	7.14	7.17	8.63	6.5		
TOTAL # resuscitated (eArrest.03)	85	101	99	93	132	266	100	102		
EMS resusc efforts NOT documented in eArrest.03- Not Recorded	7	15	9	2	8	42	2	0	0	0
% of CPAs resuscitated by EMS	71.43%	71%	75.57%	69.92%	93.62%	76%	92.59%	90.27%		
TOTAL # of resuscitated patients who were transported (by eDisposition.02)	62	79	69	64	77	195	69	72		
Ave Scene time for Transported patients (at patient side to unit left scene)	13.92	12.47	12.78	15.57	11.96	13.49	13.73	13.36		
Ave Transport time for Transported patients (left scene to arrived at destination)	9.09	8.67	8.51	9.33	9.17	8.71	9.34	8.38	0	
<b>Pre-Arrival CPR (eArrest.05)</b>										
Pre-arrival CPR on resuscitated patients - YES (eArrest.05)	55	65	78	68	63	179	61	52		
Pre-arrival CPR on resuscitated patients - NO (eArrest.05)	59	72	50	64	77	161	47	61		
Pre-arrival CPR on resuscitated patients - Not recorded (eArrest.05)	5	4	3	1	2	10	0	0	0	0
<b>Presenting Rhythm on resuscitated patients (eArrest.11)</b>										
Presenting Rhythm on resuscitated patients - Asystole (eArrest.11)	75	89	84	79	81	193	70	63		
Presenting Rhythm on resuscitated patients - PEA (eArrest.11)	19	18	15	20	18	46	16	21		
Presenting Rhythm on resuscitated patients - VF (eArrest.11)	11	10	12	11	18	40	12	15		
Presenting Rhythm on resuscitated patients - Pulseless VT (eArrest.11)	1	1	1	0	2	5	1	2		
Presenting Rhythm on resuscitated patients - unkn AED non-shockable (eArrest.11)		1			0	0	2			
Presenting Rhythm on resuscitated patients - unkn AED shockable (eArrest.11)	0	2	0	1	0	1	2	0		
Not Applicable - Not Attempted - Considered Futile	N/A	N/A	N/A	N/A	N/A		19			
Presenting Rhythm on resuscitated patients - Not Recorded (eArrest.11)	8	21	19	22	22	46	5	8	0	0
<b>ROSC on Resuscitated Patients (eArrest.12)</b>										
Any ROSC on Resuscitated Patients - Yes, at ED arrival (eArrest.12)	7	3	5	6	9	11	2	4		
Any ROSC on Resuscitated Patients - Yes, prior to ED arrival (eArrest.12)	6	14	18	19	20	42	23	15		
Any ROSC on Resuscitated Patients - Yes, sustained for 20 min (eArrest.12)	4	1	2	4	4	14	4	1		
Total Patients with ROSC	17	18	25	29	33	67	14	20		
% of ROSC	14.29%	12.68%	19.08%	21.80%	23.40%	19.14%	12.96%	17.70%		
Any ROSC on Resuscitated Patients - No (eArrest.12)	97	99	101	101	105	270	79	56		
Any ROSC on Resuscitated Patients - Not Recorded (eArrest.12)	5	5	5	3	3	13	0	37	0	0
<b>Cardiac Arrest patient Outcome at End of EMS Event (eArrest.18)</b>										
Cardiac Arrest patient Outcome at End of EMS Event - Expired in ED	14	20	14	10	19	59	15	17		
Cardiac Arrest patient Outcome at End of EMS Event - Expired in the Field	43	45	55	57	48	116	34	38		
Cardiac Arrest patient Outcome at End of EMS Event - Ongoing Resuscitation in ED	35	41	37	37	41	105	45	38		
Cardiac Arrest patient Outcome at End of EMS Event - ROSC in the Field	8	9	10	11	9	19	5	5		
Cardiac Arrest patient Outcome at End of EMS Event - ROSC in the ED	2	4	6	6	6	9	4	6		
Cardiac Arrest patient Outcome at End of EMS Event - Ongoing Resuscitation by other EMS	0	2	0	0	0	0	0	0		
Effort Ceased due to DNR (Not in NEMSIS)	2	0	0	2	3	6	2	3		
Cardiac Arrest patient Outcome at End of EMS Event - Not Recorded	7	17	9	10	15	36	3	6	0	0
<b>Pre Alert Notification (eDisposition.24)</b>										
# of transported CPAs where pre-alert notification was done (eDisposition.24)	43	43	54	52	57	159	51	60		
% of transported CPAs where pre-alert notification was done (eDisposition.24)	69.35%	54.43%	78.26%	81.25%	74.03%	81.54%	73.91%	83.33%	>95%	
<b>Airway management documentation (eAirway.03 or eArrest.09)</b>										
Airway Device Being Confirmed - Cricothyrotomy Tube (eAirway.03)	0	0	0	0	0	0	0	0		
Airway Device Being Confirmed - Endotracheal Tube (eAirway.03)	40	51	45	44	42	102	35	34		
Airway Device Being Confirmed - Other-Invasive Airway (eAirway.03)	0	0	0	0	1	3	0	0		
Airway Device Being Confirmed - SAD-Combitube (eAirway.03)	0	0	0	0	0	0	0	0		
Airway Device Being Confirmed - SAD-King (eAirway.03)	17	26	20	17	16	42	11	13		
Airway Device Being Confirmed - SAD-LMA (eAirway.03)	0	0	0	1	0	0	0	1		
Airway Device Being Confirmed - SAD-Other (eAirway.03)	0	0	0	0	5	20	11	15		
Airway Device Being Confirmed - Tracheostomy Tube (eAirway.03)	0	0	0	0	0	0	0	0		
BLS airway documentation (eArrest.09) if no ALS airway documented (eAirway.03)	28		22	28	33	79	43	36		
Total (BLS+ALS) airway documentation (sum of Rows 42-50)	85	77	87	90	97	246	100	99		
% of resuscitated CPA with documented airway management (row 51/5)	100.00%	76.24%	87.88%	96.77%	73.48%	92.48%	100.00%	97.06%	100	
<b>IFT's Excluded in this Report</b>										

Figure 4

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New Medications

Sacramento County Emergency Medical Services Agency (SCEMSA) amended the Hemorrhage in Trauma Policy to include the use of Tranexamic Acid (TXA) in non-compressible torso hemorrhage. The change became effective March 1, 2019. The use of TXA since implementation in 2019 is shown in Figure 5.

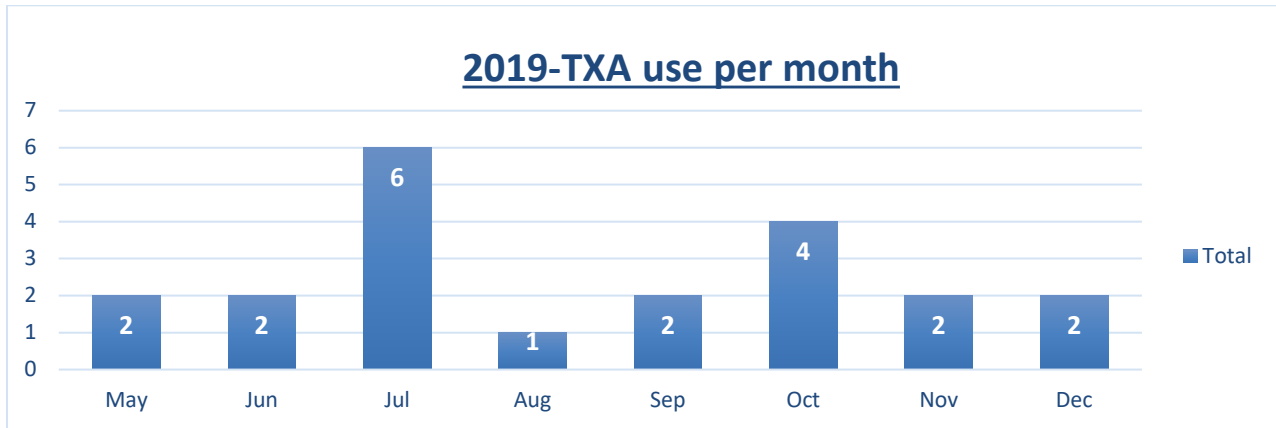


Figure 5

Spinal Motion Restriction Policy Implementation Monitoring

Spinal Motion Restriction (SMR) policy was implemented in June 2019 to replace the previous spinal immobilization practice. Following implementation, the use of SMR for blunt trauma decreased by 82%. SMR for penetrating trauma decreased by 90%.

An SMR training video was created by Doctors Dave Shatz and Kevin Mackey and our Medical Director Hernando Garzon. The video has over 2,400 viewings since its posting on the SCEMSA web site, with over 500 people taking the continuing education quiz. The return on the education investment clearly shows with the following SMR comparison numbers:

Documented SMR 's Mode of Injury			
Mode of Injury	Jan-Mar 2019	Jul-Sep 2019	Jan-Mar 2020
Blunt	3878	840	691
Blunt,Burn	7	2	1
Blunt,Other	360	86	57
Blunt,Other,Penetrating	43	9	10
Blunt,Penetrating	257	58	39
Burn	9	2	1
Other	1295	291	197
Other,Penetrating	71	15	14
Penetrating	263	60	25
(blank)	1050	212	164
Grand Total	7233	1575	1199

Figure 6

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Law Enforcement Administration of Naloxone

SCEMSA continues to monitor the administration of naloxone. Monitoring includes:

- Ensure law enforcement agencies have trained all officers in proper handling of naloxone
- Collect documentation and reports of incidents requiring naloxone administration
- Follow up with patient care report information to ensure proper documentation from EMS provider
- Provide feedback and continuous support to law enforcement

Figure 7 illustrates the incidents in which law enforcement administered naloxone and the patient outcome in each documented incident.

<b>Citrus Heights Police Department</b>	<b>Folsom Police Department</b>	<b>Galt Police Department</b>	<b>Sacramento Police Department</b>	<b>Sacramento Sheriff Department</b>
2/26/19 – Patient Improved	3/17/19 – Patient Improved	6/22/19 – Patient Improved	3/1/19 – Patient Improved	6/25/19 – Patient Unchanged
	3/26/19 – Patient Improved	8/18/19 – Patient Improved	5/15/19 – Patient Improved	9/3/19 – Patient Unchanged
	8/2/19 – Patient Unchanged	10/23/19 – Patient Improved	6/18/19 – Patient Unchanged	9/10/19 – Patient Improved
	9/20/19 – Patient Improved		7/8/19 – Patient Unchanged	
	11/28/19 – Patient Improved		8/5/19 – Patient Improved	
			9/20/19 – Patient Unchanged	
			10/9/19 – Patient Improved	
			12/26/19 – Patient Improved	

Figure 7

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Ambulance Patient Off-load Times (APOT)

APOT times continued to be a challenge in 2019 when compared to the previous year as illustrated in *Figures 8 and 9*. The APOT-1 numbers include public and private agencies. Sacramento County EMS is actively working with the hospitals and EMS providers to address this and find a solution.

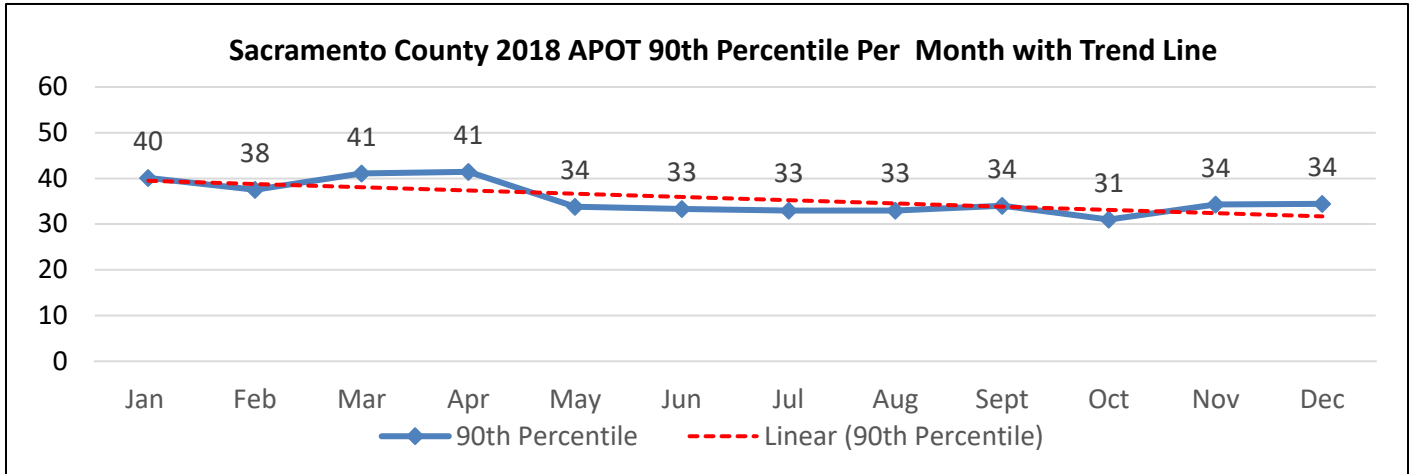


Figure 8

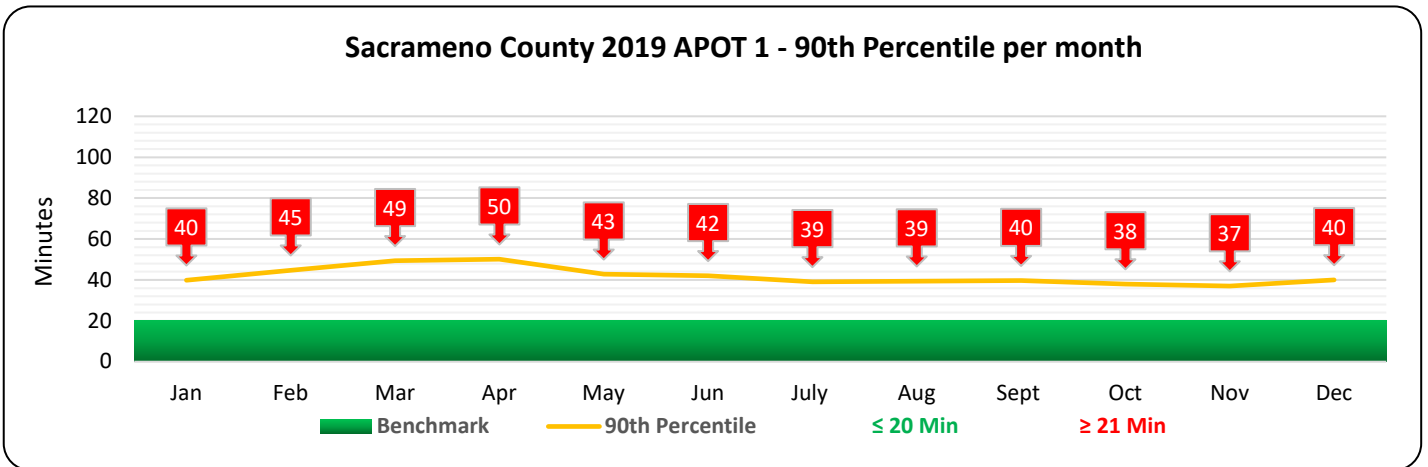


Figure 9

**2020 Plans**

We continue to work on improving reporting capabilities and provider accountability to meet or exceed the State of California standards while continuing to build relationships with EMS providers and hospitals throughout the region. Areas of focus include education, training, proper documentation, monitoring of Core Measures performance indicators and feedback to stakeholders. SCEMSA continues to collaborate with stakeholders to identify and address system needs.