

# Contra Costa County EMS Agency



## 2020 Trauma System Plan Status Report

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CONTRA COSTA  
HEALTH SERVICES  
Emergency Medical Services

# SUMMARY OF TRAUMA PLAN STATUS REPORT

The trauma system is one component of the Contra Costa County Emergency Medical Services (CCEMS) System. The various individuals and committees listed in the organizational structure of the trauma plan serve vital roles in facilitating the effective operation of the Contra Costa County trauma system. In operation since 1985, the system has one designated Level II ACS verified Trauma Centers, John Muir Walnut Creek, that serves 1.2 million. Contra Costa County EMS also has written agreements with UCSF Benioff's Children's Hospital Oakland for our <14 years pediatric population.

Trauma registry data indicates that there were 1,821 trauma patients seen at the Contra County Trauma Center during the reporting period which remains consistent with prior years.

The goal of the Contra Costa County Trauma System is to facilitate excellent trauma care for all Contra Costa County residents and visitors. CCCEMS continues to strive to meet this goal throughout on-going system evaluations and implementation of improvements as needed. A close partnership continues with Alameda County as we collaborate in our quarterly Trauma Audit Committee meetings.

Our objectives include;

- Continue to implement a comprehensive Trauma QI Plan. Trauma QI activities during the reporting period included:
- Data monitoring in Trauma 1 to track and trend potential issues. On-going monitoring of trauma on-scene times.
- Review of pediatric trauma patient transports, particularly in catchment areas such as East County that frequently have long transport times.
- On-going monitoring of the use of helicopters for appropriate utilization.
- On-going monitoring of patients under-triaged to non-trauma centers and patients self-presenting to non-trauma centers to improve our Trauma Re-triage Guidelines as necessary.
- Future plans to revamp our county's field treatment guidelines pertaining to bleeding control with the focus on creating a new field treatment guideline in 2020 for "major hemorrhage control".
- Close partnership with our one (1) Base hospital which includes frequently reviewing Base audio calls with the MICNs and prehospital personnel on a bi-monthly basis at the Base hospital to improve communication between prehospital and hospital personnel with a focus to track and trend trauma destination calls and other trauma related calls.

In 2020, Contra Costa County implemented the use of the QuikClot L.E. hemostatic dressing for all ALS and BLS personnel. To collectively bring together all available adjuncts for bleeding control, the LEMSA developed a new "Major Hemorrhage Control" Field Treatment Guideline (T09) included in this report.

## Organizational Structure

The Contra Costa County trauma system is an integral part of the EMS. The EMS Agency, a division of Contra Costa Health Services, is the Local EMS Agency (LEMSA) as designated by the Board of Supervisors. LEMSA staff include the EMS Director, EMS Medical Director, eight Prehospital Care Coordinators (nurse or paramedic), and three support staff.

John Muir Medical Center was designated as a trauma center by the County in May 1986, following a request for proposal process as the County's sole Level II Trauma Center. John Muir's designation was renewed in May 1992, following a second request for proposal process providing an additional opportunity for hospitals to seek trauma center designation. The term of the existing contract extends through May 2, 2021 with conditional automatic renewal to 2031.

Although John Muir is the county's sole designated trauma center, the County also recognizes UCSF Benioff's Children's Hospital of Oakland as an Alameda County designated Level I Trauma Center with specialized capability to care for pediatric trauma. The LEMSA has established mechanisms to assure that most pediatric trauma is transported directly to Children's Hospital.

The LEMSA is responsible for overall trauma system monitoring, quality improvement, and oversight of administration of the trauma center designation contract. The established trauma system quality improvement process includes a joint Alameda-Contra Costa County Trauma Audit Committee (TAC), and a trauma registry maintained both by John Muir and by the County EMS Agency.

### **Trauma Injury Prevention Program**

The John Muir Injury Prevention Program has received National Awards of Recognition for its programs and service to the community. John Muir Trauma Services has reached over 20,000 Contra Costa residents directly. In 2020, John Muir was able to continue to implement and improve Trauma Services' Injury prevention/ intervention projects of 2010: *Beyond Violence and Alcohol Screening and Brief Intervention for High Risk Drinking Behavior*. Described below, the following projects continued in 2020:

#### **Beyond Violence**

Modeled after Highland Hospital's "Caught in the Crossfire," "Beyond Violence" is aimed at reducing retaliation and re-injury to trauma patients, ages 15-25 years that result in street violence. In 2019 this program was able to expand because of the generous grant from the CARESTAR foundation. Through partnerships with community-based organizations, RYSE Center, One Day at a Time, and The Center for Human Development, trained intervention specialists engage with eligible youth who are treated at our medical centers due to injuries they sustained from intentional violence. In addition, through a new partnership with the community-based organization *Fred Finch Youth and Families*, mental health services are now offered to all Beyond Violence clients. The primary goals of Beyond Violence are to prevent retaliatory violence and to reduce the number of patients injured by interpersonal violence, reduce entry to the hospital and the criminal justice systems, and link patients with local resources.

#### **Screening and Brief Intervention (SBI) for High Risk Alcohol Consumption**

Screening and Brief Intervention (SBI) has been an injury prevention practice since 2006 for trauma patients at John Muir Health. Research has shown a strong correlation between alcohol use and risk for injury. Evidence has also shown that when at-risk drinking behavior is addressed through even a brief intervention with a health care provider, attitudes and behaviors around alcohol use can change, effectively decreasing an individual's risk for injury. Aimed at trauma in-patients, John Muir's goal is to screen and intervene with eligible patients prior to discharge. In 2019, the Trauma Center provided re-education to staff on administration of the screening tool and on effective interventions with patients. Evidence-based screening and brief interventions continue to be conducted routinely with admitted trauma patients.

## **Childhood Occupant Protection**

### Car Seat Program

The primary goal of the Child Passenger Safety Program is to educate children ages 0-15 years, parents, and other care givers in the proper use of child safety restraints. This program remains a minor injury prevention effort, with the primary focus of distribution of child passenger safety restraint systems to low income families.

## **Occupant Protection for Teens**

“Every 15 minutes” usually held at 4 area schools, was put on hold due to Covid-19 restrictions.

## **Child Injury Prevention Network-Bay Area (CIPN) (virtual)**

Founded in 2007 with the aim of bringing together individuals, agencies, and organizations that share a common goal, CIPN has strived to keep children safe from injury through education and outreach in our communities. CIPN is a multidisciplinary group of individuals and agencies crossing county lines committed to building community awareness of injury as a public health priority. Trauma is a major cause of pediatric preventable injury. The group provides networking opportunities, information and data-sharing, and offers individual expertise in various areas in injury prevention. Contra Costa and Alameda counties partner with UCSF Benioff’s Children’s Hospital of Oakland to support network activities.

## **Contra Costa County Pediatric and Neonatal Disaster and Medical Surge Network(virtual)**

This is an informal “grassroots” network of pediatric, neonatal, emergency care, and disaster professionals from all disciplines, working to support Pediatric and Neonatal Surge Preparedness efforts in our communities. There are no costs or fees. The only requirement is a willingness to participate with like- minded colleagues. A listserv connects participants with ideas, information, resources, and strategies for supporting regional pediatric surge and disaster preparedness on the local, regional and state level. It is anticipated that in a major earthquake, more than 380 pediatric trauma victims will require care in Contra Costa County alone. The Coalition has inspired locals to engage in statewide efforts to support disaster preparedness for infants and children throughout California and regularly reports activities to the EMSAAC Disaster Committee and State EMS for Children Technical Advisory Committee.

This meeting was sporadically held virtually due to Covid-19 restrictions.

## **Stop the Bleed**

John Muir Health continues to participate to educate bystanders in the community to intervene in a bleeding emergency. To date, the Trauma Center has provided this training to over 319 individuals.

In 2020, this program was put on hold due to Covid-19 restrictions.

### **Fall Prevention Classes, John Muir Senior Services**

In 2020, the Trauma Center continued to partner with the John Muir Senior Services department and with Meals on wheel Diablo Regio to provide fall prevention education to older adults throughout Contra Costa County. Contra Costa County's Trauma Center did not participate in external Fall Prevention Coalition meetings due to restrictions from Covid-19.

### **Child Death Review Team (CDRT) (virtual)**

In 1988, Child Death Review Teams (CDRTs) or Child Fatality Review Teams (CFRTs) were originally created by pediatricians to look closely at suspicious child deaths and not miss cases of child abuse or neglect. However, with time the process moved towards a comprehensive review of all child deaths to assess their preventability. The multidisciplinary team is comprised of select individuals from the coroner's office, law enforcement, public health department, district attorney's office, child protective services, Emergency Medical Services (EMS), SIDS programs, CRISIS, and others. Meetings occur bi-monthly where a procedural review of old and new cases, as presented by the coroner's office, is performed. Case reviews result in a classification of preventability into one of three categories: "probably preventable, unable to tell, and probably not preventable."

The general guidelines which the CDRT holds on preventability within the six categories are as follows:

1. *Abuse & Neglect-Related*: CDRT follows the stance of the CAPC and other organizations including the CDC, AAP and AAFP, which believes that all child abuse and neglect is ultimately preventable. Therefore, they are collectively given a "probably preventable" determination by the CDRT. Neglect- related deaths are the most preventable of these deaths since often adequate supervision of the child is all that would be necessary to prevent the death.
2. *Firearm-Related*: CDRT considers all firearm-related deaths to be "probably preventable." The thought behind this determination is that without the firearm the death would probably not occur.
3. *Healthcare Access-Related*: This encompasses, prenatal, medical, and mental healthcare. These cases do not follow generalizations and preventability must be accounted for individually for preventability. Each case is assessed for any warning markers beforehand, degree of action that would have to have been taken to treat the illness, and how effective it would have been in avoiding the demise.
4. *Motor Vehicle Accident-Related*: The CDRT asserts that as a form of an accident, they are probably all preventable.
5. *Sleep-Related*: The CDRT assesses the quality and quantity of the identified risk factors in the sleeping environment in order to determine preventability. For example, SIDS-Related deaths in a completely safe sleep environment, is considered probably not preventable while asphyxia in an unsafe sleep environment is considered probably preventable.
6. *Adolescent Risk-Taking -Related*: A stage of adolescence related to peer group pressures, a sense of invulnerability and an immature frontal cortex with attendant deficiencies of impulse control and judgement. The CDRT views these deaths to be probably preventable.

A copy of the report is available upon request



## **2020 Trauma System Data**

# Helicopter Utilization Report – 2020

## Contra Costa Patients Transported by Helicopter<sup>1</sup>

Origin	2017		2018		2019		2020	
		Pts.	%	Pts.	%	Pts	%	Pts.
<b>TOTAL</b>		<b>154</b>		<b>176</b>		<b>148</b>		<b>176</b>
East County	58%	89	62%	109	57%	84	94	53%
West County	30%	47	29%	50	24%	35	44	25%
South County	7.7%	9	3%	6	4.5%	7	8	5%
Central County	14%	9	5%	11	5%	8	12	7%
Not identified	3.3	0	0%	0	9.5%	14	18	10%

Source: Data provided to LEMSA by helicopter provider agencies.

## Helicopter Transports Originating Within Contra Costa by Provider Agency<sup>1</sup> (scene calls)

Provider	2017		2018		2019		2020	
	Pts.	%	Pts.	%	Pts.	%	Pts.	%
<b>TOTAL</b>	<b>154</b>		<b>176</b>		148		176	
CALSTAR <sup>2</sup>	86	56%	107	61%	83	56%		n/a
REACH	55	36%	66	38%	51	34.5%	158	90%
CHP	13	8%	3	0.02%	14	9.5%	18	10%

Source: Data provided to LEMSA by helicopter provider agencies.

<sup>1</sup> All transports originated within Contra Costa County.

<sup>2</sup> REACH purchased Calstar



## Helicopter Transports by Destination

Provider	2017		2018		2019		2020	
	Pts.	%	Pts.	%	Pts.	%	Pts.	%
<b>TOTAL</b>	<b>154</b>		<b>176</b>		<b>148</b>		<b>100%</b>	<b>176</b>
John Muir Health	113	73.3%	141	80%	111	75%	74%	130
Children's	19	12.3%	13	7%	12	8%	7%	12
UC Davis	5	3.3%	n/a	n/a	14	9.5%	7%	12
Eden	4	2.6%	n/a	n/a	4	2.5%	2%	3
SCVMC	5	3.3%	n/a	n/a	n/a		0	0
Other/Unknown	8	5.2%	22	13%	8	5%	10%	18

Source: Data provided to LEMSA by helicopter provider agencies. All transports originated in Contra Costa County.

# Contra Costa Trauma System Report – 2020

## Undertriage by Year

	2017	2018	2019	2020
<b>TOTAL UNDERTRIAGES</b>	<b>23</b>	<b>29</b>	<b>16</b>	<b>13</b>
Undertriage Rate <sup>2</sup>	1.2	1.6	1.5	1.1

Source: Data provided to LEMSA by John Muir Trauma Registry and Emergency Department Log. Note: Definition of Major Trauma Victim (MTV) modified in 2009 to include only patients with Injury Severity Score (ISS) of greater than 15. Number of patients retriaged to John Muir.

## Trauma Center Time on Trauma By-Pass by Year

2017	2018	2019	2020
< 0.01%	< 0.01%	<0.01%	0%

Source: Data provided to LEMSA from the ReddiNet system.

Base Hospital Activity	2017		2018		2019		2020	
	#	%	#	%	#	%	#	%
<b>Total Base related to Trauma</b>	n/a		n/a		4,965		4,903	
Trauma Activations	4,680		4862	81%	1,194	24%	1,146	23%
Trauma Destinations	Not	reported	Not	reported	3,346	69%	3,605	74%
Trauma Consults	Not	reported	Not	reported	59	1.8%	36	1%
Traumatic Arrest	87	1.5%	11	0.2%	13	0.2%	7	0.1%
Trauma Transfer/Retriage	147	2.5%	171	2.8%	253	5%	70	1.4%
Trauma AMAs	Not	reported	Not	reported	Not	reported	266	5.4%

Source: Data provided to LEMSA by John Muir Walnut Creek.

# Trauma Center - Activity Report 2020

All Trauma Patients Seen at the John Muir Trauma Center, Walnut Creek

	All Patients		Field Transports						Hospital Transfers	
			Total		From Contra Costa		From Another County			
	#	%	#	%	#	%	#	%	#	%
<b>TOTAL PATIENTS</b>	1821	100%	1568	86%	1310	72%	258	14%	253	14%
Adult Total	1816	97%	1563	99.7%	1306	99.7%	257	99.6%	253	14%
Pediatric Total	5	3%	5	0.3%	4	0.3%	1	0.4%	0	0
<b>Injury Type</b>										
Blunt	1602	88%	1406	90%	1174	90%	232	90%	196	77%
Penetrating	219	12%	162	10%	136	10%	26	10%	57	23%
<b>Mode of Arrival</b>										
Air Ambulance	147	16%	145	9%	47	4%	98	38%	2	8%
Ground Ambulance	1487	82%	1305	83%	1229	94%	76	30%	182	72%
Private Vehicle	50	2%	50	3%	20	2%	30	12%	0	0
Other	0	0	0	0	0	0	0	0	0	0
<b>County of Injury</b>										
Contra Costa	1779	98%	1310	84%	1310				110	44%
Solano	37	2%	32	2%			32	12%	5	2%
Alameda	6	0.3%	5	0.3%			5	1.9%	3	1%
Marin	0	0	13	0.8%			13	5%	0	0
Napa	0	0	1	0.06%			1	0.4%	0	0
San Francisco	1	0.05%	0	0			0	0	1	0.3%
Other	0	0	1	0.06%			1	0.4%	0	0
<b>Injury Severity</b>										
ISS >15 (Major Trauma)	293	16%	244	17%	183	14%	61	24%	49	20%
ISS <15 (Not Major Trauma)	1496	84%	1292	83%	1099	86%	193	76%	201	80%
<b>ED Disposition</b>										
Admitted	1110	61%	907	58%	718	55%	189	73%	209	80%
Expired	12	1.7%	12	8%	11	0.8%	1	0.4%	0	0
Home	639	35%	595	38%	531	41%	64	25%	44	17%
Transfer	29	1.6%	5	3%	24	1.8%	5	2%	10	4%
Other	31	1.2%	5	3%	26	2%	5	2%	0	0

Source: Data provided to LEMSA by John Muir Trauma Registry.

# Trauma Center Activity Report

All Trauma Patients Seen at the John Muir Trauma Center, Walnut Creek by Year<sup>3</sup>

	2017	2018	2019	2020
<b>All Patients</b>	<b>1,947</b>	<b>1,988</b>	<b>2,019</b>	<b>1,821</b>
Adult	1,945	1,981	1,981	1,816
Pediatric	2	7	2	5
<b>Injury Type</b>				
Blunt	1,748	1,867	1,832	1,602
Penetrating	197	177	189	219
Unknown	0	0	0	0
<b>Mode of Arrival</b>				
Air Ambulance	113	112	119	147
Ground Ambulance	1,772	1,821	1,720	1,486
Private Vehicle	47	20	62	50
Other	0	0	2	0
<b>County of Injury</b>				
Contra Costa	1,778	1,795	1,598	1,420
Solano	49	43	51	32
Alameda	15	18	10	5
Marin	8	6	12	13
Napa	2	1	0	1
Sonoma	0	2	1	0
Other	9	3	13	1
Unknown	6	0	0	0
<b>Injury Severity</b>				
ISS >15	246	276	283	293
ISS <15	1,701	1,692	1,669	1,493
Unknown		0	0	0
Major Trauma	12.6%	12%	14%	16%
Not Major Trauma	87.4%	88%	83%	82%
<b>ED Disposition</b>				
Admitted	1,254	959	1,138	1,514
Expired	8	17	25	12
Home	611	828	793	639
Transfer	32	40	22	10
Other	42	58	44	31
Unknown	0	0	06	0

Source: Data provided to LEMSA by John Muir Trauma Registry and Emergency Department Log.

<sup>3</sup> Includes patients transported from Contra Costa County, from neighboring counties, and from hospitals within/outside of Contra Costa.

