



**MONTEREY COUNTY
EMS AGENCY
TRAUMA PLAN
UPDATE
2019**



Monterey County Emergency Medical Services Trauma System Update 2019

SUMMARY OF THE PLAN

The Monterey County EMS Agency (MCEMSA) Trauma Care System Plan was developed in compliance with California Health and Safety Code, Section 1798.160 et seq. and California Code of Regulations, Title 22, Sections 100253 through 100258. MCEMSA's organized system of the care for trauma patients has been in place since 2015. MCEMSA's original plan was approved by the California EMS Authority (EMSA) in 2014. This is the first update to that plan.

The Monterey County EMS System has one Adult Level II trauma center, Natividad Medical Center (NMC). The EMS System does not have an in-county pediatric trauma center. The closest pediatric trauma centers are Santa Clara Valley Medical Center (SCVMC), 62 miles northeast of NMC, and Stanford Healthcare, 80 miles north of NMC.

Pediatric patients who meet Step 1 or Step 2 Centers for Disease Control (CDC) Trauma Triage Guidelines are transported to one of the Pediatric Trauma Centers by air ambulance or ground ambulance. If the air ambulance is unable to be used and the patient is too critical to survive a ground transport to a pediatric trauma center, NMC accepts, stabilizes, and transfers the patient.

Pediatric patients who meet Step 3 of the CDC Trauma Triage Guidelines are transported to NMC. Pediatric patients meeting Step 4 of the CDC Trauma Triage Guidelines can be seen at any of the EMS Receiving Hospitals in Monterey County or the surrounding areas.

Monterey County encompasses a population of 437,907 people in 3,771 square miles.¹ In 2015, following a competitive process, the Monterey County EMS Agency designated Natividad Medical Center (NMC) as the first and only trauma center in the County. NMC was verified by the American College of Surgeons Committee on Trauma (ACS-COT) in December 2018 as an Adult Level II Trauma Center.

Monterey County has used Lancet Technology's TraumaOne Trauma Registry since 2014 for data entry of the identified trauma patient. In 2017, the EMS Agency applied the CDC Trauma Triage Guidelines more strictly, which resulted in a smaller number of patients identified as meeting trauma triage criteria.

Multiple policy and protocol changes have occurred since NMC was first designated as a Trauma Center in 2015. This Trauma Plan Update specifies the changes. MCEMS

¹ <https://datausa.io/profile/geo/monterey-county-ca/>



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continues to refine and validate the data collection processes, and to look at the Trauma System utilizing available data to improve the system for all Monterey County residents and visitors.

2014 Trauma Plan Objectives

Objective 1: Approve the Trauma Care System Plan

Status: Completed. The Monterey County Trauma System Plan was approved by the California EMS Authority In 2014.

Objective 2: Adopt Trauma Policies

Status: Completed. The Monterey County EMS Agency has had specific trauma policies in place since 2014. These policies have undergone several revisions, which are addressed in “Changes to the Trauma System” section of this plan.

Objective 3: Trauma Center Designation

Status: Completed. In January 2015, the Monterey County EMS Agency designated Natividad Trauma Center as the Monterey County EMS System’s sole Adult Level II Trauma Center. In December 2018, the American College of Surgeons’ Committee on Trauma verified Natividad Medical Center as an Adult Level II Trauma Center.

Objective 4: Training Plan

Status: Completed and Ongoing. In October 2014, all system providers were trained in the new and revised policies and procedures. Since that time, Monterey County has implemented additional training on all changes to trauma policies for all EMS field level providers.

Objective 5: Trauma Data Collection

Status: Completed and Ongoing. Monterey County (both the EMS Agency and Trauma Center) utilize the TraumaOne Trauma Registry from Lancet to collect data on all trauma patients transported via EMS.

Objective 6: Trauma Quality Improvement Process

Status: Completed and Ongoing: The Monterey County EMS Agency and NMC participate in the Santa Clara County Trauma Care System Quality Improvement



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Committee (TCSQIC), which functions as a Trauma Audit Committee. The Monterey County EMS Agency and NMC also participate in Santa Clara County's Trauma Executive Committee, which functions as a pre-TAC meeting, and ensures peer review on selected cases from trauma surgeons in Santa Clara County. Natividad Medical Center holds quarterly internal Trauma Service Improvement Committee meetings, which the EMS Agency Trauma Coordinator attends to receive input on the Performance Improvement activities of the Trauma Center, and to provide input on EMS Trauma System issues. The Monterey County EMS Agency also holds a quarterly Trauma Evaluation Quality Improvement Committee (TEQIC) meeting, attended by NMC's Trauma Program Manager, NMC's Trauma Medical Director, non-trauma center physician representatives, EMS providers, and the EMS Agency to review trauma system data and offer input on issues identified in the Trauma System.

Current Objectives:

Objective 1: To continue to monitor the care provided in the trauma system via data analysis, reporting of relevant data as appropriate, and participation in local and regional audit committees.

Objective 2: To further develop the trauma data system to ensure accurate data is available for EMS system stakeholders and reporting to other entities as required by regulation and statute.

Objective 3: To continue to analyze the care being provided to trauma patients at the field level, including patient assessment, treatment, and destination.

Objective 4: To enhance the analysis of the use of air ambulances in Monterey County to ensure appropriate utilization.

Objective 5: To revise and develop policies and procedures based on new information and identified need.

Objective 6: To use the EMS Agency staff epidemiologist to gather, analyze and report trauma-related data.

Objective 7: To continue to integrate non-trauma-center hospitals (in both Monterey and adjacent counties) in trauma system planning and quality improvement efforts.

Objective 8: To continue to analyze trauma system funding, costs, and reimbursement to ensure the long-term financial viability of the trauma system.



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Objective 9: To continue to refine assessments of issues identified in the field provision of care to the trauma patients, training in areas identified as deficient, and follow up to ensure that the training met the identified need.

Changes to the Monterey County Trauma System

- In 2016, the Trauma Triage Criteria was changed from MAP criteria (Mechanism-Anatomic-Physiologic) to the Centers for Disease Control Trauma Triage Criteria. This added an additional level of trauma patients to the overall identification of trauma patients.
- In July 2016, Natividad Medical Center received a Consultative visit by the American College of Surgeons Committee on Trauma (ACS-COT). Over the next 2 years, NMC worked to correct deficiencies, including hiring a Trauma Performance Improvement Nurse, an Injury Prevention and Outreach Coordinator, additional Trauma Registrars, and another Trauma Program Manager. A comprehensive Trauma PI process was instituted at NMC, and issues were identified and tracked until complete loop closure.
- On January 1, 2017, the Trauma System began to collect trauma patient age and sex, blunt vs. penetrating trauma, and times/time intervals.
- In January 2017, assignment of trauma triage criteria was refined to exclude patients who suffered from a traumatic injury but did not actually meet CDC Trauma Triage Criteria. This resulted in an overall drop in the number of patients identified as meeting trauma triage criteria.
- From 2015 – 2017, scene times were calculated from “arrival on scene” until “transport time”. Beginning on January 1, 2018, scene times were calculated from “patient contact time” until “transport time”. This shows up as shorter scene times, since there are frequently valid reasons for significant time intervals between “arrival on scene” and “patient contact times”.
- In 2018, the EMS Agency noticed a decline in the assignment of trauma triage step criteria. American Medical Response implemented a training program on the CDC Trauma Triage Criteria, as well as Monterey County policies regarding trauma patient destinations.
- On November 7, 2018, NMC received a verification visit from the ACS-COT. On December 19, 2018, NMC was notified by the ACS-COT that they had successfully passed the verification review and were verified as a Level II Trauma Center until November 7, 2021. No deficiencies were noted for this verification site visit. All deficiencies noted during the consultative visit in 2016 were resolved.



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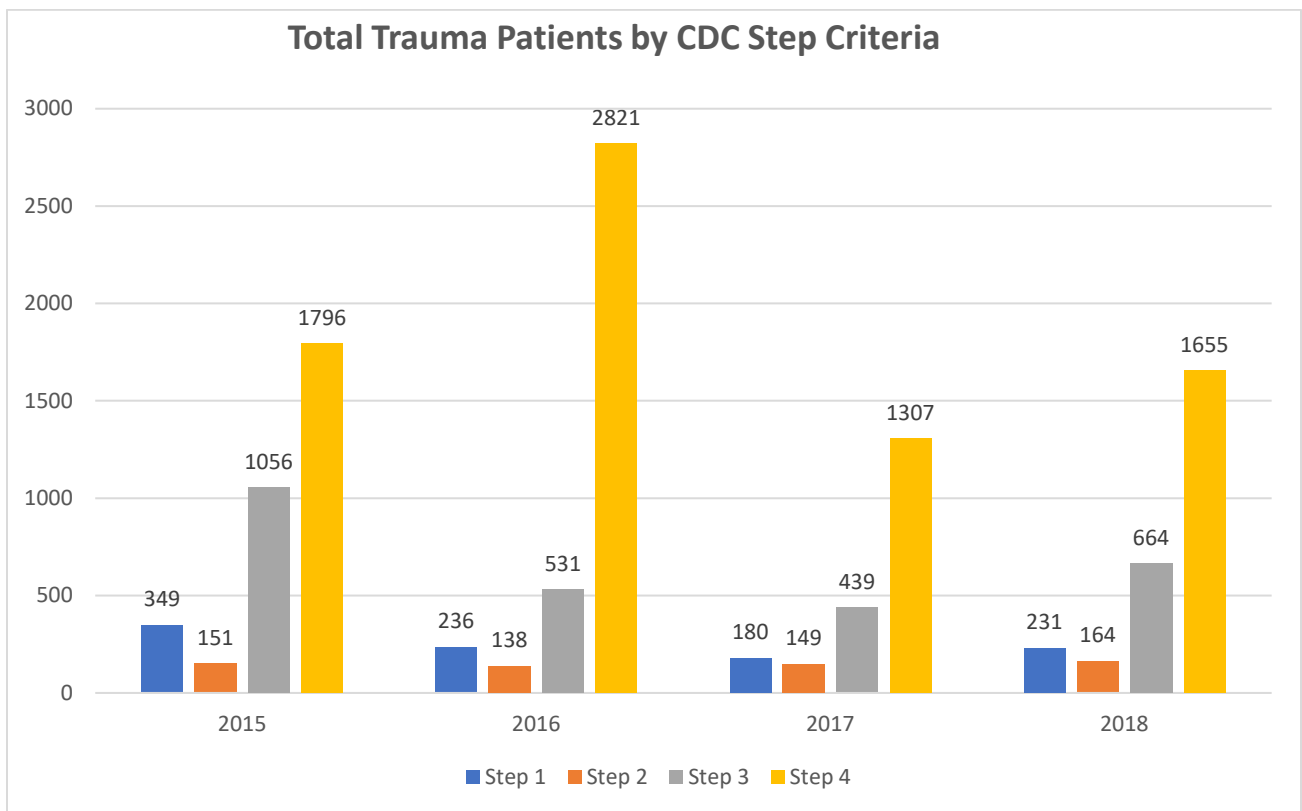
- Prior to 2019, all Step 1 – 2 trauma patients who were age 14 and under were transported to the nearest Pediatric Trauma Center in San Jose, a distance of 62.1 miles from NMC. If helicopters could not fly, parents refused, or if the child was too critical to survive the transport, the child was brought to NMC. Paramedics contacted NMC with Step 3 trauma patients who were age 14 and under for a destination determination. Frequently these patients were also flown to San Jose. Beginning in 2019, NMC clarified and simplified their processes. Pediatric trauma patients meeting Step 1 and/or Step 2 trauma triage criteria are to be flown to the closest designated Pediatric Trauma Center. If the patient cannot be flown for any reason, the patients are to be transported directly to the closest Adult Trauma Center. NMC will accept all pediatric patients meeting Step 3 Trauma Triage Criteria. Patients meeting Step 4 Trauma Triage Criteria can be transported to any hospital of the parent or guardian's choosing.
- Policy revisions and additions:
 - 2017 – Multiple administrative policies on trauma were condensed into one larger policy called The Trauma System.
 - 2018 – Burn protocols were re-written in collaboration with the Medical Director of the Burn Center at Santa Clara Valley Medical Center.
 - 2019 – New protocols were written for Traumatic Cardiac Arrest and for the Major Trauma Patient. Both of these policies are currently out for public comment.
 - 2019 – The Monterey County EMS Agency wrote a Performance Standard for the Trauma Patient Assessment, based on National Registry format and skill sheets and on Prehospital Trauma Life Support, 9th Edition, Chapter 6 (Patient Assessment and Management). While not mandated, use of this Performance Standard is strongly encouraged by the EMS Agency for EMS personnel.
 - 2019 - Revision of the Trauma Re-Triage policy, integrating the CDC Field Trauma Triage Step 1 and 2 criteria into the decision for re-triage to a higher level of care.
 - 2019 - Addition of a separate Pediatric Trauma Triage algorithm, written with significant input from the Trauma Services Medical Director at UCSF Benioff Children's Hospital Oakland.



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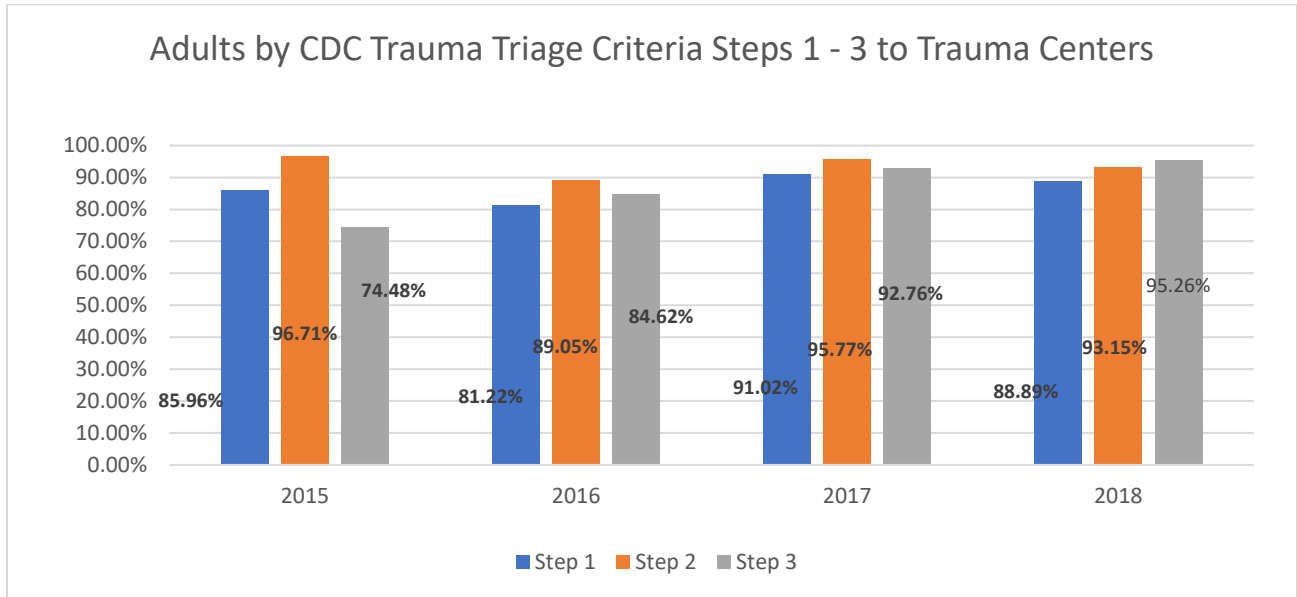
Trauma Data

The decrease in the number of Total Trauma Patients by CDC Step Criteria from 2016 to 2017 reflects the refinement of the data collection, primarily in Step 4 Trauma Triage Criteria. Trauma volumes increased slightly from 2017 to 2018, from 2075 in 2017 to 2,714 in 2018.

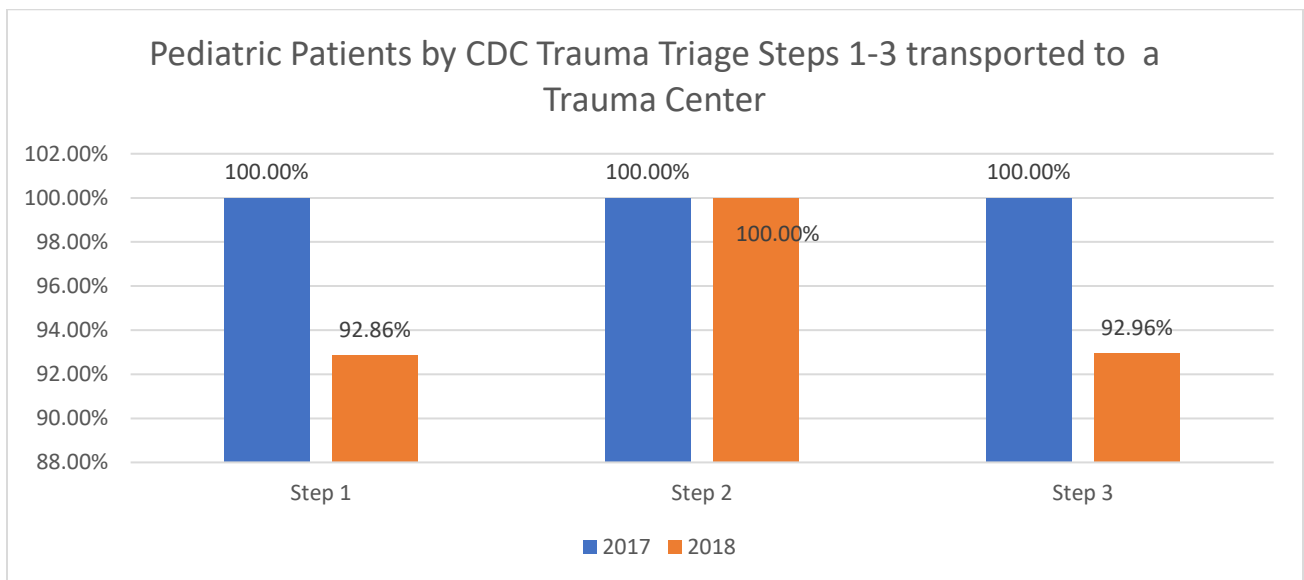




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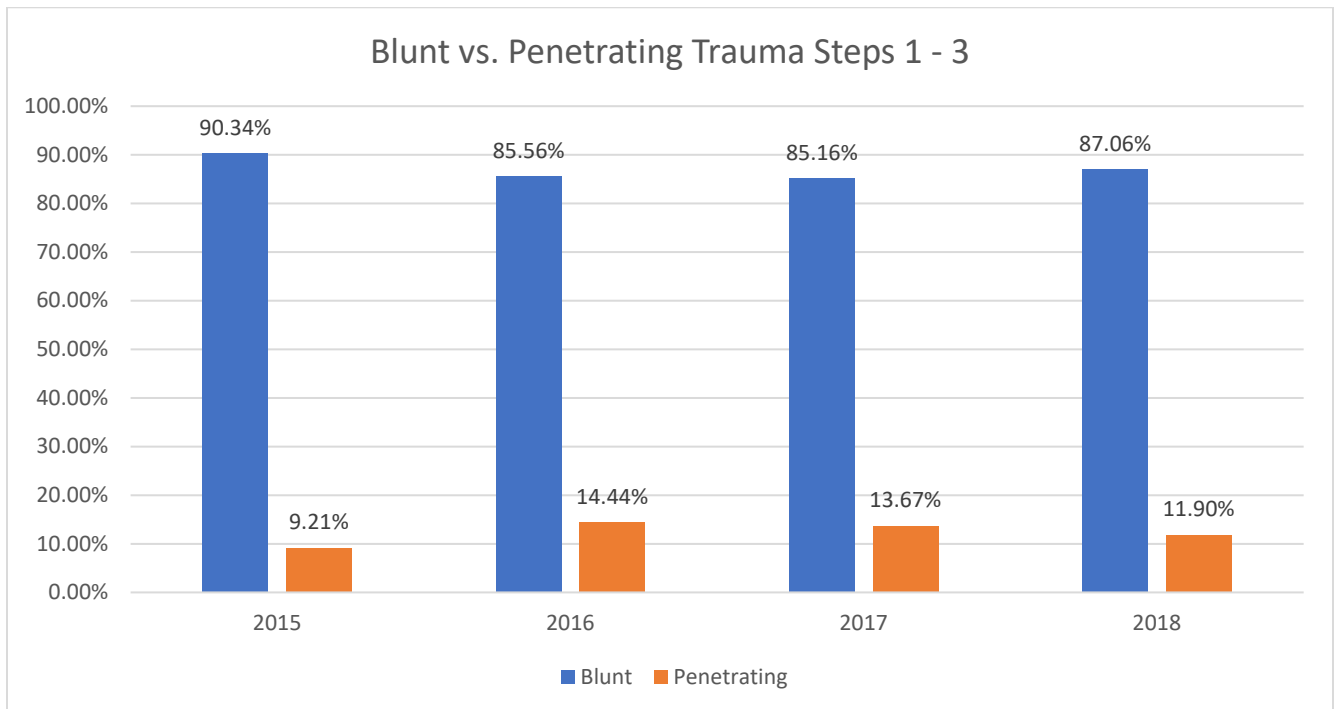
Monterey County EMS providers take the majority of Step 1 – 3 patients directly to Natividad Medical Center.



Pediatric patients meeting Steps 1 – 3 Trauma Triage criteria are seen primarily at Trauma Centers. Training on CDC Trauma Triage Criteria and destination determinations based upon these assessments were a training topic in late 2018.



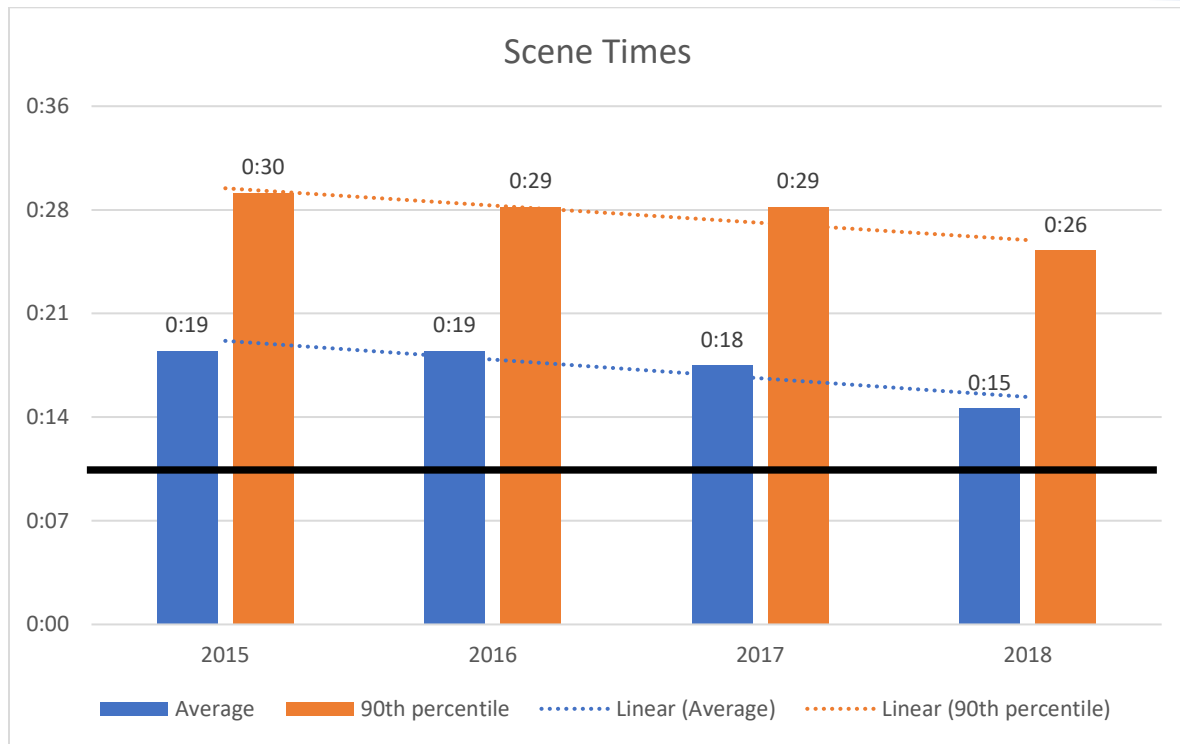
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Monterey County sees a significant amount of penetrating trauma, largely due to the presence of two prisons in the County. Correctional Training Facility (CTF) is a Level I and II prison, housing minimum to medium custody male inmates. Salinas Valley State Prison, (SVSP) is a Level IV prison, housing maximum security male inmates.



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The scene time goal is 10 minutes or less, per Monterey County protocols. However, things such as extrication, multiple patients, patient refusals, and other things can prevent that goal from occurring. Scene times for Monterey County are trending downward, a very good thing. Overall, scene times are 4 minutes less in 2018 than they were in 2019.