

3340 Glenwood Street, Eureka, CA 95501 (707) 445-2081 (800) 282-0088 FAX (707) 445-0443

NCEMS Plan: TRAUMA SYSTEM STATUS REPORT

October 3, 2019- Rita Henderson, RN, Regional Trauma and EMSC Nurse Contractor and North Coast EMS personnel, including Larry Karsteadt, Executive Director, Louis Bruhnke, Associate Director and Regional Disaster Coordinator, and Matt Karp, MD, Regional Medical Director.

This **EMS Plan: Trauma System Status Report** is based upon the Emergency Medical Services Authority, *Trauma System Plan Revision & Annual Trauma System Status Report Guidelines*, approved by EMSA August 2016.

- I. Trauma System Summary: North Coast EMS (NCEMS) is the local EMS agency for Del Norte, Humboldt, and Lake Counties.
 - A. Del Norte County: Sutter Coast Hospital in Del Norte County provides trauma care as part of the California and Oregon Trauma System and is jointly designated as a Level IV Trauma Center by the State of Oregon and NCEMS. The last site survey was conducted on November 4, 2016, for continued designation and will be again jointly conducted on November 14, 2019. EMSA's Trauma Manager, Elizabeth Winward, is planning to attend the site survey as well. Due to the large service area, and geographical isolation to neighboring facilities, Sutter Coast Hospital directly receives all trauma patients from Del No1ie County and southwestern Oregon. Sutter Coast Hospital is the only hospital within an 80-mile radius, and the closest higher-level Trauma Center is many miles away. We coordinate ongoing monitoring and evaluation of the Trauma System with the Sutter Coast Hospital Trauma Coordinator, Pati Tucker-Hoover, RN. Sandy Saunders, MD, continues in the role of Trauma Medical Director. Further evaluation is ongoing through updates received from participation with CEMSIS/Trauma data collection, periodic attendance at monthly Medical Advisory Committee (MAC), periodic Trauma Advisory Committee (TAC) meetings, and ongoing dialog with NCEMS staff Recent calls identified the need to remind prehospital personnel of the importance of timely Trauma Alerts. Del Norte County Trauma Center representatives also function as part of the Oregon Trauma System (ATAB #5) which convenes routinely with Trauma Coordinator attendance. NCEMS staff will attend ATAB#5 meetings when conducted in Del Norte County. Additionally, Sutter Coast Hospital representatives attend the Humboldt-Del Norte TAC and the North-Regional Trauma Coordinating Committee (N-RTCC) as time allows.
 - B. <u>Humboldt County:</u> North Coast EMS last conducted designation surveys in Humboldt County at St. Joseph Hospital Eureka and Mad River Community

Hospitals on February 14/15, 2017. Both trauma hospitals in Humboldt County have established trauma transfer agreements between the two hospitals, shared imaging and real-time call schedule sharing/tracking. The last Humboldt - Del Norte TAC meeting was convened by NCEMS on August 14,2019, with one more meeting for 2019 scheduled for November 13,2019. NCEMS continues to monitor the Humboldt County Trauma System and is working with both facilities to ensure review of Trauma Triage activations, QI issues and integration of the Digital Innovations trauma registry. Recent communications identified an opportunity to enhance the local trauma case review process and to identify oppm1unities for enhancement of trauma registry data entry to ensure standardization at all four Trauma Centers.

St. Joseph Hospital, a Level III Trauma Center, with 24/7 neurosurgical coverage, continues with the ongoing commitment of Lisa Neuger, MD, FACS as the Trauma Medical Director and Brandon Klith, RN as the Interim Trauma Program Manager. Mad River Community Hospital, a Level IV Trauma Center, with a Level III 24/7 surgical commitment, also continues with an ongoing commitment from Luther Cobb, MD as the Trauma Medical Director and Tina Wood, RN as the Trauma Program Manager. The distance between the two facilities is 12 miles. Both hospitals actively participate in the Humboldt - Del Norte TAC and attend the No11h-Regional Trauma Coordinating Committee as time allows.

C. Lake County: Sutter Lakeside Hospital is designated as a Level IV Trauma Center. NCEMS coordinates ongoing monitoring and evaluation of the Trauma System with the newly appointed Trauma Nurse Coordinator, Kayla Gandolfi, RN. Further evaluation, through the coordination of the Lake County TAC, has been difficult to complete this year due an extended prior meeting day and low Lake County attendance of the piloted joint three-county TAC meeting on August 14th A Lake County TAC will be convened after the consultation/educational site survey schedule for November 12, 2019. Trauma patients meeting Trauma Triage Criteria are most commonly flown out of Lake County to the Level II Trauma Center in Santa Rosa, the Level I in Sacramento, and to a Level III in the Napa region. NCEMS has Agreements with Coastal Valley's EMS, Napa County EMS and Sacramento County EMS regarding reciprocal quality review. Lake County TAC meetings and QI reports have in the past been coordinated with the previous Trauma Nurse Coordinator; however, Ms. Gandolfi is new in her role and NCEMS is assisting with reestablishing these processes. Regular updates on Trauma System developments are provided at the bi-monthly Lake County EMCC meetings. Coastal Valley's EMS agency representatives continue to invite NCEMS representatives, as well as Sutter Lakeside Hospital's Trauma Nurse Coordinator and Medical Director to attend quarterly their TAC meetings. The Coastal Valley's Trauma Manager, Joanne Chapman, RN is planning to attend the November 12th survey. Sutter Lakeside Hospital's representatives will also attend the N-RTCC meetings as time allows.

II. Changes in Trauma System:

Rita Henderson, MSN, RN, continued under contract with NCEMS as the Regional Trauma and EMSC Nurse Contractor. Rita coordinated Trauma System oversight activities and Trauma Advisory Committee meetings; helped ensure implementation, standardization and ongoing submission of the Trauma One and Digital Innovations trauma registry data; attended N-RTCC meetings and the State Trauma Summit; and, provided technical expeltise relative to numerous other aspects of trauma care and Trauma System on a part-time, contractual basis. Annual Trauma Center Fees were approved by the Governing Board. All four NCEMS Trauma Centers have paid the annual fee, allowing limited though ongoing oversight of the three-county Trauma System.

The NCEMS Trauma Centers in Del Norte and Lake Counties continue to utilize Lancet Technology's Trauma One data registry program. Progress has been made, however, data transmissions from the North Coast region to EMSA have been reduced due to technical issues, now mostly resolved. Rita continues to work with Trauma Center representatives, as well as outreach to the vendor, to find solutions to data transmission hurdles related to needed system upgrades at Sutter Lakeside Hospital and an Oregon, web-based program that is different for Sutter Coast Hospital. Consideration is being given to shifting to another trauma registry program at Sutter Lakeside Hospital due to the long un-resolved issues with the Lancet Trauma-One program. The two hospitals in the Humboldt County Trauma System are using Digital Innovations trauma data registry program. The data for those hospitals has now been independently reviewed by the Regional Trauma Nurse Contractor and discussions continue regarding the collection and input of meaningful data into the registry, using the NTDS algorithm, at TAC meetings throughout the Trauma System. QI/PI has gradually evolved through case review during the Humboldt-Del Norte TAC meetings and Rita's independent review. Both St Joseph Hospital Eureka and Mad River Community Hospital have been able to successfully export their trauma registry data to the State with the Digital Innovations data registry program. Rita and another contractor are in the process of cleaning up the Regional Trmm1a Patient Destination Policy and opportunities to enhance the Trauma Center trauma registry transmission. quality improvement and case review processes continue.

III. Number and Designation Level of Trauma Centers:

The NCEMS region currently has four designated Trauma Centers.

- Level IV, with Level III commitment to 24/7 Surgery: Mad River Community Hospital, Arcata, CA (Humboldt County)
- Level III, with 24/7 Neurosurgery: St. Joseph Hospital, Eureka, CA (Humboldt County)
- Level IV: Sutter Lakeside Hospital, Lakeport, CA (Lake County)
- Level IV: Sutter-Coast Hospital, Crescent City, CA (Del Norte County)

IV. Trauma System Goals and Objectives:

and the second	Ensure that <i>Lancet-Trauma One</i> trauma registry, utilized by Sutter Coast (the Oregon web-based version) and Sutter-Lakeside Hospitals, and the <i>Digital In11ovatio11s</i> trauma registry utilized by St Joseph Eureka and Mad River Community Hospitals transmit required trauma registry data to the state registry, with review accessible by the NCEMS Regional Trauma Nurse Contracto1.	
	Action Steps•	
	Specific	Completion of successful trauma registry data transmission from each Trauma Center to ImageTrend/CEMSIS and the ability for NCEMS Regional Trauma Nurse Contractor to review.
	Measurable	NCEMS continues to coordinate with Lancet Technology, Oregon Trauma Registry representatives, Digital Innovations and the four Trauma Centers to facilitate completion. Trauma Nurse Contractor identified opportunities for improvement specific to uniform data entry by all Trauma Centers. The ongoing failure of Lancet-Trauma One program utilized by Sutter-Lakeside Hospital to effectively transmit data to the state repository may result in collaborative shift to another program.
	Attainable	Trauma registry data transmission to EMSA trauma registry and access to data for contractor and NCEMS.
	Relevant	Initiate, reinstate, and ensure timely and complete trauma registry data transmission to ImageTrend/CEMSJS from Sutter Coast Hospital, Sutter Lakeside Hospital, St. Joseph Hospital, and Mad River Community Hospital. Ensure ability to review by contractor and NCEMS.
	Time- specific	Ongoing progress reports from Trauma Centers to NCEMS at quarterly TACs and as needed. Data transmission from the Trauma Centers to ImageTrend/CEMSIS quarterly, under the following schedule: IQ19 submitted by June 30, 2019; 2Q19 submitted by September 30, 2019; 3Q19 submitted by December 3 I, 2019; 4Q19 submitted by March 31, 2020. Ongoing and unencumbered access for review by contractor and NCEMS.

2 data, and/or o	NCEMS utilization of CEMSIS-Trauma One Data and Digital Innovations registry I data, and/or other data as determined, to assess quality of care and ensure Trauma System oversight pursuant to state regulations.	
Action Stepss		
Specific	Ongoing learning and development of customized queries and reports to support evaluation of trauma care and trends in the NCEMS region. This currently involves review of Trauma Registry data from the designated Trauma Centers by contractor and NCEMS and disclosure protected case reviews at TAC meetings. This also requires uniform data entry into the regist1y to allow "apples to apples" comparison of trauma patient volumes, etc.	
Measurable	 At a minimum, track and trend the following data points region-wide and Trauma Center specific: Trauma patient volumes and activations Population demographics Injury type 	

	 Injury Severity Scores Patient outcomes/disposition Opportunities for Provider, Trauma Center, LEMSA and Trauma System enhancement Evaluate appropriateness and need of specific data points through direct discussion with Trauma Program Managers and QI review at TAC meetings. Initiate a quarterly QI project focused on an area of opportunity. Communicate with Lancet Technology and Digital Innovations as well as Trauma Center informatics representatives to facilitate review of all four Trauma Center's registry data, by contractor and NCEMS. Work with Trauma Center representatives to establish and enhance QI and case review processes. Communicate quarterly with Image Trend contact for EMSA regarding error reports as they occur.
Attainable	Regional Trauma Nurse Contractor to attend Lancet Technology Trauma One and Digital Innovations training when available. Additionally, seek out web-ex educational offerings for continued opportunities to improve utilization of registry. Conduct, at minimum, quarterly data review and sharing with Trauma Program Managers to increase familiarity with report development and facilitate accuracy of data. Review reports from EMSA utilizing regional data transferred to the state's system.Continue to work collaboratively with Trauma Center and other EMS representatives to enhance the Trauma <u>OI. data utilization</u> and case review processes.
Relevant	Reporting will be shared with Trauma Centers to assist identification of internal and Trauma System pelformance improvement goals. On-going review to facilitate accuracy of data targeted for transmission to state and national levels.
Time- specific	 Lancet Technology Trauma One training as needed to help resolve transmission issues and, at Sutter-Lakeside, consider collaborative shift to another program by June 30, 2020. Quarterly data download facilitated by Lancet Technology between Oregon Trauma One & contractor to obtain Sutter Coast Hospital's data. Quarterly data download facilitated by Lancet Technology from Sutter Lakeside Hospital and facilitated by Digital Innovations from Mad River Community m1d St Joseph Eureka Hospitals. Trauma Program Managers/Nurse Coordinators to submit data and case reports to NCEMS as requested for quarterly TAC meetings.

 3
 Ongoing development of the Trauma Advisory Committee (TAC) combined for

 3
 Humboldt and Del Norte Counties. Attendance, leadership, and coordination of Lake

 County TAC meetings.

 Action Steps

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Specif	Improve communication and ensure oversight of EMS and trauma related	d
	activities throughout the region. Develop formal, constructive and	
	collaborative case and data review processes.	
Measu	lead and attend quarterly TAC meetings. Del Norte representatives to regularly attend monthly Humboldt-Del Norte MAC and quarterly Humboldt-Del Norte TAC meetings. Contractor and NCEMS representatives to attend, lead, and help coordinate quarterly Lake Count TAC meetings.	
Attain	The quarterly meetings scheduled were an original goal and have not be attainable for Lake County this past year. Now that a new Trauma Nurse Coordinator has been assigned by Sutter Lakeside Hospital, this goal is attainable in all three counties for 2020. A standardized case review process has been established and is attainable using existing models. It the responsibility of the Trauma Managers/Trauma Nurse Coordinators complete ongoing QI/QA internally and work together within the region shared patients to ensure that this is successful. NCEMS will ensure that internal QI/QA is happening at each Trauma Center and will convene th TAC for oversight of educational cases and opportunities for improveme QI/QA is an important process for NCEMS, and we are working diligen throughout the region to prioritize this in a way that is meaningful, relevand and productive.	e is to on t he ent. ntly
Releva	 TAC meetings are exclusively related to the evaluation and input of Trauma Centers and Trauma System related processes. TAC meetings allow for data and disclosure protected case review, state, regional and county Trauma Systems updates, and provide a forum to gain insight on Trauma Center functions and create opportunities for Regional Trauma System improvement. Attendees can also call in to meetings. Video conferencing opportunities have been reviewed but have not been successful due to hospital firewalls. 	
Time- specifi	Convene quarterly TAC meeting in Lake and Humboldt-Del Norte Counties with one of the quarterly meetings for Humboldt-Del Norte convened annually at Sutter Coast Hospital in Del Norte County. The ne scheduled Humboldt-Del Norte TAC meeting will be November 13,201 None is yet scheduled for Lake County, and with a new Trauma Nurse Coordinator and a consultative survey scheduled for November 12,2019 TAC meeting is planned for the first half of 2020.	19.

4	Continue Trauma System and Trauma Center oversight in all three-counties and ensure ongoing funding the Regional Trauma Nurse Contractor position with Annual Trauma Center Fees.	
	Action Steps	s
	Specific	Annual Trauma Center fees from the four Trauma Centers have ensured the
		oversight of the Regional Trauma Nurse Contractor for the 2019-2020

	fiscal year at 30% time (0.3 FTE). NCEMS will continue to develop, coordinate and expand the process to oversee. evaluate and enhance the
	three-county Trauma System. This includes TAC meeting coordination,
	data collection and review, QI and case review, Trauma Center compliance
	processes, site surveys as needed, and state required Trauma System oversight responsibilities.
Measurable	Monthly Medical Advisory Committee (MAC), bi-monthly Lake County
	EMCC and quarterly TAC meetings, attended by representatives of key
	stakeholders, remains an ongoing opportunity for dissemination of information and enhancement of the Regional Trauma System.
Attainable	NCEMS remains available to accomplish Trauma Center site visits within
	Humboldt, Del Norte and Lake Counties. Quarterly TAC meetings will be
	scheduled to review/share data and implement QI. Governing Board
	approved Annual Trauma Center Fees allow NCEMS to continue to
	oversee the regional Trauma System with the availability of a qualified and independent Trauma Nurse Contractor.
Relevant	The Joint Powers Governing Board approved an Annual Trauma Center fee for each of the four Trauma Centers in Spring 2019. The fee is allocated to help cover associated costs with Trauma System and Trauma Center oversight. Annual Trauma Centers Fees will be periodically reassessed as we collaboratively work to ensure uniform data entry to accurately assess trauma patient volume, trauma activations, etc.
Time-	Attendance at Medical Advisory Committee meetings, monthly, and
specific	Trauma Advisory Committee meetings, quarterly. Trauma Center contract
	modification by July 2020 if needed to reflect any changes and review of the Annual Trauma Center Fees by June 30, 2020.

5	North RTCC	C and State Trauma Regulation Workgroup participation.
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	Specific	
		The development of a standardized regional approach to trauma care remains a priority mission. Participation by NCEMS Executive Director, Medical Director and Regional Trauma Nurse Contractor has been limited by time, budget and travel. Rita Henderson, RN, Nurse Contractor and Larry Karsteadt have attended a few meetings in-person or by teleconference in 2019. Our new Regional Medical Director, Matthew Karp, M.D., and representatives of designated Trauma Centers are also encouraged to attend. Executive Director Larry Karsteadt was appointed to the State Trauma Regulation Workgroup as the rural EMSAAC representative. He served on the same committee decades ago during the last revision to the State Trauma Regulations.
	Measurable	North RTCC subcommittee activities and attendance remain relevant to the NCEMS region. Direct representation of North Coast and rural trauma system needs as a member of the Trauma Workgroup is essential to the development of effective and feasible Trauma System standards within California. 7

Attainable	North RTCC membership has established a meeting schedule rotation between Sacramento, Chico and Redding. Rita Henderson, RN has attended all the quailerly meetings in 2019 by teleconference and Larry Karsteadt attended one meeting in person and another by phone. Lan-y collaborates with other LEMSA rural advocates prior to and after each Workgroup meeting to ensure statewide representation. He attended the first face-to-face meeting in 2019. His EMSAAC appointed back-up, Vickie Pinnette of SSV EMS, attended the second meeting and Larry plans to call in to the next meeting scheduled for October 8, 2019. He submitted comments to the draft Trauma Center standards update.
Relevant	Ability to participate is balanced by current LEMSA workload, ability to travel to attend meetings or teleconference in, and ongoing approval of Annual Trauma Center Fees. Larry is committed to attending as many Trauma Workgroup meetings as possible and will ensure that Vickie is prepared and informed if he cannot do so. He also plans to continue to keep regional TAC and key EMSAAC members informed of critical changes to the existing regulation.
Time- specific	 NCEMS Regional Trauma Nurse Contractor and Executive Director have provided recent representation via teleconferencing into the meetings. North RTCC Chair provides annual meeting schedule with 30-day reminders, supportive of allowing schedule adjustments for our region's attendees. Several Trauma Workgroup meetings are pre-scheduled for 2019-20. Target - N-RTCC meeting locations to consider including video-conferencing capabilities with greater priority.

6	University of California Medical Center - Davis and HRSA EMS for Children Grant participation	
	Action Steps	
	Specific	FY 2019-20 is the last year of an eight year federally (HRSA) funded EMS
		for Children grant scheduled to terminate the end of May30, 2020.
		NCEMS will continue to request participation by UCO-MC experts to
		assist with Regional Trauma System and EMSC enhancements through the
		grant period, including 2020 Trauma Center site surveys planned for
		Humboldt County and Emergency Department Approved for Pediatrics
		(EDAP) surveys in all three counties. All four Trauma Centers are also
		NCEMS designated EDAPs.
	Measurable	Invite UCD MC EMSC experts to pailicipate in site-survey y_{ys} .
	Attainable	UCD MC EMSC representatives to pailicipate in site surveys if r
	Relevant	Ability to participate is balanced by other grant priorities.

Time- specific	• Attend one or more Trauma Center and EDAP site surveys prior to May 30, 2020.

V. Changes to Implementation Schedule:

Last Submission: December 12, 2018, update provided for required actions August 2019 with State approval on August 26, 2019.

VI. System Performance Improvement:

A. Sutter Coast Hospital:

Performance Improvement processes begin with analysis of data collected on all patients meeting trauma criteria. Data sources are from PCRs, electronic health records, receiving facilities, medical examiner reports and the trauma registry. Processes are monitored for compliance with hospital specific indicators including ED length of stay > 6 hours with admission, delays in transfers, documentation specific to policy, all trauma related transfers. Levels of review begin with the Trauma Coordinator. Oppollunities for improvement are fullher reviewed by the Trauma Program Medical Director and when appropriate by a multi-disciplinary physician review committee. Systems issues are addressed by the Quality and Patient Safety Committee. Action plans are developed with loop closures identified and maintained by the Trauma Coordinator.

B. Sutter Lakeside Hospital:

The performance improvement process is coordinated by the Trauma Nurse Coordinator and Trauma Program Medical Director. This process begins with the identification of patients utilizing trauma triage criteria along with trauma related ICD-10 codes. Review is conducted on all traumatic deaths, delayed transfers, trauma admission with subsequent transfer, ED discharge with readmission within 72 hours, errors in assessment or treatment, complications, field transport issues, and any system issues. Results of findings are provided to the Trauma Program Medical Director for review, comments and involvement of appropriate Medical Staff Committees including a Trauma Multi-Disciplinary Review Committee. Additionally, there is a Quality Improvement Program Trauma Committee established in the Performance Improvement plan. Educational opportunities may be provided at staff meetings and field care audits.

C. St. Joseph Hospital:

Trauma Services has a formal performance improvement process. This allows for a multidisciplinary approach for rapid problem identification, data-driven analysis

and resolution of issues. The hospital Performance Improvement Quality Indicators include Readmission Rate, Partial Activation status with a disposition within 4 hours of registration, full activation status has a disposition within 120 minutes and 1-hour door-to-antibiotic time for all open fractures. Department specific core measures include mortality review, Trauma and Orthopedic Surgeon response time, appropriate neurosurgical care, etc. The process includes three levels of review starting with the Trauma Program Manager, escalating to the Trauma Medical Director and then to Trauma Peer Review Committee, as needed. Trauma Peer Review Committee meets quarterly and is multidisciplinary. Action plans are created by the Trauma Medical Director or Trauma Program Manager. The Trauma Program Manager is responsible for monitoring that the action plan is implemented, results are followed, and documented in the trauma registry.

D. Mad River Community Hospital:

The PI for the Trauma Program follows the guidelines of Mad River Community Hospital QA/PL 100% review of all Trauma admits to the ED/in-patient is completed by the Trauma Program Manager. All trauma deaths, ED or in-patient, are reviewed by the Trauma Medical Director. Data points as defined by ACS that do not meet benchmark are reviewed by the Trauma Program Manager and Trauma Medical Director and the following items are identified:

- System failures: EMS radio failure, EMS fails to follow NCEMS protocol, delay in admitting patient to the ED bed, inadequate monitoring, delay in initiating standard interventions (as defined by ACS and TNCC)
- Medical decision making delayed
- Transfer, if indicated, delayed
- Admission delayed
- Failure to follow MRCH Trauma Protocol

Any of the above items that are identified are documented along with a plan of correction which is approved by the Trauma Program Manager and the Trauma Medical Director and then presented to the Surgery Committee. The plan of correction will be put in place and monitored by the Trauma Program Manager. When the plan of correction is complete, the data points will be measured as scheduled and the detennination of how effective the plan of correction was will be evaluated. The results of the plan of correction and any other follow-up will be presented to the Surgery Committee. Routine quarterly monitoring of all data points will continue, even when a plan of correction is being can'ied out. The Trauma Registry is used as a measuring tool for additional data points identified by the Trauma Medical Director and/or the Surgery Committee as having validity for reporting, to improve any step in the MRCH Trauma Program. Any additional data collection/action identified by the NCEMS TAC will also be included in the PI Plan.

VII. Progress on Addressing EMS Authority Trauma System Plan Comments:

The NCEMS Agency's 2018 Trauma System Status Report was returned with a required action. Data through December 2018, from all four NCEMS Trauma Centers. was submitted to CEMSIS to fulfill the required action. The 2018 Trauma System Status Report was approved by EMSA, by letter dated August 26, 2019.

VIII. Other Issues: As an appointed member of EMSAAC, the Executive Director will participate in the process to update Trauma Regulations and provide opportunities for rural and regional participation in the review process. Executive Director Karsteadt served as the rural EMSAAC representative on the last Trauma Regulation revision.