RIVERSIDE COUNTY
EMS
AGENCY

October 15, 2018

Howard Backer, M.D.
EMS Authority Director
10901 Gold Center Drive, Suite 400
Rancho Cordova, CA 95670-6073

Dear Dr. Backer,

Enclosed is Riverside County EMS Agency's (REMSA) 2018 Trauma Plan Update. This update includes trauma system changes focusing on system Continuous Quality Improvement (CQI), patient focused data collection and system-wide education.

REMSA continues to monitor county wide trauma data in collaboration with Inland Counties EMS Agency (ICEMA) for trauma research and protocol development. Annually, both REMSA and ICEMA update an intercounty agreement specifically to the transport of trauma patients. Two major changes to REMSA policies this year include the addition of Tranexamic Acid (TXA) and Ketamine into local optional scope of practice. In addition to TXA into local optional scope, the data collected for this trial study was published in September 2018.

REMSA looks forward to your review and comments of the 2018 Trauma Plan Update.

Sincerely,

Bruce Barton
REMSA Director

Mailing Address: 4210 Riverwalk Parkway • Suite 300 • Riverside, CA 92505
Phone: (951) 358-5029 • Fax: (951) 358-5160 • TDD: (951) 358-5124 • www.rivcoems.org

RIVERSIDE COUNTY EMERGENCY MEDICAL SERVICES TRAUMA SYSTEM UPDATE 2018

Reza Vaezazizi, MD, REMSA Medical Director
Bruce Barton, BSEd, EMS Administrator
Shanna Kissel, MSN, RN, Assistant Nurse Manager

Table of Contents

I. Trauma System Summary

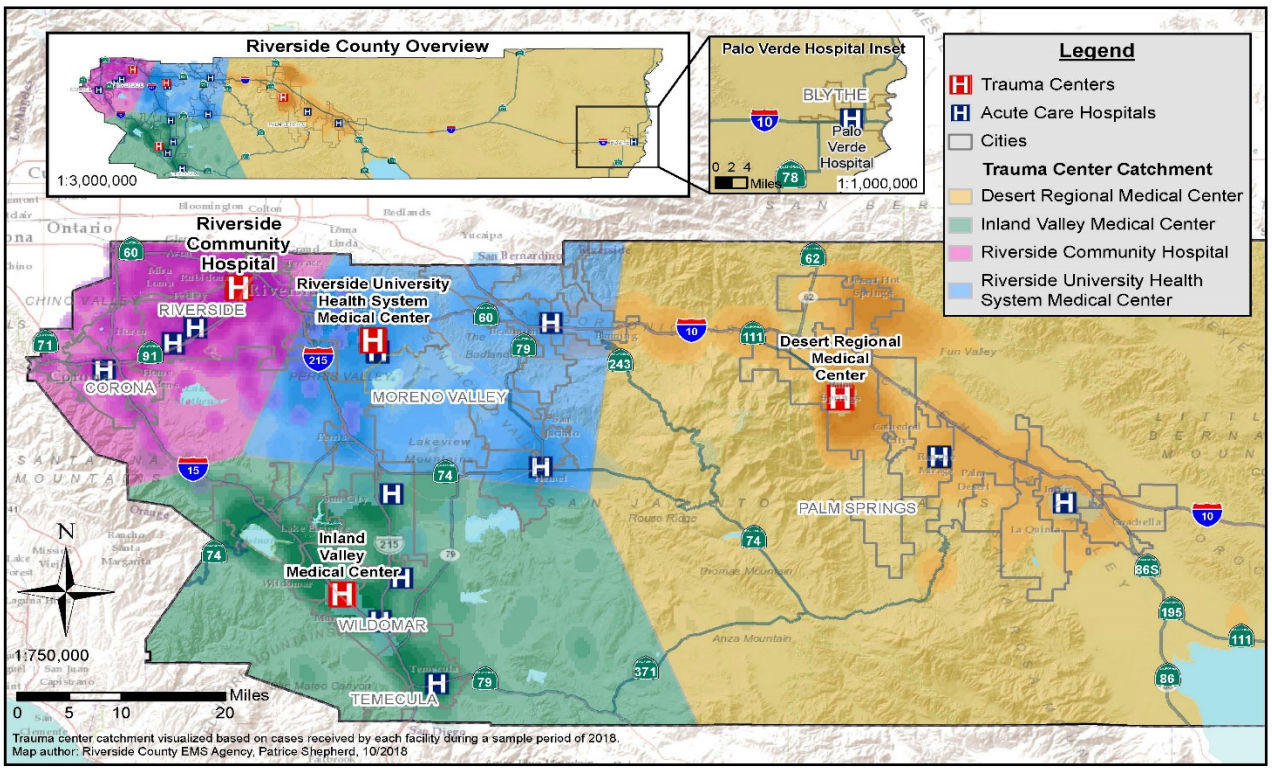
The Riverside County EMS Agency (REMSA) Trauma Care System Plan was developed in compliance with Section 1798.160, et seq., Health and Safety Code. REMSA's organized system of the care for trauma patients has been in place since 1994 with approval by the California EMS Authority, (EMSA) in 1995. The plan was last updated and approved by EMSA in 2017. This current Trauma Plan update reflects the 2017 data and information for Riverside County.

Riverside County's jurisdiction includes four Level II Trauma Centers, one of which is a Level II Pediatric Trauma Center (PTC). The PTC is located geographically towards the western region of the County and centrally within the majority of the County's population. All four trauma centers are distributed evenly within their respective population density.

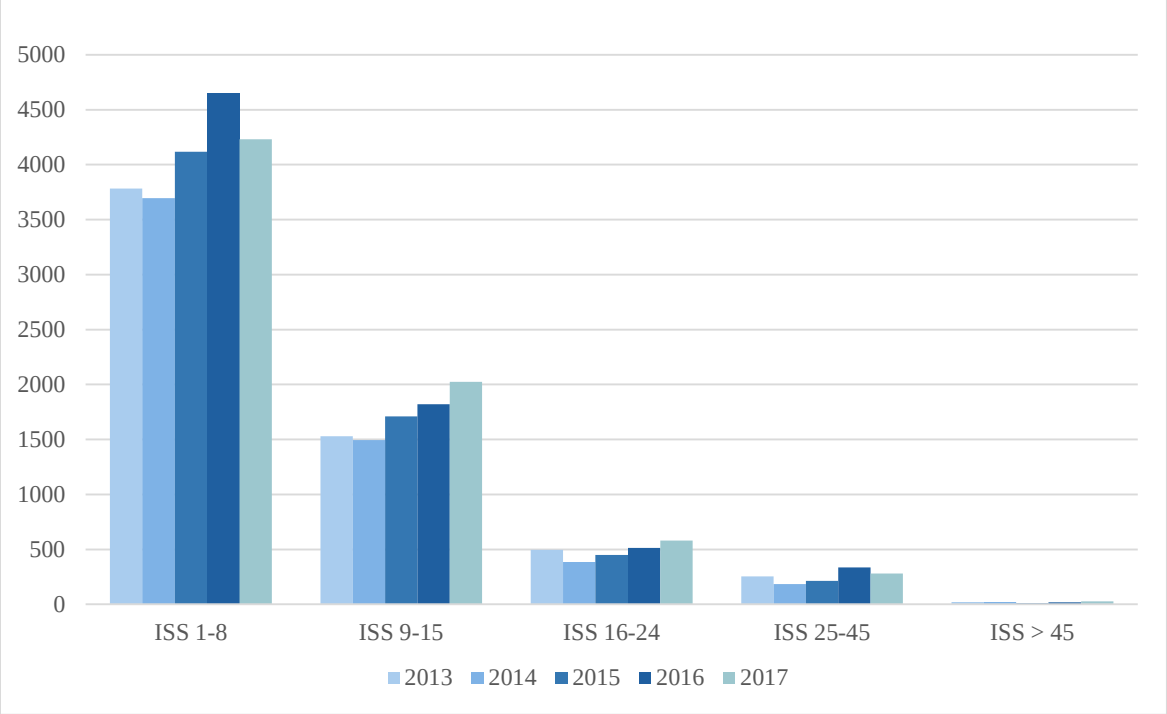
Catchment areas have remained the same; although population has increased throughout the County (see Trauma Center Population map below).

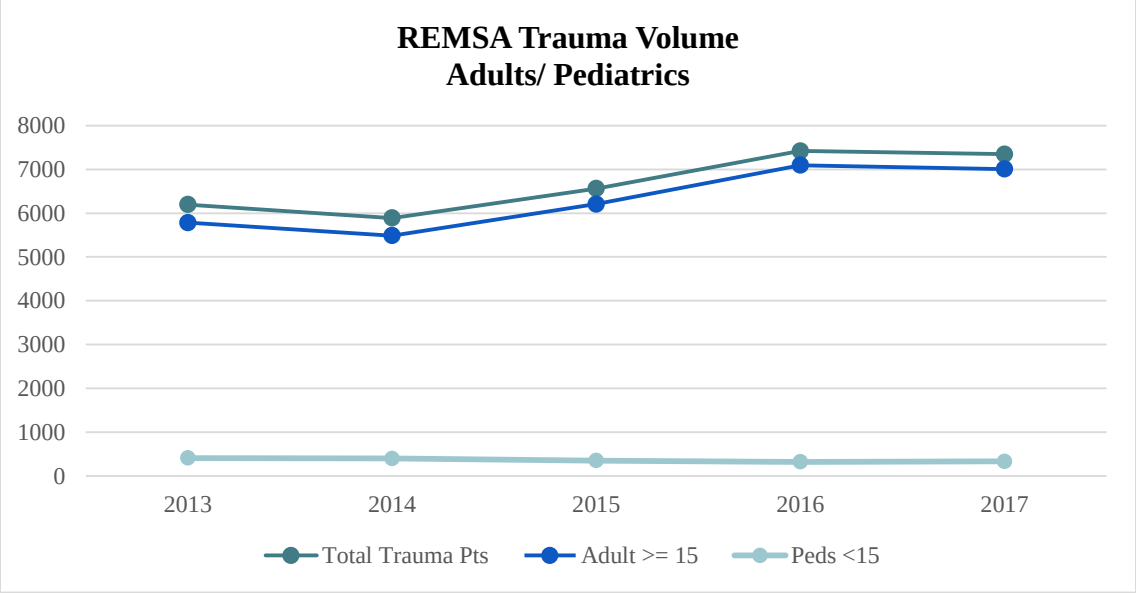
REMSA uses Digital Innovations *Collector*® Trauma Registry CV 5 for data entry for the identified trauma patient.

Riverside County Trauma Center Catchment Areas



REMSA ISS breakdown 2013- 2017





II. Changes in Trauma System

- American College of Surgeons- Committee on Trauma (ACS-COT) Verifications
- Inter-county Agreements
- Trauma Patient Registry
- Helicopter Emergency Medical Services (HEMS)- Continuous Quality Improvement (CQI)
- Policy Revisions and Additions
- Trial Studies
- REMSA Medical Director
- System Trauma Outreach

American College of Surgeons- Committee on Trauma (ACS-COT) Verifications

Currently in Riverside County, there are four Level II designated trauma centers; one of the four is Level II ACS Verified. The current contractual requirement between the LEMSA and trauma centers states that they must become ACS verified within the term. Trauma centers are continually being monitored for compliance with the standards outlined in the contracts. Since ACS updated its resource manual, emphasizing the Trauma System as a whole, the trauma center contracts continue to include criteria as mentioned both in Title 22 and within components of the ACS-COT 2014 resource manual. REMSA performs trauma site evaluations concurrently with the ACS site surveys every three years. (Appendix A: Trauma Center Review Form)

A. Riverside University Health System- Medical Center (RUHS- MC) received its ACS Level II re-verification in August 2017. Their goal in the future is to become a Level I trauma center. (Appendix B: RUHS-MC ACS Level II verification letter).
B. Riverside Community Hospital (RCH) had a consultation visit in February 2017 and plans to schedule the site verification in November 2018.
C. Desert Regional Medical Center (DRMC) had a consultation visit April 2017 and plans to schedule a site verification in early 2019.
D. Inland Valley Medical Center (IVMC) is scheduling a verification visit in November 2018.

Inter-county Agreements

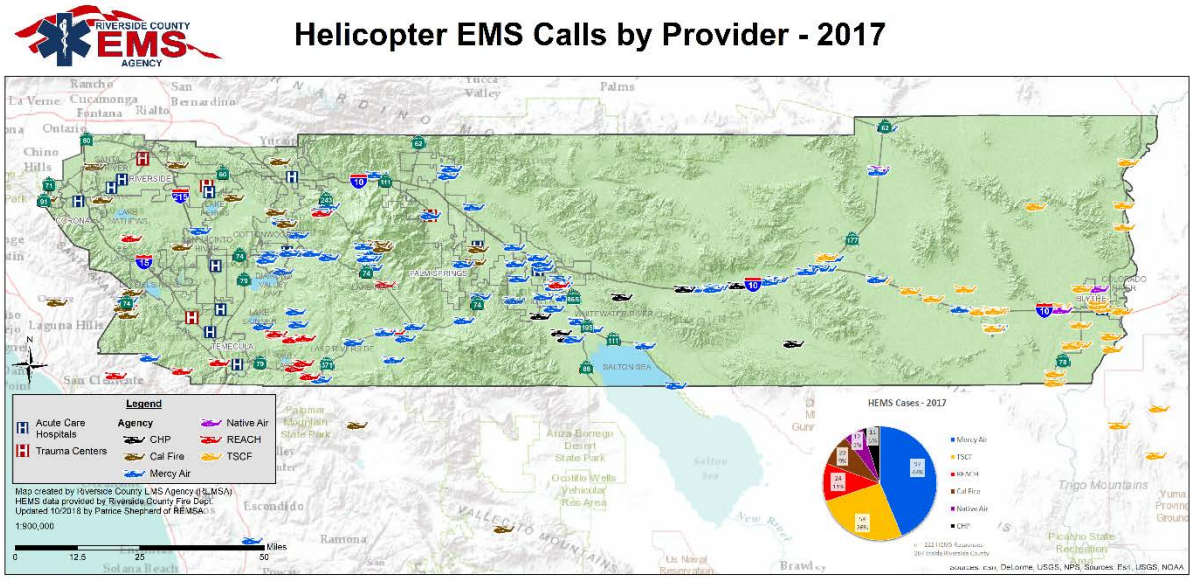
REMSA and Inland Counties Emergency Medical Agency (ICEMA) both have inter-county agreements regarding the acceptance of trauma patients—as they are occasionally transported from the scene across county borders. Both counties continue to work collaboratively to assure that the care delivered is optimal and in the best interest of the patients. Any EMS issues, identified in association with the transports between the two counties, will be reviewed by the LEMSAs and presented at TAC. (Appendix C: Inter- County agreements)

Trauma Patient Registry

REMSA and the trauma centers both currently use the trauma registry, Digital Innovations (DI CV5). This is a California EMS Information Systems (CEMSIS) and National Trauma Data Bank (NTDB) compliant registry that is web- and Windows- based. Data submission will be Health Insurance Portability and Accountability Act (HIPAA) compliant. (Appendix D: Patient Registry Data Elements) The data elements are updated on an annual basis with the most recent changes made to the National Trauma Databank Data Dictionary. Registry inclusion criteria includes at least one ICD-10 CM diagnostic code for any injury. In the next two to three years, REMSA is looking at running both Digital Innovations and the ImageTrend Trauma Registries for patient matching to EMS records.

Helicopter Emergency Medical Services (HEMS) - Continuous Quality Improvement (CQI)

The HEMS CQI committee monitors the appropriate use of the HEMS resources within the county. Since the restructuring of the committee in July 2015, HEMS providers continue to submit monthly air usage to REMSA using specific data elements (Appendix E: HEMS Data Elements). Beginning 2018, HEMS meetings will focus on case review, communication and system improvements. In the first quarter of the year, REMSA presents the HEMS call volume on a map for the previous year.



Policy Revisions and Additions

All trauma patient treatment policies are routinely updated with current standards of care and vetted through the regional TAC. REMSA works closely with ICEMA for treatment protocols as patients are transported across the county lines. The following policies are those that have been updated for the 2018 Policy Manual:

- *REMSA Policy #4301- Shock due to Trauma, Policy #4302- Traumatic Injuries;* Updated after Trial study was approved by EMSA.
  REMSA participated in the multi-county TXA trial study for the administration of TXA by the ground paramedics in the prehospital setting. The trial study policy identified the inclusion criteria, contraindications, procedure, and documentation requirements as approved by the State EMSA. The trial study began in June 2015 with completion June 30, 2018. EMSA approved TXA for Local Optional Scope (LOS) in May 2018. (Appendix F: REMSA Policy #4301) (Appendix G: REMSA Policy 4302)

- *REMSA Policy #5802- Ketamine for Analgesia*
  REMSA is participated in a multi-county trial study for the administration of Ketamine for Analgesia beginning April 2018 for participating agencies. This trial study allowed for the administration of Ketamine to improve pain management for patients for acute traumatic injury or acute burn injury. EMSA approved Ketamine for LOS in September 2018 (Appendix H: REMSA Policy #5802)

- *REMSA Policy #3304- Multiple Patient Incident (MPI/MCI) Scene Management*
  A change has been made to the MPI/MCI policy in order to improve patient outcomes after reviewing all multi-patient incidents and making the appropriate system adjustments. MPI is defined as incidents with more than one patient but less than 10 requiring transports. MCI is defined as incidents with more than 10 required transports or if deemed necessary by the Incident Command. (Appendix I: REMSA Policy #3304)

Trial Studies

REMSA participated in two multi-county trial studies for the pre-hospital administration of medications: Ketamine and TXA, both have concluded in 2018.

1. *Ketamine*: Beginning April 1, 2018, REMSA began enrollment in the multi-county Ketamine trial study. This trial study allows for the administration of Ketamine to improve pain management for patients 15 years old or older with acute traumatic injury or acute burn injury and a pain scale score of five or greater. During the trial study, each patient in the pre-hospital setting received an armband, which identified that they had received Ketamine in the field; this has since been removed. All Ketamine administrations had complete CQI and tracking by the LEMSA and those participating agencies. EMSA has approved the application to include Ketamine into LOS in September 2018.

2. *TXA*: The purpose of this study was to determine if pre-hospital administration of TXA, in trauma patients with signs of hemorrhagic shock, decreases mortality, blood product usage, and total blood loss. REMSA participated in the paramedic group of the study. As of January 1, 2018, there have been 208 appropriate administrations of the medication and 88 missed opportunities. All TXA administrations were thoroughly reviewed throughout the study. As the data collection for this study has concluded, all TXA administrations will continue to be CQI'd for appropriateness on the LEMSA and participating agency level. EMSA approved REMSA to include TXA in LOS in June 2018. Publication of the trial study outcome can be found at: https://escholarship.org/uc/item/9f99j268

REMSA Medical Director

As of 2017, Dr. Reza Vaezazizi is the Medical Director for REMSA, and is currently the Medical Director for Inland Counties EMS Agency (ICEMA) as well. In collaboration with ICEMA, REMSA is taking a regional approach when it comes to trauma care as the systems work closely together. This includes aligning policies and protocols in addition to participating in our quarterly regional TAC meetings.

Outreach

REMSA falls under the County of Riverside Emergency Management Department (EMD). The Preparedness Division under EMD is working with the Injury Prevention Coordinators at two of the four trauma centers to provide public education with the *Stop the Bleed Campaign*. The goal, for the public education, is offered bi-annually.

III. Number and Designation Level of Trauma Centers

Hospital	Trauma Designation Level	Designation/ Verification
DRMC Palm Springs, CA	II	Adult
IVMC Wildomar, CA	II	Adult
RCH Riverside, CA	II	Adult
RUHS-MC Moreno Valley, CA	II	Pediatric Trauma Center (PTC) ACS Level II Adults
Arrowhead Regional Medical Center *San Bernardino County	II	ACS Level II Adults, Burn Center
Loma Linda University Medical Center and Loma Linda University Children's Hospital *San Bernardino County	I	ACS Level I Adult and Pediatric, ICEMA designated trauma center

Scheduled changes: There are no scheduled changes to the Trauma centers at this time.

System changes: REMSA does not anticipate the need for any additional trauma centers at this time.

RUHS-MC has expressed interest in becoming a Level I Trauma Center within the next three years. REMSA will work with them to explore the need, additional state Level I regulatory requirements, and ACS-COT verification requirements.

IV. Trauma System Goals and Objectives

REMSA has developed the following goals and objectives for the Trauma System in 2017-2018:

Goal #1: Participate in regional activities with ICEMA

Objectives to Achieve Goal	Measure (s)	Timeline	Status
1. Participate in TAC 4x/yr.	Bring trauma cases from Riverside county to TAC to peer review with ICEMA trauma centers and Pomona Valley Medical Center. Cases are peer reviewed across county borders as a regional effort to improve patient outcomes. *PI Indicators updated in 2018	October 18, 2017 February 21, 2018 May 16, 2018 August 15, 2018 November 28, 2018	Complete Complete Complete Complete Pending

Goal #2: LEMSA to become more involved in county-wide drills

Objectives to Achieve Goal	Measure (s)	Timeline	Status
2. REMSA will be actively involved in countywide drills and exercises with stakeholders in the system	REMSA will participate in MCI/ Active shooter drills	- February 2018- March Air show exercise - March 2018- Table top exercise multi-patient management - April 2018- MCI exercise for special events - 2018- Full scale functional exercise for multi-patient management -November 2018- Riverside City Joint Active shooter exercise	Complete Complete Complete Complete Pending
	REMSA will participate in Disaster Preparedness activities	- October 2017- statewide table top exercise - November 2017- Active shooter drill - March 2018- Health care Coalition surge	Complete Complete Complete

Goal #3: LEMSA participation in Trial Studies

Objectives to Achieve Goal	Measure (s)	Timeline	Status
REMSA to participate in multi- county trial studies	Complete CQI on all patients receiving TXA in the pre-hospital setting Complete CQI of patients enrolled in Ketamine trial study	June 1, 2018 report due to state EMSA Trial study begins April 1, 2018	TXA LOSOP approved by EMSA Ketamine LOSOP approved by EMSA

Goal #4: ACS Verification of trauma centers system-wide

Objectives to Achieve Goal	Measure (s)	Timeline	Status
Hospital contracts were updated in	Provide support to those trauma centers that are not ACS verified, perform evaluations in line with ACS site visits	June 2020	As of January 2017, one of the four trauma centers is ACS Level II verified.

2017 to state they will achieve ACS Verification within contract term ending in 2020.			Three completed consults in 2017 with verification visits completed by 2019.

The following identifies the goal-completion status from recent Trauma Plan Updates.

Trauma System Goals 2013	Goal met (Y/N)	Status as of 2015 update	2016 Trauma Plan update status	2017 Trauma Plan Update status
Grow into ACS verification	No	1. IVMC upgraded to a Level II trauma center 2. ACS site visits planned for DRMC, IVMC, and RCH in 2016.	In process. 25% met- RUHS-MC is the only verified Level II trauma center at this time	In progress. One ACS Verified Level II trauma center. Three trauma centers with ACS Verification visits in 2019.
Include Injury Prevention coordination between trauma centers and DOPH	Yes	1. RUHS-MC and REMSA attend and participate in Child Death Review 2. REMSA participates in Domestic Violence/ Elder abuse team	Met- REMSA continues to participate in Child Death review team, and Domestic violence/ Elder abuse team. REMSA works with community agencies for water safety education/ drowning prevention activities. REMSA published the 2015 Trauma Report; this will support Hospitals, agencies, and Injury Prevention Programs to education on county specific injuries.	REMSA attends CDRT monthly. **Completed**
PTC Contract	Yes	1. RCRMC has been a designated PTC without a contract in place	Met- RUHS- MC PTC contract is currently in the final stages prior to approval.	RUHS-MC and REMSA have a PTC MOU approved and in place. **Completed**
Trauma System Goals 2016	Goal met (Y/N)	Status as of 2017 update		
1. Trauma System Education	Yes	TOPIC and Optimal courses attended. Trauma center visits x 4 completed.		**Completed**

2. LEMSA participation on the state level	Yes	Attended CA EMSA Trauma Summit in 2017. REMSA Trauma Coordinator is active member of the Trauma Managers Association of CA Board of Director as EMS Director at large.		**Completed**
3. Participate in Regional activities with ICEMA	Partial	3.1 Not met- implementation of new trauma database 3.2 Met- REMSA continues to participate in regional TAC meetings 4x/ year		**Pending**
4. Improve pre-hospital patient care	Yes	4.1- TXA trial study to continue until June 2018, recommendation to be sent to LOSOP committee in March 2018. 4.2- Imagetrend ePCR system in place. All providers are utilizing.		**Completed**

V. Changes to Implementation Schedule

No scheduled changes to report

VI. System Performance Improvement

Trauma Audit Committee (TAC)

Both Riverside and San Bernardino Counties participate in a regional quarterly Trauma Audit Committee, which includes Trauma Program Medical Directors, Trauma Program Directors, and Trauma Performance Improvement Nurses. A change for 2018 is the addition of Pomona Valley Hospital Medical Center (Level II trauma center in Los Angeles EMS Agency's jurisdiction) to the audit committee. Some trauma patients originating in ICEMA's catchment area are transported to Pomona Valley; cases presented at TAC by Pomona Valley will be these. With the eight trauma centers, hospitals are on a rotation for chart exchange to peer review on the hospital level. System performance indicators are evaluated and updated on an annual basis (see appendix). To provide loop closure for the trauma centers, the LEMSAs currently will send closure letters from the TAC committee with the adjudication. (Appendix J: Trauma Audit Committee peer review).

VII. Other Issues

No relevant issues at this time.

X. Appendix

Appendix A: Trauma Center Review Form

Riverside EMS Agency Compliance tool- 2018							
	TRAUMA CENTER STANDARDS	**Level**	**Compliance**		Comments		
	E = Essential (Title 22), D = Desired (Title 22), R=REMSA required	**II**	**yes**	**no**			
1	**Institution/ Organization:**						
2	The Joint Commission (TJC) Accreditation	E					
3	Licensed hospital in the State of California	E					
4	Basic or comprehensive emergency services with special permits	E					
5	1. A minimum of 1200 trauma program hospital admissions, or 2. A minimum of 240 trauma patients per year whose Injury Severity Score (ISS) is >15, or 3. An average of 35 trauma patients (with an ISS of >15) per trauma program surgeon per year						
6	A trauma research program						
7	An Accreditation Council on Graduate Medical Education (ACGME) approved surgical residency program						
8	**Trauma Program Medical Director:**	E					
9	Board Certified Surgeon	E					
10	Qualified Surgical Specialist (*Level IV may be a non-surgical qualified specialist)						
11	Must maintain trauma- related extramural continuing medical education as per the most recent ACS recommendations	R					
12	Current ATLS certification	R					
13	Responsibilities include but not limited to:						
14	Recommending trauma team physician privileges	E					
15	Working with nursing and administration to support needs of trauma patients	E					
16	Developing trauma treatment protocols	E					
17	Determining appropriate equipment and supplies	E					

18	Ensuring development of policies/procedures for domestic violence, elder/child abuse/neglect	E			
19	Having authority and accountability for QI peer review process	E			
20	Correcting deficiencies in trauma care or excluding from trauma call those team members who no longer meet standards	E			
21	Coordinating with local and State EMS agencies (level IV with local EMS agency only)	E			
22	Coordinating pediatric trauma care with other hospitals and professional services	E			
23	Assisting with the coordination of budgetary processes for trauma program	E			
24	Identifying representatives from neurosurgery, orthopaedic surgery, emergency medicine, pediatrics and other appropriate disciplines to assist in identifying physicians from their disciplines who are qualified to be members of the trauma program	E			
25	Using the expertise of representatives from neurosurgery, orthopaedics,emergency medicine, pediatrics and other appropriate disciplines	E			
26	**Trauma Program Manager**	E			
27	Qualifications are:				
28	Registered Nurse	E			
29	Dedicated FTE; Current in TNCC or ATCN; Completes 16 hr. of trauma education/yr.	R			
30	Provide evidence of educational preparation and clinical experience in the care of adult and/or pediatric trauma patient and administrative ability	E			
31	Responsibilities include but not limited to:				
32	Organizing services and systems necessary for multidisciplinary approach to the care of the injured patient	E			
33	Coordinating day-to-day clinical process and performance improvement of nursing and ancillary personnel	E			
34	Collaborating with trauma program medical director to carry out educational, clinical, research, administrative and outreach activities of the trauma program	E			
35	**Trauma Service**	E			

36	Implementation of requirements as specified under Title 22 Chapter 7 and provide for coordination with the local EMS agency	E					
37	**Trauma Team**						
38	A multidisciplinary team responsible for the initial resuscitation and management of the trauma patient	E					
39	Emergency Department/Trauma Team Nursing Staff						
40	Registered Nurse	R					
41	Expertise in adult and pediatric trauma care	E					
42	Maintains TNCC or ATCN	R					
43	6 hr./yr. of trauma nursing education	R					
44	ENPC (optional) or PALS	R					
45	Responsibilities include but not limited to:						
46	Capability of providing *immediate* initial resuscitation/management of the trauma patient	E					
47	Capability of providing *prompt* assessment, resuscitation and stabilization to trauma patients						
48	Ability to provide treatment or arrange for transportation to higher level trauma center	E					
49	**Trauma Data/Registry**						
50	Trauma registrar FTE requirements as per the most current ACS recommendations	R					
51	**Surgical Department (s), Division (s), Service (s), Sections (s)**						
52	Which include at least the following surgical specialties which are staffed by qualified specialists:						
53	General	E					
54	Neurologic (*May be provided through transfer agreement)	E					
55	Obstetric/Gynecologic	E					
56	Ophthalmologic	E					
57	Oral or maxillofacial or head and neck	E					
58	Orthopaedic	E					
59	Plastic	E					
60	Urologic	E					
61	**Non-surgical Department (s), Division (s), Service (s), Section (s):**						

62	Which include at least the following non-surgical specialties which are staffed by qualified specialists:						
63	Anesthesiology	E					
64	Internal Medicine	E					
65	Pathology	E					
66	Psychiatry	E					
67	Radiology	E					
68	Emergency Medicine, immediately available	E					
69	**Qualified Surgical Specialist (s):**available as follows:						
70	General Surgeon:	E					
71	Capable of evaluating and treating adult and pediatric trauma patients shall be immediately available for trauma team activation and promptly available for consultation	E					
72	Other Qualified Surgical Specialists on-call and *promptly* available:						
73	Neurologic (*Level III - May be provided through written transfer agreement)	E					
74	Obstetric/Gynecologic	E					
75	Ophthalmologic	E					
76	Oral or maxillofacial or head and neck	E					
77	Orthopaedic	E					
78	Plastic	E					
79	Reimplantation/microsurgery capability (may be provided through written transfer agreement)	E					
80	Urologic	E					
81	Residency Coverage:						
82	Surgical Specialists' requirements may be fulfilled by supervised senior residents	E					
83	Senior Resident shall:						
84	Be capable of assessing emergent situations in their respective specialty, and	E					
85	Be able to provide overall control and surgical leadership including surgical care if needed	E					
86	A staff trauma surgeon/surgeon with experience in trauma care shall be on-call and *promptly* available	E					

87	A staff trauma surgeon/surgeon with experience in trauma care shall be advised of all trauma patient admissions, participate in major therapeutic decisions, and be present in the ED for major resuscitations and in the OR for all trauma operative procedures	E					
88	Trauma Team Activation: Tiered activations are monitored and reviewed through the Performance Improvement (PI) process for accuracy of under/over triage. "Immediate response" is defined as 15 mins, 80% of the time; "Promptly" is defined as 30 mins, 80% of the time	R					
89	Surgical Consultations:						
90	Available for consultation or consultation and transfer agreements for adult and pediatric trauma patients **(in-house or through written agreements)** **REMSA note: EMTALA supersedes "written agreements" for higher level of care from the ED.*						
91	Burn Care	E					
92	Cardiothoracic - On-Call and *Promptly available*						
93	Cardiothoracic	E					
94	Pediatric - On-Call and *Promptly available*						
95	Pediatrics	E					
96	Reimplantation/microsurgery	E					
97	Spinal cord injury	E					
98	**Qualified Non-Surgical Specialist (Applies to all specialties)**						
99	*Residency Coverage*						
100	Emergency Medicine and Anesthesiology Specialists' requirements may be fulfilled by supervised senior residents.	E					
101	Senior Resident must be capable of assessing emergent situations in their respective specialty and initiating treatment	E					
102	Supervising physician with experience in trauma care shall be on-call and promptly available	E					
103	Supervising qualified specialists shall be advised of all trauma patient admissions, participate in major therapeutic decisions, and be present in the ED for major	E					

	resuscitations (Anesthesiologists will be in the OR for all trauma operative procedure)						
104	Emergency Medicine:						
105	In-house and *Immediately Available*	E					
106	Board certified or recognized qualified specialists in emergency medicine	E					
107	ATLS Certification: Required for emergency medicine physicians boarded in other specialties	E					
108	Anesthesiology						
109	In-house 24 hours/day and *Immediately Available*						
110	On-call and *promptly available* with a mechanism to ensure presence in the OR when the patient arrives.	E					
111	Senior Resident or CRNA in-house supervised by Staff Anesthesiologist are *promptly* available at all times and present for all operations	E					
112	Radiology						
113	On Call and *Promptly Available*	E					
114	Other Non-Surgical Specialists Available for consultation:						
115	Cardiology	E					
116	Gastroenterology	E					
117	Hematology	E					
118	Infectious Diseases	E					
119	Internal Medicine	E					
120	Nephrology	E					
121	Neurology	E					
122	Pathology	E					
123	Pulmonary Medicine	E					
124	**Service Capabilities:**						
125	Radiological Service						
126	Radiological technician *immediately available* and capable of performing plain film and computed tomography	E					
127	Shall have a radiological technician *promptly available*						
128	Angiography and ultrasound services shall be *promptly* available	E					
129	Clinical Laboratory Service						

130	Comprehensive blood bank or access to community central blood bank	E			
131	Clinical laboratory services *immediately* available	E			
132	Clinical laboratory services *promptly* available				
133	Surgical Services				
134	Shall have an operating suite available or being utilized for trauma patients and has:	E			
135	A surgical service that has at least the following: (1) operating staff who are immediately available unless operating on trauma patients and back-up personnel who are *promptly* available.				
136	Operating staff, *promptly* available, and back-up staff who are promptly available unless operating on trauma patients. *Back up staff not required	E			
137	Appropriate surgical equipment and supplies as determined by the trauma program medical director	E			
138	Appropriate surgical equipment and supplies requirements which have been approved by the local EMS agency				
139	Cardiopulmonary bypass equipment				
140	Operating microscope				
141	**Basic or comprehensive emergency services with special permits**				
142	Designate an emergency physician to be member of trauma team	E			
143	Provide emergency services to adult and pediatric patients	E			
144	Personnel knowledgeable in the treatment of adult and pediatric trauma	E			
145	Designated trauma resuscitation area physically separated from other patient care areas and of adequate size to accommodate multi-system injured patient and equipment	R			
146	Appropriate equipment and supplies for adult and pediatric patients as approved by the director of emergency medicine in collaboration with the trauma program medical director	E			
147	Key controlled elevator, where necessary for immediate access between trauma resuscitation area and helipad, OR or radiology	R			

148	**In addition to the special permit licensing services, Trauma Centers shall have the following approved supplemental services:**						
149	Intensive Care Service						
150	Special permit licensing ICU service	E					
151	Qualified specialist in-house 24 hours/day *and immediately* available to care for the trauma ICU patient						
152	Qualified specialist *promptly* available to care for trauma patients in the ICU	E					
153	RN's caring for trauma patients must have completed TNCC, ATCN, TCAR (or REMSA approved course can substitute for TCAR) and have 6 hrs./2yr of trauma nursing education	R					
154	Qualified specialist may be a resident with 2 years of training who is supervised by staff intensivist or attending surgeon who participates in all critical decision making	E					
155	Qualified specialist (above) shall be a member of the trauma team	E					
156	Appropriate equipment and supplies determined by physician responsible for intensive care service and the trauma program medical director.	E					
157	Burn Center - in house or transfer agreement	E					
158	Physical Therapy Service:						
159	Personnel trained in physical therapy	E					
160	Equipped for acute care of critically injured patient	E					
161	Rehabilitation Center:						
162	Rehabilitation services shall be in-house or may be provided by written transfer agreement with a rehabilitation center	E					
163	Personnel trained in rehabilitation care	E					
164	Equipped for acute care of critically injured patient	E					
165	Respiratory Care Service:	E					
166	Personnel trained in respiratory therapy	E					
167	Equipped for acute care of critically injured patient	E					
168	Acute Hemodialysis Capability	E					
169	Occupational Therapy Service:	E					
170	Personnel trained in Occupational therapy	E					

171	Equipped for acute care of critically injured patient	E					
172	Speech Therapy Service	E					
173	Personnel trained in speech therapy	E					
174	Equipped for acute care of critically injured patient	E					
175	Social Service	E					
176	**Trauma Centers shall have the following services and programs (special license or permit not required)**						
177	Pediatric Service providing in-house pediatric trauma care shall have:						
178	PICU approved by CCS or a written transfer agreement with an approved PICU	E					
179	Hospitals without a PICU shall establish and utilize written criteria for consultation and transfer of pediatric patients needing intensive care	E					
180	A multidisciplinary team to manage child abuse and neglect	E					
181	Acute spinal cord injury - This service may be provided through in-house or written transfer agreement	E					
182	Organ Donor Protocol as described in Div.7, Ch. 3.5 of CHSC	E					
183	**Outreach Program to include:**						
184	Telephone and on-site physician consultations with physicians in the community and outlying areas	E					
185	Trauma prevention for general public	E					
186	**Continuing Education** in Trauma Care for:						
187	Provide ongoing education requirements as per the most current ACS recommendations for:	E					
188	Staff physicians	E					
189	Staff nurses	E					
190	Staff allied health personnel	E					
191	EMS personnel	E					
192	Other community physicians and health care personnel	E					
193	**Quality Improvement:**						
194	Must have a quality improvement process in place which includes structure, process and outcome evaluations	E					
195	Must have improvement process in place to identify root causes of problems	E					

196	Must have interventions to reduce or eliminate the causes	E					
197	Must take steps/actions to correct the problems identified	E					
198	*In addition the process shall include:*						
199	A detailed audit of all trauma -related deaths, major complications and transfers (including interfacility transfer)	E					
200	A multidisciplinary trauma peer review committee that includes all members of the trauma team	E					
201	Participation in the trauma data management system	E					
202	Participation in the local EMS agency trauma evaluation committee	E					
203	A written system in place for patients, parents of minor children who are patients, legal guardians of children who are patients, and/or primary caretakers of children who are patients to provide input and feedback to hospital staff regarding the care provided to the child	E					
204	**Interfacility transfer of trauma patients:**						
205	Patients may be transferred between and from trauma centers providing that: (REMSA note: EMTALA supersedes Title 22 for higher level of care and the need for written transfer agreements; however, repatriation agreements should be in writing.)						
206	Transfers shall be medically prudent as determined by the trauma physician of record	E					
207	Shall be in accordance with the local EMS Agency interfacility transfer policies	E					
208	Hospitals shall have written transfer agreements exists with receiving trauma centers	E					
209	Hospital shall develop written criteria for consultation and transfer of patients needing a higher level of care	E					
210	Hospitals which have repatriated trauma patients from a designated trauma center will provide the trauma center with all required information for the trauma registry, as specified by local EMS policy	E					

211	Hospitals receiving trauma patients shall participate in system and trauma center quality improvement activities for those trauma patients they have transferred	E			

Appendix B- RUHS-MC ACS Level II verification letter

The Committee on Trauma

VRC VERIFICATION REVIEW CONSULTATION
for excellence in trauma centers

August 11, 2017

Zareh Sarrafian
Chief Executive Officer
Riverside University Health System
26520 Cactus Avenue
Moreno Valley, CA 92555

Dear Ms. Fenwick:

The Committee on Trauma would like to extend its congratulations to the Riverside University Health System on its reverification as a Level II trauma center through April 29, 2020. The Verification Review Committee (VRC), a subcommittee of the Committee on Trauma of the American College of Surgeons, have very carefully reviewed the enclosed reverification report written by Drs. Jonathan Saxe (lead reviewer) and Mark Cipolle, after the visit of May 23 and 24, 2017.

The Committee on Trauma's certificate of verification will arrive under separate cover within the next several weeks.

Thank you for your continued participation and support of the Verification, Review, & Consultation Program of the Committee on Trauma of the American College of Surgeons. As always, we will be glad to answer any questions you may have and look forward to working with your trauma center in the future.

Sincerely,

R. Todd Maxson, MD FACS
Chair, Verification Review Committee

Daniel Margulies, MD FACS
Vice-Chair, Verification Review Committee

cc: Daniel Ludi, MD
W. Charles Hendra
County of Riverside EMS Agency

American College of Surgeons
Inspiring Quality:
Highest Standards, Better Outcomes
100 years

Appendix C: REMSA and ICEMA inter-county agreements

RIVERSIDE COUNTY EMS AGENCY

January 17, 2018

Tom Lynch
Executive Director
Inland Counties Emergency Medical Services Agency
1425 South "D" Street
San Bernardino, CA 92415-0060

Dear Tom,

Riverside County would like to continue collaborating with San Bernardino County in accepting all specialty care patients (Trauma, Stroke, and STEMI) from the field. Riverside County EMS continues to remain committed to providing optimal patient care and outcomes for all of these patients. Reciprocal acceptance of specialty care patients from the field between both Riverside and San Bernardino Counties continues to be effective and a critical component between both systems.

Thank you for your ongoing partnership between REMSA and ICEMA.

Sincerely,

Bruce Barton
Director
Emergency Management Department
EMS Administrator

Mailing Address: 4210 Riverwalk Parkway • Suite 300 • Riverside, CA 92505
Phone: (951) 358-5029 • Fax: (951) 358-5160 • TDD: (951) 358-5124 • www.rivcoems.org

Inland Counties Emergency Medical Agency
1425 South D Street, San Bernardino, CA 92415-0060 ▪ (909) 388-5823 ▪ Fax (909) 388-5825 ▪ www.icema.net
Serving San Bernardino, Inyo, and Mono Counties
Tom Lynch, EMS Administrator
Reza Vaezazizi, MD, Medical Director

January 25, 2018

Bruce Barton, Director
Riverside County Emergency Medical Services Agency
4210 Riverwalk Parkway, Suite 300
Riverside, CA 92505

Dear Mr. Barton:

ICEMA would also like to continue collaborating with Riverside County in accepting all specialty care patients (Trauma, Stroke and STEMI) from the field. ICEMA remains committed to providing optimal patient care and outcomes for all of these patients. Reciprocal acceptance of specialty care patients from the field between San Bernardino and Riverside Counties continues to be effective and critical component between both systems.

Thank you for your ongoing partnership between ICEMA and REMSA.

Sincerely,

Tom Lynch
EMS Administrator

TL/jlm

c: File Copy

Appendix D- Patient Registry Data Elements

1. DEMOGRAPHIC SECTION	OLD DATABASE	REMSA	NTDB	NEMSIS	PG#
Record Created Date / Time					2
Record Created By					3
Initial Location					4
Facility		**D-02**			5
Trauma Registry Number	**X**	**D-03**			6
Patient Arrival Date	**X**	**D-04**			7
Patient Arrival Time	**X**	**D-05**			8
Medical Record Number	**X**				9
Account Number	**X**				10
Patient Last Name	**X**	**D-07**		**ePat.02**	11
Patient Origin					12
Inclusion Source					13
NTDB	**X**				14
REMSA		**D-10**			15
Name / Alias		**D-11**			16
SSN (last four digits)	**X**	**D-12**			17
Date of Birth	**X**	**D-13**	**D-07**	**ePat.17**	18
Age	**X**	**D-14**	**D-08**	**ePat.15**	19
Age Units	**X**	**D-15**	**D-09**	**ePat.16**	20
Gender	**X**	**D-16**	**D-12**	**ePat.13**	21
Race	**X**	**D-17**	**D-10**	**ePat.14**	22
Ethnicity	**X**	**D-18**	**D-11**	**ePat.14**	23
Patient Home Zip Code	**X**	**D-19**	**D-01**	**ePat.09**	24
Patient's Home Postal Code		**D-19**	**D-01**		25
Homeless Status		**D-27**	**D-06**		26
Patient Home Address	**X**			**ePat.05**	27
Patient Home City	**X**	**D-22**	**D-05**	**ePat.06**	28
Patient Home State	**X**	**D-23**	**D-03**	**ePat.08**	29

Patient Home County	**X**	**D-24**	**D-04**	**ePat.07**	30
Patient Home Country	**X**	**D-25**	**D-02**	**ePat.10**	31
Patient Alternate Home Address		**D-26**	**D-06**		32
Patient Telephone				**ePat.18**	33
Relative / Guardian Relationship to Patient					34
Guardian to Patient					35
Relative / Guardian Name					36
Relative / Guardian Address Info					37
Relative / Guardian Home Zip Code					38
Relative / Guardian Home Address					39
Relative / Guardian Home City					40
Relative / Guardian Home State					41
Relative / Guardian Home County					42
Relative / Guardian Home Country					43
Relative / Guardian Telephone					44
Demographic Section Notes	**X**				45
2. INJURY INFORMATION SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
Injury Date	**X**	**I-01**	**I-01**	**eSit.01**	48
Injury Time	**X**	**I-02**	**I-02**	**eSit.01**	49
Place of Injury ICD-10		**I-04**	**I-07**	**eScene.09**	50
Specify Memo Field	**X**				51
Incident Location Zip Code	**X**	**I-06**	**I-09**	**eScene.19**	52
Incident Location Postal Code		**I-06**	**I-09**		53
Incident Location Address	**X**			**eScene.15**	54
Incident Location City	**X**	**I-08**	**I-13**	**eScene.17**	55
Incident Location State	**X**	**I-09**	**I-11**	**eScene.18**	56
Incident Location County	**X**	**I-10**	**I-12**	**eScene.21**	57
Incident Location Country	**X**	**I-11**	**I-10**	**eScene.22**	58
Work Related	**X**	**I-12**	**I-03**	**eSit.14**	59
Occupation	**X**	**I-14**	**I-05**	**eSit.16**	60

Occupational Industry	**X**	**I-15**	**I-04**	**eSit.15**	61
Domestic Violence					62
Report of Physical Abuse		**I-36**	**I-17**		63
Investigation of Physical Abuse		**I-37**	**I-18**		64
Restraints	**X**	**I-16**	**I-14**	**eInjury.07**	65
Airbag Deployment	**X**	**I-17**	**I-16**	**eInjury.08**	66
Child Specific Restraints	**X**	**I-18**	**I-15**	**eInjury.07**	67
Equipment	**X**	**I-19**	**I-14**	**eInjury.07**	68
Primary E-Code ICD-10		**I-32**	**I-06**	**eInjury.01**	69
Secondary E-Code ICD-10		**I-33**	**I-08**		70
Tertiary E-Codes ICD-10		**I-34**			71
Cause of Injury Memo Field	**X**				72
Position in Vehicle		**I-24**		**eInjury.06**	73
Impact Location / Other Impact Location		**I-25**		**eInjury.05**	74
Injury Type	**X**	**I-26**		**eInjury.02**	75
Activity E-Code		**I-27**			76
Alcohol Involvement		**I-36**			77
Specify Activity Memo Field					78
Injury Mechanism					79
Disaster Casualty		**I-30**			80
Casualty Event		**I-31**			81
3. PRE-HOSPITAL SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	**PG#**
Injury Section Notes	**X**				82
POV / Walk-In	**X**	**P-01**	**P-07**		85
Inclusion Source					86
Extrication		**P-02**			87
Extrication Time		**P-03**			88
Fluid Amount		**P-04**			89
Trauma Alert Called by EMS Date		**P-05**			90
Trauma Alert Called by EMS Time		**P-06**			91
Transport Mode	**X**	**P-07**	**P-07**	**eDispo.16**	92

Transport Mode - Additional (Other)	**X**	**P-08**	**P-08**		93
Transport		**P-09**			94
Agency ID Number		**P-10**		**eResponse.**	95
Agency Unit		**P-11**			96
Role		**P-12**			97
Scene EMS Report	**X**	**P-13**			98
PCR Number	**X**	**P-14**		**eResponse.**	99
EMS Call Dispatched Date	**X**	**P-15**	**P-01**	**eTimes.02**	100
EMS Call Dispatched Time	**X**	**P-16**	**P-02**	**eTimes.02**	101
Rendezvous Pickup Location		**P-17**			102
EMS Unit Arrived at Location Date	**X**	**P-18**	**P-03**	**eTimes.06**	103
EMS Unit Arrived at Location Time	**X**	**P-19**	**P-04**	**eTimes.06**	104
EMS Unit Departed Location Date	**X**	**P-20**	**P-05**	**eTimes.09**	105
EMS Unit Departed Location Time	**X**	**P-21**	**P-06**	**eTimes.09**	106
EMS Unit Arrived Destination Date	**X**	**P-22**		**eTimes.11**	107
EMS Unit Arrived Destination Time	**X**	**P-23**		**eTimes.11**	108
Scene Time Elapsed		**P-24**			109
Transport Time Elapsed		**P-25**			110
Trauma Center Criteria	**X**	**P-26**	**P-18**	**eInjury.03**	111
Vehicular, Pedestrian, Other Risk Injury		**P-26**	**P-19**	**eInjury.04**	112
Prehospital Vitals Recorded Date	**X**	**P-27**		**eVitals.01**	113
Prehospital Vitals Recorded Time	**X**	**P-28**		**eVitals.02**	114
Vitals / Procedures / Meds Agency / Unit	**X**	**P-10**			115
Prehospital Paralytic Agents	**X**	**P-29**			116
Prehospital Initial Vitals Sedated	**X**	**P-30**			117
Prehospital Initial Vitals Eye Obstruction	**X**	**P-31**			118
Prehospital Intubated	**X**	**P-32**			119
Prehospital Intubation Method		**P-33**		**eAirway.03**	120
Prehospital Respirations Assisted	**X**	**P-34**			121
Prehospital Respiration Assistance Type		**P-35**			122
Prehospital SBP	**X**	**P-36**	**P-09**	**eVitals.06**	123

Prehospital DBP		**P-37**		**eVitals.07**	124
Prehospital Pulse Rate	**X**	**P-38**	**P-10**	**eVitals.10**	125
Prehospital Un Assist. Resp. Rate	**X**	**P-39**	**P-11**	**eVitals.14**	126
Prehospital Assist. Resp. Rate	**X**	**P-40**			127
Prehospital 02 Sat	**X**	**P-41**	**P-12**	**eVitals.12**	128
Prehospital Supplemental 02		**P-42**			129
Prehospital ETCO2				**eVitals.16**	130
Prehospital GCS Eye	**X**	**P-43**	**P-13**	**eVitals.19**	131
Prehospital GCS Verbal	**X**	**P-44**	**P-14**	**eVitals.20**	132
Prehospital GCS Motor	**X**	**P-45**	**P-15**	**eVitals.21**	133
Prehospital GCS Total	**X**	**P-46**	**P-16**	**eVitals.23**	134
Pediatric Trauma Score - Weight					135
Pediatric Trauma Score - Airway					136
Pediatric Trauma Score - Skeletal					137
Pediatric Trauma Score - Cutaneous					138
Pediatric Trauma Score - Consciousness					139
Pediatric Trauma Score - Pulse Palp					140
Pediatric Trauma Score - Total					141
Prehospital Procedure	**X**	**P-47**			142
Prehospital Medication		**P-48**			143
Prehospital Section Notes	**X**				144
4. REFERRING FACILITY SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
Immediate Referring Facility Transfer Status	**X**	**RH-01**	**P-17**		147
Immediate and Additional Referring Facility	**X**	**RH-02**			148
Immediate and Additional Referring Facility Arrival Date	**X**	**RH-03**			149
Immediate and Additional Referring Facility Arrival Time	**X**	**RH-04**			150
Immediate and Additional Referring Facility Departure Date	**X**	**RH-05**			151
Immediate and Additional Referring Facility Departure Time	**X**	**RH-06**			152
Immediate and Additional Referring Facility Length of Stay		**RH-07**			153

Immediate and Additional Referring Facility Mode of Arrival	**X**	**RH-08**			154
Immediate and Additional Referring Facility Transfer Rationale	**X**	**RH-09**			155
Immediate and Additional Referring Facility Transfer Rationale By					156
Immediate and Additional Referring Facility Late Referral	**X**	**RH-11**			157
Immediate and Additional Referring Facility Vitals Recorded Date		**RH-12**			158
Immediate and Additional Referring Facility Vitals Recorded Time		**RH-13**			159
Immediate and Additional Referring Facility Temperature		**RH-14**			160
Immediate and Additional Referring Facility Temperature Route		**RH-15**			161
Immediate and Additional Referring Facility Temperature Unit		**RH-16**			162
Immediate and Additional Referring Facility Paralytic Agents		**RH-17**			163
Immediate and Additional Referring Facility Sedated		**RH-18**			164
Immediate and Additional Referring Facility Eye Obstruction		**RH-19**			165
Immediate and Additional Referring Facility Intubated		**RH-20**			166
Immediate and Additional Referring Facility Intubation Method		**RH-21**			167
Immediate and Additional Referring Facility Resp. Assisted.		**RH-22**			168
Immediate and Additional Referring Facility Resp. Assistance Type		**RH-23**			169
Immediate and Additional Referring Facility SBP		**RH-24**			170
Immediate and Additional Referring Facility DBP		**RH-25**			171
Immediate and Additional Referring Facility Pulse Rate		**RH-26**			172
Immediate and Additional Referring Facility Un Assist. Resp. Rate		**RH-27**			173
Immediate and Additional Referring Facility Assist. Resp. Rate		**RH-28**			174
Immediate and Additional Referring Facility 02 Sat		**RH-29**			175
Immediate and Additional Referring Facility Supplemental 02		**RH-30**			176
Immediate and Additional Referring Facility ETCO2					177

Immediate and Additional Referring Facility GCS Eye		**RH-31**			178
Immediate and Additional Referring Facility GCS Verbal		**RH-32**			179
Immediate and Additional Referring Facility GCS Motor		**RH-33**			180
Immediate and Additional Referring Facility GCS Total		**RH-34**			181
Alcohol Screen		**RH-35**	**ED-18**		182
ICD-10 Alcohol Screen Results		**RH-65**			183
Immediate Referring Facility Alcohol Screen Results		**RH-36**	**ED-19**		184
Immediate Referring Facility Toxicology		**RH-38**	**ED-17**		185
Immediate Referring Facility Toxicology Screen Clinical Administration		**RH-39**			186
Immediate Referring Facility If Other Toxicology screen results		**RH-40**			187
Immediate Referring Facility Procedures / Medications		**RH-42**			188
Immediate and Additional Referring Facility Procedure Code	**X**	**RH-41**			189
Immediate and Additional Referring Facility Procedure Start Date					190
Immediate and Additional Referring Facility Procedure Start Time					191
Immediate and Additional Referring Facility Procedure Diagnostic Results		**RH-44**			192
Immediate and Additional Referring Facility Procedure Anatomic Region					193
Immediate and Additional Referring Facility Procedure Memo Field					194
Immediate and Additional Referring Facility Medication Codes		**RH-47**			195
Immediate and Additional Referring Facility Provider Vitals		**RH-02**			196
Intra-facility POV / Walk-In		**RH-48**			197
Intra-facility Transport Mode		**RH-49**			198
Intra-facility Transport Mode if Other Memo Field		**RH-50**			199
Intra-facility Transport Agency		**RH-51**			200
Intra-facility Transport Unit		**RH_52**			201

Intra-facility Transport Role		**RH-53**			202
Intra-facility Transport Scene EMS Report		**RH-54**			203
Intra-facility Transport PCR Number		**RH-55**			204
Intra-facility Transport Call Dispatched Date		**RH-56**			205
Intra-facility Transport Call Dispatched Time		**RH-57**			206
Intra-facility Transport Rendezvous Pick-up Location		**RH-58**			207
Intra-facility Transport Arrived at Location Date		**RH-59**			208
Intra-facility Transport Arrived at Location Time		**RH-60**			209
Intra-facility Transport Departed Location Date		**RH-61**			210
Intra-facility Transport Departed Location Time		**RH-62**			211
Intra-facility Transport Arrived Destination Date		**RH-63**			212
Intra-facility Transport Arrived Destination Time		**RH-64**			213
Intra-facility Transport Scene Time Elapsed.		**RH-65**			214
Transport Time Elapsed		**RH-66**			215
Intra-facility Transport Paralytic Agents		**RH-67**			216
Intra-facility Transport Sedated		**RH-68**			217
Intra-facility Transport Eye Obstruction		**RH-69**			218
Intra-facility Transport Intubated		**RH-70**			219
Intra-facility Transport Intubation Method		**RH-71**			220
Intra-facility Transport Resp. Asst.		**RH-72**			221
Intra-facility Transport Resp. Assistance Type		**RH-73**			222
Intra-facility Transport SBP		**RH-74**			223
Intra-facility Transport DBP		**RH-75**			224
Intra-facility Transport Pulse Rate		**RH-76**			225

Intra-facility Transport Unassisted. Resp. Rate		**RH-77**			226
Intra-facility Transport Assist. Resp. Rate		**RH-78**			227
Intra-facility Transport 02 Sat		**RH-79**			228
Intra-facility Transport Supplemental 02		**RH-80**			229
Intra-facility Transport ETCO2					230
Intra-facility Transport GCS Eye		**RH-81**			231
Intra-facility Transport GCS Verbal		**RH-82**			232
Intra-facility Transport GCS Motor		**RH-83**			233
Intra-facility Transport GCS Total		**RH-84**			234
Intra-facility Transfer Referring Facility		**RH-51**			235
Intra-facility Transport Procedure		**RH-85**			236
Intra-facility Transport Medications		**RH-86**			237
Referring Facility Section Notes	**X**				238
5. ED RESUSCITATION SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
Direct Admit Status	**X**	**ED-01**			241
ED Arrival Date	**X**	**ED-02**	**ED-01**		242
ED Arrival Time	**X**	**ED-03**	**ED-02**		243
ED Departure Order Date		**ED-65**	**ED-22**		244
ED Departure Order Time		**ED-66**	**ED-23**		245
ED Departure or Admission Date	**X**	**ED-04**			246
ED Departure or Admission Time	**X**	**ED-05**			247
Time in ED		**ED-06**			258
Mode of Arrival	**X**	**ED-07**	**P-07**		249
Response Level	**X**	**ED-08**			250

Revised Response Level		**ED-09**			251
Post ED Disposition	**X**	**ED-10**	**ED-20**		252
Admitting Service	**X**				253
Post OR Disposition	**X**				254
Signs of Life		**PM-01**	**ED-21**		255
Response Activation Date	**X**	**ED-13**			256
Response Activation Time	**X**	**ED-14**			257
Response Activation Elapsed Time		**ED-15**			258
Revised Response Activation Date		**ED-16**			259
Revised Response Activation Time		**ED-17**			260
Revised Response Activation Elapsed Time		**ED-18**			261
Admitting Physician	**X**				262
Medications					263
Warming Measures					264
Arrival / Admission CPR		**ED-22**			265
Arrival / Admission CPR Duration		**ED-23**			266
Arrival / Admission Initial & Additional Vitals Recorded Date	**X**	**ED-24**			267
Arrival / Admission Initial & Additional Vitals Recorded Time	**X**	**ED-25**			268
Arrival / Admission Initial & Additional Vitals Temperature	**X**	**ED-26**	**ED-05**		269
Arrival / Admission Initial & Additional Vitals Temperature Unit		**ED-27**			270
Arrival / Admission Initial & Additional Vitals Temperature Route					271
Arrival / Admission Initial & Additional Vitals Weight		**ED-29**	**ED-16**		272
Arrival / Admission Initial Weight Units					273
Arrival / Admission Initial & Additional Vitals Height		**ED-31**	**ED-15**		274

Arrival / Admission Initial Height Units					275
Arrival / Admission Initial ED / Hospital BMI					276
Arrival / Admission Initial & Additional Vitals Paralytic Agents	**X**	**ED-33**	**ED-14**		277
Arrival / Admission Initial & Additional Vitals Sedated	**X**	**ED-34**	**ED-14**		278
Arrival / Admission Initial & Additional Vitals Eye Obstruction	**X**	**ED-35**	**ED-14**		279
Arrival / Admission Initial & Additional Vitals Intubated	**X**	**ED-36**	**ED-14**		280
Arrival / Admission Initial & Additional Vitals Intubation Method		**ED-37**			281
Arrival / Admission Initial & Additional Vitals Resp. Asst.	**X**	**ED-38**	**ED-07**		282
Arrival / Admission Initial & Additional Vitals Resp. Assistance Type		**ED-39**			283
Arrival / Admission Initial & Additional Vitals SBP	**X**	**ED-40**	**ED-03**		284
Arrival / Admission Initial & Additional Vitals DBP		**ED-41**			285
Arrival / Admission Initial & Additional Vitals Pulse Rate	**X**	**ED-42**	**ED-04**		286
Arrival / Admission Initial & Additional Vitals Unassisted. Resp. Rate	**X**	**ED-43**	**ED-06**		287
Arrival / Admission Initial & Additional Vitals Assist. Resp. Rate	**X**	**ED-44**			288
Arrival / Admission Initial & Additional Vitals 02 Sat	**X**	**ED-45**	**ED-08**		289
Arrival / Admission Initial & Additional Vitals Supplemental 02	**X**	**ED-46**	**ED-09**		290
Arrival / Admission Initial & Additional Vitals ETCO2					291
Arrival / Admission Initial & Additional Vitals GCS Eye	**X**	**ED-47**	**ED-10**		292
Arrival / Admission Initial & Additional Vitals GCS Verbal	**X**	**ED-48**	**ED-11**		293
Arrival / Admission Initial & Additional Vitals GCS Motor	**X**	**ED-49**	**ED-12**		294
Arrival / Admission Initial & Additional Vitals GCS Total	**X**	**ED-50**	**ED-13**		295
ABGs					296
ABG pH					297
PaO2					298

PaCO2					299
Base Deficit					300
Hematocrit					301
INR					302
Alcohol Screen		**ED_58**	**ED_18**		303
ICD-10 Alcohol Screen Results		**ED_65**			304
Alcohol Screen Results	**X**	**ED-59**	**ED_19**		305
Initial Drug Screen Results	**X**	**ED-61**	**ED_17**		306
Initial Tox Screen Clinician Administered		**ED-62**			307
Initial Tox Screen Results Other		**ED-63**			308
Assessment Type					309
ED Resus Section Notes	**X**				310
6. PATIENT TRACKING SERVICE	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
Location of Pt.					313
Location of Pt. Arrival Date	**X**				314
Location of Pt. Arrival Time	**X**				315
Location of Pt. Departure Date					316
Location of Pt. Departure Time					317
Location of Pt. Elapsed Time					318
Location Tracking Details					319
ICU Days	**X**	**O-05**	**O-01**		320
Step-Down / IMC Days					321
Service / Consult					322
Service / Consult Start Date					323

Service / Consult Start Time					324
Service / Consult Stop Date					325
Service / Consult Stop Time					326
Service / Consult Elapsed Time					327
Service Tracking Details					328
Ventilator Start Date					329
Ventilator Start Time					330
Ventilator Stop Date					331
Ventilator Stop Time					332
Ventilator Elapsed Time					333
Total Ventilator Days	**X**	**O-06**	**O-02**		334
Blood Product		**PT-06**			335
Blood Volume		**PT-07**			336
Blood Units		**PT-08**			337
Blood Location		**PT-09**			338
Blood Time Period		**PT-10**			339
Clinical Management Code / Intervention					340
Clinical Management Intervention Start Date					347
Clinical Management Intervention Stop Date					348
Patient Tracking Section Notes					349
7. PROVIDERS SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
Resus Team Type / In-House Consult	**X**	**PR-01**			352
Resus Team Provider / In-House Consult	**X**				353
Resus Team / In-House Consult Called Date	**X**	**PR-03**			354

Resus Team / In-House Consult Called Time	**X**	**PR-04**			355
Resus Team / In-House Consult Responded Date	**X**	**PR-05**			356
Resus Team / In-House Consult Responded Time	**X**	**PR-06**			357
Resus Team / In-House Consult Arrived Date	**X**	**PR-07**			358
Resus Team / In-House Consult Arrived Time	**X**	**PR-08**			359
Resus Team Timeliness	**X**	**PR-09**			360
In-House Consult Timeliness	**X**				361
Resus Team / In-House Consult Notes					362
Provider Section Notes	**X**				363
8. PROCEDURES SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
ICD-10 Procedure		**HP-13**	**HP-01**		366
Procedure Location	**X**				369
Operation Number	**X**				370
Procedure / Operation Start Date	**X**	**HP-04**	**HP-02**		371
Procedure / Operation Start Time	**X**	**HP-05**	**HP-03**		372
Procedure / Operation Stop Date	**X**				373
Procedure / Operation Stop Time	**X**				374
Procedure / Operation Diagnostic Result					375
Procedure / Operation Anatomic Region					376
Procedure / Operation Service					377
Procedure / Operation Physician					378
ICD-9 Procedure Narrative	**X**	**HP-12**			379
Procedure Section Notes	**X**				380
9. DIAGNOSES SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#

AIS Version	**X**		**IS_03**		383
ISS	**X**	**DG-02**			384
NISS					385
TRISS	**X**	**DG_13**			386
Diagnosis Narrative	**X**	**DG-03**			387
ICD-10 Diagnosis Code		**DG-08**	**DG-02**		388
Diagnosis Predot	**X**	**DG-05**	**IS-01**		389
AIS Severity	**X**	**DG-06**	**IS-02**		390
ISS Body Region	**X**	**DG-07**			391
Non-Trauma Diagnosis ICD-10		**DG-10**			392
Co-Morbidities Code	**X**	**DG-11**	**DG-01**		393
Pre-Hospital Cardiac Arrest		**P-49**	**P-20**		395
Co-Morbidities Note		**DG-12**			396
Diagnosis Section Notes					397
10. OUTCOME SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
Discharge Status	**X**	**O-01**			400
Discharge Condition					401
Discharge / Death Date	**X**	**O-03**			402
Discharge / Death Time	**X**	**O-04**			403
Discharge Order Date		**O-37**	**O-03**		404
Discharge Order Time		**O-38**	**O-04**		405
Total ICU Days	**X**	**O-05**	**O-01**		406
Total Ventilator Days		**O-06**	**O-02**		407
Total Hospital Days	**X**	**O-07**			408

Discharging Physician					409
Discharged Destination	**X**	**O-08**	**O-05**		410
Caregiver at Discharge		**O-38**	**I-19**		411
Discharge Destination Specify		**O-09**			412
Initial Transferred Discharge Facility	**X**	**O-10**			413
Initial Discharge Destination Other	**X**	**O-11**			414
Initial Discharge Transfer Rationale	**X**				415
Initial Discharge Transfer Rationale By					416
Impediment to Discharge	**X**				417
Ready For Discharge Date					418
Impediments to Discharge Delay Days					419
Disabilities - Pre-Existing / Upon Discharge					420
Disabilities Qualifiers					421
Disabilities - Totals					422
Rehabilitation Potential					423
Death Location					424
Death Manner (Suspected)					425
Death Cause					426
Autopsy Status	**X**	**O-24**			427
Medical Examiner					428
Autopsy Number		**O-25**			429
Autopsy Memo	**X**	**O-26**			430
Organ Donation Request Status		**O-27**			431
Organ Donation Request Permission		**O-28**			432

Organs Procured	**X**	**O-29**			433
Organ Procured Specify Other	**X**	**O-30**			434
Organ Non-Procurement Reason		**O-31**			435
Organ Donor Status					436
Organ Procurement Date					437
Organ Procurement Time					438
Billing Account Number	**X**				439
Total Hospital Charges Billed	**X**				440
Diagnosis Billing DRG					441
Diagnosis Billing MS-DRG					442
Primary Payor / Additional Payor	**X**	**O-36**	**F-01**		443
Primary Payor / Add. Payor Collected Amount					444
Primary Payor / Add. Payor Collected Date					445
Billing Specify					446
Total Charges Collected	**X**				447
Last Date Charges Collected					448
Outcomes Section Notes	**X**				449
11. QA TRACKING SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
ACS Questions	**X**	**Q-01**			452
QA Item Occurrence Date					454
QA Item Occurrence Response					455
QA Item Occurrence Tracking					456
QA Item Occurrence Notes					457
NTDB Complications	**X**	**Q-02**	**Q-01**		458

NTDB Complications Date					460
NTDB Complications QA Tracking					461
QA Item					462
QA Item Occurrence Location					463
QA Item Occurrence Service					464
QA Item Occurrence Date Opened					465
QA Item Occurrence Date Loop Closed					466
QA Item Occurrence Provider					467
QA Item Occurrence Section Notes					468
QA Item Occurrence Reviewer					469
QA Item Occurrence Reviewed Date					470
QA Item Occurrence Reviewed Comment					471
QA Item Occurrence Contributing Factors					472
QA Item Occurrence Determination - System/Disease/Provider					473
QA Item Occurrence Determination Qualifier - OFI Status					474
QA Item Occurrence Determination Grade					475
QA Item Occurrence Determination Care Given Status					476
QA Item Occurrence Corrective Action					477
QA Item Occurrence Corrective Action Status					478
QA Item Occurrence Notes					479
12. TQIP SECTION	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
NTDB Enable Fields	**X**				482
NTDB Lock Record	**X**				483
12. TQIP SECTION (continued)	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#

TQIP Exclusion	**X**				484
TQIP Head Injury Criteria	**X**				485
TQIP Blood Product Criteria					486
TQIP Withdrawal Of Life Support Treatment		**PM-02**	**PM-36**		487
TQIP Withdrawal of Life Support Treatment Date		**PM-03**	**PM-37**		488
TQIP Withdrawal of Life Support Treatment Time		**PM-04**	**PM- 38**		489
TQIP Venous Thromboembolism Prophylaxis Type	**X**		**PM-09**		490
TQIP Prophylaxis Date	**X**		**PM-10**		491
TQIP Prophylaxis Time	**X**		**PM-11**		492
TQIP / TBI Highest Total GCS Within 24 Hrs.			**PM-01**		493
TQIP / TBI GCS Motor Component	**X**		**PM-02**		494
TQIP / TBI GCS Qualifiers	**X**		**PM-03**		495
TQIP / TBI Pupillary Response			**PM-04**		496
TQIP / TBI Midline Shift			**PM-05**		497
TQIP / TBI Cerebral Monitor Type	**X**		**PM-06**		498
TQIP / TBI Cerebral Monitor Date	**X**		**PM-07**		499
TQIP / TBI Cerebral Monitor Time	**X**		**PM-08**		500
TQIP / BLOOD Lowest ED SBP			**PM-28**		501
TQIP / BLOOD Transfusion Blood 4hrs			**PM-12**		502
TQIP / BLOOD Transfusion Blood 24hrs			**PM-13**		503
TQIP / BLOOD Transfusion Blood Measurements			**PM-14**		504
TQIP / BLOOD Transfusion Blood Conversion			**PM-15**		505
TQIP / BLOOD Transfusion Plasma 4hrs			**PM-16**		506
TQIP / BLOOD Transfusion Plasma 24 Hrs.			**PM-17**		507

TQIP / BLOOD Transfusion Plasma Blood Measurements			**PM-18**		508
TQIP / BLOOD Transfusion Plasma Blood Conversion			**PM-19**		509
TQIP / BLOOD Transfusion Platelets 4hrs			**PM-20**		510
TQIP / BLOOD Transfusion Platelets 24 Hrs.			**PM-21**		511
TQIP / BLOOD Transfusion Platelets Blood Measurements			**PM-22**		512
12. TQIP SECTION (continued)	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
TQIP / BLOOD Transfusion Platelets Blood Conversion			**PM-23**		513
TQIP / BLOOD Cryoprecipitate 4hrs			**PM-24**		514
TQIP / BLOOD Cryoprecipitate 24 Hrs.			**PM-25**		515
TQIP / BLOOD Cryoprecipitate Measurements			**PM-26**		516
TQIP / BLOOD Cryoprecipitate Conversion			**PM-27**		517
TQIP / BLOOD Embolization Site			**PM-30**		518
TQIP / BLOOD Surgery For Hemorrhagic Control			**PM-33**		519
TQIP / BLOOD Surgery Date			**PM-34**		520
TQIP / BLOOD Surgery Time			**PM-35**		521
TQIP / BLOOD Angiography			**PM-29**		522
TQIP / BLOOD Angiography Date			**PM-31**		523
TQIP / BLOOD Angiography Time			**PM-32**		524
SURGEON SPECIFIC REPORTING	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
National Provider Identifier – OPTIONAL AT THIS TIME			**SSR_01**		527
APPENDIX and OTHER REFERRENCES	**OLD DATABASE**	**REMSA**	**NTDB**	**NEMSIS**	PG#
APPENDIX 1. NTDB Patient Inclusion Criteria					530
APPENDIX 2. REMSA Trauma Registry Inclusion Criteria					531
APPENDIX 3. Classification of Patient Without Zip Code					533

Vehicle Impact Location					610
Burns Rule of Nine					611
Fracture Classification in ICD-10 CM					613

Appendix E: HEMS Scoring Matrix

Agency Name:
Airship #
Date of Service
Time of ground crew arrival
Time command center requested helicopter
Air ETA
Latitude
Longitude
Incident location
Air paramedic incident #
Time: you received call
Time: lift off
Time: skids down @ LZ
Time: Air to Patient contact
Special Procedures:
Other Special Procedures:
Number of attempts
Time: skids up
Time: arrived to destination
Destination
Specific Reason for Air Utilization
If other: free text reason
Time: ground ETA to closest trauma center
Name of Base hosp.
Time: care turned over to ED
Comments, concerns
TXA administered- Y or N

Appendix F: REMSA Policy 4301- Shock due to Trauma

RIVERSIDE COUNTY EMS AGENCY	Treatment Protocol	4301
	Effective: July 1, 2018	Expires: March 31, 2019
Policy: Shock Due to Trauma	Approval: Medical Director: Reza Vaezazizi, MD	Signed
Applies To: PSP, EMT, AEMT, PM, MICN, BHP, EMS System	Approval: REMSA Director: Bruce Barton	Signed

Enter from the Universal Patient Treatment Protocol
For specific Emergency Stabilization or Patient Management of **Shock Due to Trauma**

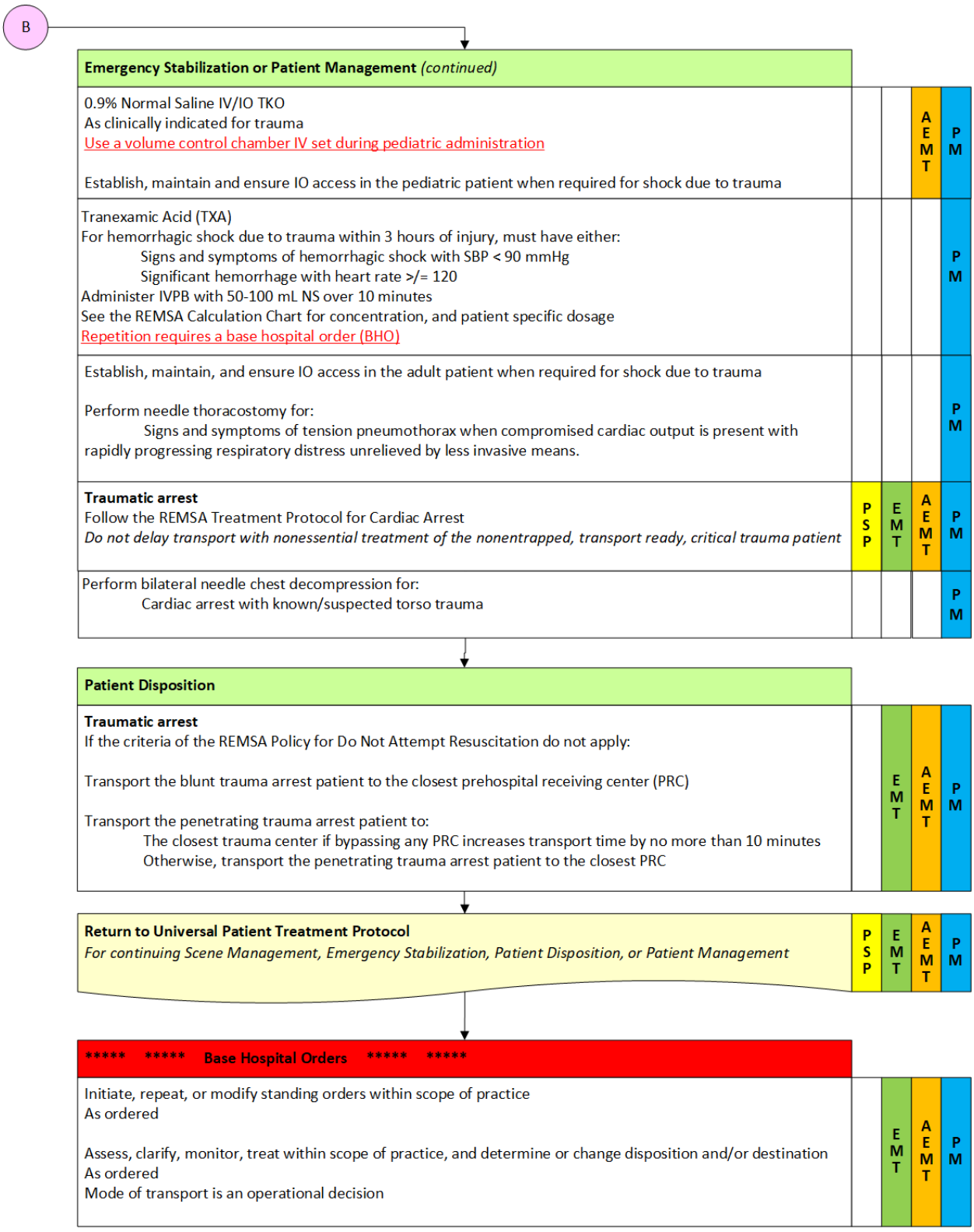
Pertinent Findings

Environment	History	Physical	Differential
Traumatic MOI *Blood loss*	*Mechanism of injury* *Time of event* *Estimated blood loss* *SAMPLE history* *Antiplatelets or anticoagulants:* *Aspirin, Plavix, Coumadin, etc.*	*Altered mental status* *Pale, ashen, cyanotic, cool, wet skin signs* *Altered respirations* *Tachycardia* *Hypotension* *Arrest*	*Cardiogenic shock* *Arrhythmia, infarction* *Distributive shock* *Anaphylactic, neurogenic, septic* *Hypovolemic shock* *Hemorrhagic blood loss, burns* *Obstructive shock* *Embolism, tamponade, tension pneumo*

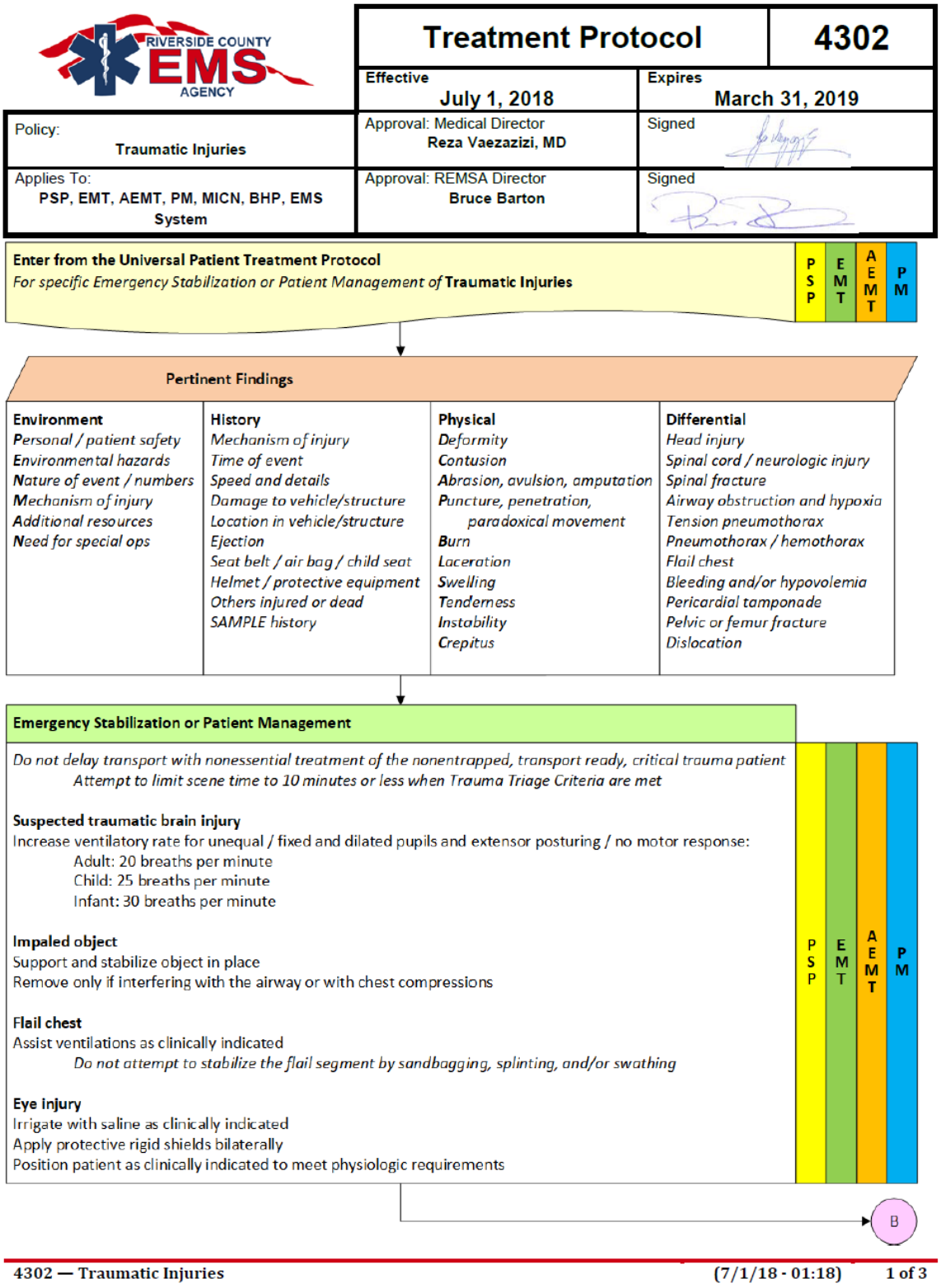
Emergency Stabilization or Patient Management

	PSP	EMT	AEMT	PM
Do not delay transport with nonessential treatment of the nonentrapped, transport ready, critical trauma patient *Attempt to limit scene time to 10 minutes or less when Trauma Triage Criteria are met* Control bleeding using direct pressure and/or pressure dressing(s) as clinically indicated Position patient supine to meet physiologic requirements: Avoid Trendelenburg or elevating legs for shock Keep patient warm	✓	✓	✓	✓
Control bleeding using tourniquet(s) as clinically indicated *Do not delay contacting the trauma base hospital, as required for the critical trauma patient*		✓	✓	✓
Establish IV access during transport of the non-entrapped, transport ready critical trauma patient Establish, maintain, and ensure bilateral, large bore IV access for shock due to trauma 0.9% Normal Saline IV/IO bolus As clinically indicated for shock due to trauma See the REMSA Calculation Chart for concentration, and patient specific dosage and volume May repeat as clinically indicated Use a volume control chamber IV set during pediatric administration			✓	✓

B


B
Emergency Stabilization or Patient Management (continued)
0.9% Normal Saline IV/IO TKO
As clinically indicated for trauma
Use a volume control chamber IV set during pediatric administration
Establish, maintain and ensure IO access in the pediatric patient when required for shock due to trauma
AEMT
PM
Tranexamic Acid (TXA)
For hemorrhagic shock due to trauma within 3 hours of injury, must have either:
Signs and symptoms of hemorrhagic shock with SBP < 90 mmHg
Significant hemorrhage with heart rate >/= 120
Administer IVPB with 50-100 mL NS over 10 minutes
See the REMSA Calculation Chart for concentration, and patient specific dosage
Repetition requires a base hospital order (BHO)
PM
Establish, maintain, and ensure IO access in the adult patient when required for shock due to trauma
Perform needle thoracostomy for:
Signs and symptoms of tension pneumothorax when compromised cardiac output is present with rapidly progressing respiratory distress unrelieved by less invasive means.
PM
Traumatic arrest
Follow the REMSA Treatment Protocol for Cardiac Arrest
Do not delay transport with nonessential treatment of the nonentrapped, transport ready, critical trauma patient
PSP
EMT
AEMT
PM
Perform bilateral needle chest decompression for:
Cardiac arrest with known/suspected torso trauma
PM
Patient Disposition
Traumatic arrest
If the criteria of the REMSA Policy for Do Not Attempt Resuscitation do not apply:
Transport the blunt trauma arrest patient to the closest prehospital receiving center (PRC)
Transport the penetrating trauma arrest patient to:
The closest trauma center if bypassing any PRC increases transport time by no more than 10 minutes
Otherwise, transport the penetrating trauma arrest patient to the closest PRC
EMT
AEMT
PM
Return to Universal Patient Treatment Protocol
For continuing Scene Management, Emergency Stabilization, Patient Disposition, or Patient Management
PSP
EMT
AEMT
PM
***** ***** Base Hospital Orders ***** *****
Initiate, repeat, or modify standing orders within scope of practice
As ordered
Assess, clarify, monitor, treat within scope of practice, and determine or change disposition and/or destination
As ordered
Mode of transport is an operational decision
EMT
AEMT
PM

Appendix G: REMSA Policy 4302- Traumatic Injuries



RIVERSIDE COUNTY EMS AGENCY

Treatment Protocol	4302
Effective: July 1, 2018	Expires: March 31, 2019
Policy: Traumatic Injuries	Approval: Medical Director: Reza Vaezazizi, MD — Signed
Applies To: PSP, EMT, AEMT, PM, MICN, BHP, EMS System	Approval: REMSA Director: Bruce Barton — Signed

Enter from the Universal Patient Treatment Protocol
For specific Emergency Stabilization or Patient Management of **Traumatic Injuries**

PSP | EMT | AEMT | PM

Pertinent Findings

Environment	History	Physical	Differential
Personal / patient safety	*Mechanism of injury*	*Deformity*	*Head injury*
Environmental hazards	*Time of event*	*Contusion*	*Spinal cord / neurologic injury*
Nature of event / numbers	*Speed and details*	*Abrasion, avulsion, amputation*	*Spinal fracture*
Mechanism of injury	*Damage to vehicle/structure*	*Puncture, penetration, paradoxical movement*	*Airway obstruction and hypoxia*
Additional resources	*Location in vehicle/structure*	*Burn*	*Tension pneumothorax*
Need for special ops	*Ejection*	*Laceration*	*Pneumothorax / hemothorax*
	Seat belt / air bag / child seat	*Swelling*	*Flail chest*
	Helmet / protective equipment	*Tenderness*	*Bleeding and/or hypovolemia*
	Others injured or dead	*Instability*	*Pericardial tamponade*
	SAMPLE history	*Crepitus*	*Pelvic or femur fracture*
			Dislocation

Emergency Stabilization or Patient Management

Do not delay transport with nonessential treatment of the nonentrapped, transport ready, critical trauma patient
Attempt to limit scene time to 10 minutes or less when Trauma Triage Criteria are met

Suspected traumatic brain injury
Increase ventilatory rate for unequal / fixed and dilated pupils and extensor posturing / no motor response:
Adult: 20 breaths per minute
Child: 25 breaths per minute
Infant: 30 breaths per minute

Impaled object
Support and stabilize object in place
Remove only if interfering with the airway or with chest compressions

Flail chest
Assist ventilations as clinically indicated
Do not attempt to stabilize the flail segment by sandbagging, splinting, and/or swathing

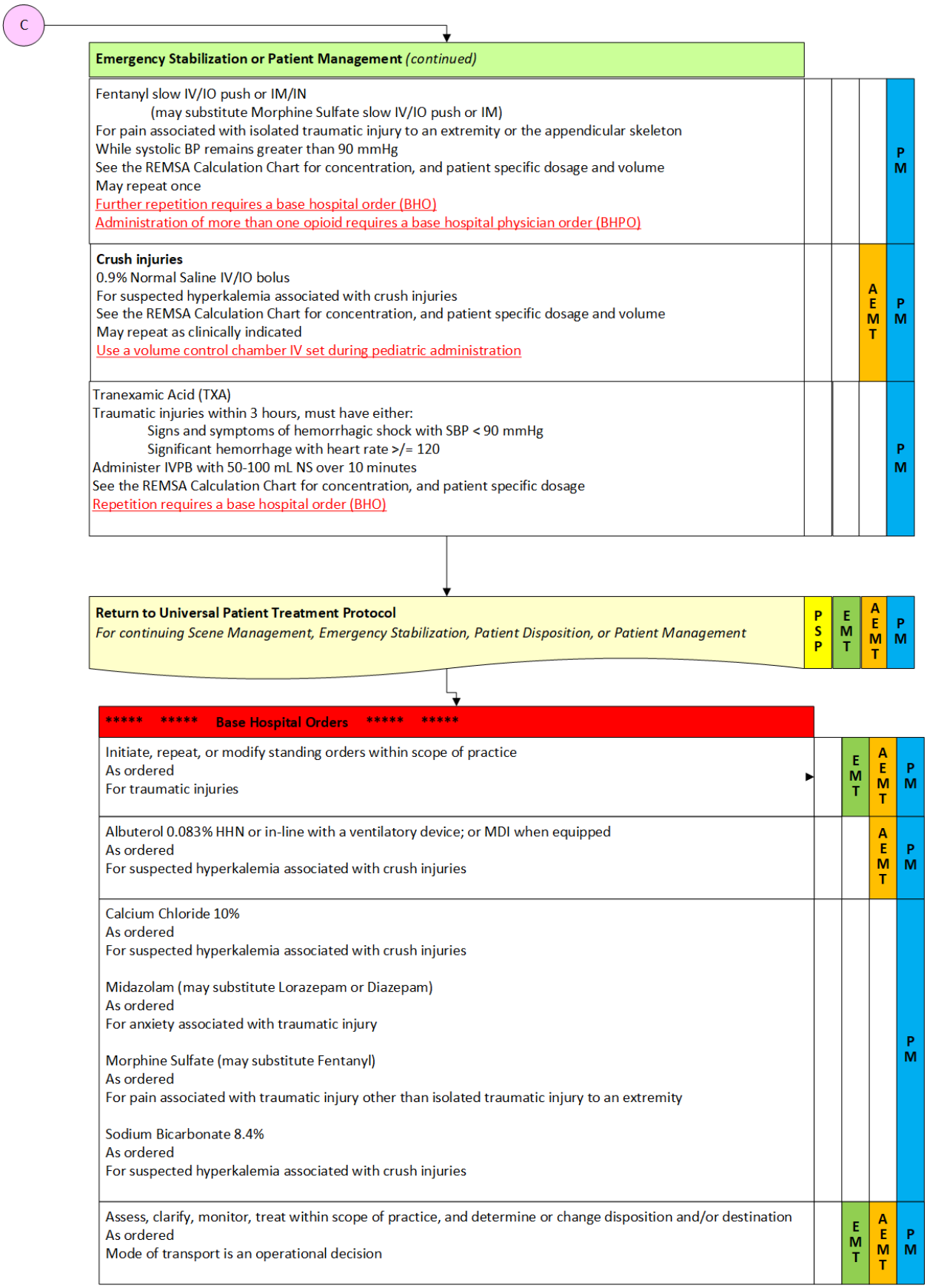
Eye injury
Irrigate with saline as clinically indicated
Apply protective rigid shields bilaterally
Position patient as clinically indicated to meet physiologic requirements

PSP | EMT | AEMT | PM

B

4302 — Traumatic Injuries (7/1/18 - 01:18) 1 of 3


B
Emergency Stabilization or Patient Management (continued)
PSP
EMT
AEMT
PM
Avulsed tooth
Handle tooth by the crown
Do not touch any part of the tooth that normally exists below the gum line
In the alert and cooperative patient, attempt to replace tooth in its socket
If unable, wrap in milk or normal saline soaked gauze sponge and transport
Wound care
Dress and bandage abrasions, lacerations, avulsions, punctures and/or penetrations as clinically indicated
Dress open pneumothorax with occlusive dressing
Briefly remove to release pressure when clinically indicated by signs of tension pneumothorax
Dress evisceration with saline soaked dressing
Do not intentionally replace evisceration
Rinse exposed bone with saline and dress with saline soaked gauze sponge or non-adherent dressing
Do not intentionally allow exposed bone to retract
Dress injured genitalia with saline soaked dressing, applying direct pressure to control bleeding
Rinse amputation in saline, wrap in saline soaked dressing, bag, indirectly place on ice, and transport
Fracture or dislocation
Assess distal neurovascular functions using PMS (pulse, motor, sensation) before and after manual stabilization
Manually stabilize and/or splint fractures and dislocations as found
Do not intentionally allow exposed bone to retract and do not intentionally reduce dislocation
Assess distal neurovascular functions using PMS (pulse, motor, sensation) before and after manipulation/splinting
Return grossly angulated extremity fractures to the anatomic position as clinically indicated
Use gentle traction
Splint fractures as clinically indicated
Stabilize and/or splint mid-shaft femur fractures using a traction splint as clinically indicated
Splint dislocations as found
Contact a base hospital (BH) for any fracture or dislocation with neuro and/or vascular compromise
Amputation
Rinse amputated body part(s) with normal saline
Wrap with saline soaked dressing
Place in a bag
Keep part(s) cool but don't place directly on ice
Pain management
Apply disposable cold pack(s) as clinically indicated for pain associated with traumatic injury
C


C
Emergency Stabilization or Patient Management (continued)
Fentanyl slow IV/IO push or IM/IN
(may substitute Morphine Sulfate slow IV/IO push or IM)
For pain associated with isolated traumatic injury to an extremity or the appendicular skeleton
While systolic BP remains greater than 90 mmHg
See the REMSA Calculation Chart for concentration, and patient specific dosage and volume
May repeat once
Further repetition requires a base hospital order (BHO)
Administration of more than one opioid requires a base hospital physician order (BHPO)
PM
Crush injuries
0.9% Normal Saline IV/IO bolus
For suspected hyperkalemia associated with crush injuries
See the REMSA Calculation Chart for concentration, and patient specific dosage and volume
May repeat as clinically indicated
Use a volume control chamber IV set during pediatric administration
AEMT
PM
Tranexamic Acid (TXA)
Traumatic injuries within 3 hours, must have either:
Signs and symptoms of hemorrhagic shock with SBP < 90 mmHg
Significant hemorrhage with heart rate >/= 120
Administer IVPB with 50-100 mL NS over 10 minutes
See the REMSA Calculation Chart for concentration, and patient specific dosage
Repetition requires a base hospital order (BHO)
PM
Return to Universal Patient Treatment Protocol
For continuing Scene Management, Emergency Stabilization, Patient Disposition, or Patient Management
PSP
EMT
AEMT
PM
***** ***** Base Hospital Orders ***** *****
Initiate, repeat, or modify standing orders within scope of practice
As ordered
For traumatic injuries
EMT
AEMT
PM
Albuterol 0.083% HHN or in-line with a ventilatory device; or MDI when equipped
As ordered
For suspected hyperkalemia associated with crush injuries
AEMT
PM
Calcium Chloride 10%
As ordered
For suspected hyperkalemia associated with crush injuries
Midazolam (may substitute Lorazepam or Diazepam)
As ordered
For anxiety associated with traumatic injury
Morphine Sulfate (may substitute Fentanyl)
As ordered
For pain associated with traumatic injury other than isolated traumatic injury to an extremity
Sodium Bicarbonate 8.4%
As ordered
For suspected hyperkalemia associated with crush injuries
PM
Assess, clarify, monitor, treat within scope of practice, and determine or change disposition and/or destination
As ordered
Mode of transport is an operational decision
EMT
AEMT
PM

Appendix H: REMSA Policy 5802- Ketamine for Analgesia

	Trial Study	5802
	Effective April 1, 2018	Expires March 31, 2019
Policy: **Ketamine for Analgesia Trial Study**	Approval: Medical Director **Reza Vaezazizi, MD**	Signed
Applies To: **Authorized Study Participants, EMS System**	Approval: REMSA Director **Bruce Barton**	Signed

PURPOSE

To determine the role of prehospital ketamine to improve pain management for patients meeting trial study inclusion criteria. Every patient deserves to have his or her pain managed. Consider reassurance, position of comfort, ice and gentle transport as part of pain management. Privacy and separation from parents may benefit adolescents. Do not attempt to completely relieve the patient's pain, but treat aggressively enough to make it bearable.

AUTHORITY

California Health and Safety Code - Division 2.5: Emergency Medical Services [1797. - 1799.207.]
California Code of Regulations, Title 22. Social Security, Division 9. Prehospital Emergency Medical Services

Inclusion Criteria

Patients must be 15 years of age or older with a GCS of 15 with a pain scale score of 5 or greater.

The prehospital use of ketamine for analgesia should be considered for adult patients with pain associated with:

- Acute traumatic injury
  OR
- Acute burn injury

Contraindications

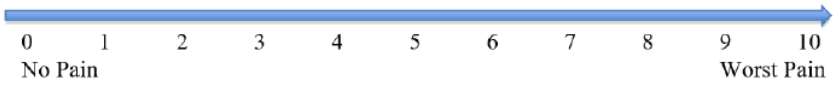
- Any patient under 15 years of age
- Allergy to Ketamine
- Known or suspected pregnancy
- Known or suspected alcohol/drug intoxication
- Received narcotics of ANY form within the past 6 hours

Procedure

If patient meets inclusion criteria listed above:

- Assess the patient's pain utilizing the numeric pain scale. If pain scale is reported as 5 or higher:
  - Administer ketamine 0.3 mg/kg (max single dose of 30 mg) in 50-100 mL of Normal Saline via IV Bolus drip over 5 minutes.
    ***(Do not administer IVP, IO, IM or IN**– trial study parameters for pain control are for IVPB admin.)*
  - Place the approved ketamine silver wristband on patient prior to transporting patient to a most appropriate receiving facility
  - Reassess the patient's vital signs, including pain scale score, every 5 min during transport.
  - After 15 mins, If pain scale score remains reported at 5 or higher, a second dose of ketamine can be administered at 0.3 mg/kg (max single dose of 30 mg) in 50-100 mL of Normal Saline via IV Bolus Drip over 5 minutes.

This is the official pain scale to be used in patient assessment and documented on the PCR.



Documentation Requirements

Must use a REMSA contracted or authorized electronic patient care report system:

- Documentation must include:
  - Age
  - Gender
  - Race/ethnicity
  - Weight
  - Date/time of injury onset of symptoms
  - Mechanism of injury
  - Initial systolic blood pressure and vital signs
  - Pain scale before and every 5 minutes after ketamine administration
  - If trauma patient: Blunt or penetrating trauma location and description of injuries
  - Vital signs including Glasgow Coma Scale and temperature (if able to determine): pre, during and every 5 min post- ketamine administration
  - Any fluid administration
  - Date/time ketamine was started
  - Past medical history
  - Allergies
  - Any first response agency or transport service defined questions related to ketamine

Appendix I: REMSA Policy 3304- Multiple Patient Incident (MPI/MCI) Scene Management

	Operational Policy	3304
	Effective: December 1, 2017	Expires: March 31, 2019
Policy: Multiple Patient Incident Management	Approval: Medical Director: Reza Vaezazizi, MD	Signed
Applies To: PSP, EMT, AEMT, PM, MICN, BHP, EMS System	Approval: REMSA Director: Bruce Barton	Signed

PURPOSE

The purpose of this policy is to establish a flexible medical management and documentation strategy for multiple patient incidents (MPI) and multiple casualty incidents (MCIs) to improve patient outcome and decrease patient scene time. Management should include focus on triage of the patients, utilizing REMSA Trauma Triage Indicators and transport to the appropriate receiving facility for the patient's injuries. An MCI may be activated when there are ten (10) or more patients requiring transport or if deemed necessary by Incident Command.

AUTHORITY

California Health and Safety Code - Division 2.5: Emergency Medical Services [1797. - 1799.207.]
California Code of Regulations, Title 22. Social Security, Division 9. Prehospital Emergency Medical Services

Multiple Patient Incident (MPI) Management

1. Multiple Patient Incidents (MPI) are incidents where more than 1 patient but less than 10 patients require transport. Incidents with multiple patients that are not determined to be a Multiple Casualty Incident (MCI) by the Incident Commander are also defined as an MPI.
2. MPI incidents shall be named using a naming convention consistent with the incident's geographic location.
3. MPI incidents shall be managed with an Incident Commander and a designated MedComm role.
4. COMMUNICATIONS:
    a. Early Trauma Base Hospital notification is essential to managing MPI incidents fluidly.
    b. All Base Hospital communications must be done by the designated MedComm personnel member.
        i. MedComm role must be filled by a paramedic whenever possible.
    c. The assigned Medical Communications Coordinator (Med Com) shall initiate contact as soon as possible with the closest most appropriate Trauma BH.
        i. Med Com's initial contact shall include:
            1. Identifying self as Med Com.
            2. Name and location of the MPI Incident.
            3. ETA to closest hospital and Trauma Center to establish a point of reference.
            4. Scene description including any special circumstances.
            5. Number of patients that will likely require transport.
        ii. Med Com's second contact to the Trauma BH shall include:.
            1. Current patient count by Patient Status (Immediate, Delayed, or Minor).
            2. Transportation destination considerations: Pediatrics, Burn, Trauma.
                a. The Trauma BH will coordinate patient destination with Med Com.
                b. Receiving centers should be determined utilizing REMSA Trauma Triage Indicators as the primary determinant for destination. Wherever possible patients meeting trauma triage criteria should be transported to trauma receiving centers.
    d. Transporting ambulances shall notify the receiving hospital as soon as possible, and shall include:
        i. Incident Name/Location Incident
        ii. Patient number from patient count at incident location
        iii. Patient Status (Immediate, Delayed, or Minor)
        iv. Chief Complaint/Major Injury
        v. Mechanism of Injury
        vi. Glasgow Coma Scale (GCS)

vii. Patient's Vital Signs
viii. Estimated Time of Arrival

5. PATIENT TRANSPORTATION:
   a. Treatment and transportation should be according to the seriousness of the patients' injuries whenever possible.
   b. Receiving centers should be determined utilizing REMSA Trauma Triage Indicators as the primary determinant for destination. Wherever possible patients meeting trauma triage criteria should be transported to trauma receiving centers.
6. DOCUMENTATION:
   a. A REMSA Approved ePCR must be completed for each patient involved in the response.

Multiple Casualty Incident (MCI) Scene Management

7. The Incident Command System (ICS) as defined by FIRESCOPE will be utilized at all MCIs. Its Multi-Casualty organizational module is designed to provide for the necessary supervision and control of essential functions required during an MCI. The primary functions will be directed by the Medical Group Supervisor, if activated (otherwise Operations), who reports to the Multi-Casualty Branch Director, if activated, or directly to the Incident Commander (IC). Resources having direct involvement with patients are supervised or coordinated by one of the functional leaders or coordinators. The required functional positions under the Medical Group Supervisor (Operations) are:
   a. Triage Unit Leader: Supervises triage personnel, who perform the actual triage of patients. Once triaged, directs movement of patients to the Treatment Area, usually via backboard or litter carried by litter bearers. Once all initial triage is complete, secondary patient assessment utilizing a comprehensive physical exam (e.g. PHTLS/ITLS trauma assessment) shall continue until all patients have been transported from the incident.
   b. Medical Communication Coordinator: Maintains communications with the Base Hospital (BH)/Coordinating Facility. Responsible for reporting location, mechanism, and approximate number of immediate, delayed, and minor patients, requesting hospital availability and determining patient transportation and destination decisions.
   c. Treatment Unit Leader: Supervises personnel assigned to treat patients in the three treatment areas. Assumes responsibility for treatment, preparation for transport, coordination of patient treatment and directs movement of patients to the loading area. Responsible for the continued triage and assessment of patients as the incident evolves.
   d. Ambulance Coordinator: The Ambulance Coordinator reports to the Patient Transportation Unit Leader, manages the Ambulance Staging Area(s), and dispatches ambulances as requested.
   e. Patient Transportation Unit Leader: The Patient Transportation Unit Leader is responsible for the coordination of patient transportation and the maintenance of records relating to the patient's identification, condition, and destination.

*****More than one functional position may be assigned to a single responder*****

8. S.T.A.R.T.: This system allows first responders to triage patients in sixty (60) seconds or less, based on three physical assessments: ventilation, perfusion, and mental status.

Deceased: No ventilation present even after attempting to position airway.
Immediate: Ventilation is present only after positioning the airway.
or Respirations over 30 per minute.
or Peripheral Pulse absent and Cap Refill over 2 seconds.
or Mental Status depressed, i.e., patient fails to follow simple commands.
Delayed: Any patient who does not fit the Immediate or Minor categories.
Minor: These patients are separated from the general group at the start of the triage by requesting those who can walk to go to an assigned area.

9. RESPONSE

The first on-scene responder unit will complete a rapid size-up of the incident, declare the incident an MCI by notifying their dispatch agency of this, request additional personnel and equipment as necessary, initiate the ICS, and begin triage of victims using the START system and approved triage tags.

a. Incident Command will be established by the appropriate jurisdictional public safety agency. In the absence of public safety agency on scene, the transport provider agency should institute ICS as necessary.
    i. Incident Command will be responsible for the management of all incident operations.
    ii. The IC will assign the Medical Communications Coordinator position as soon as feasible in the incident, preferably to a paramedic.
b. Prior to arrival at scene, all responding personnel/units will contact the IC or his/her designee on the assigned radio channel to request assignment or staging instructions. All personnel shall remain with their vehicles until otherwise assigned.
c. The IC has the authority to change assignments as he/she sees fit.
d. All on-scene providers will follow legal orders of/from the IC.

10. COMMUNICATIONS

a. All responding units will be informed of the channel and will use it for all incident radio communications.
b. Responding units will not contact a BH prior to arrival on-scene.
c. The assigned Medical Communications Coordinator (Med Com) shall initiate contact as soon as possible with the closest most appropriate Trauma BH.
    i. Med Com's initial contact shall include:
        1. Identifying self as Med Com.
        2. Name and location of the MCI Incident.
        3. ETA to closest hospital and Trauma Center to establish a point of reference.
        4. Scene description including any special circumstances.
        5. Number of patients and request for MCI bed availability.
            a. The Trauma BH will use the ReddiNet to notify other hospitals of MCI by sending a general notification and initiating an MCI. (Consider out-of-county hospital(s) for receiving facilities based upon incident location.)
            b. For MCI's with greater than 10 patients: ReddiNet polling for bed availability should be initiated by the Trauma BH.
            c. Receiving hospitals will acknowledge the MCI notification and respond with bed availability promptly as needed.
    ii. Med Com's second contact to the Trauma BH shall include:
        1. Receiving bed availability from the BH using the ICS-MC-308 form.
        2. Current patient count by Patient Status (Immediate, Delayed, or Minor).
        3. Transportation destination considerations: Pediatrics, Burn, Trauma.
            a. The Trauma BH will coordinate patient destination with Med Com.
            b. Receiving centers should be determined utilizing REMSA Trauma Triage Indicators as the primary determinant for destination. Wherever possible patients meeting trauma triage criteria should be transported to trauma receiving centers.
            c. Receiving hospitals will monitor and use the ReddiNet.
    iii. Med Com's subsequent contacts to the Trauma BH shall be consistent with the ICS-MC-306 form.
        1. Patient Triage Tag Number
        2. Patient Status (Immediate, Delayed, or Minor)
        3. Chief Complaint
        4. Patient Info: Age/Sex
        5. Hospital Destination
        6. Ambulance Company & Unit ID Number
        7. Off Scene Time
            a. The BH will track patient destinations via use of the ReddiNet or ICS-MC-306 form.

b. Receiving hospital will "Arrive" each patient via ReddiNet when each arrives in the ED, and add all pertinent patient information as appropriate.

d. Transporting ambulances shall notify the receiving hospital as soon as possible, and shall include:
   i. Incident Name/Location Incident
   ii. Triage Tag Number
   iii. Patient Status (Immediate, Delayed, or Minor)
   iv. Chief Complaint/Major Injury
   v. Mechanism of Injury
   vi. Glasgow Coma Scale (GCS)
   vii. Patient's Vital Signs
   viii. Estimated Time of Arrival

e. Base and receiving hospitals shall utilize the ReddiNet to manage patient destination assignments from all MCIs.

11. PATIENT TRANSPORTATION

a. The IC or his/her designee will designate an ambulance staging area.
b. Prior to arrival at MCI scene, each ambulance will contact the IC or his/her designee on assigned radio channel and request assignment or staging instructions.
c. Treatment and transportation should be according to the seriousness of the patients' injuries whenever possible.
d. Receiving centers should be determined utilizing REMSA Trauma Triage Indicators as the primary determinant for destination. Wherever possible patients meeting trauma triage criteria should be transported to trauma receiving centers.
e. The Transportation Unit Leader will notify the Med Com of departing units.
f. The Transportation Unit Leader will copy the information from the triage tag onto the ICS-MC-306 Form and confirm the destination with the ambulance crew.
g. During large MCIs where patient transport demands tax ALS ambulance availability and/or negatively affect the operation and continuity of the EMS system, patients may be transported by Basic Life Support (BLS) ambulance.
   i. Patients should be prioritized with higher acuity patients going via ALS ambulance and lower acuity patients going via BLS ambulance transports whenever possible.
   ii. Based upon available personnel, a non-transport paramedic (ALS First Responder) should be considered for the provision of care to patients triaged as immediate during transport in a BLS ambulance.
   iii. Once the decision to utilize BLS ambulance has been made by the IC, those BLS ambulances that present the best estimated time of arrival (ETA) to the scene will be used.
h. During extreme circumstances where ambulance resources are exhausted or where alternative transportation resources, such as buses, will provide the most expedient transport or enhance patient safety, use of those resources are authorized as determined by the IC.
   i. The IC is responsible for assuring patient safety when alternative transportation options are utilized.
   ii. Minimum staffing shall be two (2) Emergency Medical Technicians (EMTs), supplied with radios and BLS equipment if vehicles, such as buses, are used to transport patients triaged as Minor.

12. DOCUMENTATION

Patient identification, assessment, treatment, and disposition will be documented on the triage tags. Only the Cal Chiefs-approved triage tags shall be used. The triage tag will be handled as follows:

NOTE: For non-contaminated incidents, remove the "contaminated" portion of the triage tag. If a contamination hazard exists, all EMS personnel shall coordinate with the IC or his/her designee for briefing.

a. As patients are triaged, one half of the appropriate triage category (immediate, delayed, and minor) will be removed from the tag and retained by the triage personnel.

b. Once the triage is complete, triage personnel will deliver the retained category halves of the triage tags to the Triage Unit Leader to retain accountability.
c. The category half remaining on the triage tag must remain with the patient for the identification of the individual patient triage category.
d. The transport portion affixed to the top of the triage tag (below the Personal Property Receipt) will be removed by the Transportation Unit Leader and documented with transport destination and mode of transportation with appropriate unit identifier.
e. Following the conclusion or resolution of the incident, the IC will be responsible for completion of all MCI documentation. Documentation should be attached to the ePCR for the incident, which may include:
    i. ICS-214 (For each personnel assigned to a functional position)
    ii. ICS-MC-305 form (Multiple Casualty Branch Worksheet)
    iii. ICS-MC-306 form draft version (Multiple-Casualty Recorder Worksheet)
    iv. ICS-MC-308 form draft version (Multiple-Casualty Hospital Resource)
    v. ICS-MC-310 form draft version (Multiple-Casualty Ambulance Resource Status)
    vi. ICS-MC-312 form (Medical Supply Receipt and Inventory Form)

****All documentation will be turned into the provider's continuous quality improvement (CQI) department.****

13. TRAINING

The Riverside County EMS Agency approved MCI Training Program for initial and biennial recurrent training is required for all:

- ALS Providers
- BLS Providers
- Base Hospitals

Appendix I- Trauma Audit Committee peer review

RIVERSIDE COUNTY EMS AGENCY

INLAND COUNTIES EMERGENCY MEDICAL AGENCY
Serving San Bernardino, Inyo and Mono Counties

2018 Peer Review Indicators

A. Unanticipated Outcome with Opportunity for Improvement

B. Preventable Deaths

C. Trauma Continuation of Care/ Under-triage

D. Pre-hospital trauma care, Appropriateness of triage criteria and performance

E. Hospital trauma care

*Trauma centers to submit a minimum of 2 cases from indicator A-E.

February- ARMC, DRMC, LLUMC-P, PVMC

May- IVMC, LLUMC, RCH, RUHS

August- ARMC, DRMC, LLUMC-P, PVMC

November- IVMC, LLUMC, RCH, RUHS

F. Any additional cases needing further review may be submitted to TAC by any of the Trauma centers

Cases must be submitted to Loreen or Shanna two weeks prior to TAC. If you would like another facility to review your case in their peer review, please look at the assigned schedule for chart swapping

Loreen Gutierrez, RN, Specialty Care Coordinator, at (909) 388-5803 or via e-mail at Loreen.Gutierrez@cao.sbcounty.gov or Shanna Kissel, RN Trauma Systems Manager @ 951-358-5548 or via email at shkissel@rivco.org

Appendix J: References

Committee on Trauma, American College of Surgeons. (2014). Resources for Optimal Care of the Injured Patient.

Riverside County EMS Agency 2018 Policy Manual. Retrieved from http://www.remsa.us/policy/.

End of document