

DATA COLLECTION AND MANAGEMENT

PURPOSE

To specify the components of the data collection and management processes.

RELATED POLICIES

Patient Care Record, # 8115; Quality Improvement and System Evaluation, # 4616

DEFINITIONS

- A. The *Marin County Electronic Prehospital Information System* is that combination of databases used to collect prehospital and Emergency Department outcome information.
- B. *Trauma One* is proprietary trauma registry software designed to collect specified trauma system information.

POLICY

- A. All prehospital provider agencies will participate in the collection of prehospital data.
- B. All hospitals in Marin County will participate in Trauma Registry data collection whether they seek designation as a trauma center or do not seek designation.
- C. The Prehospital Information System has been modified to collect additional trauma information. Appendix A lists these additions.
- D. Prehospital Trauma Audit Filters will be reported to providers monthly. Audit filters are listed in Appendix B.
- E. The Collector Trauma Registry will be used to collect specified trauma information for the purpose of monitoring and tracking care provided to injured patients in the hospital setting (Appendix C and D).
- F. Yearly EMS statistical reports will be expanded to include trauma system reports as determined by the Trauma System CQI Committee and the Marin County Trauma CQI Plan.
- G. Appropriate Trauma System statistical and quality improvement information will be published on a regular basis

APPENDIX A

Intent of Injury
Unknown or N/A
Intentional
Unintentional

Safety Equipment Used
None
Lap restraint
Shoulder restraints
Child safety seat
Airbag
Helmet
Protective clothing
Flotation Device
Personal Protective Equip
Harness
Other

Scene Conditions
None identified
Complicated extrication
Do not resuscitate order form/medallion
Hazardous material/contaminated Pt.
Medical personnel on scene
Possible provider exposure
Unsafe or unsecured scene
AMA
Possible crime scene
Other

How Trauma Occurred
Burns - chemical
Burns - Electrical
Burns - heat - boiling water
Burns - heat - flame
Burns - heat - gas/flammable liquid
Burns - heat - hot surface
Burns - heat - steam/grease scald
Burns - heat - tap water
Collision - with animal
Collision - with auto
Collision - with bicycle
Collision - with bus

Collision - with motorcycle
Collision - with tractor/trailer
Collision - with train
Collision - with tree or building
Collision with stationary fixed object
Fall - ground level
Fall - height < 20 feet - other
Fall - height < 20 feet from balcony
Fall - height < 20 feet from bunkbed
Fall - height < 20 feet from cliff
Fall - height < 20 feet from highchair
Fall - height < 20 feet from horse
Fall - height < 20 feet from ladder
Fall - height < 20 feet from playground
Fall - height < 20 feet from roof
Fall - height < 20 feet from stairs
Fall - height < 20 feet from table
Fall - height < 20 feet from tree
Fall - height < 20 feet from window
Fall - height 20 feet or over - other
Fall - height 20 feet or over from balcony
Fall - height 20 feet or over from cliff
Fall - height 20 feet or over from ladder
Fall - height 20 feet or over from playground
Fall - height 20 feet or over from roof
Fall - height 20 feet or over from stairs
Fall - height 20 feet or over from tree
Fall - height 20 feet or over from window
Hanging or strangulation
Human bite
No further identifier required
Other - see narrative
Penetrating injury - airgun - grease
Penetrating injury - airgun - other/mechanical
Penetrating injury - airgun - paintgun
Penetrating injury - airgun - water
Penetrating injury - arrow
Penetrating injury - impaled on object
Penetrating injury - other

Where Trauma Occurred
Aircraft - commercial
Aircraft - private
Auto - cargo area
Auto - driver

Auto - pass front
Auto - pass rear
Auto - unknown location
Bicycle
Bus
Farm
Home - bathroom
Home - bedroom
Home - garage
Home - kitchen
Home - other
Home - stairs
Industrial - construction site
Industrial - logging site
Industrial - manufacturing plant
Licensed facility
Motorcycle - driver
Motorcycle - pass
Other - See Narrative
Pedestrian - Crosswalk
Pedestrian - In roadway
Pedestrian - Intersection, no crosswalk
Pedestrian - no intersection, no crosswalk
Pedestrian - Sidewalk
Public building - other
Public building - school
Recreation - land - baseball
Recreation - land - football
Recreation - land - hang gliding
Recreation - land - horse riding
Recreation - land - mountain climbing
Recreation - land - other
Recreation - land - rollerblading

Recreation - water - boating
Recreation - water - diving
Recreation - water - jet skiing
Recreation - water - other
Recreation - water - swimming
Recreation - water - water skiing
Recreation - water scuba diving
Train/rail

Where was Patient
Motorcycle - front
Motorcycle - other
Motorcycle - rear
Motorcycle - rollover
Motorcycle - side
MVA - direct front
MVA - direct rear
MVA - driver front
MVA - driver rear
MVA - other
MVA - pass front
MVA - pass rear
MVA - rollover
MVA - secondary impact - direct front
MVA - secondary impact - direct rear
MVA - secondary impact - driver front
MVA - secondary impact - driver rear
MVA - secondary impact - pass front
MVA - secondary impact - pass rear
MVA - secondary impact - t-bone driver
MVA - t-bone driver
MVA - t-bone pass

APPENDIX B

PREHOSPITAL TRAUMA AUDIT FILTERS

GENERAL

- A. Response time to scene >10 minutes
- B. On scene time >10 minutes
- C. Patient with Trauma Triage Criteria who does not have “early trauma notification” selected AND/OR no “time” is recorded (when call is made)

TRIAGE AND DESTINATION

- A. Patient with anatomic or physiologic trauma triage criteria transported to an ED or EDAT
- B. Patient with multiple trauma (defined as two or more selected trauma triage criteria) transported to in-county facility (any hospital)
- C. Patient with “high energy transfer mechanism” (Fall > 20 feet, Rollover with unrestrained occupant, prolonged extrication > 20 minutes, or significant blunt trauma to head, neck, or torso) transported to a Level II Trauma Center, ED or EDAT
- D. Patient with “other mechanism of injury” transported to an ED

CLINICAL

- A. Patient with GCS \leq 9 who is not intubated in the field (successful intubation)
- B. Patient with physiologic criteria (SBP < 90) , IVs not started
- C. Patient with physiologic criteria (resp rate <10 or > 29 BPM) without ALS airway intervention (oxygen, adjunct airway treatment)
- D. Patient with GCS \leq 13 with mechanism of injury without C-spine collar placed
- E. Patient with GCS \leq 13 without ALS adjunct airway intervention (no oxygen, artificial airway, etc.)
- F. Patient who meets ANY criteria on trauma triage criteria tool who does not have an IV placed
- G. Any cardiac arrest protocol patient in which trauma is present (noted by presence of trauma triage criteria or mechanism of injury on PCR)
- H. Treatments:
 - 1. needle thoracostomy
 - 2. mast applied
 - 3. CPR
 - 4. All medications
 - 5. CPR
 - 6. Oxygen

APPENDIX C

MARIN COUNTY TRAUMA TRIAGE CRITERIA

PHYSIOLOGIC

- GCS \leq 13
- Systolic B/P $<$ 90 mmHg
- Respiratory rate $<$ 10 or $>$ 29 breaths per minute

ANATOMIC

- Amputation above wrist or ankle
- Pelvic instability
- Traumatic paralysis
- Flail or crushed chest
- Two or more proximal long bone fractures (femur or humerus)
- Penetrating trauma to head, neck, or torso
- Burns with trauma

HIGH ENERGY TRANSFER MECHANISM

- Fall $>$ 20 feet
- Ejection from vehicle
- Rollover with unrestrained occupant
- Significant blunt trauma to the head, neck, or torso

OTHER MECHANISM OF INJURY

- MVA with: initial speed $>$ 40 mph; auto deform $>$ 20 in; OR intrusion $>$ 12 in
- Auto vs. peds/auto vs. bike $>$ 5 mph
- Motorcycle crash $>$ 20 mph or separation of rider from bike
- Prolonged extrication
- Pedestrian thrown or run over

APPENDIX D

REPORTING REQUIREMENTS FOR HOSPITALS

PATIENTS TO BE ENTERED INTO REGISTRY:

- Patients who meet trauma triage criteria on the Marin County Trauma Triage Criteria Tool who are transported by EMS to the trauma center
- Patients who meet trauma triage criteria that present to the trauma center without EMS involvement
- Patients who meet trauma triage criteria who are transported to non-trauma designated centers
- Patients who meet trauma triage criteria who are transported to another trauma center (i.e., transferred to higher level trauma center; repatriated; etc.)
- All trauma related deaths

All trauma patients as defined above will have the following audit filters collected:

EMERGENCY/RESUSCITATION PHASE

- Response by all trauma team members
- Trauma Surgeon response time (> 30 minutes)
- Definitive airway in place when patient with GCS < 9 leaves resuscitation area
- Vital signs documented in the trauma record upon arrival and every 15 minutes x 3
- Vital signs documented on trauma record hourly until discharge from the ED
- Patients receive CT scan within 1 hour of ED arrival when intracranial injury present and GCS < 12

ACUTE/ADMISSION PHASE

- Patient with abdominal injuries and hypotension SBP < 90 mmHg who undergoes laparotomy > 1 hour after ED admission
- Patient undergoes laparotomy > 4 hours after ED arrival
- Patient with subdural brain hemorrhage undergoing craniotomy > 4 hours after ED arrival
- Patient with epidural brain hemorrhage undergoing a craniotomy > 4 hours after ED arrival
- Open fracture patient receives initial surgical treatment > 8 hours after ED arrival
- Thoracic surgery performed > 24 hours after ED arrival
- Abdominal surgery performed > 24 hours after ED arrival
- Vascular surgery performed > 24 hours after ED arrival
- Cranial surgery performed > 24 hours after ED arrival
- Non-fixation of femoral diaphyseal fracture
- Patient requiring re-intubation of airway within 48 hours of extubation
- Unplanned return to the OR
- Admission of patient under 14 years of age
- OB trauma patient admitted

POST HOSPITAL PHASE

- Admission unplanned
- Admit to hospital within 72 hours after ED discharge

Each hospital will be required to submit a monthly summary report of trauma patient activity to the EMS Program. Monthly summary reports will include:

- Total number of trauma patients entered into the registry per month
- Total number of admitted trauma patients
- ISS Scores, ICD-9 summary
- Admitting Diagnosis
- Admitted to what service
- Trauma Triage Criteria met as defined by the Marin County Trauma Triage Criteria Tool
- Demographics: age, sex, location of injury
- Disposition from ED: OR, ICU, acute care unit, discharged, etc.)
- Length of stay
- Audit filters
- Complications
- All readmissions within 72 hours after ED discharge
- All unplanned admissions
- Trauma Deaths