Virginia Department of Health

Office of Emergency Medical Services (OEMS)

Quarterly Report on Trauma Incidents

Q2 2020

Division of Trauma and Critical Care
1041 Technology Park Drive
Glen Allen, Virginia 23059
Phone: (804) 888-9100

This report is based on the deliberations of the System Improvement Committee and analyses performed by Office of EMS Epidemiology staff.

Introduction

Section B 3. of the Code of Virginia (§32.1-111.3) requires the monitoring of the quality of the Commonwealth's emergency medical services (EMS) and trauma services using data from the EMS patient care information system. The EMS Advisory Board reviews and analyzes such data quarterly and reports its findings to the Commissioner. The Advisory Board has delegated this function to the System Improvement Committee (formerly the Trauma Performance Improvement Committee).

This quarterly report focuses on four key areas:

1. Completeness of prehospital vital sign documentation (blood pressure, respiratory rate, and Glasgow Coma Score) as required in Step 1 of the Virginia Field Trauma Triage Decision Scheme.
2. The number of trauma patients treated and transported by EMS agencies.
3. The number of trauma patients who met Step 1 (vitals), Step 2 (anatomy of injury), and Step 3 (mechanism of injury/impact) Virginia Field Trauma Triage Criteria.
4. The number of patients meeting trauma triage criteria transported to hospitals not designated as trauma centers.

The results reported here represent a high-level summary of the findings. This report describes how each EMS Council Region is performing. The report will be provided to the appropriate Regional EMS Council Director for each region. The Directors will be given an opportunity to provide feedback, which may explain special circumstances for which an exception occurred. The findings of this report and any feedback from the Directors will be used to drive education and improve the Trauma Triage Plan.

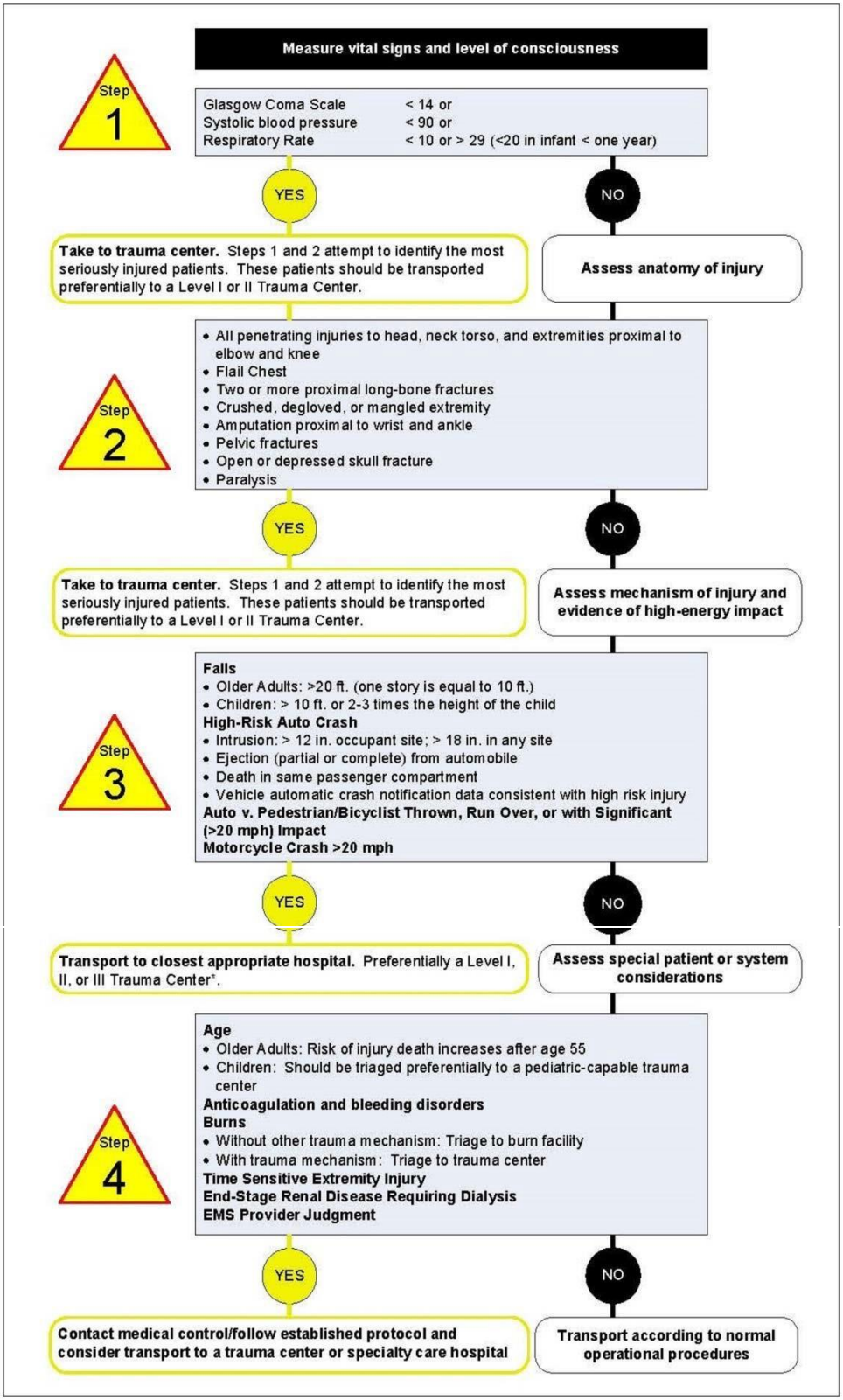
EMS patient data is extracted from patient medical records submitted by EMS agencies to the Virginia Pre-Hospital Information Bridge (VPHIB) program (Elite v3) maintained within the Virginia Department of Health's (VDH) Office of Emergency Medical Services (OEMS) Division of Trauma/Critical Care. Data summarized in this report represent EMS responses that occurred during the second quarter of 2020 (April through June) and were entered into VPHIB v3 as of 9/28/2020. VPHIB v3 data are based on the National EMS Information System (NEMSIS) standards.

This report includes all EMS responses categorized as trauma incidents using the following Guidelines (Table 1).

Table 1. Definition of Trauma Patients within VPHIB version 3

Type of Service Requested	
911 Response (Scene)	
Incident/Patient Disposition	
Patient Treated, Transported by this EMS unit	
Situation Provider Primary Impression (ICD-10-CM)	
• S00-S09 (Injuries to the head) • S10-S19 (Injuries to the neck) • S20-S29 (Injuries to the thorax) • S30-S39 (Injuries to the abdomen, lower back, lumbar spine, pelvis, and external genitals) • S40-S49 (Injuries to the shoulder and upper arm) • S50-S59 (Injuries to the elbow and forearm) • S60-S69 (Injuries to the wrist, hand, and fingers) • S70-S79 (Injuries to the hip and thigh • S80-S89 (Injuries to the knee and lower leg) • S90-S99 (Injuries to the ankle and foot) • T07 (Injuries involving multiple body regions) • T14 (Injury of unspecified body region) • T20-T25 (Burns and corrosions of external body surfaces, specified by site) • T26-T28 (Burns and corrosions confined to eye and internal organs) • T30-T32 (Burns and corrosions of multiple and unspecified body regions) • T75.0 (Effects of lightning) • T75.4 (Electrocution) (With 7th digit character modifier of A, B, or C; D through S are excluded)	*Excluding:* • *S00 (Superficial injuries of the head)* • *S10 (Superficial injuries of the neck)* • *S20 (Superficial injuries of the thorax)* • *S30 (Superficial injuries of the abdomen, pelvis, lower back and external genitals)* • *S40 (Superficial injuries of shoulder and upper arm)* • *S50 (Superficial injuries of elbow and forearm)* • *S60 (Superficial injuries of wrist, hand, and fingers)* • *S70 (Superficial injuries of hip and thigh)* • *S80 (Superficial injuries of knee and lower leg)* • *S90 (Superficial injuries of ankle, foot, and toes)*

Figure 1. Virginia Field Trauma Triage Decision Scheme



Virginia Trauma Summary, Second Quarter, 2020

EMS agencies in Virginia responded to a total of 355,246 EMS calls; of that total, 234,194 (65.9%) patients had a disposition of treated and transported by the unit, 39,207 (11.0%) had a disposition of canceled, 24,660 (6.9%) patients had a disposition of EMS assist, 4,150 (1.2%) patients had a disposition of treated and transferred care to another unit, 4,123 (1.2%) patients were documented as dead at the scene, and 48,912 (13.8%) patients had some other incident disposition (e.g., patient treated and released AMA, patient treated and transported by private vehicle, etc.). Out of the total EMS calls, **19,061** (**5.4%**) incidents were classified as trauma incidents in VPHIB. The Old Dominion EMS Alliance had the highest number of trauma calls (3,911; 20.5%), followed by the Northern Virginia EMS Council (3,686; 19.3%). Trauma incident numbers for the quarter, broken down by month and Regional EMS Council, are shown in Figure 2. Tables 2-4 summarize the body regions most frequently affected by trauma, the top 10 hospitals receiving trauma transports, and vital signs data quality for trauma incidents.

Figure 2. Monthly Trauma Incidents by Regional EMS Council, Second Quarter 2020, Virginia

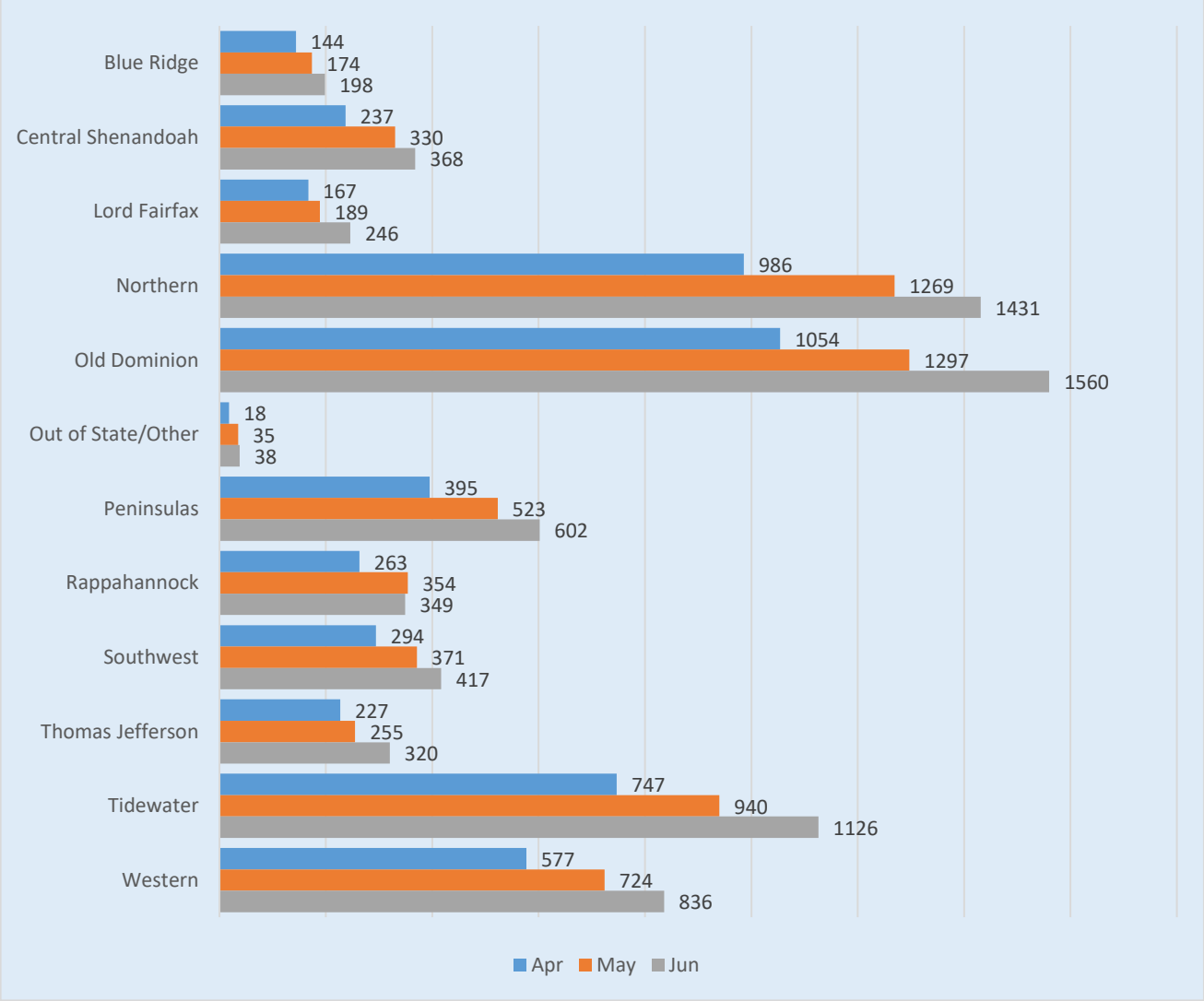


Table 2. Trauma Incidents by Abbreviated Injury Scale (AIS) Body Region, Second Quarter 2020, Virginia

Body Region	Counts of Incidents
Head	3,550 (18.6%)
Face	1,352 (7.1%)
Neck	637 (3.3%)
Thorax	422 (2.2%)
Abdomen	375 (2.0%)
Spine	1,094 (5.7%)
Upper Extremity	2,913 (15.3%)
Lower Extremity	4,813 (25.3%)
Unspecified	3,876 (20.3%)
Multiple Injuries	29 (0.2%)

Table 3: Top Ten Hospital Destinations for Trauma Incidents, Second Quarter 2020, Virginia

Destination Hospital For Trauma Incidents	Counts of Incidents
Roanoke Memorial Hospital	874 (4.6%)
Fairfax Hospital	850 (4.5%)
VCU Health	763 (4.0%)
Norfolk General Hospital	645 (3.4%)
Riverside Regional Medical Center	622 (3.3%)
UVA Health System	574 (3.0%)
Chippenham Hospital	559 (2.9%)
Mary Washington Hospital	506 (2.7%)
Virginia Beach General Hospital	458 (2.4%)
Northern Virginia Medical Center	450 (2.4%)

Table 4. Vital Signs Data Quality for Trauma Incidents, Second Quarter 2020, Virginia

Vital Signs Data Quality	Counts of Incidents
Total Number of Trauma Incidents	19,061
Patients with All 3 Vital Signs Reported	18,536 (97.2%)
Patients with Incomplete* Vital Signs	525 (2.8%)
Patients with Systolic Blood Pressure Reported	18,946 (99.4%)
Patients with Respiratory Rate Reported	18,816 (98.7%)
Patients with Glasgow Coma Score Reported	18,827 (98.8%)

*Incomplete vital signs are missing one or more of the vital signs required in Step 1 of the Trauma Triage algorithm (e.g., Systolic Blood Pressure, Respiratory Rate, or Glasgow Coma Score).

Trauma Incidents Meeting Virginia Trauma Triage Criteria

- Of the 19,061 trauma incidents reported by EMS during the second quarter of 2020, 1,568 (8.2%) met Trauma Triage Step 1 criteria, 492 (2.6%) met Step 2 criteria, and 8 (<0.1%) met Step 3 criteria. Incidents can meet criteria for more than one step; those incidents were classified into the highest severity level met. For example, if an incident met both Step 1 and Step 2 criteria, it was counted as a Step 1 incident.
- Among the incidents meeting Step 1 criteria, 1,299 (82.8%) were classified as meeting Step 1 based on reported vital signs (see Appendix 1). The remaining 269 (17.2%) incidents were classified as meeting Step 1 based on the provider's impression, as reported in the "Trauma Triage Criteria" field in the patient care report.
- Incidents meeting Step 2 and Step 3 were based solely on the "Trauma Triage Criteria" field.

Pediatric Patients (Age < 15)

Trauma patients <15 years old are considered pediatric patients per trauma triage criteria. Of the 19,061 trauma incidents reported by EMS during the second quarter of 2020, 928 (4.9%) occurred among pediatric patients. Of the 1,568 Virginia trauma incidents meeting Step 1 trauma criteria, 160 (10.2%) occurred among pediatric patients (further details are shown below).

Table 5. Hospital Destination Type for Pediatric Patients Meeting Step 1 Criteria by Regional EMS Council, Second Quarter 2020, Virginia

Regional EMS Council	Met Step 1	Trauma Hospital				Non-Trauma Hospital
		Level I	Level II	Level III	Pediatric Trauma Center	
Blue Ridge	3	0	1	0	2	0
Central Shenandoah	4	1	0	0	0	3
Lord Fairfax	5	0	4	0	0	1
Northern	32	16	3	1	1	11
Old Dominion	38	10	1	3	16	8
Peninsulas	13	0	3	0	3	7
Rappahannock	14	1	9	0	0	4
Southwest	7	1	0	2	0	4
Thomas Jefferson	8	8	0	0	0	0
Tidewater	20	0	0	0	14	6
Western	16	0	0	0	7	9
Grand Total	160	37 (23.1%)	21 (13.1%)	6 (3.8%)	43 (26.9%)	53 (33.1%)

- There were 59 incidents involving pediatric patients that met Step 1 trauma criteria that were taken to a Level III trauma center or lower designation. OEMS queried the Virginia State Trauma Registry data to find and locate those patients and were able to match two (3.4%) patients. The deterministic match was performed using the patient's first name, last name, transfer of care date, emergency department (ED) admission date, incident destination hospital, and date of birth as the matching variables. For the two patients who matched, patient dispositions were recorded as transferred to another hospital.
- There were 22 pediatric patients who met Step 2 triage criteria. Twelve (54.5%) were taken to a pediatric trauma center, one (18.2%) was taken to a Level I trauma center, 2 (9.1%) were taken to a Level II trauma center, 3 (13.6%) were taken to a Level III trauma center, and 4 (18.2%) were taken to non-trauma designated hospitals.
- One pediatric patient met Step 3 triage criteria and was taken to a Level I trauma center.
- There were 110 pediatric patients who received a medication other than oxygen. Of those, 74 (67.3%) patients had a weight recorded; all weights documented were recorded in kilograms.

Geriatric Patients (Age ≥ 65)

There were 7,942 (41.7% of total trauma incidents) reports of trauma among geriatric patients during the second quarter of 2020. Of the 1,568 Virginia trauma incidents meeting Step 1 trauma criteria, 594 (37.9%) occurred among geriatric patients (further details are shown below).

Table 6. Hospital Destination Type for Geriatric Patients Meeting Step 1 Criteria by Regional EMS Council, Second Quarter 2020, Virginia

Regional EMS Council	Met Step 1	Trauma Hospital			Non-Trauma Hospital
		Level I	Level II	Level III	
Blue Ridge	25	3	20	0	2
Central Shenandoah	26	1	0	0	25
Lord Fairfax	22	0	15	0	7
Northern	118	43	11	15	49
Old Dominion	132	30	15	24	63
Peninsulas	37	2	17	0	18
Rappahannock	26	1	15	0	10
Southwest	47	2	0	11	34
Thomas Jefferson	31	18	0	0	13
Tidewater	55	7	3	6	39
Western	75	36	0	8	31
Out of State	0	0	0	0	0
Grand Total	594	143 (24.1%)	96 (16.2%)	64 (10.8%)	291 (49.0%)

- There were 355 incidents involving geriatric patients who met Step 1 trauma criteria who were taken to a Level III trauma center or lower designation. OEMS queried the Virginia State Trauma Registry data to find and locate those patients and were able to match 73 (20.6%) patients. The deterministic match was performed using the patient's first name, last name, transfer of care date, ED admission date, incident destination hospital, and date of birth as the matching variables. For the 73 patients that matched, patient dispositions included the following:
  - Thirty-eight (52.1%) patients were admitted to the hospital; of those, 35 were later discharged, 2 were transferred to another hospital, and 1 died at the hospital.
  - Seventeen (23.3%) patients were transferred to another hospital.
  - Seven (9.6%) patients were admitted to telemetry and were later discharged.
  - Three (4.1%) patients were admitted to the intensive care unit and were later discharged.
  - Three (4.1%) patients were kept in an observation unit; of those, two were later discharged and one died at the hospital.
  - Three (4.1%) patients were taken to the operating room and were later discharged.
  - One (1.4%) patient died at the ED of the hospital.
  - One (1.4%) patient was discharged from the ED of the hospital.
- Of the 291 geriatric patients who met Step 1 criteria and were taken to non-trauma designated hospitals, 37 (12.7%) had an EMS provider primary impression of an isolated hip injury.
- There were 93 geriatric patients who met Step 2 trauma triage criteria. Of those, 28 (30.1%) patients were taken to a Level I trauma center, 11 (11.8%) were taken to a Level II trauma center, 13 (14.0 %) were taken to a Level III trauma center, and 41 (44.1%) were taken to non-trauma designated hospitals.
- No geriatric patients met Step 3 trauma triage criteria.
- For 30 incidents, patient age was recorded to be greater than 100. Quality assurance of a 30% random sample of these incidents showed that 33.3 % of the entered ages were incorrect.

Adult Patients (15 ≥ Age < 65)

The majority of trauma cases that occurred during the second quarter of 2020 were among adult patients (n=10,189; 53.5% of all trauma incidents). Of the 1,568 Virginia trauma incidents meeting Step 1 trauma criteria, 813 (51.8%) occurred among adult patients. The hospital destination type for adult trauma incidents meeting Step 1 criteria is shown below by Regional EMS Council (Table 7).

Table 7. Hospital Destination Type for Adult Patients Meeting Step 1 Criteria by Regional EMS Council, Second Quarter 2020, Virginia

Regional EMS Council	Met Step 1	Trauma Hospital			Non-Trauma Hospital
		Level I	Level II	Level III	
Blue Ridge	20	5	13	0	2
Central Shenandoah	27	2	0	0	25
Lord Fairfax	19	0	11	0	8
Northern	147	64	21	7	55
Old Dominion	187	105	12	19	51
Peninsulas	52	2	27	0	23
Rappahannock	36	1	24	0	11
Southwest	52	4	0	11	37
Thomas Jefferson	36	33	1	0	2
Tidewater	131	66	2	35	28
Western	95	64	0	7	24
Out of State	11	7	1	1	2
Grand Total	813	353 (43.4%)	112 (13.8%)	80 (9.8%)	268 (33.0%)

- There were 348 incidents involving adult patients who met Step 1 trauma criteria who were taken to a Level III trauma center or lower designation. OEMS queried the Virginia State Trauma Registry data to find and locate those patients and were able to match 70 patients. The deterministic match was performed using the patient's first name, last name, transfer of care date, incident destination hospital, ED admission date, and date of birth as the matching variables. For the 70 patients that matched, patient dispositions included the following:
    - Twenty-four (34.3%) patients were transferred to another hospital
    - Thirteen (18.6%) patients were admitted to the hospital; of those, 12 were later discharged and 1 patient did not have hospital discharge disposition recorded.
    - Eight (11.4%) patients were admitted to intensive care; of those, six patients were later discharged, one patient died at the hospital, and one patient was discharged to psychiatry.
    - Seven (10%) patients were kept in an observation unit; of those, six were later discharged and one left against medical advice.
    - Six (8.6%) patients were admitted to telemetry and were later discharged.
    - Five (7.1%) patients were taken to the operating room; of those, four were discharged and one was sent to inpatient rehabilitation.
    - Five (7.1%) patients were discharged from the ED of the hospital.
    - Two (2.9%) patients died at the ED of the hospital.

- There were 376 adult patients who met Step 2 criteria. Of those, 221 (58.8%) patients were taken to a Level I trauma center, 50 (13.3%) patients were taken to a Level II trauma center, 40 (10.6%) were taken to a Level III trauma center, and 65 (17.3%) patients were taken to non-trauma designated hospitals.
- There were 7 adult patients who met Step 3 criteria. Of those, 6 (85.7%) were taken to a Level I trauma center, and 1 (14.3%) patient was taken to a Level III trauma center.

Air-Medical EMS Transport

There were 358 incidents of trauma patient transport by an air-medical ambulance during the second quarter of 2020. Of those transports, 311 (86.9%) were taken to a Level I trauma center, 6 (1.7%) were taken to a Level II trauma center, 35 (9.8%) were taken to a Level III trauma center, and 6 (1.7%) were taken to a non-trauma facility.

Causes of Injury

Trauma patient records were analyzed to identify the most common causes of injuries in the Commonwealth of Virginia. Fall injuries occurred most commonly, followed by motor vehicle collision injuries. Causes of injury for the second quarter of 2020 are shown in Table 8.

Table 8. Frequencies and Percentages of Causes of Injury, Second Quarter 2020, Virginia

Causes of Injury	Frequency	Percentage of the Total
Falls, slips/trips	7,416	38.9%
MVC-related	3,291	17.3%
Blunt force trauma	769	4.0%
Penetrating trauma	510	2.7%
Non-motorized transport	326	1.7%
Firearm	248	1.3%
Animal-related	162	0.9%
Machine-related	141	0.7%
Burn, smoke inhalation, electrocution, explosion	74	0.4%
Self-harm	58	0.3%
Abuse	29	0.2%
Recreational	23	0.1%
Toxic chemicals	16	0.1%
Asphyxiation	14	0.1%
Human bite	12	0.1%
Overexertion/strain	10	0.1%
Aircraft	4	0.0%
Environment/weather related	3	0.0%
Drowning	2	0.0%
Unspecified	5,953	31.2%
Grand Total	19,061	100.0%

Under-Triage of Trauma Incidents Heat Map

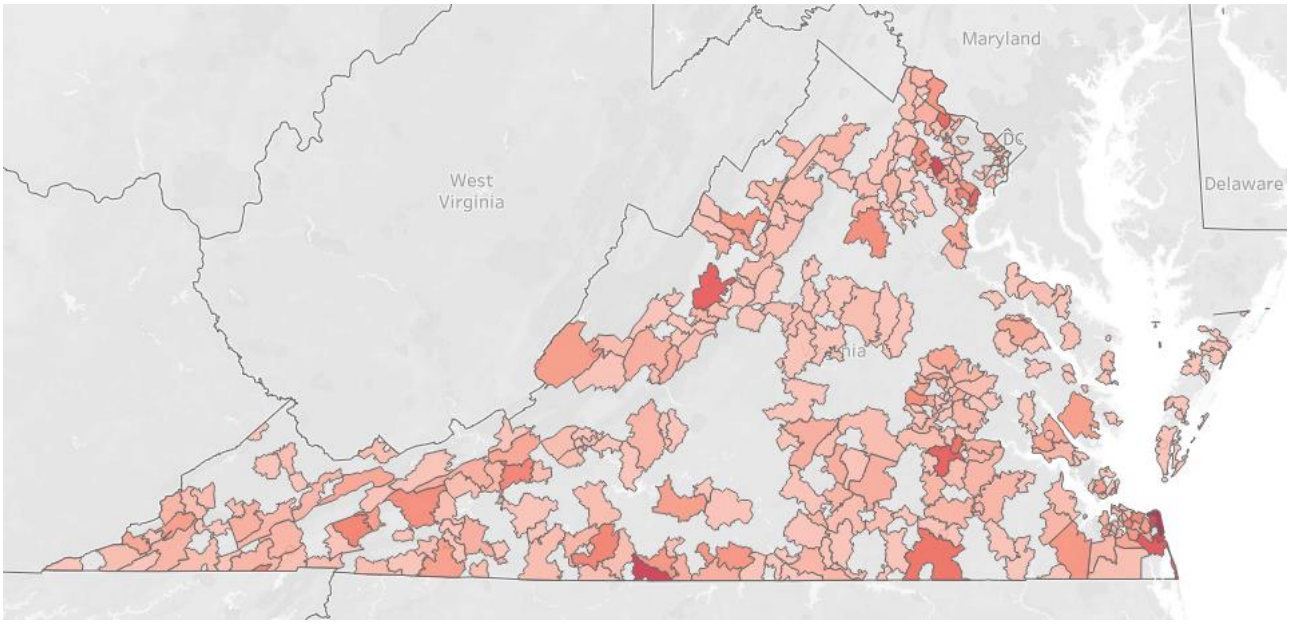
A trauma incident is considered to be under-triaged if the incident met Step 1 or Step 2 trauma triage criteria and the patient was taken to either a Level III trauma center or a non-trauma designated hospital. Injuries to the head, arms, or legs occurred most often among the under-triaged incidents (Table 9).

Table 9. Frequencies and Percentages of Under-Triaged Trauma Patients by AIS Body Region, Second Quarter 2020, Virginia

AIS Region	Frequency	Percentage among Under-Triaged Patients
Head Injury	242	26.1%
Unspecified	224	24.1%
Lower Extremities Injury	194	20.9%
Upper Extremities Injury	94	10.1%
Face Injury	90	9.7%
Spine Injury	24	2.6%
Thorax Injury	24	2.6%
Abdomen Injury	20	2.2%
Neck Injury	16	1.7%
Grand Total	928	100%

A heat map of under-triaged trauma incidents based on the incident zip code is shown in Figure 3. The heat map shows where the problem is most prominent and serves as a resource planning tool.

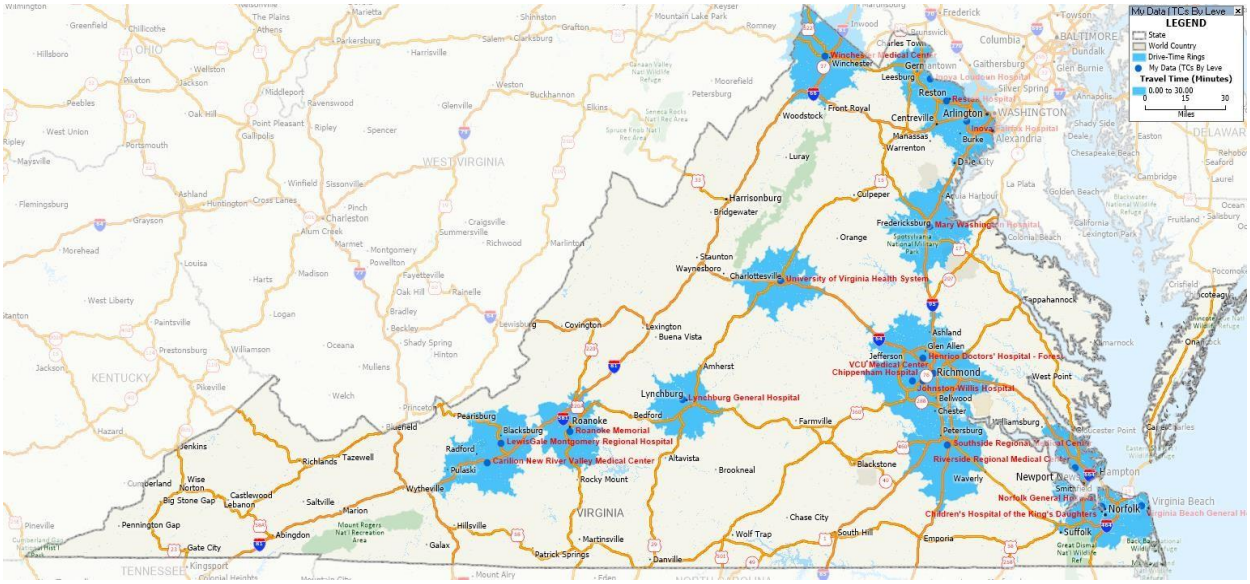
Figure 3. Heat Map Showing the Extent of Under-Triage of Trauma Patients, Second Quarter 2020, Virginia



Distribution of Trauma Facilities across Virginia

Trauma centers across Virginia are not uniformly distributed. The upper part of the Northern Virginia EMS Council and parts of Central Virginia (e.g., the greater Richmond area) have greater access to trauma centers, as multiple trauma centers are located within close proximity. Most parts of the Old Dominion EMS Alliance, Central Shenandoah EMS Council, and Western Virginia EMS Council have very limited access to trauma centers. The Central Shenandoah EMS Council and Southwest Virginia EMS Council have no trauma centers within their EMS regions, but are reasonably close to Level II trauma centers in other EMS regions or states. The distribution of trauma centers across Virginia, surrounded by rings showing the geographical areas within a 30-minute drive of each trauma center, is shown below (Figure 4). This map displays which parts of Virginia have limited access to a trauma center.

Figure 4. Trauma Centers across Virginia, Surrounded by 30-Minute Drive Time Rings



Data Quality

Virginia EMS agencies have been working very hard to make sure they provide optimal care to their patients while also making efforts to improve data quality. Over the past years, there has been a significant improvement in trauma triage data quality. Continuation of this improvement is what the System Improvement Committee expects. The OEMS conducted quality assurance checks on trauma triage records from the second quarter of 2020, as described below.

- **Blank Vital Signs**: There were a total of 115 incidents without systolic blood pressure documented, 245 incidents without respiratory rate documented, and 234 incidents without GCS documented. Ten percent of the incidents from each category were randomly selected for further review; the findings are listed below.
    - In some instances, the time vital signs were taken was not documented. This may occur when vital signs are taken before EMS arrival or when the time is not entered into the

record by an EMS provider. When this occurs, Elite v3 is not able to identify any initial vital signs contained in the record. As a result, initial vital signs are identified as missing, even when they are recorded. To improve this data point, the time vital signs are taken should be recorded for every instance, when possible.

- In some cases, vitals are unable to be obtained due to patient refusal or because the patient is an infant. Such cases should be documented as Pertinent Negatives (e.g., "Refused" or "Unable to Complete"). Leaving the vital sign field blank and reporting such cases only in the patient care narrative will result in the vital sign being identified as missing.
- Of the records sampled, **25%** of records missing systolic blood pressure, **87.5%** of records missing respiratory rate, and **87%** of records missing GCS were found to have blank data points because the vital signs were not recorded anywhere in the patient record (i.e., the vital sign field or the patient care narrative).

- **Atypical Vital Signs:** Atypical vital signs are vitals with extreme values. The cutoff values for vitals to be considered atypical are chosen arbitrarily only for quality check and validation purposes. For this report, systolic blood pressures with values of less than 40 or greater than 250 and respiratory rates of less than 3 or greater than 100 were deemed extreme values. There were 51 instances of extreme values. Thirty percent of the incidents were randomly selected for further review.
  - Among reviewed incidents with extreme values, 43.8% had the same values captured in the narrative and are therefore considered to be valid.
  - Another 37.5% of the vital signs were not supported by the narrative and are considered to be incorrect.
  - In 17.6% of the cases, vitals were documented as such when the providers were unsuccessful in obtaining the vitals. For such cases, vital signs should be documented as "Unable to Complete." Entering extreme values in the record makes the data less accurate and causes the results of any data analysis to be unreliable.

- **Not Applicable/Not Recorded/Blank Trauma Triage Criteria:** There were 17,879 trauma incidents where the "Trauma Triage Criteria" field was reported to be Not Applicable or was Not Recorded or Blank. It is understandable that not all trauma incidents meet trauma triage criteria; however, some of these records are incorrectly classified or do not report important information.
  - Of those incidents, 892 (5.0%) had recorded vitals meeting Step 1 trauma triage criteria.
  - Step 2 and Step 3 trauma triage incidents may also be missing trauma triage criteria and therefore may also be incorrectly classified. However, Steps 2 and 3 trauma triage criteria are not based on vital signs, so the exact amount of misclassification cannot be identified.
- **Blank Age**
  - There were 2 incident records where age was left blank.
    - One incident met the Step 1 trauma triage criteria and the other met Step 2 trauma triage criteria. Both were taken to a Level I Trauma Center.

Conclusions

Many factors influence the decision regarding where a patient is transported. As noted above, trauma centers are not equally distributed across Virginia. In some areas (Southwest Virginia and Northern Virginia), out of state trauma center resources are available. Despite having a total of 12 Level I and Level II trauma centers (combined) in Virginia, as well as access to several other similar facilities in surrounding states, large areas of Virginia remain underserved. The variability of resources across Virginia is often compounded by geographic and (especially in the case of Helicopter or Medevac EMS) weather factors. Although a solution to this problem is beyond the scope of this report, this variability needs to be considered when comparing the outcomes of pre-hospital trauma patients in Virginia.

Missing vital signs data in EMS records continues to be an area of focus for performance improvement efforts. Currently, about one out of every 36 patients (2.8%) have incomplete vital signs data. During the second quarter of 2020, 39% of patients who met Step 1 trauma triage criteria and 22.4% of patients who met Step 2 criteria were taken to non-trauma centers. Acknowledging these data, there may be a need to re-examine how trauma triage criteria are being applied in the field, with an eye towards the existing barriers to trauma center access, including the absence of trauma centers in broad swaths of Virginia. Whether the addition of trauma center resources would allow for improved access and care requires further study.

OEMS staff performed quality assurance on trauma triage data from the second quarter of 2020. Specifically, the data values that were reviewed included the vital signs used in Step 1 trauma triage criteria designation, atypical vital sign values, and trauma triage criteria fields listed as not applicable, not recorded, or blank. OEMS will continue to perform these data quality checks and will summarize findings for inclusion in future trauma triage reports.

Appendix 1: Elite v3 Data Dictionary Elements for Trauma Triage Vital Signs and Trauma Triage Criteria

eVitals.06 - SBP (Systolic Blood Pressure)

Definition

The patient's systolic blood pressure.

National Element	Yes	Pertinent Negatives (PN)	Yes
State Element	Yes	NOT Values	Yes
Version 2 Element	E14_04	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

Associated Performance Measure Initiatives

Airway Cardiac Arrest Pediatric STEMI Stroke Trauma

Attributes

NOT Values (NV)
7701001 - Not Applicable 7701003 - Not Recorded

Pertinent Negatives (PN)
8801005 - Exam Finding Not Present 8801019 - Refused 8801023 - Unable to Complete

Constraints

Data Type	minInclusive	maxInclusive
integer	0	500

Data Element Comment

Required for ACS-Field Triage and other patient scoring systems.

eVitals.14 - Respiratory Rate

Definition

The patient's respiratory rate expressed as a number per minute.

National Element	Yes	Pertinent Negatives (PN)	Yes
State Element	Yes	NOT Values	Yes
Version 2 Element	E14_11	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

Associated Performance Measure Initiatives

Airway Cardiac Arrest Pediatric STEMI Stroke Trauma

Attributes

NOT Values (NV)
7701001 - Not Applicable 7701003 - Not Recorded

Pertinent Negatives (PN)
8801005 - Exam Finding Not Present 8801019 - Refused 8801023 - Unable to Complete

Constraints

Data Type	minInclusive	maxInclusive
integer	0	300

Data Element Comment

eVitals.23 - Total Glasgow Coma Score

Definition

The patient's total Glasgow Coma Score.

National Element	No	Pertinent Negatives (PN)	Yes
State Element	Yes	NOT Values	Yes
Version 2 Element	E14_19	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

Associated Performance Measure Initiatives

Airway Cardiac Arrest Pediatric STEMI Stroke Trauma

Attributes

NOT Values (NV)

7701001 - Not Applicable
7701003 - Not Recorded
7701005 - Not Reporting

Pertinent Negatives (PN)

8801019 - Refused
8801023 - Unable to Complete

Constraints

Data Type	minInclusive	maxInclusive
integer	3	15

Data Element Comment

Can be documented or calculated from EVitals.19 (GCS-Eye), EVitals.20 (GCS-Verbal), and EVitals.21 (GCS-Motor).

eInjury.03 - Trauma Center Criteria

Definition

Physiologic and Anatomic Field Trauma Triage Criteria (steps 1 and 2) as defined by the Centers for Disease Control.

National Element	Yes	Pertinent Negatives (PN)	No
State Element	Yes	NOT Values	Yes
Version 2 Element		Is Nillable	Yes
Usage	Required	Recurrence	1 : M

Associated Performance Measure Initiatives

Trauma

Attributes

NOT Values (NV)
7701001 - Not Applicable
7701003 - Not Recorded

CorrelationID
Data Type: string **minLength:** 0 **maxLength:** 255

Code List

Code	Description
2903001	Amputation proximal to wrist or ankle
2903003	Crushed, degloved, mangled, or pulseless extremity
2903005	Chest wall instability or deformity (e.g., flail chest)
2903007	Glasgow Coma Score <= 13
2903009	Open or depressed skull fracture
2903011	Paralysis
2903013	Pelvic fractures
2903015	All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
2903017	Respiratory Rate <10 or >29 breaths per minute (<20 in infants aged <1 year) or need for ventilatory support
2903019	Systolic Blood Pressure <90 mmHg
2903021	Two or more proximal long-bone fractures

Data Element Comment

2011 Guidelines for the Field Triage of Injured Patients - value choices for Steps 1 and 2. For falls, one story is equal to 10 feet.

Code 7701001 - Not Applicable should be used when none of the values listed in the code list for element eInjury.03 apply.

Version 3 Changes Implemented

Added to better evaluate the CDC-ACS 2011 Guidelines for the Field Triage of Injured Patients.
Website: http://www.cdc.gov/FieldTriage/