
Virginia Department of Health

Office of Emergency Medical Services (OEMS)

Quarterly Report on EMS Incidents

Q3 2023

Office of Emergency Medical Services
1041 Technology Park Drive
Glen Allen, Virginia 23059
Phone: (804) 888-9100

This report is based on analyses requested by the Medical Direction Committee and performed by Office of EMS Epidemiology staff. The accuracy of the data within this report is limited by system performance and the accuracy of data submissions from EMS agencies.

Quarter 3 2023 data for this report was collected from the ESO Pre-hospital Data System (NEMSIS version 3.4) on December 6, 2023. Importantly, many records submitted by Virginia EMS agencies for incidents occurring during the third quarter of 2023 failed to pass established validation rules and are not counted in the dataset used for this report (see Table 1).

Table 1. Counts of Failed Records by Month, Third Quarter, 2023, Virginia

Month	Total Failed Records
July	4,231
August	4,558
September	4,302

Virginia EMS Call Summary, Third Quarter, 2023

EMS agencies in Virginia responded to a total of 435,697 EMS calls during the third quarter of 2023 (see Tables 2—5 and Figure 1).

Table 2. Number of EMS Incidents by Type of Service Requested and Disposition, Third Quarter, 2023, Virginia

Incident/ Patient Disposition	Type of Service Requested							Total
	911 Response (Scene)	Intercept/ Rendezvous	Interfacility Transport	Medical Transport	Mutual Aid	Public Assistance/ Not Listed	Standby	
Assist (Agency, Public, or Unit)	30,695	35	78	110	93	1,524	25	32,560
Canceled (Prior to Arrival at Scene or On Scene)	53,920	23	1,560	631	150	313	117	56,714
Patient Dead at Scene (with and without resuscitation; with and without transport)	3,699	6	8	4	5	9	2	3,733
Patient Evaluated, No Treatment/Transport Required	3,770	2	22	18	5	59	20	3,896
Patient Refused Evaluation/Care (with or without transport)	25,686	42	46	56	18	70	31	25,949
Patient Treated, Released (AMA or per protocol)	17,872	31	8	18	21	115	66	18,131
Patient Treated, Transferred Care to Another EMS Unit	7,931	6	14	8	4	8	12	7,983
Patient Treated, Transported by Law Enforcement	448	0	0	0	0	5	0	453
Patient Treated, Transported by Private Vehicle	243	0	1	1	2	2	8	257
Patient Treated, Transported by this Unit	191,618	424	43,198	42,470	211	278	76	278,275
Standby (no services/support provided or public safety, fire, or EMS operational support provided)	5,791	2	7	64	44	148	1,317	7,373
Transport Non-Patient, Organs, etc.	0	0	24	236	1	78	0	339
Blank	3	0	9	20	0	2	0	34
Total	341,676	571	44,975	43,636	554	2,611	1,674	435,697

Table 3. Number of EMS Incidents by Type of Service Requested and Age Group, Third Quarter, 2023, Virginia

Type of Service Requested	Age Group							Total
	0-4 years	5-12 years	13-17 years	18-24 years	25-64 years	65 and older	Unknown	
911 Response (Scene)	4,678	4,257	5,850	15,965	114,692	111,419	84,815	341,676
Intercept/ Rendezvous	6	5	11	42	259	200	48	571
Interfacility Transport	813	708	937	1,084	14,974	25,394	1,065	44,975
Medical Transport	266	194	286	385	11,474	30,528	503	43,636
Mutual Aid	4	3	8	19	157	128	235	554
Public Assistance/ Other Not Listed	26	9	19	24	351	797	1,385	2,611
Standby	3	13	42	30	135	44	1,407	1,674
Total	5,796	5,189	7,153	17,549	142,042	168,510	89,458	435,697

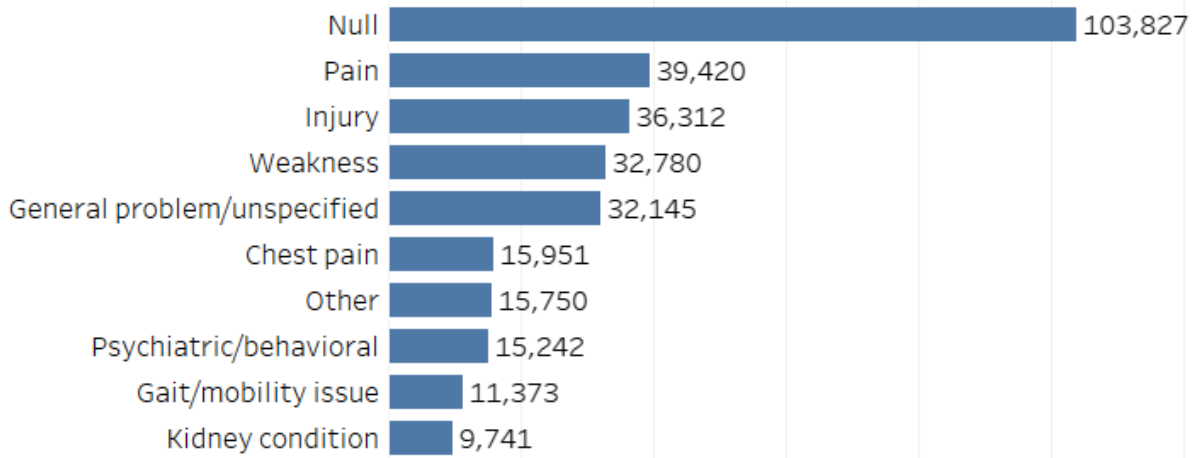
Table 4. Number of EMS Incidents by Patient Disposition and Age Group, Third Quarter, 2023, Virginia

Incident/ Patient Disposition	Age Group							Total
	0-4 years	5-12 years	13-17 years	18-24 years	25-64 years	65 and older	Unknown	
Assist (Agency, Public, or Unit)	140	100	103	324	2,892	4,598	24,403	32,560
Canceled (Prior to Arrival at Scene or On Scene)	26	18	43	86	796	968	54,777	56,714
Patient Dead at Scene (with and without resuscitation; with and without transport)	10	5	30	104	1,606	1,896	82	3,733
Patient Evaluated, No Treatment/ Transport Required	180	146	165	383	1,611	1,408	3	3,896

Table 4 (continued). Number of EMS Incidents by Patient Disposition and Age Group, Third Quarter, 2023, Virginia

Incident/ Patient Disposition	Age Group							Total
	0-4 years	5-12 years	13-17 years	18-24 years	25-64 years	65 and older	Unknown	
Patient Refused Evaluation/Care (with or without transport)	822	663	960	2,280	10,777	7,783	2,664	25,949
Patient Treated, Released (AMA or per protocol)	513	633	712	1,785	8,760	5,714	14	18,131
Patient Treated, Transferred Care to Another EMS Unit	134	127	223	549	3,836	3,069	45	7,983
Patient Treated, Transported by Law Enforcement	2	11	18	59	337	22	4	453
Patient Treated, Transported by Private Vehicle	19	15	14	25	105	79	0	257
Patient Treated, Transported by this EMS Unit	3,906	3,455	4,865	11,927	111,093	142,784	245	278,275
Standby (no services/support provided or public safety, fire, or EMS operational support provided)	12	14	13	22	200	149	6,963	7,373
Transport Non-Patient, Organs, etc.	29	2	7	5	25	23	248	339
Blank	3	0	0	0	4	17	10	34
Total	5,796	5,189	7,153	17,549	142,042	168,510	89,458	435,697

Figure 1. All EMS Incidents by Top 10 Primary Impression Categories, Third Quarter, 2023, Virginia



Of the 435,697 total EMS calls that occurred during the third quarter of 2023, a total of 191,618 (44.0%) represented emergency response incidents (i.e., incidents with a Type of Service Requested equal to “911 Response (Scene)” and a Patient Disposition of “Patient Treated, Transported by this EMS Unit”).

Figure 2. Emergency Responses by Top 10 Primary Impression Categories, Third Quarter, 2023, Virginia

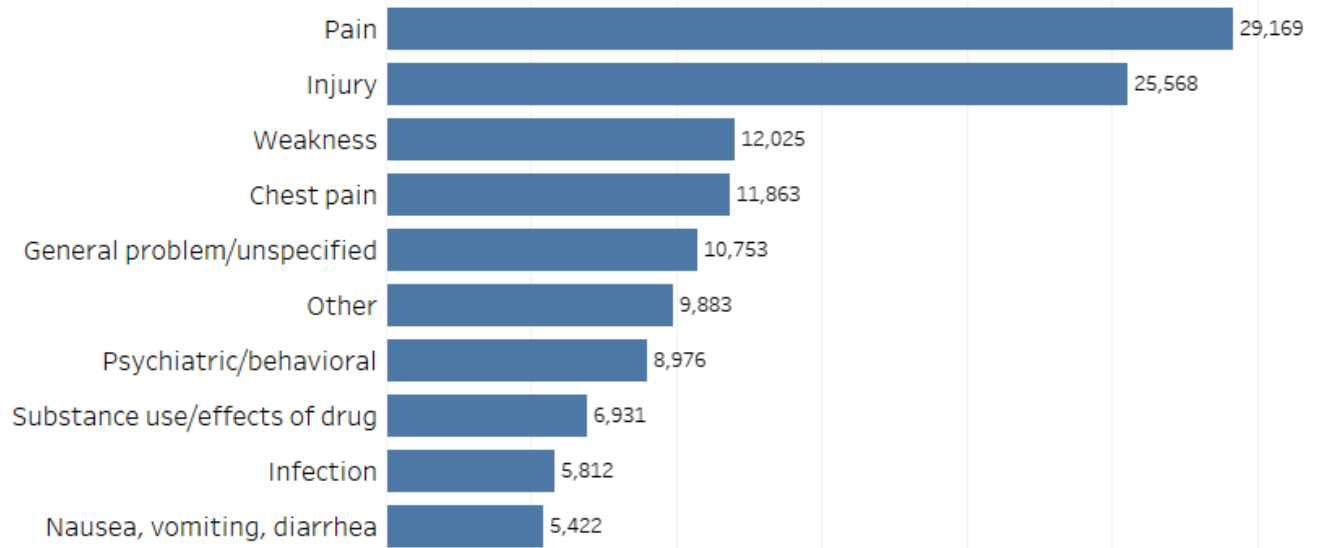


Table 5. Top 10 Primary Impressions for Emergency Responses by Patient Age Group, Third Quarter, 2023, Virginia

Provider Primary Impression	Age Group						
	0-4 years	5-12 years	13-17 years	18-24 years	25-64 years	65 and older	Unknown
1	Seizure/ convulsions	Injury	Injury	Injury	Pain	Pain	Obstetric condition
2	Injury	Pain	Psychiatric/ behavioral	Pain	Injury	Injury	General problem/ unspecified
3	General problem/ unspecified	Seizure/ convulsions	Pain	Psychiatric/ behavioral	Chest pain	Weakness	Injury
4	Fever	General problem/ unspecified	Seizure/ convulsions	Substance use/ effects of drug	Psychiatric/ behavioral	Other	Substance use/ effects of drug
5	Infection	Psychiatric/ behavioral	Substance use/ effects of drug	Seizure/ convulsions	Substance use/ effects of drug	General problem/ unspecified	Weakness
6	Fluid in/around the lungs	Allergic reaction	Syncope/near syncope	General problem/ unspecified	General problem/ unspecified	Chest pain	Other
7	Allergic reaction	Asthma	General problem/ unspecified	Chest pain	Weakness	Infection	Awareness/ consciousness problem
8	Other	Brain injury/ death	Allergic reaction	Nausea, vomiting, diarrhea	Other	Fluid in/around the lungs	Breathing abnormalities
9	Pain	Syncope/near syncope	Brain injury/ death	Syncope/near syncope	Seizures/ convulsions	Stroke/TIA	Cardiac arrest
10	Nausea, vomiting, diarrhea	Fluid in/around the lungs	Other	Obstetric condition	Nausea, vomiting, diarrhea	Nausea, vomiting, diarrhea	Fluid in/around the lungs

Chest Pain Emergency Responses

Importantly, a provider impression of “chest pain” can include multiple causes of chest pain, not specific or limited to chest pain of cardiac causes.

Non-Traumatic Chest Pain

Non-traumatic chest pain incidents are defined as those with a primary impression that includes the words “chest pain” and that do not have a response of “yes” in the possible injury (esituation.02) field. Twelve-lead acquisition is defined as ECG type (evitals.04) or Procedure (eprocedures.03) = 12 lead left sided (normal), 12 lead-right sided, 15 lead, or 18 lead. Of the 191,618 emergency response incidents reported by EMS during the third quarter of 2023, 5,650 (2.9%) non-traumatic chest pain incidents were identified in patients 35 years of age and older. Of these, a total of 4,737 (83.8%) patients had 12-lead acquisition and 2,644 (46.8%) had aspirin administration documented in the record, either taken daily or administered by EMS.

Table 6. Emergency Responses Among Non-Traumatic Chest Pain Patients ≥ 35 Years of Age with 12-lead Acquisition by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Patients	Number of Patients with 12-Lead Acquisition	Percent With 12-Lead Acquisition Documented	Percent Without 12-Lead Acquisition Documented
Blue Ridge	376	350	93.1	6.9
Central Shenandoah	234	204	87.2	12.8
Lord Fairfax	85	71	83.5	16.5
Northern Virginia	586	300	51.2	48.8
Old Dominion	1,138	972	85.4	14.6
Peninsulas	447	399	89.3	10.7
Rappahannock	299	272	91.0	9.0
Southwest Virginia	550	442	80.4	19.6
Thomas Jefferson	133	114	85.7	14.3
Tidewater	1,136	1,026	90.3	9.7
Western Virginia	660	586	88.8	11.2
Out of State	6	1	16.7	83.3
Total	5,650	4,737	83.8	16.2

Table 7. Emergency Responses Among Non-Traumatic Chest Pain Patients ≥ 35 Years of Age with Aspirin Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Patients	Number of Patients with Aspirin Administration	Percent With Aspirin Administration Documented	Percent Without Aspirin Administration Documented
Blue Ridge	376	188	50.0	50.0
Central Shenandoah	234	134	57.3	42.7
Lord Fairfax	85	31	36.5	63.5
Northern Virginia	586	208	35.5	64.5
Old Dominion	1,138	604	53.1	46.9
Peninsulas	447	209	46.8	53.2
Rappahannock	299	145	48.5	51.5
Southwest Virginia	550	273	49.6	50.4
Thomas Jefferson	133	74	55.6	44.4
Tidewater	1,136	467	41.1	58.9
Western Virginia	660	310	47.0	53.0
Out of State	6	1	16.7	83.3
Total	5,650	2,644	46.8	53.2

*Includes documentation of medication administration or relevant pertinent negative.

Narrative Review

Of the 3,006 non-traumatic chest pain incidents occurring in patients ≥ 35 years of age without aspirin administration or a pertinent negative documented, 25 incidents were randomly selected for narrative review. Aspirin administration was documented in the narrative for 6 (24.0%) incidents. For all six incidents, aspirin was administered prior to arrival of EMS. A pertinent negative was documented in the narrative for 1 (4.0%) incident. The remaining 18 (72.0%) records did not have aspirin administration or a pertinent negative documented in the narrative.

STEMI Patients

STEMI incidents are defined as those with a documented:

- impression or symptom of myocardial infarction, or
- impression or symptom of unstable angina or angina pectoris and a cardiac rhythm of left bundle branch block, or
- cardiac rhythm of STEMI, or
- STEMI protocol used, or
- STEMI pre-arrival activation.

Time to receive an EKG is defined as the difference between the date/time the EMS clinician arrived at the patient and the date/time an EKG was performed. Of the 191,618 emergency response incidents reported by EMS during the third quarter of 2023, 1,037 (0.5%) STEMI incidents were identified. Of these, 785 (75.7%) patients had 12-lead acquisition, with 769 (98.0%) records containing information on the time between arrival at patient and when an EKG was performed. It took a median of 7 minutes and 0 seconds and an average of 10 minutes and 43 seconds for the 769 STEMI patients to receive an EKG.

Stroke Emergency Responses

Stroke incidents are defined as those with a documented primary/secondary impression of stroke, a positive stroke scale score, a destination activation for stroke, or a stroke/TIA protocol used by an EMS clinician. Of the 191,618 emergency response incidents reported by EMS during the third quarter of 2023, 5,131 (2.7%) stroke incidents were identified. Of the stroke incidents, 4,058 (79.1%) documented the performance of a stroke scale, 4,685 (91.3%) had a blood glucose or pertinent negative recorded, and 4,982 (97.1%) had the date/time the patient was last known well or the date/time of the patient’s symptom onset recorded. For 1,134 (22.1%) patients, the interval between symptom onset and EMS clinician arrival at the patient was greater than 4.5 hours and less than 24 hours.

Table 8. Emergency Responses Among Stroke Patients by Destination Hospital Stroke Certification Level and EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Stroke Patients	Number (Percent) of Patients Transported to Out of State Facilities	Number (Percent) of Patients Not Transported to a Certified Facility	Number (Percent) of Patients Transported to Acute Stroke Ready Facilities	Number (Percent) of Patients Transported to Primary Stroke Centers	Number (Percent) of Patients Transported to Thrombectomy Capable Hospitals	Number (Percent) of Patients Transported to Comprehensive Stroke Centers
Blue Ridge	223	0 (0.0)	17 (7.6)	0 (0.0)	1 (0.4)	205 (91.9)	0 (0.0)
Central Shenandoah	206	0 (0.0)	25 (12.1)	0 (0.0)	179 (86.9)	0 (0.0)	2 (1.0)
Lord Fairfax	101	0 (0.0)	16 (15.8)	0 (0.0)	85 (84.2)	0 (0.0)	0 (0.0)
Northern Virginia	896	3 (0.3)	52 (5.8)	19 (2.1)	352 (39.3)	152 (17.0)	318 (35.5)
Old Dominion	1,011	0 (0.0)	82 (8.1)	2 (0.2)	365 (36.1)	2 (0.2)	560 (55.4)
Peninsulas	358	0 (0.0)	19 (5.3)	0 (0.0)	138 (38.5)	0 (0.0)	201 (56.1)
Rappahannock	359	0 (0.0)	42 (11.7)	0 (0.0)	304 (84.7)	0 (0.0)	13 (3.6)
Southwest Virginia	250	60 (24.0)	155 (62.0)	0 (0.0)	33 (13.2)	2 (0.8)	0 (0.0)
Thomas Jefferson	183	0 (0.0)	10 (5.5)	0 (0.0)	12 (6.6)	3 (1.6)	158 (86.3)
Tidewater	885	15 (1.7)	39 (4.4)	39 (4.4)	548 (61.9)	0 (0.0)	244 (27.6)
Western Virginia	639	16 (2.5)	132 (20.7)	37 (5.8)	226 (35.4)	227 (35.5)	1 (0.2)
Out of State	20	16 (80.0)	1 (5.0)	0 (0.0)	0 (0.0)	3 (15.0)	0 (0.0)
Total	5,131	110 (2.1)	590 (11.5)	97 (1.9)	2,243 (43.7)	594 (11.6)	1,497 (29.2)

Table 9. Emergency Responses Among Stroke Patients with Symptom Onset Between 4.5 and 24 Hours Prior to EMS Arrival by Destination Hospital Stroke Certification Level and EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Stroke Patients	Number of Patients Transported to Out of State Facilities	Number (Percent) of Patients Not Transported to a Certified Facility	Number (Percent) of Patients Transported to Acute Stroke Ready Facilities	Number (Percent) of Patients Transported to Primary Stroke Centers	Number (Percent) of Patients Transported to Thrombectomy Capable Hospitals	Number (Percent) of Patients Transported to Comprehensive Stroke Centers
Blue Ridge	50	0 (0.0)	1 (2.0)	0 (0.0)	0 (0.0)	49 (98.0)	0 (0.0)
Central Shenandoah	44	0 (0.0)	4 (9.1)	0 (0.0)	40 (90.9)	0 (0.0)	0 (0.0)
Lord Fairfax	16	0 (0.0)	2 (12.5)	0 (0.0)	14 (87.5)	0 (0.0)	0 (0.0)
Northern Virginia	174	2 (1.1)	8 (4.6)	9 (5.2)	73 (42.0)	29 (16.7)	53 (30.5)
Old Dominion	241	0 (0.0)	28 (11.6)	0 (0.0)	88 (36.5)	0 (0.0)	125 (51.9)
Peninsulas	80	0 (0.0)	3 (3.8)	0 (0.0)	30 (37.5)	0 (0.0)	47 (58.8)
Rappahannock	84	0 (0.0)	8 (9.5)	0 (0.0)	76 (90.5)	0 (0.0)	0 (0.0)
Southwest Virginia	50	9 (18.0)	33 (66.0)	0 (0.0)	8 (16.0)	0 (0.0)	0 (0.0)
Thomas Jefferson	41	0 (0.0)	3 (7.3)	0 (0.0)	2 (4.9)	0 (0.0)	36 (87.8)
Tidewater	228	6 (2.6)	4 (1.8)	5 (2.2)	142 (62.3)	0 (0.0)	71 (31.1)
Western Virginia	123	5 (4.1)	27 (22.0)	7 (5.7)	27 (22.0)	57 (46.3)	0 (0.0)
Out of State	3	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	1,134	25 (2.2)	121 (10.7)	21 (1.9)	500 (44.1)	135 (11.9)	332 (29.3)

Trauma Emergency Responses

Trauma incidents are defined as those meeting the criteria outlined in the VDH Office of EMS quarterly report on trauma incidents. Step 1, 2, and 3 trauma incidents are defined as those meeting the Virginia Field Trauma Triage Decision Scheme. Of the 191,618 emergency response incidents reported by EMS during the third quarter of 2023, 27,366 (14.3%) trauma incidents were identified; 34 (0.1%) of the trauma patients were noted to be in cardiac arrest. Of the 27,340 patients not in cardiac arrest, a total of 2,058 (7.5%) Step 1 patients, 457 (1.7%) Step 2 patients, 598 (2.2%) Step 3 patients, and 24,227 (88.6%) patients not meeting step criteria were noted. Details on the transport of Step 1, 2, and 3 trauma patients who were not in cardiac arrest can be found in Tables 10—12.

Table 10. Emergency Responses Among Step 1 Trauma Patients Not in Cardiac Arrest Transported to a Level 1/Pediatric or Level 2 Trauma Center by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Trauma Patients	Number (Percent) of Patients Transported to Level 1 Trauma Center	Number (Percent) of Patients Transported to Level 2 Trauma Center
Blue Ridge	48	1 (2.1)	44 (91.7)
Central Shenandoah	59	1 (1.7)	0 (0.0)
Lord Fairfax	47	1 (2.1)	23 (48.9)
Northern Virginia	480	223 (46.5)	106 (22.1)
Old Dominion	400	205 (51.3)	25 (6.3)
Peninsulas	131	3 (2.3)	75 (57.3)
Rappahannock	143	13 (9.1)	71 (49.7)
Southwest Virginia	120	8 (6.7)	0 (0.0)
Thomas Jefferson	74	56 (75.7)	2 (2.7)
Tidewater	336	158 (47.0)	8 (2.4)
Western Virginia	212	96 (45.3)	24 (11.3)
Out of State	8	5 (62.5)	1 (12.5)
Total	2,058	770 (37.4)	379 (18.4)

Table 11. Emergency Responses Among Step 2 Trauma Patients Not in Cardiac Arrest Transported to a Level 1/Pediatric or Level 2 Trauma Center by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Trauma Patients	Number (Percent) of Patients Transported to Level 1 Trauma Center	Number (Percent) of Patients Transported to Level 2 Trauma Center
Blue Ridge	3	0 (0.0)	3 (100.0)
Central Shenandoah	5	0 (0.0)	0 (0.0)
Lord Fairfax	1	0 (0.0)	0 (0.0)
Northern Virginia	77	47 (61.0)	21 (27.3)
Old Dominion	123	94 (76.4)	8 (6.5)
Peninsulas	34	0 (0.0)	33 (97.1)
Rappahannock	17	2 (11.8)	14 (82.4)
Southwest Virginia	17	3 (17.6)	0 (0.0)
Thomas Jefferson	16	14 (87.5)	1 (6.3)
Tidewater	110	80 (72.7)	5 (4.5)
Western Virginia	50	26 (52.0)	4 (8.0)
Out of State	4	4 (100.0)	0 (0.0)
Total	457	270 (59.1)	89 (19.5)

Table 12. Emergency Responses Among Step 3 Trauma Patients Not in Cardiac Arrest Transported to a Level 1/Pediatric, Level 2, or Level 3 Trauma Center by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Trauma Patients	Number (Percent) of Patients Transported to Level 1 Trauma Center	Number (Percent) of Patients Transported to Level 2 Trauma Center	Number (Percent) of Patients Transported to Level 3 Trauma Center
Blue Ridge	13	3 (23.1)	10 (76.9)	0 (0.0)
Central Shenandoah	20	1 (5.0)	0 (0.0)	0 (0.0)
Lord Fairfax	19	0 (0.0)	4 (21.1)	0 (0.0)
Northern Virginia	118	66 (55.9)	27 (22.9)	17 (14.4)
Old Dominion	87	58 (66.7)	6 (6.9)	17 (19.5)
Peninsulas	39	2 (5.1)	36 (92.3)	0 (0.0)
Rappahannock	26	3 (11.5)	19 (73.1)	0 (0.0)
Southwest Virginia	36	3 (8.3)	1 (2.8)	8 (22.2)
Thomas Jefferson	26	24 (92.3)	1 (3.8)	0 (0.0)
Tidewater	159	100 (62.9)	10 (6.3)	43 (27.0)
Western Virginia	52	16 (30.8)	3 (5.8)	14 (26.9)
Out of State	3	3 (100.0)	0 (0.0)	0 (0.0)
Total	598	279 (46.7)	117 (19.6)	99 (16.6)

Pain Emergency Responses

Pain incidents are defined as those with documented pain scale scores between 4 and 10.

Pain Scale Score 4–6

Of the 191,618 emergency response incidents reported by EMS during the third quarter of 2023, 25,277 (13.2%) incidents occurred among patients with a pain score of 4–6, with 2,198 (8.7%) patients receiving an analgesic (additional details provided in Tables 13–15). By age group, 107 (0.4%) incidents occurred among patients younger than 5 years of age, 403 (1.6%) incidents occurred among patients 5–12 years of age, 608 (2.4%) incidents occurred among patients 13–17 years of age, 1,724 (6.8%) incidents occurred among patients 18–24 years of age, 12,084 (47.8%) incidents occurred among patients 25–64 years of age, 10,349 (40.9%) incidents occurred among patients 65 years of age and older, and 2 (<0.1%) incidents occurred in patients whose age was not documented.

Narrative Review (Pain Scale Score 4–6)

Of the 23,079 incidents occurring among patients with a pain score of 4–6 without analgesic administration or a pertinent negative documented, 25 incidents were randomly selected for narrative review. Zero incidents had analgesic administration or a pertinent negative documented in the narrative.

Table 13. Emergency Responses Among Patients with Pain Score of 4–6 and Analgesic Administration* by Age Group, Third Quarter 2023, Virginia

Age Group	Number Pain Patients	Number of Patients Receiving an Analgesic	Percent With Analgesic Administration Documented	Percent Without Analgesic Administration Documented
0-4 years	107	8	7.5	92.5
5–12 years	403	51	12.7	87.3
13–17 years	608	96	15.8	84.2
18–24 years	1,724	159	9.2	90.8
25–64 years	12,084	1,068	8.8	91.2
65 years and older	10,349	816	7.9	92.1
Unknown	2	0	0.0	100.0
Total	25,277	2,198	8.7	91.3

*Includes documentation of medication administration or relevant pertinent negative.

Table 14. Emergency Responses Among Patients with Pain Score of 4—6 and Analgesic Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council,	Number Pain Patients	Number of Patients Receiving an Analgesic	Percent With Analgesic Administration Documented	Percent Without Analgesic Administration Documented
Blue Ridge	1,364	144	10.6	89.4
Central Shenandoah	1,028	117	11.4	88.6
Lord Fairfax	493	24	4.9	95.1
Northern Virginia	4,766	362	7.6	92.4
Old Dominion	4,561	271	5.9	94.1
Peninsulas	2,100	157	7.5	92.5
Rappahannock	1,690	236	14.0	86.0
Southwest Virginia	1,705	186	10.9	89.1
Thomas Jefferson	787	134	17.0	83.0
Tidewater	3,983	290	7.3	92.7
Western Virginia	2,776	264	9.5	90.5
Out of State	24	13	54.2	45.8
Total	25,277	2,198	8.7	91.3

*Includes documentation of medication administration or relevant pertinent negative.

Table 15. Analgesics Administered to Patients with Pain Score of 4—6, Third Quarter 2023, Virginia

Analgesic Administered	Number Analgesic Administrations†	Percent of Analgesics Administered
Acetaminophen	50	2.2
Dilaudid/Hydromorphone	1	<0.1
Fentanyl	1,770	77.0
Ibuprofen/Motrin	8	0.3
Ketamine	82	3.6
Ketorolac/Toradol	159	6.9
Morphine	228	9.9
Tylenol	0	0.0
Total	2,298	100.0

†The number of analgesic administrations is higher than the number of patients receiving an analgesic, as patients may receive more than one medication during an incident.

Pain scale score 7–10

During the third quarter of 2023, 34,960 incidents occurred among patients with a pain score between 7 and 10, with 4,667 (13.3%) patients receiving an analgesic (additional details provided in Tables 16–18). By age group, 86 (0.2%) incidents occurred among patients younger than 5 years of age, 342 (1.0%) incidents occurred among patients 5–12 years of age, 665 (1.9%) incidents occurred among patients 13–17 years of age, 2,144 (6.1%) incidents occurred among patients 18–24 years of age, 19,741 (56.5%) incidents occurred among patients 25–64 years of age, 11,977 (34.3%) incidents occurred among patients 65 years of age and older, and 5 (<0.1%) incidents occurred in patients whose age was not documented.

Narrative Review (Pain Scale Score 7–10)

Of the 30,293 incidents occurring among patients with a pain score of 7–10 without analgesic administration or a pertinent negative documented, 25 incidents were randomly selected for narrative review. A pertinent negative was documented in the narrative for 1 (4.0%) incident. The remaining 24 (96.0%) records did not have analgesic administration or a pertinent negative documented in the narrative.

Table 16. Emergency Responses Among Patients with Pain Score of 7–10 and Analgesic Administration* by Age Group, Third Quarter 2023, Virginia

Age Group	Number Pain Patients	Number of Patients Receiving an Analgesic	Percent With Analgesic Administration Documented	Percent Without Analgesic Administration Documented
0–4 years	86	22	25.6	74.4
5–12 years	342	97	28.4	71.6
13–17 years	665	165	24.8	75.2
18–24 years	2,144	309	14.4	85.6
25–64 years	19,741	2,534	12.8	87.2
65 years and older	11,977	1,540	12.9	87.1
Unknown	5	0	0.0	100.0
Total	34,960	4,667	13.3	86.7

*Includes documentation of medication administration or relevant pertinent negative.

Table 17. Emergency Responses Among Patients with Pain Score of 7—10 and Analgesic Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Pain Patients	Number of Patients Receiving an Analgesic	Percent With Analgesic Administration Documented	Percent Without Analgesic Administration Documented
Blue Ridge	1,369	249	18.2	81.8
Central Shenandoah	1,435	248	17.3	82.7
Lord Fairfax	987	68	6.9	93.1
Northern Virginia	5,654	924	16.3	83.7
Old Dominion	8,014	562	7.0	93.0
Peninsulas	3,306	394	11.9	88.1
Rappahannock	1,901	538	28.3	71.7
Southwest Virginia	1,794	264	14.7	85.3
Thomas Jefferson	1,132	251	22.2	77.8
Tidewater	5,562	616	11.1	88.9
Western Virginia	3,777	535	14.2	85.8
Out of State	29	18	62.1	37.9
Total	34,960	4,667	13.3	86.7

*Includes documentation of medication administration or relevant pertinent negative.

Table 18. Analgesics Administered to Patients with Pain Score of 7—10, Third Quarter 2023, Virginia

Analgesic Administered	Number Analgesic Administrations [†]	Percent of Analgesics Administered
Acetaminophen	70	1.4
Dilaudid/Hydromorphone	12	0.2
Fentanyl	3,796	78.0
Ibuprofen/Motrin	15	0.3
Ketamine	189	3.9
Ketorolac/Toradol	362	7.4
Morphine	419	8.6
Tylenol	2	<0.1
Total	4,865	100.0

[†]The number of analgesic administrations is higher than the number of patients receiving an analgesic, as patients may receive more than one medication during an incident.

Pediatric (<15 Years) Pain Emergency Responses

During the third quarter of 2023, 1,197 incidents with a recorded pain score between 4 and 10 were identified among patients younger than 15 years of age, with 186 (15.5%) patients receiving an analgesic (additional details provided in Tables 19—20).

Table 19. Emergency Responses Among Pediatric Patients with Pain Score of 4—10 and Analgesic Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Pediatric Pain Patients	Number of Patients Receiving an Analgesic	Percent With Analgesic Administration Documented	Percent Without Analgesic Administration Documented
Blue Ridge	40	6	15.0	85.0
Central Shenandoah	47	8	17.0	83.0
Lord Fairfax	27	4	14.8	85.2
Northern Virginia	316	53	16.8	83.2
Old Dominion	247	25	10.1	89.9
Peninsulas	95	9	9.5	90.5
Rappahannock	92	19	20.7	79.3
Southwest Virginia	57	12	21.1	78.9
Thomas Jefferson	44	8	18.2	81.8
Tidewater	142	28	19.7	80.3
Western Virginia	89	13	14.6	85.4
Out of State	1	1	100.0	0.0
Total	1,197	186	15.5	84.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 20. Analgesics Administered to Pediatric Patients with Pain Score of 4—10, Third Quarter 2023, Virginia

Analgesic Administered	Number Analgesic Administrations†	Percent of Analgesics Administered
Acetaminophen	5	2.6
Dilaudid/Hydromorphone	0	0.0
Fentanyl	163	84.5
Ibuprofen/Motrin	0	0.0
Ketamine	9	4.7
Ketorolac/Toradol	6	3.1
Morphine	10	5.2
Tylenol	0	0.0
Total	193	100.0

†The number of analgesic administrations is higher than the number of patients receiving an analgesic, as patients may receive more than one medication during an incident.

Asthma Emergency Responses

Asthma incidents are defined as those with a primary impression that includes the words “asthma” or “reactive airway” or with a protocol that includes the word “asthma”. Patients with a primary impression of chronic obstructive pulmonary disease are excluded. Of the 191,618 emergency response incidents reported by EMS during the third quarter of 2023, 2,153 (1.1%) asthma incidents were identified. By age group, 53 (2.5%) incidents occurred among patients younger than two years of age, 203 (9.4%) incidents occurred among patients 2 – 17 years of age, 1,896 (88.1%) incidents occurred among patients older than 18 years of age, and 1 occurred among a patient of unknown age. A total of 1,084 (50.3%) incidents had no steroid, magnesium, or Albuterol/ipratropium administration documented, while 1,069 (49.7%) incidents reported administration of at least one of the three medications or had a pertinent negative documented.

Narrative Review

Of the 1,084 asthma incidents occurring among patients without steroid, magnesium, or Albuterol/ipratropium administration or a pertinent negative documented, 25 incidents were randomly selected for narrative review. Medication administration was documented in the narrative for 9 (36.0%) incidents. Of these nine:

- In three instances, use of an inhaler or nebulizer prior to EMS arrival was noted in the narrative, with no detail provided on what medication was administered.
- In three instances, Albuterol was administered by EMS. Of these, 2 patients were also given a steroid by EMS.
- In two instances, Albuterol was administered prior to arrival of EMS. Of these, one patient was given a steroid prior to arrival of EMS and one patient was given a steroid by EMS.
- In one instance, a steroid was administered prior to arrival of EMS.

The remaining 16 (64.0%) records did not have medication administration or a pertinent negative documented in the narrative.

Table 21. Emergency Responses Among Asthma Patients with Albuterol/Ipratropium Administration* by Age Group, Third Quarter 2023, Virginia

Age Group	Number Asthma Patients	Number of Patients Receiving Albuterol/Ipratropium	Percent With Albuterol/Ipratropium Administration Documented	Percent Without Albuterol/Ipratropium Administration Documented
< 2 years	53	10	18.9	81.1
2 – 17 years	203	115	56.7	43.3
18 and older	1,896	916	48.3	51.7
Unknown	1	0	0.0	100.0
Total	2,153	1,041	48.4	51.6

*Includes documentation of medication administration or relevant pertinent negative.

Table 22. Emergency Responses Among Asthma Patients with Albuterol/Ipratropium Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Asthma Patients	Number of Patients Receiving Albuterol/Ipratropium	Percent With Albuterol/Ipratropium Administration Documented	Percent Without Albuterol/Ipratropium Administration Documented
Blue Ridge	57	31	54.4	45.6
Central Shenandoah	55	23	41.8	58.2
Lord Fairfax	25	11	44.0	56.0
Northern Virginia	148	100	67.6	32.4
Old Dominion	299	162	54.2	45.8
Peninsulas	201	111	55.2	44.8
Rappahannock	211	87	41.2	58.8
Southwest Virginia	267	104	39.0	61.0
Thomas Jefferson	42	24	57.1	42.9
Tidewater	528	265	50.2	49.8
Western Virginia	320	123	38.4	61.6
Out of State	0	0	---	---
Total	2,153	1,041	48.4	51.6

*Includes documentation of medication administration or relevant pertinent negative.

Table 23. Emergency Responses Among Asthma Patients with Steroid Administration* by Age Group, Third Quarter 2023, Virginia

Age Group	Number Asthma Patients	Number Patients Receiving a Steroid	Percent With Steroid Administration Documented	Percent Without Steroid Administration Documented
< 2 years	53	0	0.0	100.0
2 – 17 years	203	10	4.9	95.1
18 and older	1,896	303	16.0	84.0
Unknown	1	0	0.0	100.0
Total	2,153	313	14.5	85.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 24. Emergency Responses Among Asthma Patients with Steroid Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Asthma Patients	Number Patients Receiving a Steroid	Percent With Steroid Administration Documented	Percent Without Steroid Administration Documented
Blue Ridge	57	18	31.6	68.4
Central Shenandoah	55	9	16.4	83.6
Lord Fairfax	25	8	32.0	68.0
Northern Virginia	148	35	23.6	76.4
Old Dominion	299	26	8.7	91.3
Peninsulas	201	60	29.9	70.1
Rappahannock	211	22	10.4	89.6
Southwest Virginia	267	39	14.6	85.4
Thomas Jefferson	42	3	7.1	92.9
Tidewater	528	47	8.9	91.1
Western Virginia	320	46	14.4	85.6
Out of State	0	0	---	---
Total	2,153	313	14.5	85.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 25. Emergency Responses Among Asthma Patients with Magnesium Administration* by Age Group, Third Quarter 2023, Virginia

Age Group	Number Asthma Patients	Number of Patients Receiving Magnesium	Percent With Magnesium Administration Documented	Percent Without Magnesium Administration Documented
< 2 years	53	0	0.0	100.0
2 – 17 years	203	3	1.5	98.5
18 and older	1,896	79	4.2	95.8
Unknown	1	0	0.0	100.0
Total	2,153	82	3.8	96.2

*Includes documentation of medication administration or relevant pertinent negative.

Table 26. Emergency Responses Among Asthma Patients with Magnesium Administration* by EMS Regional Council, Third Quarter 2023, Virginia

EMS Regional Council	Number Asthma Patients	Number of Patients Receiving Magnesium	Percent With Magnesium Administration Documented	Percent Without Magnesium Administration Documented
Blue Ridge	57	8	14.0	86.0
Central Shenandoah	55	0	0.0	100.0
Lord Fairfax	25	0	0.0	100.0
Northern Virginia	148	5	3.4	96.6
Old Dominion	299	6	2.0	98.0
Peninsulas	201	16	8.0	92.0
Rappahannock	211	3	1.4	98.6
Southwest Virginia	267	1	0.4	99.6
Thomas Jefferson	42	1	2.4	97.6
Tidewater	528	32	6.1	93.9
Western Virginia	320	10	3.1	96.9
Out of State	0	0	---	---
Total	2,153	82	3.8	96.2

*Includes documentation of medication administration or relevant pertinent negative.