
Virginia Department of Health

Office of Emergency Medical Services (OEMS)

Quarterly Report on EMS Incidents

Q2 2024

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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 2 2024 data for this report was collected from the ESO Pre-hospital Data System (NEMSIS version 3.4 and 3.5) on September 9, 2024. Importantly, many records submitted by Virginia EMS agencies for incidents occurring during the second quarter of 2024 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, Second Quarter, 2024, Virginia

Month	Total Failed Records
April	4,985
May	3,980
June	4,886

Virginia EMS Call Summary, Second Quarter, 2024

EMS agencies in Virginia responded to a total of 434,305 EMS calls during the second quarter of 2024 (see Tables 2—5 and Figure 1).

Table 2. Number of EMS Incidents by Type of Service Requested and Disposition, Second Quarter, 2024, 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	Null	
Assist (Agency, Public, or Unit)	22,826	19	106	35	60	1,389	431	0	24,866
Canceled (Prior to Arrival at Scene or On Scene)	53,850	119	1,170	1,039	406	1,321	500	6	58,411
Patient Dead at Scene (with and without resuscitation; with and without transport)	2,026	6	29	30	11	61	0	0	2,163
Patient Evaluated, No Treatment/Transport Required	5,210	5	20	34	7	177	19	1	5,473
Patient Refused Evaluation/Care (with or without transport)	26,553	58	59	154	57	565	56	1	27,503
Patient Treated, Released (AMA or per protocol)	17,399	18	86	327	37	557	144	1	18,569
Patient Treated, Transferred Care to Another EMS Unit	10,761	40	108	97	62	304	51	1	11,424
Patient Treated, Transported by Law Enforcement	272	0	2	0	0	7	1	0	282
Patient Treated, Transported by Private Vehicle	235	0	2	7	1	38	3	0	286
Patient Treated, Transported by this Unit	183,524	342	41,080	51,553	431	3,208	82	121	280,341
Standby (no services/support provided or public safety, fire, or EMS operational support provided)	3,554	17	53	27	44	584	609	0	4,888
Transport Non-Patient, Organs, etc.	5	0	17	42	0	20	11	0	95
Blank	1	0	0	0	0	0	0	0	1
Total	326,216	624	42,732	53,345	1,116	8,231	1,907	131	434,302

Table 3. Number of EMS Incidents by Type of Service Requested and Age Group, Second Quarter, 2024, 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)	4,763	4,370	5,610	14,689	106,702	111,554	78,528	326,216
Intercept/ Rendezvous	12	10	8	29	207	206	152	624
Interfacility Transport	1,203	898	1,084	1,403	16,229	21,428	487	42,732
Medical Transport	334	281	397	433	13,238	38,420	242	53,345
Mutual Aid	10	9	16	26	289	270	496	1,116
Public Assistance/ Other Not Listed	81	60	80	231	1,987	2,944	2,848	8,231
Standby	4	14	26	71	192	86	1,514	1,907
Null	0	0	7	2	32	84	6	131
Total	6,407	5,642	7,228	16,884	138,876	174,992	84,273	434,302

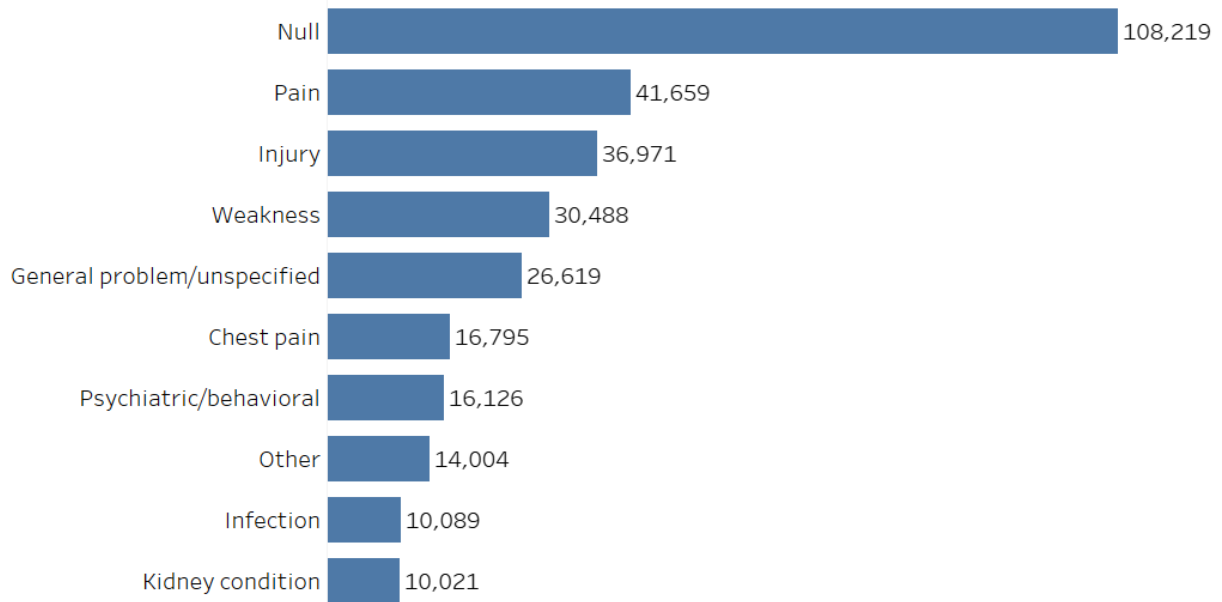
Table 4. Number of EMS Incidents by Patient Disposition and Age Group, Second Quarter, 2024, Virginia

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)	79	75	121	188	1,445	2,314	20,644	24,866
Canceled (Prior to Arrival at Scene or On Scene)	44	30	53	78	857	1,441	55,908	58,411
Patient Dead at Scene (with and without resuscitation; with and without transport)	18	4	7	41	861	1,221	11	2,163
Patient Evaluated, No Treatment/ Transport Required	244	164	170	390	2,193	2,253	59	5,473

Table 4 (continued). Number of EMS Incidents by Patient Disposition and Age Group, Second Quarter, 2024, 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)	820	750	929	2,349	11,357	8,987	2,311	27,503
Patient Treated, Released (AMA or per protocol)	529	588	687	1,496	8,077	6,958	234	18,569
Patient Treated, Transferred Care to Another EMS Unit	213	198	252	640	5,185	4,603	333	11,424
Patient Treated, Transported by Law Enforcement	1	3	16	46	185	27	4	282
Patient Treated, Transported by Private Vehicle	22	14	17	36	124	73	0	286
Patient Treated, Transported by this EMS Unit	4,426	3,815	4,968	11,612	108,466	146,973	81	280,341
Standby (no services/support provided or public safety, fire, or EMS operational support provided)	6	1	4	7	102	111	4,657	4,888
Transport Non-Patient, Organs, etc.	5	0	4	1	24	30	31	95
Blank	0	0	0	0	0	1	0	1
Total	6,407	5,642	7,228	16,884	138,876	174,992	84,273	434,302

Figure 1. All EMS Incidents by Top 10 Primary Impression Categories, Second Quarter, 2024, Virginia



Of the 434,302 total EMS calls that occurred during the second quarter of 2024, a total of 183,524 (42.3%) 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, Second Quarter, 2024, Virginia

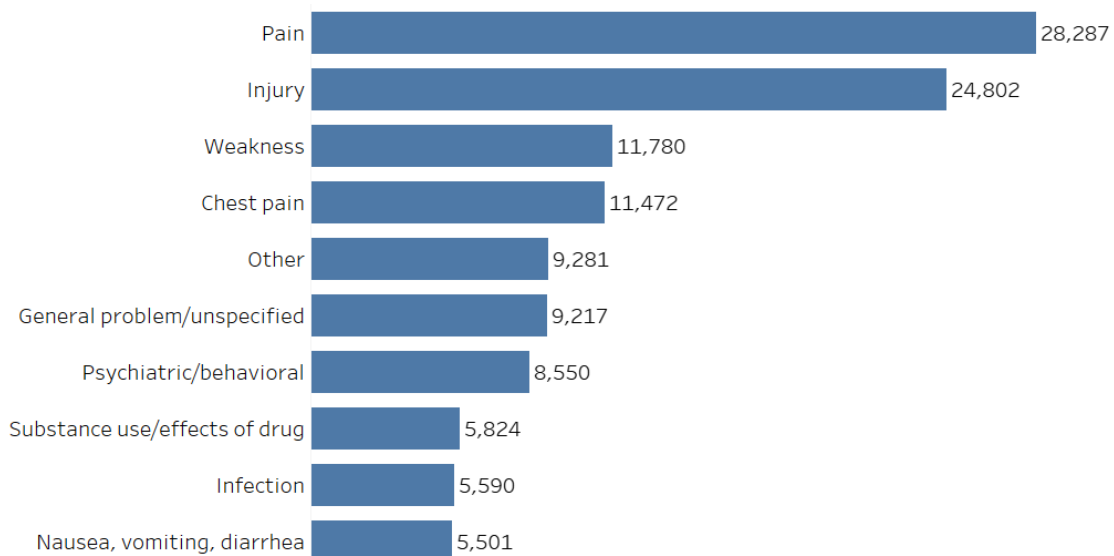


Table 5. Top 10 Primary Impressions for Emergency Responses by Patient Age Group, Second Quarter, 2024, Virginia

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	Injury
2	Injury	Pain	Psychiatric/behavioral	Pain	Injury	Injury	Cardiac arrest
3	General problem/unspecified	Seizure/convulsions	Pain	Psychiatric/behavioral	Chest pain	Weakness	Substance use/effects of drug
4	Fever	Allergic reaction	Seizure/convulsions	Seizure/convulsions	Psychiatric/behavioral	Other	Brain injury/death*
5	Fluid in/around the lungs	General problem/unspecified	Substance use/effects of drug	Substance use/effects of drug	Substance use/effects of drug	Chest pain	Other*
6	Infection	Psychiatric/behavioral	Syncope/near syncope	Nausea, vomiting, diarrhea	General problem/unspecified	General problem/unspecified	Psychiatric/behavioral*
7	Other	Asthma	Brain injury/death	Chest pain	Weakness	Infection	Awareness/consciousness problem*
8	Allergic reaction	Infection	Allergic reaction	General problem/unspecified	Other	Fluid in/around the lungs	Weakness*
9	Nausea, vomiting, diarrhea	Brain injury/death	General problem/unspecified	Syncope/near syncope	Seizures/convulsions	Nausea, vomiting, diarrhea	Seizure/convulsions*
10	Pain	Fluid in/around the lungs	Other	Other	Nausea, vomiting, diarrhea	Stroke/TIA	Stroke/TIA* Diabetes* Blank*

*Multiple Provider Primary Impressions were tied for the fourth and seventh most common impressions for patients with an Unknown Age Group.

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,” “myocardial infarction,” or “angina”. Incidents with a response of “yes” in the possible injury (esituation.02) field and/or that have a primary impression that includes the words “injury,” “trauma,” or “burn” are excluded. 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 183,524 emergency response incidents reported by EMS during the second quarter of 2024, 10,340 (5.6%) non-traumatic chest pain incidents were identified in patients 35 years of age and older. Of these, a total of 8,926 (86.3%) patients had 12-lead acquisition and 5,670 (54.8%) 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, Second Quarter 2024, 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	374	337	90.1	9.9
Central Shenandoah	460	416	90.4	9.6
Lord Fairfax	332	315	94.9	5.1
Northern Virginia	1,735	1,348	77.7	22.3
Old Dominion	2,031	1,603	78.9	21.1
Peninsulas	884	817	92.4	7.6
Rappahannock	622	595	95.7	4.3
Southwest Virginia	613	487	79.4	20.6
Thomas Jefferson	365	335	91.8	8.2
Tidewater	1,693	1,580	93.3	6.7
Western Virginia	1,210	1,082	89.4	10.6
Out of State	21	11	52.4	47.6
Total	10,340	8,926	86.3	13.7

Table 7. Emergency Responses Among Non-Traumatic Chest Pain Patients ≥ 35 Years of Age with Aspirin Administration* by EMS Regional Council, Second Quarter 2024, Virginia

EMS Regional Council	Number Patients	Number of Patients with Aspirin Administration	Percent With Aspirin Administration Documented	Percent Without Aspirin Administration Documented
Blue Ridge	374	254	67.9	32.1
Central Shenandoah	460	262	57.0	43.0
Lord Fairfax	332	175	52.7	47.3
Northern Virginia	1,735	777	44.8	55.2
Old Dominion	2,031	1,147	56.5	43.5
Peninsulas	884	474	53.6	46.4
Rappahannock	622	405	65.1	34.9
Southwest Virginia	613	338	55.1	44.9
Thomas Jefferson	365	228	62.5	37.5
Tidewater	1,693	977	57.7	42.3
Western Virginia	1,210	629	52.0	48.0
Out of State	21	4	19.0	81.0
Total	10,340	5,670	54.8	45.2

*Includes documentation of medication administration or relevant pertinent negative.

Narrative Review

Of the 4,670 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 by EMS was documented in the narrative for 1 (4.0%) incident. For four (16.0%) patients, aspirin was administered prior to the arrival of EMS. Two (8.0%) narratives documented a contraindication for aspirin administration. Two narratives (8.0%) noted aspirin was a part of the patient’s current medication list. The remaining 16 (64.0%) 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 183,524 emergency response incidents reported by EMS during the second quarter of 2024, 958 (0.5%) STEMI incidents were identified. Of these, 714 (74.5%) patients had 12-lead acquisition, with 696 (97.5%) records containing information on the time between arrival at patient and when an EKG was performed. Of these 696 records, time to receive an EKG ranged from 0 minutes to 24 hours and 4 minutes. It took a median of 6 minutes and 31 seconds and an average of 10 minutes and 47 seconds for the 696 STEMI patients to receive an EKG.

Stroke Emergency Responses

Stroke incidents are defined as those with a documented primary/secondary impression/symptom of stroke, a positive stroke scale score, a destination activation for stroke, or a stroke/TIA protocol used by an EMS clinician. Of the 183,524 emergency response incidents reported by EMS during the second quarter of 2024, 4,910 (2.7%) stroke incidents were identified. Of the stroke incidents, 4,183 (85.2%) documented the performance of a stroke scale or a pertinent negative, 4,535 (92.4%) had a blood glucose or pertinent negative recorded, and 4,868 (99.1%) had the date/time the patient was last known well or the date/time of the patient’s symptom onset recorded. For 1,163 (23.7%) 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, Second Quarter 2024, Virginia

EMS Regional Council	Number Stroke Patients	Number (% Across) of Patients Transported to Out of State Facilities	Number (% Across) of Patients Not Transported to a Certified Facility	Number (% Across) of Patients Transported to Acute Stroke Ready Facilities	Number (% Across) of Patients Transported to Primary Stroke Centers	Number (% Across) of Patients Transported to Thrombectomy Capable Hospitals	Number (% Across) of Patients Transported to Comprehensive Stroke Centers
Blue Ridge	211	0 (0.0)	11 (5.2)	0 (0.0)	0 (0.0)	200 (94.8)	0 (0.0)
Central Shenandoah	173	0 (0.0)	18 (10.4)	0 (0.0)	154 (89.0)	0 (0.0)	1 (0.6)
Lord Fairfax	103	0 (0.0)	10 (9.7)	0 (0.0)	93 (90.3)	0 (0.0)	0 (0.0)
Northern Virginia	880	9 (1.0)	37 (4.2)	22 (2.5)	351 (39.9)	152 (17.3)	309 (35.1)
Old Dominion	1,020	0 (0.0)	73 (7.2)	4 (0.4)	402 (39.4)	3 (0.3)	538 (52.7)
Peninsulas	375	0 (0.0)	16 (4.3)	0 (0.0)	136 (36.3)	0 (0.0)	223 (59.5)
Rappahannock	258	0 (0.0)	38 (14.7)	0 (0.0)	209 (81.0)	0 (0.0)	11 (4.3)
Southwest Virginia	229	53 (23.1)	139 (60.7)	0 (0.0)	34 (14.8)	3 (1.3)	0 (0.0)
Thomas Jefferson	197	0 (0.0)	3 (1.5)	0 (0.0)	7 (3.6)	4 (2.0)	183 (92.9)
Tidewater	918	5 (0.5)	27 (2.9)	34 (3.7)	564 (61.4)	0 (0.0)	288 (31.4)
Western Virginia	524	6 (1.1)	121 (23.1)	15 (2.9)	160 (30.5)	221 (42.2)	1 (0.2)
Out of State	22	20 (90.9)	0 (0.0)	0 (0.0)	0 (0.0)	2 (9.1)	0 (0.0)
Total	4,910	93 (1.9)	493 (10.0)	75 (1.5)	2,110 (43.0)	585 (11.9)	1,554 (31.6)

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, Second Quarter 2024, Virginia

EMS Regional Council	Number Stroke Patients	Number (% Across) of Patients Transported to Out of State Facilities	Number (% Across) of Patients Not Transported to a Certified Facility	Number (% Across) of Patients Transported to Acute Stroke Ready Facilities	Number (% Across) of Patients Transported to Primary Stroke Centers	Number (% Across) of Patients Transported to Thrombectomy Capable Hospitals	Number (% Across) of Patients Transported to Comprehensive Stroke Centers
Blue Ridge	53	0 (0.0)	4 (7.5)	0 (0.0)	0 (0.0)	49 (92.5)	0 (0.0)
Central Shenandoah	42	0 (0.0)	4 (9.5)	0 (0.0)	38 (90.5)	0 (0.0)	0 (0.0)
Lord Fairfax	20	0 (0.0)	2 (10.0)	0 (0.0)	18 (90.0)	0 (0.0)	0 (0.0)
Northern Virginia	220	0 (0.0)	8 (3.6)	8 (3.6)	93 (42.3)	36 (16.4)	75 (34.1)
Old Dominion	257	0 (0.0)	16 (6.2)	1 (0.4)	87 (33.9)	0 (0.0)	153 (59.5)
Peninsulas	81	0 (0.0)	7 (8.6)	0 (0.0)	31 (38.3)	0 (0.0)	43 (53.1)
Rappahannock	59	0 (0.0)	9 (15.3)	0 (0.0)	50 (84.7)	0 (0.0)	0 (0.0)
Southwest Virginia	47	15 (31.9)	26 (55.3)	0 (0.0)	6 (12.8)	0 (0.0)	0 (0.0)
Thomas Jefferson	44	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.3)	2 (4.5)	41 (93.2)
Tidewater	229	0 (0.0)	7 (3.1)	8 (3.5)	127 (55.5)	0 (0.0)	87 (38.0)
Western Virginia	106	1 (0.9)	22 (20.8)	4 (3.8)	31 (29.2)	48 (45.3)	0 (0.0)
Out of State	5	5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	1,163	21 (1.8)	105 (9.0)	21 (1.8)	482 (41.4)	135 (11.6)	399 (34.3)

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 183,524 emergency response incidents reported by EMS during the second quarter of 2024, 26,509 (14.4%) trauma incidents were identified; 33 (0.1%) of the trauma patients were noted to be in cardiac arrest. In addition, a total of 105 (0.4%) of the 26,509 trauma patients were noted to be part of a mass casualty incident (MCI). Of the 26,371 patients not in cardiac arrest or part of an MCI, a total of 1,888 (7.2%) Step 1 patients, 382 (1.4%) Step 2 patients, 580 (2.2%) Step 3 patients, and 23,521 (89.2%) 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 and not part of an MCI can be found in Tables 10–12.

Table 10. Emergency Responses Among non-MCI Step 1 Trauma Patients Not in Cardiac Arrest Transported to a Level 1/Pediatric or Level 2 Trauma Center by EMS Regional Council, Second Quarter 2024, Virginia

EMS Regional Council	Number Trauma Patients	Number (% Across) of Patients Transported to Level 1 Trauma Center	Number (% Across) of Patients Transported to Level 2 Trauma Center
Blue Ridge	51	4 (7.8)	47 (92.2)
Central Shenandoah	44	4 (9.1)	0 (0.0)
Lord Fairfax	62	3 (4.8)	28 (45.2)
Northern Virginia	444	198 (44.6)	90 (20.3)
Old Dominion	397	195 (49.1)	42 (10.6)
Peninsulas	109	2 (1.8)	67 (61.5)
Rappahannock	112	5 (4.5)	64 (57.1)
Southwest Virginia	94	13 (13.8)	0 (0.0)
Thomas Jefferson	75	57 (76.0)	2 (2.7)
Tidewater	297	114 (38.4)	26 (8.8)
Western Virginia	193	86 (44.6)	23 (11.9)
Out of State	10	4 (40.0)	0 (0.0)
Total	1,888	685 (36.3)	389 (20.6)

Table 11. Emergency Responses Among non-MCI Step 2 Trauma Patients Not in Cardiac Arrest Transported to a Level 1/Pediatric or Level 2 Trauma Center by EMS Regional Council, Second Quarter 2024, Virginia

EMS Regional Council	Number Trauma Patients	Number (% Across) of Patients Transported to Level 1 Trauma Center	Number (% Across) of Patients Transported to Level 2 Trauma Center
Blue Ridge	2	2 (100.0)	0 (0.0)
Central Shenandoah	3	1 (33.3)	0 (0.0)
Lord Fairfax	6	0 (0.0)	4 (66.7)
Northern Virginia	81	59 (72.8)	8 (9.9)
Old Dominion	126	100 (79.4)	5 (4.0)
Peninsulas	18	1 (5.6)	16 (88.9)
Rappahannock	16	1 (6.3)	15 (93.8)
Southwest Virginia	25	3 (12.0)	0 (0.0)
Thomas Jefferson	6	5 (83.3)	0 (0.0)
Tidewater	71	44 (62.0)	9 (12.7)
Western Virginia	27	10 (37.0)	1 (3.7)
Out of State	1	1 (100.0)	0 (0.0)
Total	382	227 (59.4)	58 (15.2)

Table 12. Emergency Responses Among non-MCI 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, Second Quarter 2024, Virginia

EMS Regional Council	Number Trauma Patients	Number (% Across) of Patients Transported to Level 1 Trauma Center	Number (% Across) of Patients Transported to Level 2 Trauma Center	Number (% Across) of Patients Transported to Level 3 Trauma Center
Blue Ridge	10	1 (10.0)	9 (90.0)	0 (0.0)
Central Shenandoah	13	1 (7.7)	0 (0.0)	0 (0.0)
Lord Fairfax	19	1 (5.3)	6 (31.6)	0 (0.0)
Northern Virginia	124	58 (46.8)	24 (19.4)	34 (27.4)
Old Dominion	114	76 (66.7)	13 (11.4)	12 (10.5)
Peninsulas	29	3 (10.3)	23 (79.3)	0 (0.0)
Rappahannock	31	2 (6.5)	28 (90.3)	0 (0.0)
Southwest Virginia	38	3 (7.9)	0 (0.0)	12 (31.6)
Thomas Jefferson	13	12 (92.3)	0 (0.0)	0 (0.0)
Tidewater	153	87 (56.9)	12 (7.8)	49 (32.0)
Western Virginia	34	13 (38.2)	3 (8.8)	12 (35.3)
Out of State	2	0 (0.0)	0 (0.0)	0 (0.0)
Total	580	257 (44.3)	118 (20.3)	119 (20.5)

Pain Emergency Responses

Pain incidents are defined as those with documented pain scale scores between 4 and 10. Patients with a primary impression of chest pain are excluded.

Pain Scale Score 4–6

Of the 183,524 emergency response incidents reported by EMS during the second quarter of 2024, 22,401 (12.2%) incidents occurred among patients with a pain score of 4–6, with 2,224 (9.9%) patients receiving an analgesic (additional details provided in Tables 13–15). By age group, 135 (0.6%) incidents occurred among patients younger than 5 years of age, 357 (1.6%) incidents occurred among patients 5–12 years of age, 559 (2.5%) incidents occurred among patients 13–17 years of age, 1,587 (7.1%) incidents occurred among patients 18–24 years of age, 10,185 (45.5%) incidents occurred among patients 25–64 years of age, 9,571 (42.7%) incidents occurred among patients 65 years of age and older, and 7 (<0.1%) incidents occurred in patients whose age was not documented.

Narrative Review (Pain Scale Score 4–6)

Of the 20,177 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. None of the records 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, Second Quarter 2024, 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	135	15	11.1	88.9
5–12 years	357	43	12.0	88.0
13–17 years	559	69	12.3	87.7
18–24 years	1,587	178	11.2	88.8
25–64 years	10,185	1,021	10.0	90.0
65 years and older	9,571	896	9.4	90.6
Unknown	7	2	28.6	71.4
Total	22,401	2,224	9.9	90.1

*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, Second Quarter 2024, 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	972	124	12.8	87.2
Central Shenandoah	805	108	13.4	86.6
Lord Fairfax	457	34	7.4	92.6
Northern Virginia	4,792	381	8.0	92.0
Old Dominion	4,316	304	7.0	93.0
Peninsulas	1,998	158	7.9	92.1
Rappahannock	1,427	253	17.7	82.3
Southwest Virginia	1,363	153	11.2	88.8
Thomas Jefferson	586	122	20.8	79.2
Tidewater	3,197	313	9.8	90.2
Western Virginia	2,471	264	10.7	89.3
Out of State	17	10	58.8	41.2
Total	22,401	2,224	9.9	90.1

*Includes documentation of medication administration or relevant pertinent negative.

Table 15. Analgesics Administered to Patients with Pain Score of 4—6, Second Quarter 2024, Virginia

Analgesic Administered	Number Analgesic Administrations [†]	Percent of Analgesics Administered
Acetaminophen/Tylenol	61	2.6
Dilaudid/Hydromorphone	5	0.2
Fentanyl	1,750	75.8
Ibuprofen/Motrin	10	0.4
Ketamine	92	4.0
Ketorolac/Toradol	186	8.1
Morphine	206	8.9
Total	2,310	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 second quarter of 2024, 30,652 (16.7% of 183,524) incidents occurred among patients with a pain score between 7 and 10, with 4,773 (15.6%) patients receiving an analgesic (additional details provided in Tables 16–18). By age group, 83 (0.3%) incidents occurred among patients younger than 5 years of age, 345 (1.1%) incidents occurred among patients 5–12 years of age, 572 (1.9%) incidents occurred among patients 13–17 years of age, 2,010 (6.6%) incidents occurred among patients 18–24 years of age, 16,676 (54.4%) incidents occurred among patients 25–64 years of age, 10,961 (35.8%) 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 25,879 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. None of the records had 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, Second Quarter 2024, 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	83	20	24.1	75.9
5–12 years	345	79	22.9	77.1
13–17 years	572	146	25.5	74.5
18–24 years	2,010	344	17.1	82.9
25–64 years	16,676	2,508	15.0	85.0
65 years and older	10,961	1,672	15.3	84.7
Unknown	5	4	80.0	20.0
Total	30,652	4,773	15.6	84.4

*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, Second Quarter 2024, 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	918	247	26.9	73.1
Central Shenandoah	1,159	243	21.0	79.0
Lord Fairfax	961	93	9.7	90.3
Northern Virginia	5,318	931	17.5	82.5
Old Dominion	7,594	672	8.8	91.2
Peninsulas	2,797	366	13.1	86.9
Rappahannock	1,675	518	30.9	69.1
Southwest Virginia	1,430	226	15.8	84.2
Thomas Jefferson	1,014	244	24.1	75.9
Tidewater	4,475	698	15.6	84.4
Western Virginia	3,291	520	15.8	84.2
Out of State	20	15	75.0	25.0
Total	30,652	4,773	15.6	84.4

*Includes documentation of medication administration or relevant pertinent negative.

Table 18. Analgesics Administered to Patients with Pain Score of 7–10, Second Quarter 2024, Virginia

Analgesic Administered	Number Analgesic Administrations [†]	Percent of Analgesics Administered
Acetaminophen/Tylenol	75	1.5
Dilaudid/Hydromorphone	8	0.2
Fentanyl	3,848	77.1
Ibuprofen/Motrin	14	0.3
Ketamine	241	4.8
Ketorolac/Toradol	401	8.0
Morphine	407	8.1
Total	4,994	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 second quarter of 2024, 1,168 incidents with a recorded pain score between 4 and 10 were identified among patients younger than 15 years of age, with 180 (15.2%) 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, Second Quarter 2024, 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	29	2	6.9	93.1
Central Shenandoah	34	6	17.6	82.4
Lord Fairfax	30	2	6.7	93.3
Northern Virginia	336	62	18.0	82.0
Old Dominion	257	26	10.0	90.0
Peninsulas	89	14	15.6	84.4
Rappahannock	70	12	16.9	83.1
Southwest Virginia	40	6	14.6	85.4
Thomas Jefferson	24	7	28.0	72.0
Tidewater	166	31	18.6	81.4
Western Virginia	92	11	11.8	88.2
Out of State	1	1	100.0	0.0
Total	1,168	180	15.2	84.8

*Includes documentation of medication administration or relevant pertinent negative.

Table 20. Analgesics Administered to Pediatric Patients with Pain Score of 4—10, Second Quarter 2024, Virginia

Analgesic Administered	Number Analgesic Administrations†	Percent of Analgesics Administered
Acetaminophen/Tylenol	7	3.7
Dilaudid/Hydromorphone	0	0.0
Fentanyl	163	86.7
Ibuprofen/Motrin	0	0.0
Ketamine	9	4.8
Ketorolac/Toradol	4	2.1
Morphine	5	2.7
Total	188	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 183,524 emergency response incidents reported by EMS during the second quarter of 2024, 2,046 (1.1%) asthma incidents were identified. By age group, 27 (1.3%) incidents occurred among patients younger than two years of age, 205 (10.1%) incidents occurred among patients 2 – 17 years of age, and 1,814 (88.7%) incidents occurred among patients older than 18 years of age. A total of 822 (40.2%) incidents had no steroid, magnesium, or Albuterol/ipratropium administration documented, while 1,224 (59.8%) incidents reported administration of at least one of the three medications or had a pertinent negative documented.

Narrative Review

Of the 822 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 10 (40.0%) incidents. Of these 10:

- In three instances, use of an inhaler, nebulizer, or breathing treatment prior to EMS arrival was noted in the narrative, with no detail provided on what medication was administered.
- In five instances, Albuterol and/or Atrovent was administered prior to arrival of EMS. For two of these patients, a steroid was also administered prior to EMS arrival.
- In two instances, Albuterol, Atrovent, and/or DuoNeb were administered by EMS.

The remaining 15 (60.0%) 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, Second Quarter 2024, 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	27	15	55.6	44.4
2 – 17 years	205	135	65.9	34.1
18 and older	1,814	1,047	57.7	42.3
Total	2,046	1,197	58.5	41.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 22. Emergency Responses Among Asthma Patients with Albuterol/Ipratropium Administration* by EMS Regional Council, Second Quarter 2024, 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	51	37	72.5	27.5
Central Shenandoah	46	31	67.4	32.6
Lord Fairfax	28	22	78.6	21.4
Northern Virginia	167	110	65.9	34.1
Old Dominion	330	235	71.2	28.8
Peninsulas	183	131	71.6	28.4
Rappahannock	147	71	48.3	51.7
Southwest Virginia	193	73	37.8	62.2
Thomas Jefferson	48	33	68.8	31.2
Tidewater	549	304	55.4	44.6
Western Virginia	300	149	49.7	50.3
Out of State	4	1	25.0	75.0
Total	2,046	1,197	58.5	41.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 23. Emergency Responses Among Asthma Patients with Steroid Administration* by Age Group, Second Quarter 2024, Virginia

Age Group	Number Asthma Patients	Number Patients Receiving a Steroid	Percent With Steroid Administration Documented	Percent Without Steroid Administration Documented
< 2 years	27	1	3.7	96.3
2 – 17 years	205	32	15.6	84.4
18 and older	1,814	365	20.1	79.9
Total	2,046	398	19.5	80.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 24. Emergency Responses Among Asthma Patients with Steroid Administration* by EMS Regional Council, Second Quarter 2024, Virginia

EMS Regional Council	Number Asthma Patients	Number Patients Receiving a Steroid	Percent With Steroid Administration Documented	Percent Without Steroid Administration Documented
Blue Ridge	51	25	49.0	51.0
Central Shenandoah	46	12	26.1	73.9
Lord Fairfax	28	11	39.3	60.7
Northern Virginia	167	37	22.2	77.8
Old Dominion	330	68	20.6	79.4
Peninsulas	183	62	33.9	66.1
Rappahannock	147	26	17.7	82.3
Southwest Virginia	193	23	11.9	88.1
Thomas Jefferson	48	8	16.7	83.3
Tidewater	549	64	11.7	88.3
Western Virginia	300	62	20.7	79.3
Out of State	4	0	0.0	100.0
Total	2,046	398	19.5	80.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 25. Emergency Responses Among Asthma Patients with Magnesium Administration* by Age Group, Second Quarter 2024, Virginia

Age Group	Number Asthma Patients	Number of Patients Receiving Magnesium	Percent With Magnesium Administration Documented	Percent Without Magnesium Administration Documented
< 2 years	27	0	0.0	100.0
2 – 17 years	205	4	2.0	98.0
18 and older	1,814	89	4.9	95.1
Total	2,046	93	4.5	95.5

*Includes documentation of medication administration or relevant pertinent negative.

Table 26. Emergency Responses Among Asthma Patients with Magnesium Administration* by EMS Regional Council, Second Quarter 2024, Virginia

EMS Regional Council	Number Asthma Patients	Number of Patients Receiving Magnesium	Percent With Magnesium Administration Documented	Percent Without Magnesium Administration Documented
Blue Ridge	51	10	19.6	80.4
Central Shenandoah	46	0	0.0	100.0
Lord Fairfax	28	0	0.0	100.0
Northern Virginia	167	4	2.4	97.6
Old Dominion	330	15	4.5	95.5
Peninsulas	183	11	6.0	94.0
Rappahannock	147	4	2.7	97.3
Southwest Virginia	193	0	0.0	100.0
Thomas Jefferson	48	0	0.0	100.0
Tidewater	549	38	6.9	93.1
Western Virginia	300	10	3.3	96.7
Out of State	4	1	25.0	75.0
Total	2,046	93	4.5	95.5

*Includes documentation of medication administration or relevant pertinent negative.