

2021 EMS Data Report

**Bureau of
Emergency Medical
Services**

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pennsylvania
DEPARTMENT OF HEALTH

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Executive Summary

The Pennsylvania Department of Health (Department) Bureau of Emergency Medical Services (Bureau) publishes a statewide data report annually. This end of year report is a continuation of that effort to provide detailed clinical, operational, and workforce data to the public and the Emergency Medical Services (EMS) community pertaining to the Commonwealth of Pennsylvania's EMS system.

In 2021, the EMS system in Pennsylvania was comprised of 1,259 agencies that responded to 2,447,932 calls for service. The overwhelming majority of these calls for services were emergency responses to incident scenes.

As a part of the Department's role in combating the opioid crisis, the Bureau has provided the Opioid Command Center with various reports related to EMS utilization of naloxone and will continue to provide this valuable data to the Interagency Substance Use Response Team. To highlight the EMS role in combating the opioid crisis, in 2021, a total of 20,536 administrations of naloxone on 911 responses by EMS providers were reported to the state EMS data bridge. Of these administrations, the Bureau can identify that there were 15,413 unique patient encounters in which EMS providers administered naloxone.

Recruitment and retention are topics that continue to generate a significant amount of discussion. The Bureau is continuing to provide information on the aggregate characteristics of individuals who are leaving the EMS profession. To demonstrate the ongoing discussion of recruitment and retention, in 2021, a total of 4,053 EMS certifications were not renewed.

To demonstrate this, the highest number of provider certifications to expire by level were those certified as emergency medical technicians (EMTs), totaling 2,606 individuals. Of these 2,606 expired EMT certifications, 43.83 percent are under the age of 30. Retaining younger individuals in the EMS system must be a priority for EMS leaders within the commonwealth.

Despite the rate of attrition and the hardships associated with COVID-19 the commonwealth experienced an overall increase in the number of emergency medical services providers when comparing year end 2020 to year end 2021. This is the second straight year where the year end number of certified EMTs was higher than the previous year.

The accuracy of certain data elements and datasets contained within this report are only as accurate as the information provided by field providers through electronic patient care records (ePCR) systems and to the department's various certification and licensure systems. For example, if an EMS provider only documents the administration

of a medication in the narrative portion of the ePCR, this will not be reflected in datasets reported. The Bureau is aware that the datasets are not perfect but demonstrate a reasonable account of the efficacy of the commonwealth's EMS system.

Commonwealth EMS system leaders at all levels should continue to utilize data for a variety of different decision-making processes, which include policy development and recommendations to regional and state medical advisory committees (MACs) for protocol development. Additionally, this data can be used to address operational and staffing concerns throughout the commonwealth. It is the Bureau's intent that this report serves as a benchmark to help individual agencies and municipalities to assess their EMS system performance against statewide datasets.

If there are questions regarding any of the information contained in this report, please contact the Bureau of Emergency Medical Services.



Aaron M. Rhone, Director
Bureau of Emergency Medical Services

Methods

The Bureau of Emergency Medical Services utilized a variety of sources to obtain the datasets to construct this comprehensive report. Most of the raw data is obtained from the state EMS data bridge. Pursuant to 28 Pa. Code § 1021.8 and § 1021.41, all EMS agencies are required to submit electronic patient care records to this state data bridge. All patient care data collected for the purposes of this report was submitted in the NEMSIS 3.4 standard.

For this report, the Bureau utilized data that has been uploaded to the state data bridge as of January 15, 2022, with an incident date identified between January 1, 2021, to December 31, 2021. Unless otherwise specified with the notation of “emergency records,” the data in this report includes all types of EMS requests for service.

Other sources of data in this report include the National Registry of EMTs, and the Bureau’s EMS certification registry and licensure system, as reported between January 1, 2021, and December 31, 2021.

Quick response service (QRS) agencies are currently exempt from submitting data to the state EMS data bridge and are only required to complete paper PCRs. As a result, information related to calls, interventions, medications, etc., provided by a QRS may not be reflected in this report. This is particularly important to note regarding the naloxone data contained within this report. Naloxone administration from QRS, the public, or law enforcement may not be reflected in this report, unless an EMS transport provider documented the medication as given prior to EMS arrival.

Findings

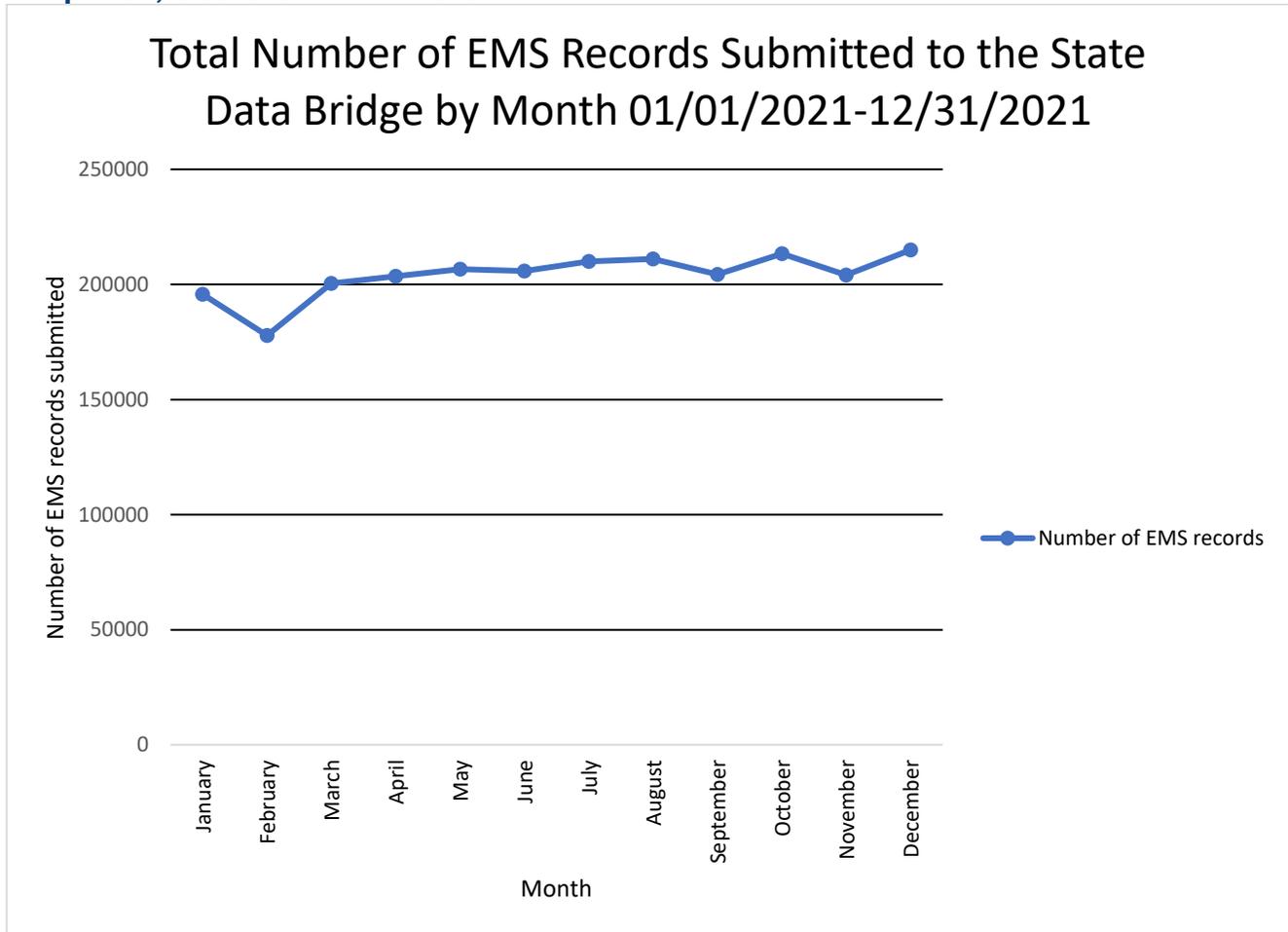
Table 1. EMS Data Summary Figures, 01/01/2021 – 12/31/2021

Metric	Count	% of Total
Type of service requested	2,447,932	
*911 response (scene)	1,822,199	74.43%
*Intercept	18,228	<1%
Interfacility transport	221,479	9.04%
Medical transport	356,144	14.54%
*Mutual aid	12,453	<1%
*Public assistance	4,897	<1%
Standby	7,938	<1%
Total emergency records	1,857,777	75.89%
EMS patients by gender		
Female	1,065,873	52.02%
Male	983,125	47.98%
EMS patients by age		
0 to 17 years	102,526	5%
18 years and older	1,953,503	95%
Cardiac arrests By primary impression “cardiac arrest”	38,278	1.5%
Naloxone administration		
Number of naloxone doses administered (911)	20,536	
Number of 911 encounters with at least 1 dose of naloxone	15,413	

Source: Pennsylvania State EMS Data Bridge, 2022

Note: For the purposes of this report, all types of service requested that have an * notated above are considered as an emergency record, regardless of how a call was received.

Figure 1. Total Number of Records Submitted to the State Data Bridge by Month of EMS Response, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 1 displays the number of records submitted to the state EMS data bridge by month for 2021. For most months the rate of submission was consistent at approximately 200,000 records. The Bureau did observe an acceleration in December of 2021.

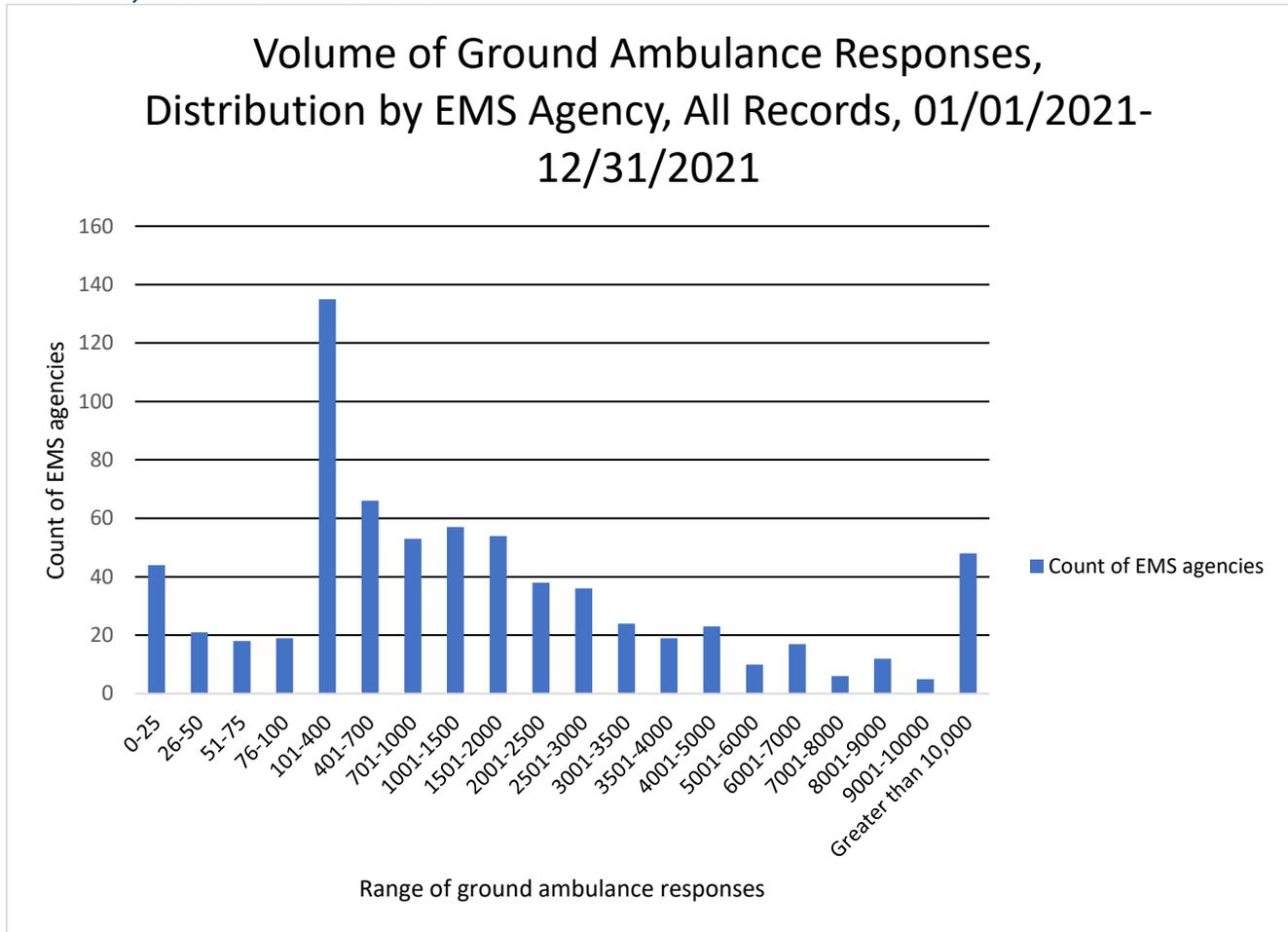
Table 2. EMS Records Submitted by Year, Type of Service Requested, and Regional Council of Incident 2020-2021

Regional Council	2020 Emergency	2020 Non- Emergency	2020 Total	2021 Emergency	2021 Non- Emergency	2021 Total
Bucks County	56,800	17,482	74,282	63,555	19,628	83,183
Chester County	47,114	17,839	64,953	50,502	19,650	70,152
Delaware County	77,641	22,962	100,603	81,084	25,017	106,101
Eastern PA EMS Council	179,695	38,462	218,157	199,301	48,920	248,221
Emergency Health Services Federation	205,244	41,037	246,281	239,404	47,256	286,660
EMMCO West	75,436	21,931	97,367	78,242	23,783	102,025
EMS of Northeastern Pennsylvania	91,702	30,901	122,603	111,281	40,595	151,876
EMS West	362,736	130,256	492,992	398,798	145,653	544,451
LTS EMS Council	26,418	8,927	35,345	28,015	8,383	36,398
Montgomery County	75,935	33,887	109,822	82,173	37,548	119,721
No Incident County Listed Unable to Assign	29,460	15,890	45,350	33,114	8,265	41,379
Philadelphia	293,946	104,268	398,214	317,470	117,912	435,382
Seven Mountains	59,518	21,131	80,649	67,039	19,242	86,281
Southern Alleghenies EMS Council	61,986	17,136	79,122	65,416	16,073	81,489

Source: Pennsylvania State EMS Data Bridge, 2022

Table 2 displays, based on the incident county, by Pennsylvania Regional EMS Council a history of EMS records submitted categorized by service requested type. Responses that occurred out of the state are not captured in this table.

Figure 2. Volume of Ground Ambulance Responses, Distribution by EMS Agency, All Records, 01/01/2021-12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 2 displays the frequency by which EMS agencies responded to a certain number of responses with a ground ambulance. Of the 705 EMS agencies submitting data to the state EMS data bridge, 152 (19 percent) had between 101 and 400 ground ambulance responses in calendar year 2020. 44 EMS agencies (6 percent) responded to 25 or less ground ambulance responses.

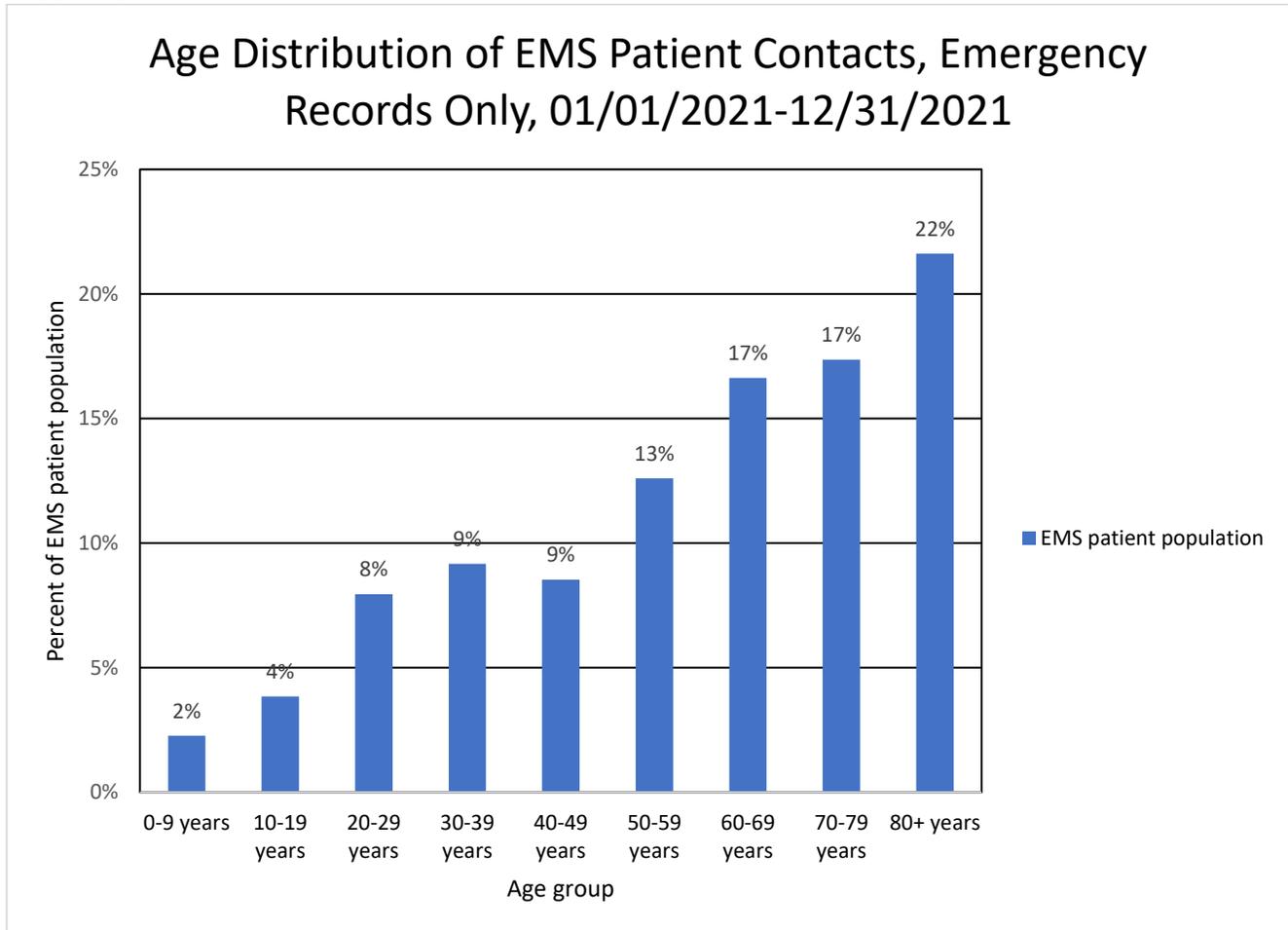
Patient Disposition

Table 3. EMS Incident Disposition Figures, 01/01/2021 – 12/31/2021

Incident/patient disposition	Count of incident disposition	% of incident dispositions
Assist, agency	19,164	0.78%
Assist, public	10,669	0.44%
Assist, unit	20,588	0.84%
Canceled (prior to arrival at scene)	170,344	6.96%
Canceled on scene (no patient contact)	46,275	1.89%
Canceled on scene (no patient found)	126,159	5.15%
Patient dead at scene-no resuscitation attempted (with transport)	546	0.02%
Patient dead at scene-no resuscitation attempted (without transport)	13,614	0.56%
Patient dead at scene-resuscitation attempted (with transport)	92	0.00%
Patient dead at scene-resuscitation attempted (without transport)	9,952	0.41%
Patient evaluated, no treatment/transport required	34,704	1.42%
Patient refused evaluation/care (with transport)	845	0.03%
Patient refused evaluation/care (without transport)	97,988	4.00%
Patient treated, released (AMA)	19,707	0.81%
Patient treated, released (per protocol)	45,928	1.88%
Patient treated, transferred care to another EMS unit	37,341	1.53%
Patient treated, transported by law enforcement	1,309	0.05%
Patient treated, transported by private vehicle	967	0.04%
Patient treated, transported by this EMS unit	1,773,921	72.47%
Standby-no services or support provided	6,248	0.26%
Standby-public safety, fire, or EMS operational support provided	11,451	0.47%
Transport non-patient, organs, etc.	121	0.00%

Source: Pennsylvania State EMS Data Bridge, 2022

Figure 3. Age Distribution of EMS Patient Contacts (Emergency Records), 01/01/2021 – 12/31/2021



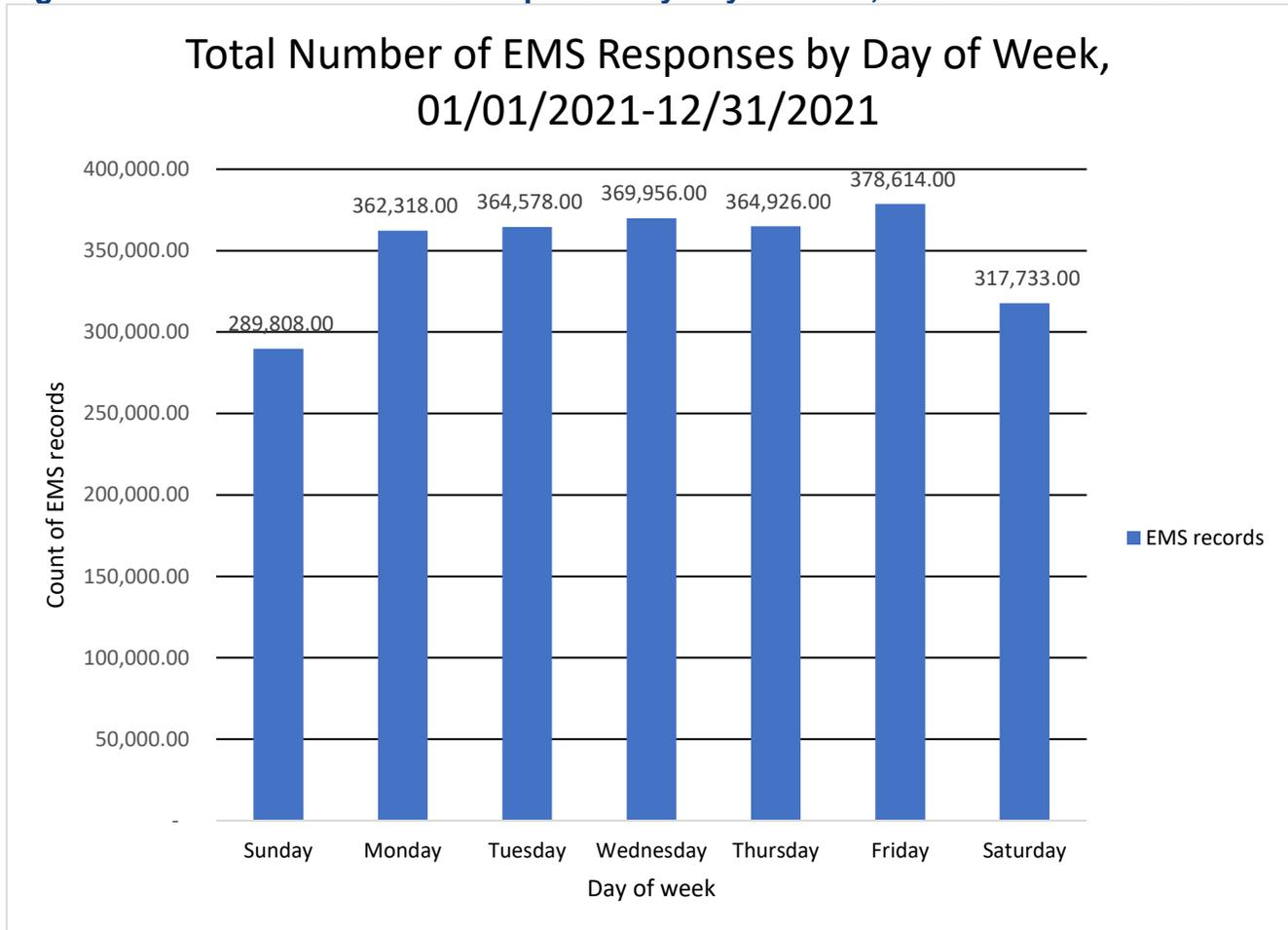
Source: Pennsylvania State EMS Data Bridge, 2022

Figure 3 displays the age demographic by percentage that presents to the EMS system for emergency records. The age group with the highest percentage utilization is 80+ years of age and older. A significant portion of the EMS patient population, 48.12 percent, have reached the medicare eligibility age of 65, which is pertinent to EMS agency administrators for the purposes of evaluating potential payor mix.

The Birth to nine year demographic presented to the EMS system the least. With minimal exposure to pediatric patients, it is important for EMS providers to remain proficient in pediatric patient management. The Bureau encourages EMS agencies to participate in the voluntary pediatric recognition program, in addition to the Pediatric Emergency Care Coordinator (PECC) program.

Operational Deployment

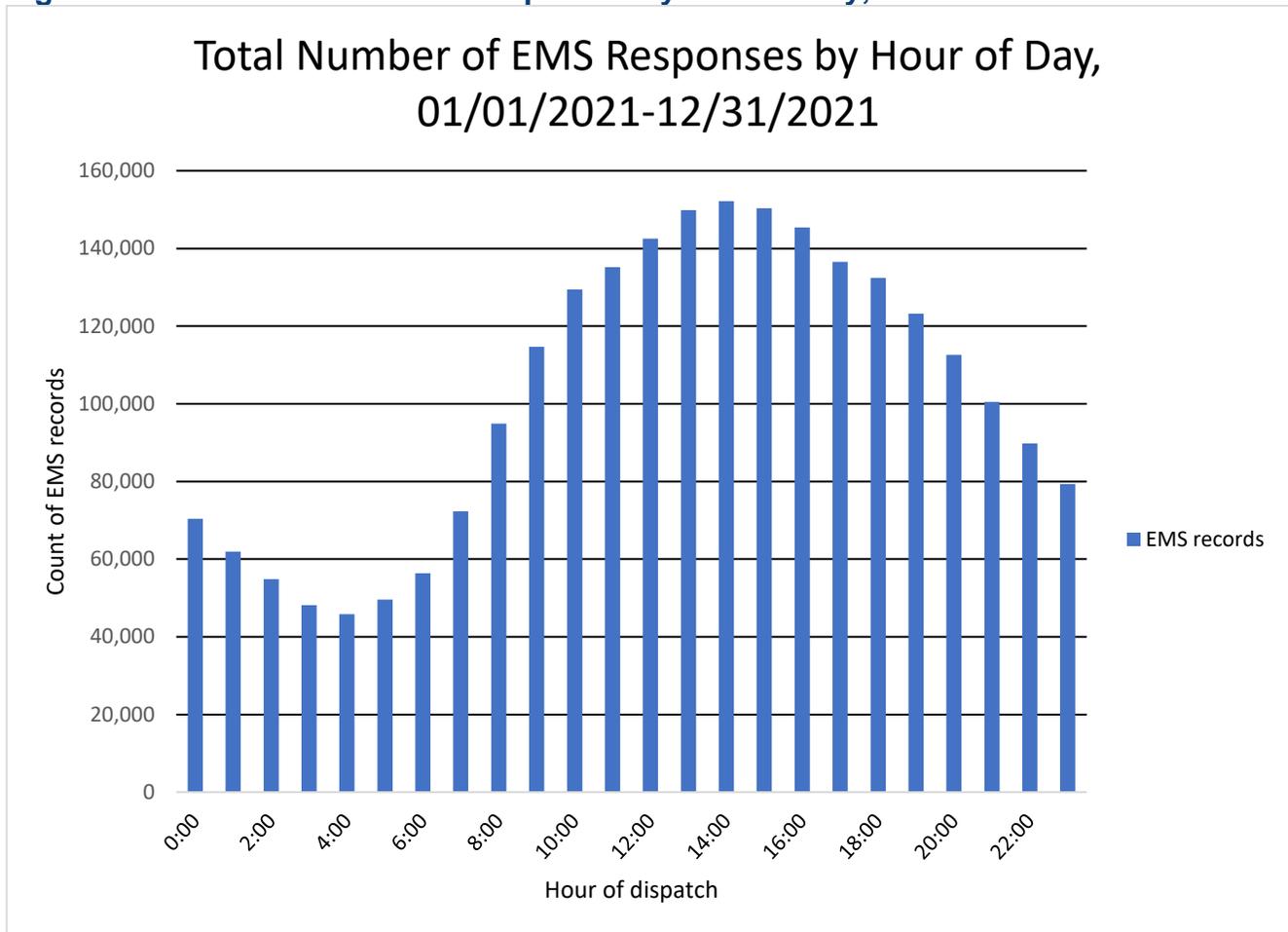
Figure 4. Total Number of EMS Responses by Day of Week, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 4 shows that the number of calls for service by day is consistent from day-to-day. Sunday has the lowest number of requests for service. EMS leaders can utilize this data and local versions of this data to assist with resource deployment decisions.

Figure 5. Total Number of EMS Responses by Hour of Day, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 5 shows the number of EMS responses by hour of day. The hour of day is displayed along with how many EMS calls for service were received during that time frame. There is a peak of requested responses in the early evening hours, before beginning to decrease after the midnight hour, and ultimately picking up again in the noon hour.

Table 4. EMS Responses by Day/Month, 01/01/2021 – 12/31/2021

Day	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5,790	6,139	6,684	6,710	6,263	7,014	7,266	5,476	7,189	7,457	7,124	7,560
2	5,982	6,565	6,553	6,835	5,864	7,054	7,217	6,934	7,466	6,631	6,807	7,738
3	5,578	7,192	6,901	5,713	6,861	6,937	6,053	6,732	7,386	6,033	7,153	7,650
4	7,108	7,149	6,588	5,480	7,138	7,311	5,890	6,992	6,470	7,422	7,168	6,643
5	6,925	7,495	6,667	6,978	6,876	6,654	6,401	7,087	5,990	7,204	7,218	5,783
6	6,889	6,060	5,477	7,261	6,756	6,216	7,167	7,298	6,163	7,351	6,288	7,672
7	6,716	5,274	4,982	7,471	7,030	7,483	7,278	6,319	7,216	7,266	5,737	7,224
8	6,853	6,782	6,468	7,426	5,740	7,148	6,971	5,635	7,297	7,608	7,202	7,453
9	5,657	6,744	6,616	7,287	5,134	7,327	7,256	7,120	6,828	6,185	7,276	7,288
10	5,166	6,694	6,931	6,381	6,853	7,338	6,213	6,939	7,105	5,754	7,142	7,444
11	6,693	6,441	6,867	5,673	6,666	7,067	5,377	7,145	6,513	7,064	7,194	6,278
12	6,578	6,584	7,052	6,877	7,036	6,173	7,162	7,459	5,879	7,179	7,500	5,715
13	6,800	5,859	5,887	7,301	6,999	5,731	7,070	7,565	7,614	7,096	6,124	7,289
14	6,744	5,427	5,213	7,198	7,461	7,018	7,228	6,271	7,402	7,321	5,362	7,372
15	6,852	6,387	6,398	6,782	6,420	6,985	7,196	5,782	7,363	7,907	7,087	7,125
16	5,866	6,566	6,490	7,092	5,440	7,021	7,141	6,862	7,135	6,314	7,234	7,443
17	5,133	6,701	6,910	5,928	7,207	6,991	6,365	6,943	7,384	5,556	7,361	7,329
18	6,393	5,897	6,848	5,624	7,339	7,192	5,700	7,007	6,686	7,137	7,378	6,120
19	6,522	6,943	6,979	7,250	7,529	6,253	7,201	7,191	5,852	7,125	7,142	5,382
20	6,637	5,634	5,722	7,277	7,326	5,939	7,050	7,227	7,166	7,216	6,181	7,239
21	7,062	4,903	5,419	7,050	7,530	7,146	7,084	6,375	7,019	7,322	5,623	7,206
22	6,767	6,639	6,767	6,815	6,504	6,720	6,940	5,738	6,989	7,173	7,355	7,346
23	5,592	6,763	6,984	7,124	6,007	7,079	7,351	7,043	6,865	6,141	7,215	7,183
24	4,959	6,903	6,854	6,031	7,130	7,028	6,231	7,297	7,066	5,609	7,193	6,394
25	6,658	6,876	6,902	5,477	7,239	7,226	5,656	7,456	6,006	7,387	5,672	5,369
26	6,638	6,726	7,383	7,072	7,306	6,345	6,899	7,185	5,470	6,960	6,870	5,825
27	6,706	5,551	6,029	7,419	7,094	5,821	7,139	7,564	7,057	7,213	6,124	7,101
28	6,567	4,936	5,377	7,462	7,016	7,304	7,019	6,224	6,709	7,160	5,731	7,072
29	6,684		6,781	7,401	5,674	7,167	7,099	5,726	6,646	7,309	7,230	7,550
30	5,680		6,877	7,200	5,237	7,200	7,165	7,399	6,394	6,320	7,439	7,451
31	5,565		6,777		5,912		6,214	7,087		5,952		6,742

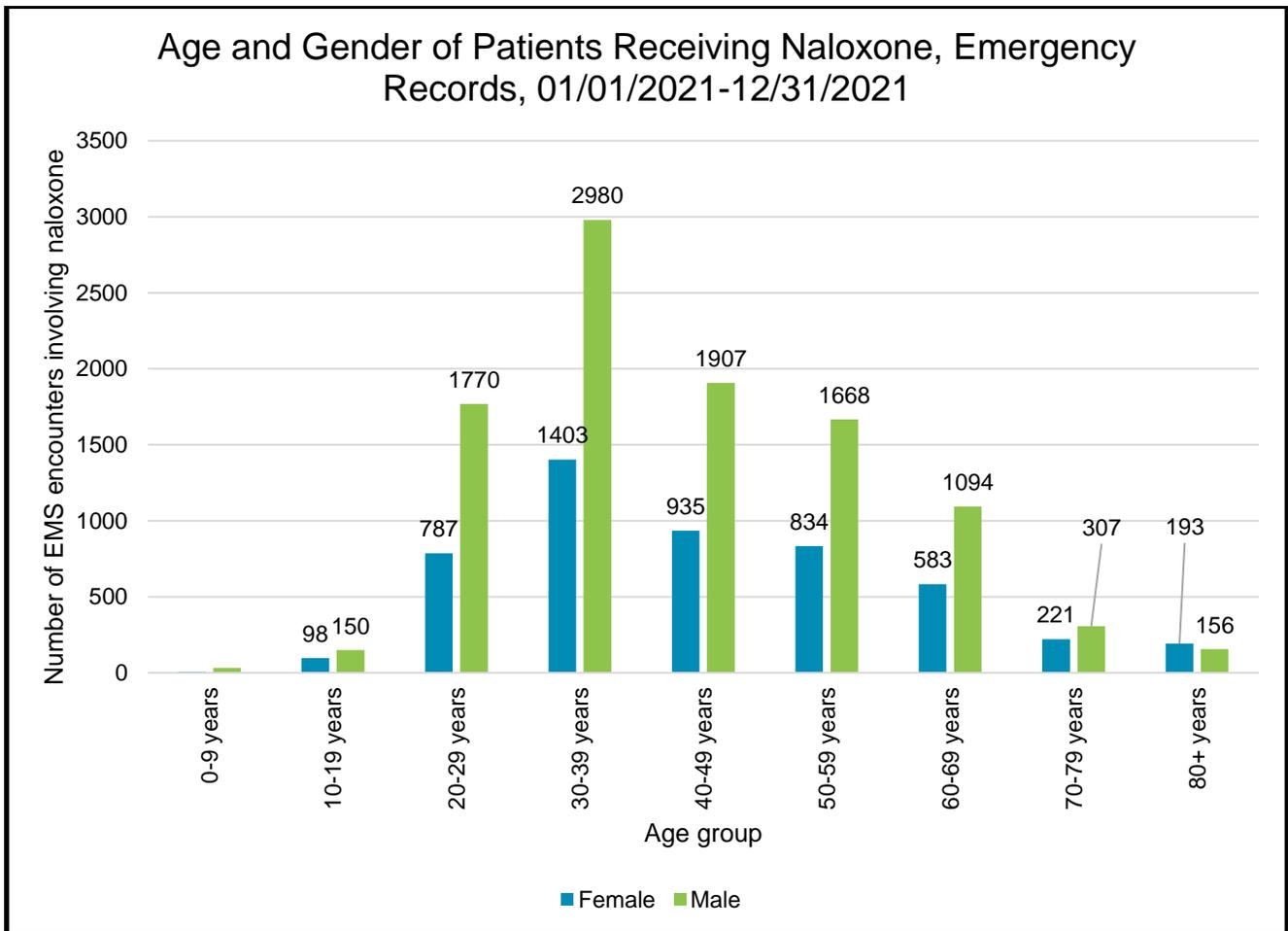
Source: Pennsylvania State EMS Data Bridge, 2022

Table 4 displays the total number of EMS responses by day and month based on values provided in the date/time unit dispatched field.

Map 1 on the following page displays by county the rate of ground ambulance activations for all call types adjusted for population.

Drug, Alcohol, and Toxicity

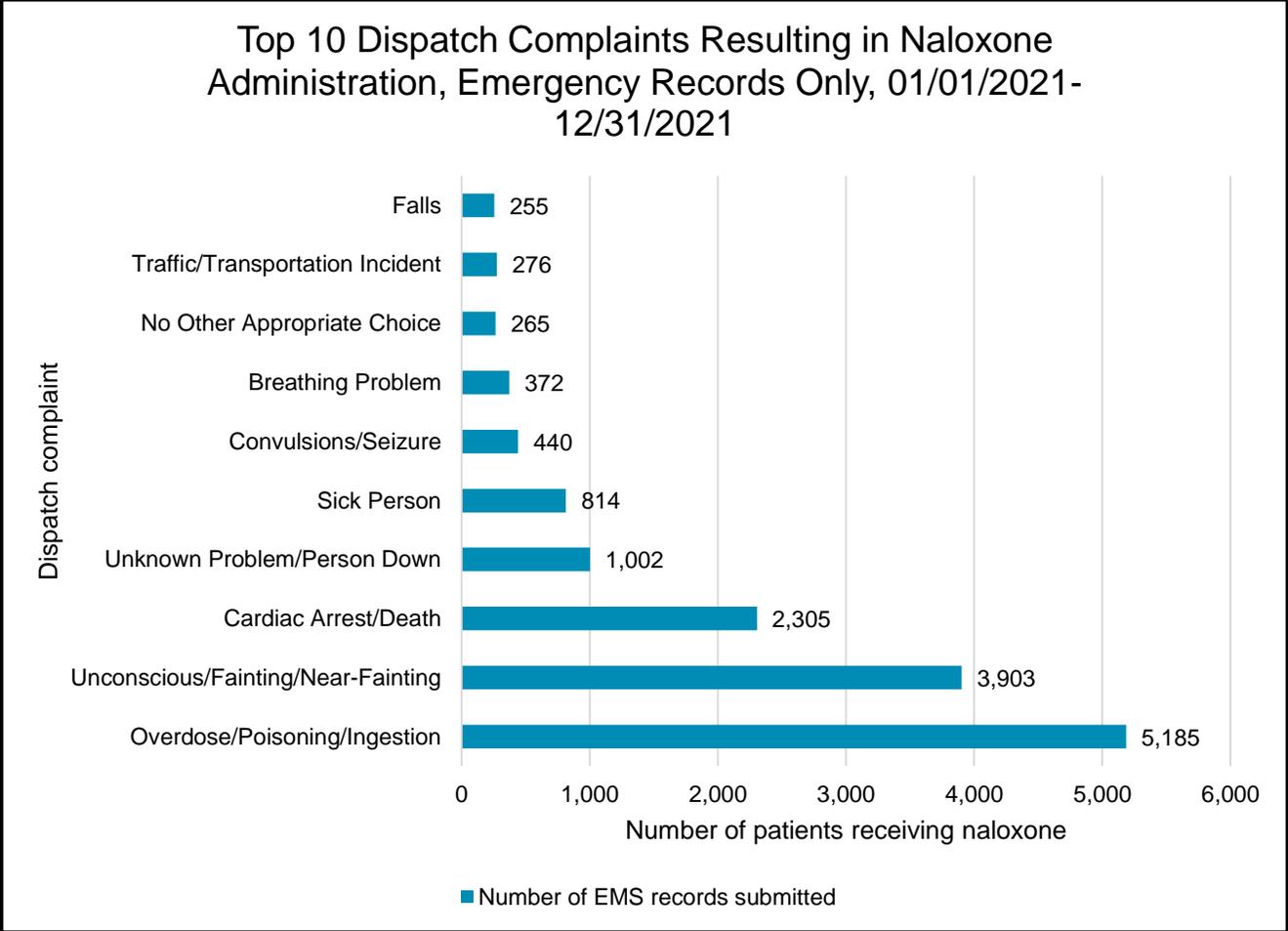
Figure 6. Age and Gender of Patients Receiving a Dose of Naloxone, Emergency Records Only, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 6 shows that males in the 30-39 year age group are the most likely to be administered a dose of naloxone, compared to all other groups. This information is of particular importance to EMS and public health leaders alike in further refining the response to the opioid crisis.

Figure 7. Top 10 Dispatch Complaints Resulting in Naloxone Administration, Emergency Records, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 7 above displays the top 10 complaints reported by dispatch that ultimately resulted in naloxone administration by EMS.

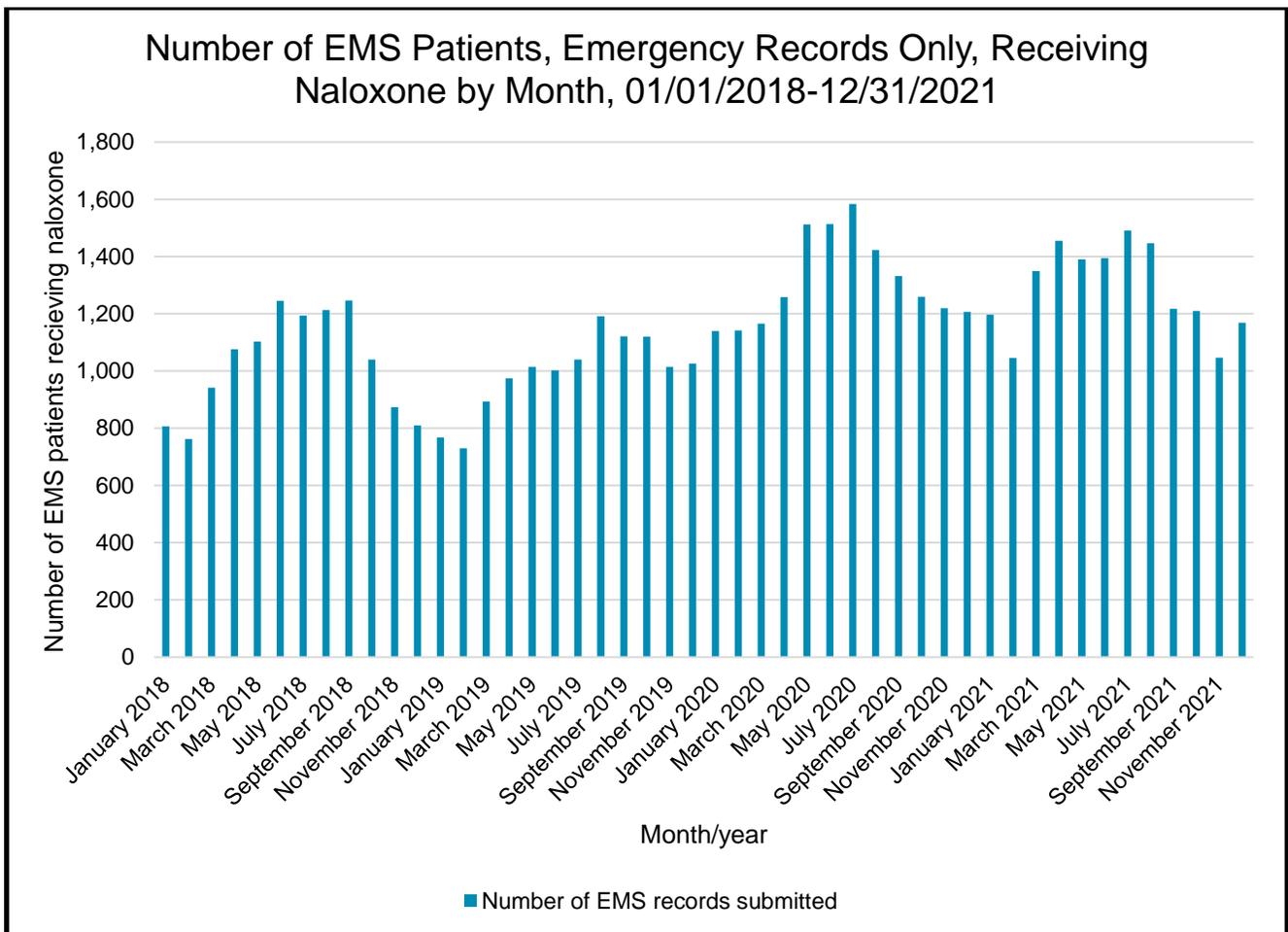
Table 5. Reported Incident Location Type of Emergency Records Resulting in Naloxone Administration, 01/01/2021 – 12/31/2021

Incident location type	% of incident location
Single-family (private) house as the place of occurrence of the external cause	35.79%
Unspecified street and highway as the place of occurrence of the external cause	17.14%
Other non-institutional residence as the place of occurrence of the external cause	14.87%
Not Recorded	14.49%
Bank as the place of occurrence of the external cause	4.59%
Other specified places as the place of occurrence of the external cause	4.26%
Apartment as the place of occurrence of the external cause	2.79%
Car as the place of occurrence of the external cause	1.33%
Sidewalk as the place of occurrence of the external cause	1.14%
Courthouse as the place of occurrence of the external cause	0.80%
Prison as the place of occurrence of the external cause	0.57%
Nursing home as the place of occurrence of the external cause	0.53%
Public park as the place of occurrence of the external cause	0.48%
Health care provider office as the place of occurrence of the external cause	0.36%
Unspecified residential institution as the place of occurrence of the external cause	0.19%
Other ambulatory health services establishments as the place of occurrence of the external cause	0.14%
Art Gallery as the place of occurrence of the external cause	0.12%
Patient room in hospital as the place of occurrence of the external cause	0.10%
Building [any] under construction as the place of occurrence of the external cause	0.10%
Religious institution as the place of occurrence of the external cause	0.06%
Basketball court as the place of occurrence of the external cause	0.05%
Daycare center as the place of occurrence of the external cause	0.05%
Barn as the place of occurrence of the external cause	0.03%
Urgent care center as the place of occurrence of the external cause	0.02%
Ambulatory surgery center as the place of occurrence of the external cause	0.01%

Source: Pennsylvania State EMS Data Bridge, 2022

Table 5 displays the reported incident location where a patient received a dose of naloxone administered by EMS providers. Approximately 35 percent of patient encounters of this type occurred in a private residence. Significant progress was made in documentation related to incident location type. Only 15% were reported as Not Recorded, this is an improvement by 20% from previous years. By continuing to increase the accuracy of this measurement and active tracking of this metric, EMS can assist in the improvement of public health during the opioid crisis. This will allow public health partners, local officials, and the Department to better focus local and regional needs for public access naloxone deployment.

Figure 8. Number of EMS Patients, Emergency Records Only, Receiving Naloxone by Month, 01/01/2018 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 8 displays the number of EMS patients, where a patient received a dose of naloxone administered by an EMS provider. This data is categorized by month and covers a period of January 2018 through December 2021. The frequency has ranged from a high of 1,584 patients in July of 2020 to a low of 730 in February 2019.

Map 2 on the following page displays the count of unique emergency patient records by the incident county, which contained at least one administration of naloxone. Counties that had less than 5 reported had values redacted in accordance with Bureau reporting policies and to protect patient privacy.

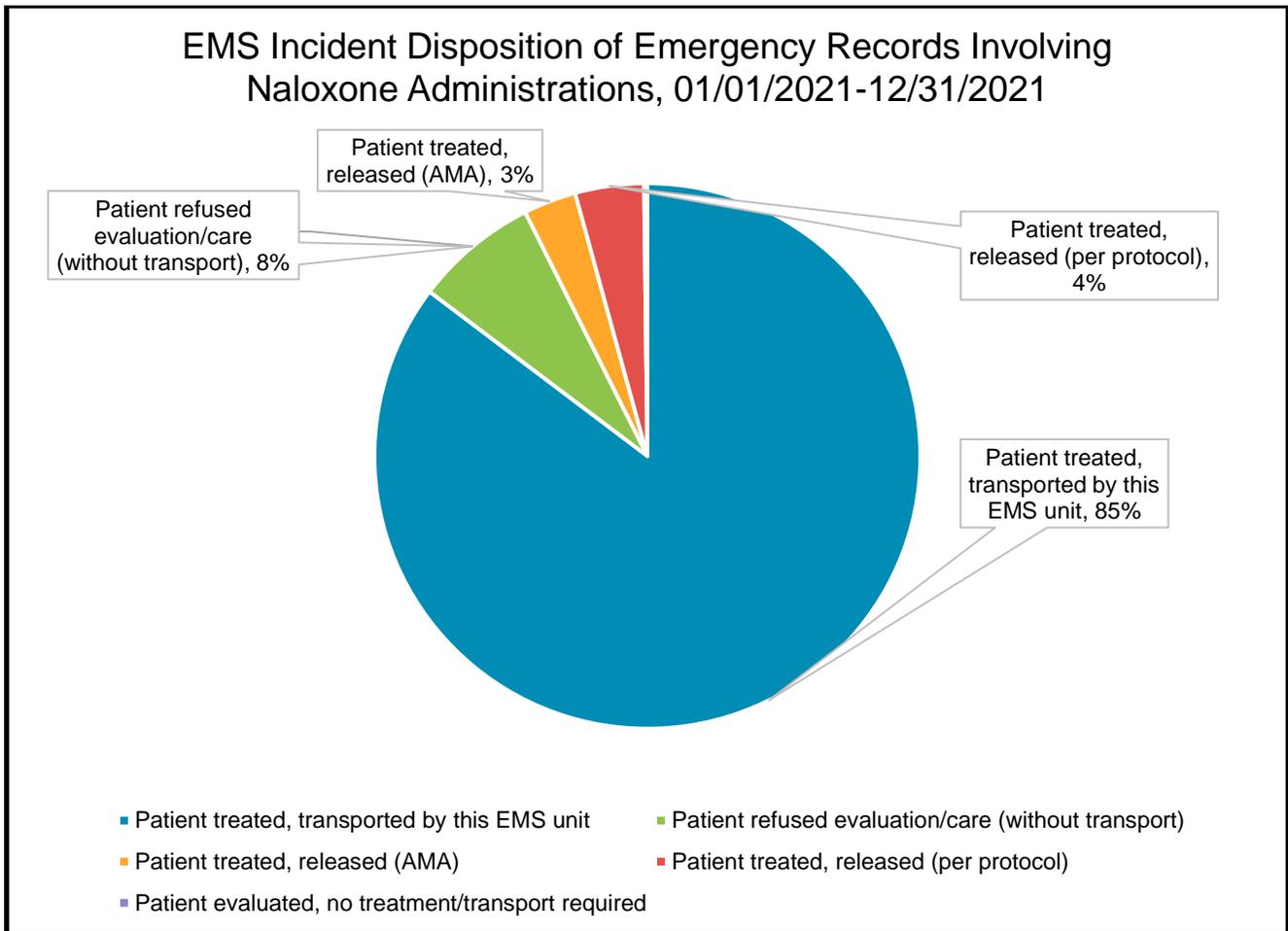
Table 6. Number of EMS Patients, Emergency Records Only, by Regional EMS Council Receiving Naloxone by Year, 01/01/2018 – 12/31/2021

Regional Council	2018	2019	2020	2021
Seven Mountains	207	212	291	288
Bucks County	693	631	751	562
Chester County	232	239	262	246
Delaware County	637	605	742	586
Eastern PA EMS Council	1070	1382	1791	1,938
Emergency Health Services Federation	545	675	2031	1,807
EMMCO West	580	610	729	724
EMS West	2688	2783	3350	3,344
LTS EMS Council	146	134	150	122
Montgomery County	418	351	689	615
EMS of Northeastern Pennsylvania	847	593	792	1,050
Philadelphia	3582	2983	3190	3,025
Southern Alleghenies EMS Council	343	417	599	613
No Incident County Listed Unable to Assign	224	178	214	289

Source: Pennsylvania State EMS Data Bridge, 2022

Table 6 summarizes the historical number of emergency related EMS records, aggregated by Pennsylvania Regional EMS Council that resulted in naloxone administration. Caution should be made in inferring significant increases in naloxone use when there was an inexplicable spike, particularly when comparing 2019 to 2020. There were certain areas of the commonwealth where the department is aware of underreporting of EMS incidents for calendar year 2019, as a result year to year comparisons at a regional level should be approached with a level of caution.

Figure 9. EMS Incident Disposition of Emergency Records Involving Naloxone Administration, 01/01/2021 – 12/31/2021

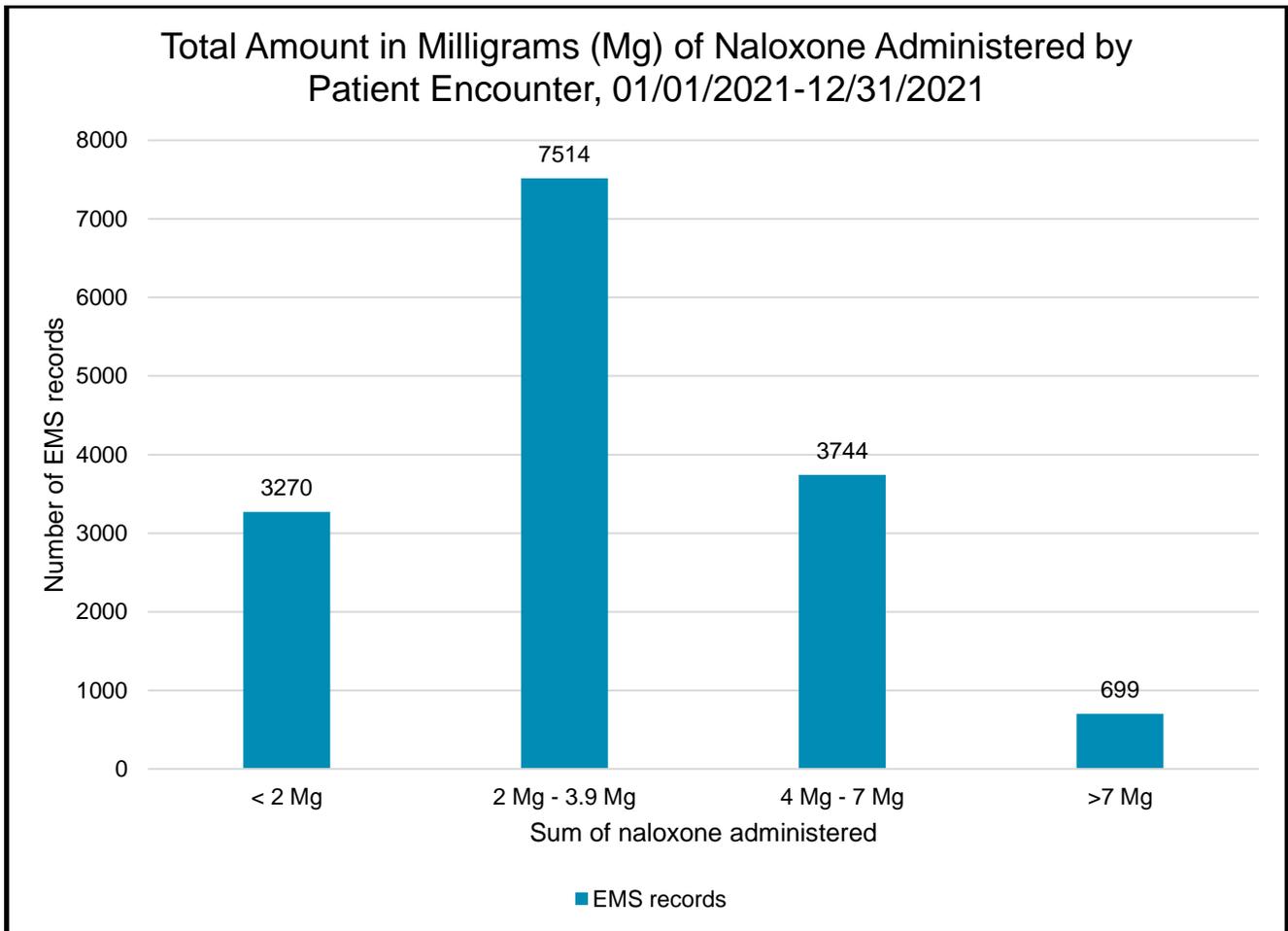


Source: Pennsylvania State EMS Data Bridge, 2022

Figure 9 above displays the transport rate for patients who received at least one dose of naloxone in the emergency out of hospital setting by month from January of 2021 through December of 2021.

Tracking of this metric can assist state, regional, and local leaders in identifying opportunities for participation in the EMS naloxone leave-behind program endorsed by the Department and the Bureau. The increase in effectiveness of data reporting in NEMSIS 3.4 not only allows stakeholders to better respond to the opioid crisis but also to greatly improve other aspects of public health as well.

Figure 10. Total Amount in Milligrams (Mg) of Naloxone Administered by Patient Encounter, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 10 represents the number of EMS patient encounters categorized by the cumulative dose of naloxone that a patient received. Only patient records that had medication dosage units reported in milligrams were included in this analysis. Seventy percent of patients received a cumulative dose of naloxone of 3.9 Mg or less. 4.5 percent of EMS patients required more than 7 Mg of naloxone. 15,227 patient interactions were considered in this analysis

Table 7. Heat Map of total Naloxone Administrations by Day of Week and Hour, Emergency Records, 01/01/2021 – 12/31/2021

Hour	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
0:00	101	71	89	79	83	107	95
1:00	86	71	67	65	69	70	94
2:00	77	49	58	60	77	77	77
3:00	61	36	53	50	48	62	69
4:00	50	29	33	36	59	46	60
5:00	39	29	49	49	34	47	48
6:00	53	33	42	60	55	59	57
7:00	52	54	44	51	45	58	62
8:00	51	49	54	64	71	68	56
9:00	56	70	56	57	68	72	81
10:00	55	70	73	87	71	65	81
11:00	90	78	83	105	96	91	110
12:00	92	82	94	111	94	97	121
13:00	104	114	92	120	109	114	111
14:00	114	108	99	105	105	112	114
15:00	113	107	108	120	115	135	112
16:00	110	117	111	135	138	139	126
17:00	122	127	122	145	140	138	142
18:00	113	129	116	117	137	151	129
19:00	110	137	146	135	119	165	132
20:00	110	118	136	123	129	143	127
21:00	110	129	110	131	144	136	139
22:00	99	108	108	127	110	155	123
23:00	95	103	85	97	118	133	135

Source: Pennsylvania State EMS Data Bridge, 2022

Table 7 displays, via the heatmap method, naloxone administrations by EMS providers on emergency response calls. The day of week and time were extracted from the date and time that the EMS unit was dispatched. Shades of red and orange represent the highest number of doses, whereas shades of yellow and green represent lower numbers. The number of occurrences is included within the table for reference. Friday nights in the 7 P.M. hour had the highest number of EMS patient encounters resulting in naloxone administration by EMS.

Clinical Markers

Table 8. Top 25 EMS Provider Primary Impression, All Records, 01/01/2021 – 12/31/2021

Providers primary impression	Count of providers primary impression
Not reported	447,907
Weakness	189,145
Generalized abdominal pain	152,795
Acute pain due to trauma	73,233
Syncope and collapse	68,171
Injury, unspecified, initial encounter	65,534
Altered mental status, unspecified	57,916
Encounter for general adult medical examination without abnormal findings	48,711
Acute pain, not elsewhere classified	46,913
Injury, unspecified	40,969
Acute respiratory distress syndrome	37,888
Altered mental status	36,203
Other chest pain	32,058
Mental disorder, not otherwise specified	30,496
Encounter, adult, no findings or complaints	30,452
Respiratory distress, acute	28,107
Respiratory disorder, unspecified	26,029
Other malaise	21,438
Chest Pain, Other [non-cardiac]	19,908
Cardiac arrhythmia, unspecified	17,204
Other coronavirus as the cause of diseases classified elsewhere	15,847
Respiratory disorder	15,653
Malaise	14,089
Other reduced mobility	14,014
Sedative, hypnotic or anxiolytic abuse, uncomplicated	13,535

Source: Pennsylvania State EMS Data Bridge, 2022

Table 8 displays the top 25 provider primary impressions for all EMS calls for service between January 1, 2021, and December 31, 2021. Accurate reporting of primary impression creates an accurate picture as to the clinical severity and demographic of the patient population. Information such as this can help drive protocol development in the future.

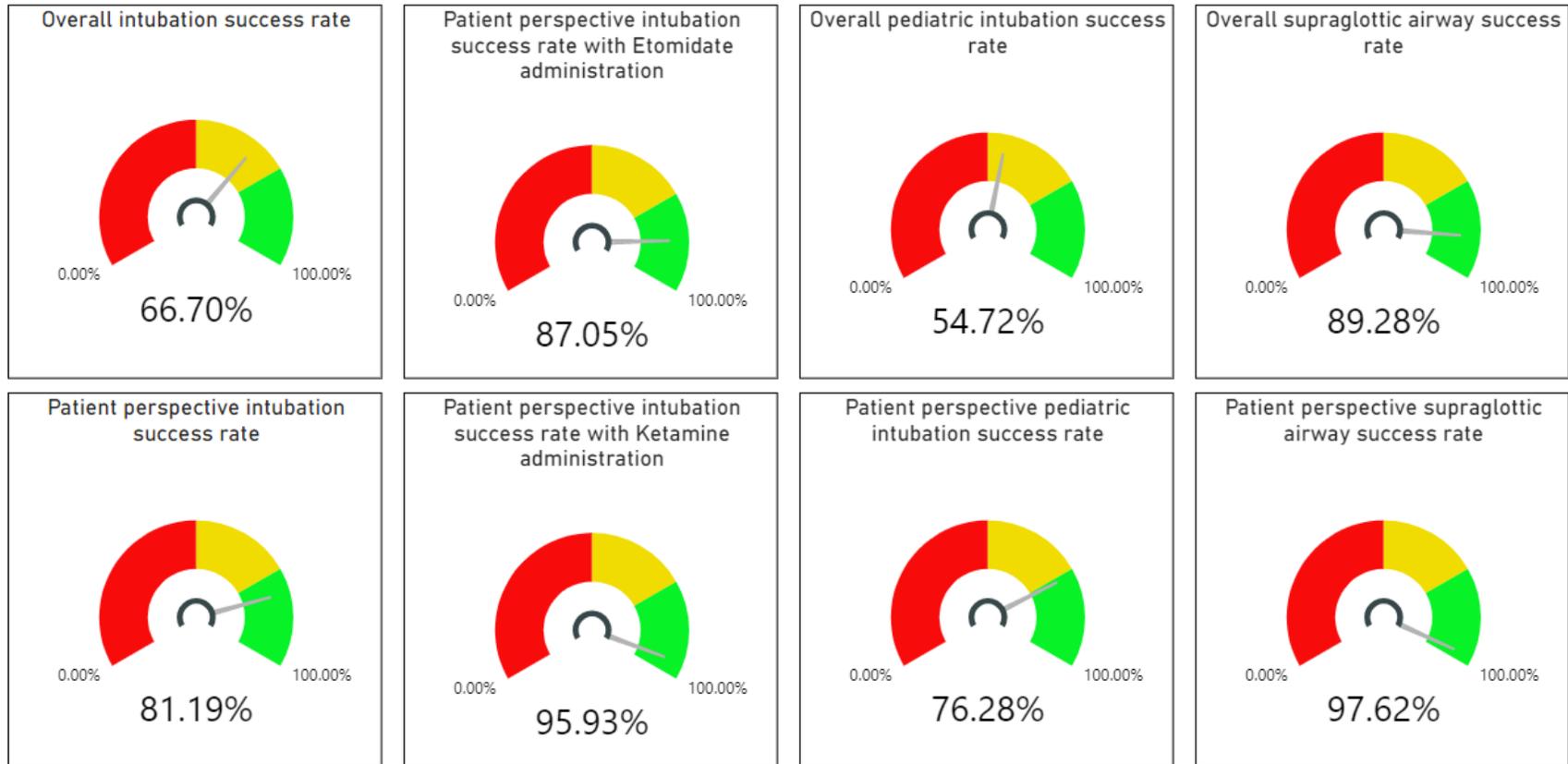
Figure 11 on the following page displays the success rates for advanced airway management conducted by advanced life support (ALS) providers. These statistics were compiled from all record types including 911 and interfacility transfers. ALS services are encouraged to utilize this data to benchmark their agencies' performances against that of the commonwealth. Proficiency in these procedures is indicative of safe and quality pre-hospital care.

Where the term overall is utilized, this number is calculated by taking the total number of successes and dividing by the total number of attempts. Where the term patient perspective is used, this number is calculated by taking the number of patients for whom the procedure was successful (regardless of number of attempts) and dividing it by the total number of patients who had the procedure performed.

In measures where a specific medication is specified, the results were further filtered to only include those results where that medication was properly documented as being administered.

For pediatric measures, those records were restricted to patients with ages listed less than 16 years of age.

Figure 11. Advanced Airway Dashboard, 01/01/2021 – 12/31/2021

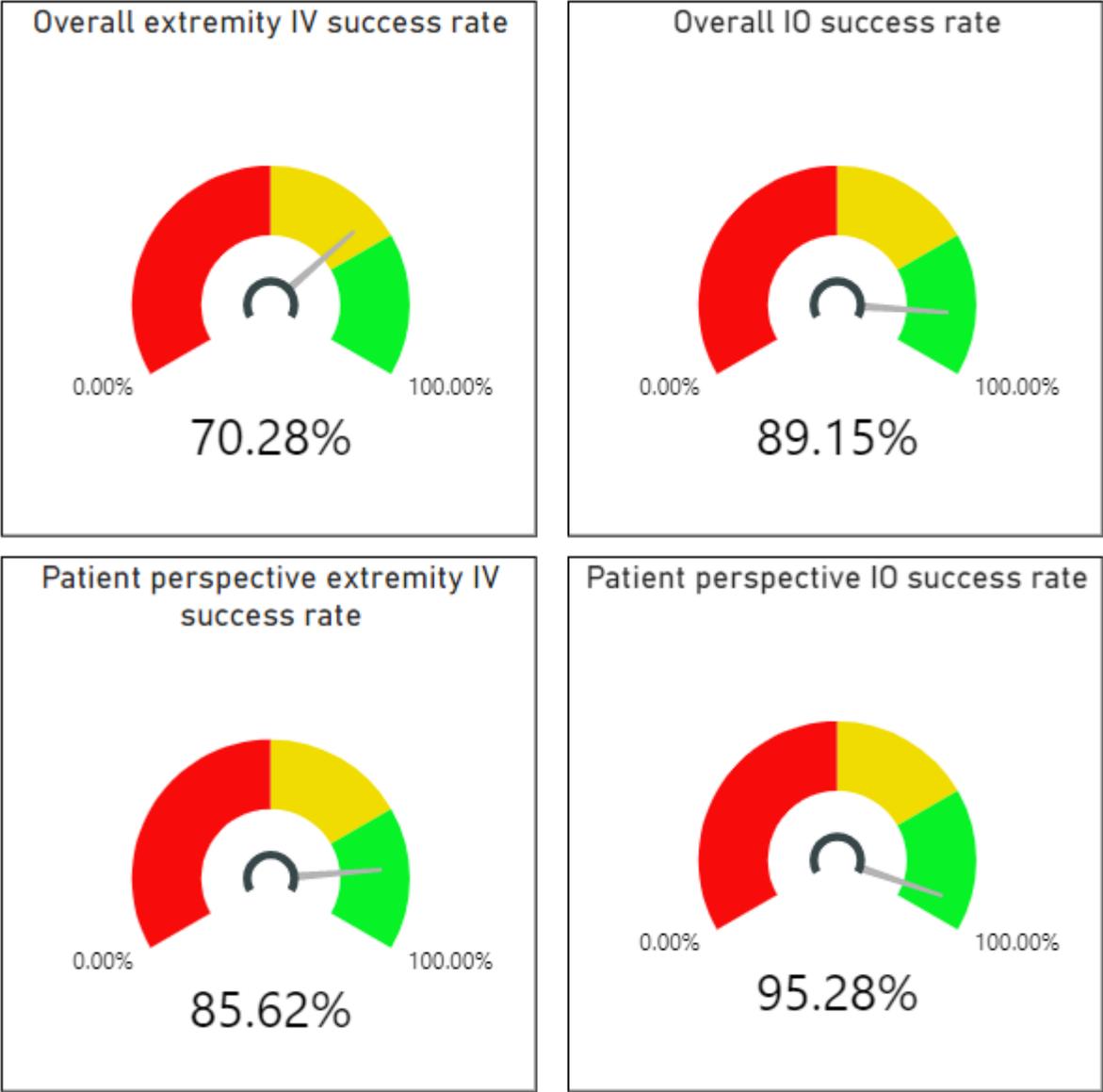


Source: Pennsylvania State EMS Data Bridge, 2022

Figure 12 on the following page displays the success rates for vascular access by ALS providers. These statistics were compiled from all record types including 911 and interfacility transfers. ALS services are encouraged to utilize this data to benchmark their agencies' performances against that of the commonwealth. Proficiency in these procedures is indicative of safe and quality pre-hospital care.

Where the term overall is utilized, this number is calculated by taking the total number of successes and dividing by the total number of attempts. Where the term patient perspective is used, this number is calculated by taking the number of patients for whom the procedure was successful (regardless of number of attempts) and dividing it by the total number of patients who had the procedure performed.

Figure 12. Vascular Access Dashboard, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figures 13 and 14 on the following pages display various clinical performance benchmarks. These statistics were calculated using only emergency records. EMS agencies can utilize these statewide averages as a way to benchmark their performance.

Evidence-based standards state that for STEMIS's and strokes EMS scene times should be kept to a minimum. Timely transport to definitive care is the most effective treatment for these tow conditions. Industry goals for ST segment elevated myocardial infarction (STEMI) and stroke scene times are 15 minutes or less.

Figure 13. Chest Pain/STEMI Report, All Records, 01/01/2021 – 12/31/2021



90th percentile scene time, STEMI's, emergency records, ground ambulances only



Average dispatch to hospital arrival, STEMI's, emergency records, ground ambulances only

Source: Pennsylvania State EMS Data Bridge, 2022

Figure 14. Stroke Report, Emergency Records, 01/01/2021 – 12/31/2021



90th percentile scene time, stroke, emergency records, ground ambulances only



Average dispatch to hospital arrival, stroke, emergency records, ground ambulances only

Source: Pennsylvania State EMS Data Bridge, 2022

Table 9. Medication Administration, Emergency Records Only, 01/01/2021 – 12/31/2021

Medication given	Total count of administrations
Acetaminophen (e.g., Tylenol, Anacin)	2,439
Activase	26
Adenosine (e.g., Adenocard)	2,662
Albuterol (e.g., Proventil, Ventolin, AccuNeb)	24,093
Albuterol/ipratropium (e.g., Combivent, Duoneb)	8,476
Alteplase (e.g., Activase)	22
Amiodarone (e.g., Cordarone)	1,862
Aspirin	42,197
Atropine	2,551
Atrovent	1,434
Calcium chloride	665
Captopril (e.g., Capoten)	15
Cefazolin	105
Cefazolin sodium	9
D10 (dextrose 10% per 250 ml)	5,267
D10 (dextrose 10% per 500 ml)	37
D25 (dextrose 25%)	103
D5 injectable solution (dextrose 5%)	194
D50 (dextrose 50% solution)	882
Dexamethasone (e.g., Decadron)	170
Diazepam (e.g., Valium)	478
Diltiazem (e.g., Cardizem)	1,866
Diphenhydramine (e.g., Bendadryl)	3,621
Dopamine	117
Enalapril (e.g., Vasotec)	16
Epi 1:1,000 (epinephrine 1 mg/ml)	4,366
Epi 1:10,000 (epinephrine 0.1 mg/ml)	48,000
Epinephrine auto-injector, adult (0.3 ml of epi 1.0 mg/ml)	50
Epinephrine auto-injector, junior (0.3 ml of epi 0.5 mg/ml)	40
Epinephrine, Racemic HCl	72
Esmolol (e.g., Brevibloc)	5
Etomidate (e.g., Amidate)	588
Fentanyl	28,770
Furosemide (e.g., Lasix)	53
Glucagon	1,832

Medication given	Total count of administrations
Glucose oral gel (e.g., Glucose, Insta-Glucose)	4,120
Heparin	140
Ibuprofen (e.g., Advil)	41
Ipratropium (e.g., Atrovent)	1,077
Ketamine (e.g., Ketalar)	1,739
Ketorolac (e.g., Toradol)	3,291
Labetalol (e.g., Normodyne)	37
Lactated Ringers (e.g., LR, RL)	1,013
Lidocaine	1,494
Lorazepam (e.g., Ativan)	2,925
Magnesium sulfate	950
Methylprednisolone (e.g., Solu-Medrol)	10,859
Metoprolol (e.g., Lopressor)	6
Midazolam	10,179
Morphine	2,761
Naloxone (e.g., Narcan)	20,536
Nicardipine (e.g., Cardene)	48
Nitroglycerin	40,214
Nitrous oxide	83
Norepinephrine (e.g., Levophed)	185
Ondansetron (e.g., Zofran)	44,329
Oxytocin (e.g., Pitocin)	11
Phenylephrine (e.g., Sudafed, Neo-Synephrine)	76
Propofol (e.g., Diprivan)	47
Rocuronium (e.g., Zemuron)	566
Sodium bicarbonate	1,614
Sodium chloride 3% injectable solution (NaCl 3%)	72
Succinylcholine (e.g., Anectine)	225
Terbutaline (e.g., Breathine)	1,121
Tetracaine (e.g., Altacaine)	10
Vancomycin	13
Vasopressin	53
Vecuronium (e.g., Norcuron)	57
Verapamil	88
Zosyn	9

Source: Pennsylvania State EMS Data Bridge, 2022

Table 9 displays the number of medication administrations by EMS providers during an emergency record type call. Normal saline and oxygen were excluded. In addition, any

medication that had less than 5 administrations was excluded from publishing. This table also reflects any medications administered and documented by an air ambulance on a scene flight.

Table 10 on the following pages display the frequency with which an EMS procedure was performed on an emergency record type EMS call. These procedures are unduplicated counts, which means that, even if a procedure was performed on a single patient multiple times, it was only counted once. Finally, it is not indicative of a successful completion of the procedure; it only captures the number of patients on which a procedure was attempted. Any procedure that had less than 5 attempts was excluded from publishing. This table also reflects any procedures performed and documented by an air ambulance on a scene flight.

Table 10. Procedure Counts, Emergency Records Only, 01/01/2021 – 12/31/2021

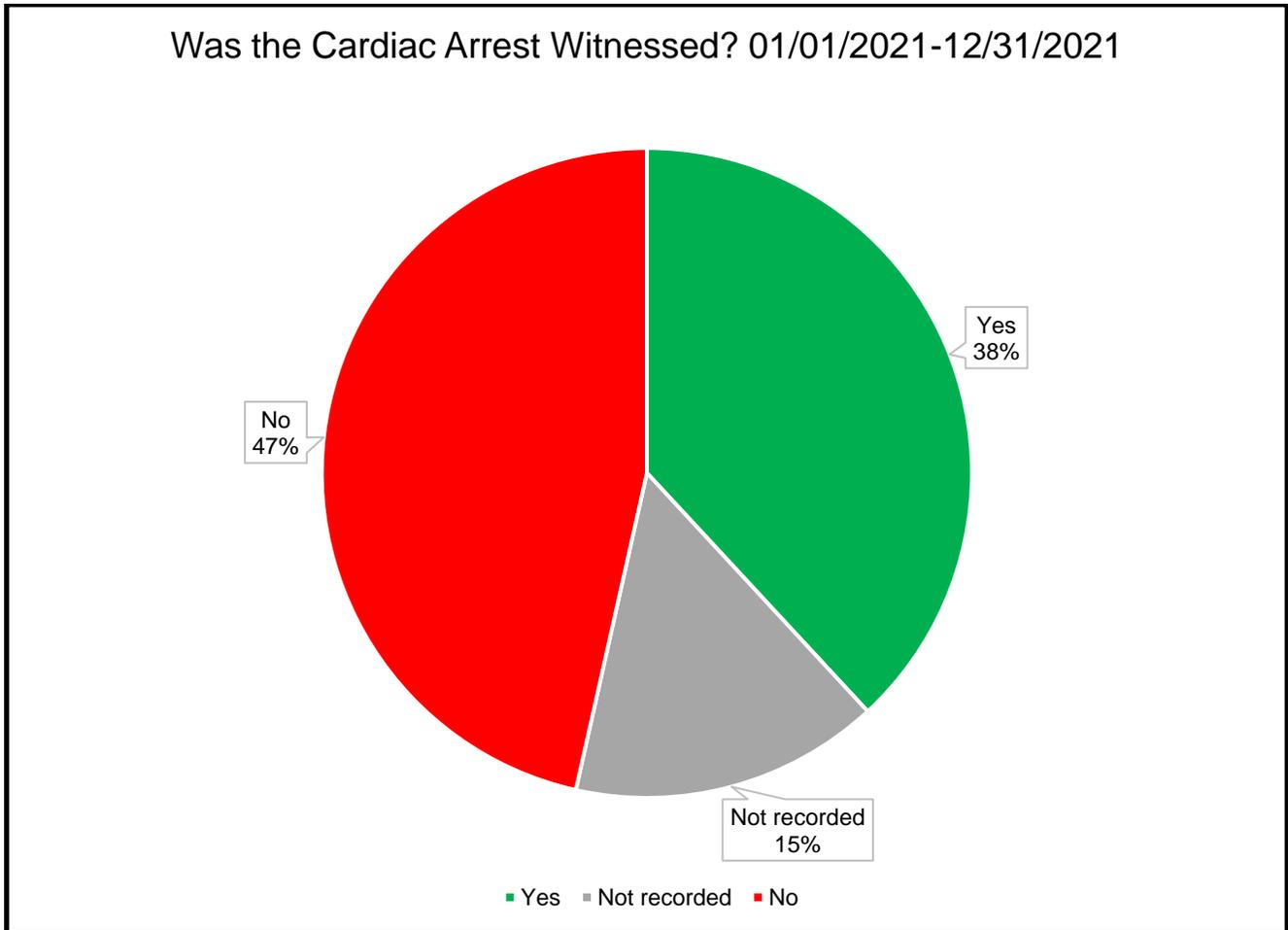
Procedure	Number of patients
12- lead ECG obtained	196,078
15-lead ECG obtained	118
3-lead ECG obtained	80,982
Airway device removal	52
Airway opened	370
Artery, insertion of catheter (unspecified)	14
Assisted ventilations (via mask)	8,126
Assisted ventilations (via tube)	863
BiPAP	18
Blood product, unspecified	34
Burn care	428
Cardioversion	349
Central line care	12
Cervical collar applied	8,412
Chest compressions (mechanical device)	5,570
Childbirth	169
CPAP	7,828
CPR, manual	3,491
Cricothyrotomy, surgical	17
C-spine stabilization, manual	128
Decontamination	45
Defibrillation, AED	90
Defibrillation, manual	1,063
ETCO2 digital capnography	1,920
Eye irrigation	43
Foreign body removal	74
Heimlich maneuver	109
Hemostatic agent	94
Hypothermia induction therapy	16
Immobilization using long board	3,493
Immobilization using short extrication splint	73
Impedance threshold device	17
Induction, rapid sequence	22
Intracranial pressure monitoring	107
Intubation, nasal	108
Intubation, oral	5,727
IO cannulation	7,377
Laryngeal mask airway insertion	847
Laryngoscopy, direct	229
Laryngoscopy, indirect (e.g. video laryngoscopy)	1,035

Procedure	Number of patients
Left ventricular assist device care	13
Mouth-to-mask/mouth ventilation	5
Nasal airway insertion	4,929
Nasogastric tube insertion	38
Needle decompression	352
Occlusive dressing	104
Oral airway insertion	2,977
Orogastric tube insertion	114
Orthostatic vital signs	906
Pacing, cardiac	764
Patient cooling (cold pack or general)	2,694
Patient warming (warm pack or general)	594
Precordial thump	17
Pressure dressing	386
Restraint applied, chemical	17
Restraint applied, physical	4,895
Spinal immobilization, cervical	11,147
Spinal immobilization, full	19,662
Splinting, general	3,101
Splinting, pelvic binder/sling	132
Splinting, traction	2,704
Suction airway	5,006
Supraglottic airway insertion (double lumen)	1,749
Supraglottic airway, single lumen (i.e. King)	433
Tourniquet	306
Vagal maneuver	555
Vein, blood draw	15,633
Vein, catheter removal	188
Vein, external jugular	154
Vein, extremity	359,287
Ventilator care and adjustment	479

Source: Pennsylvania State EMS Data Bridge, 2022

Cardiac Arrest

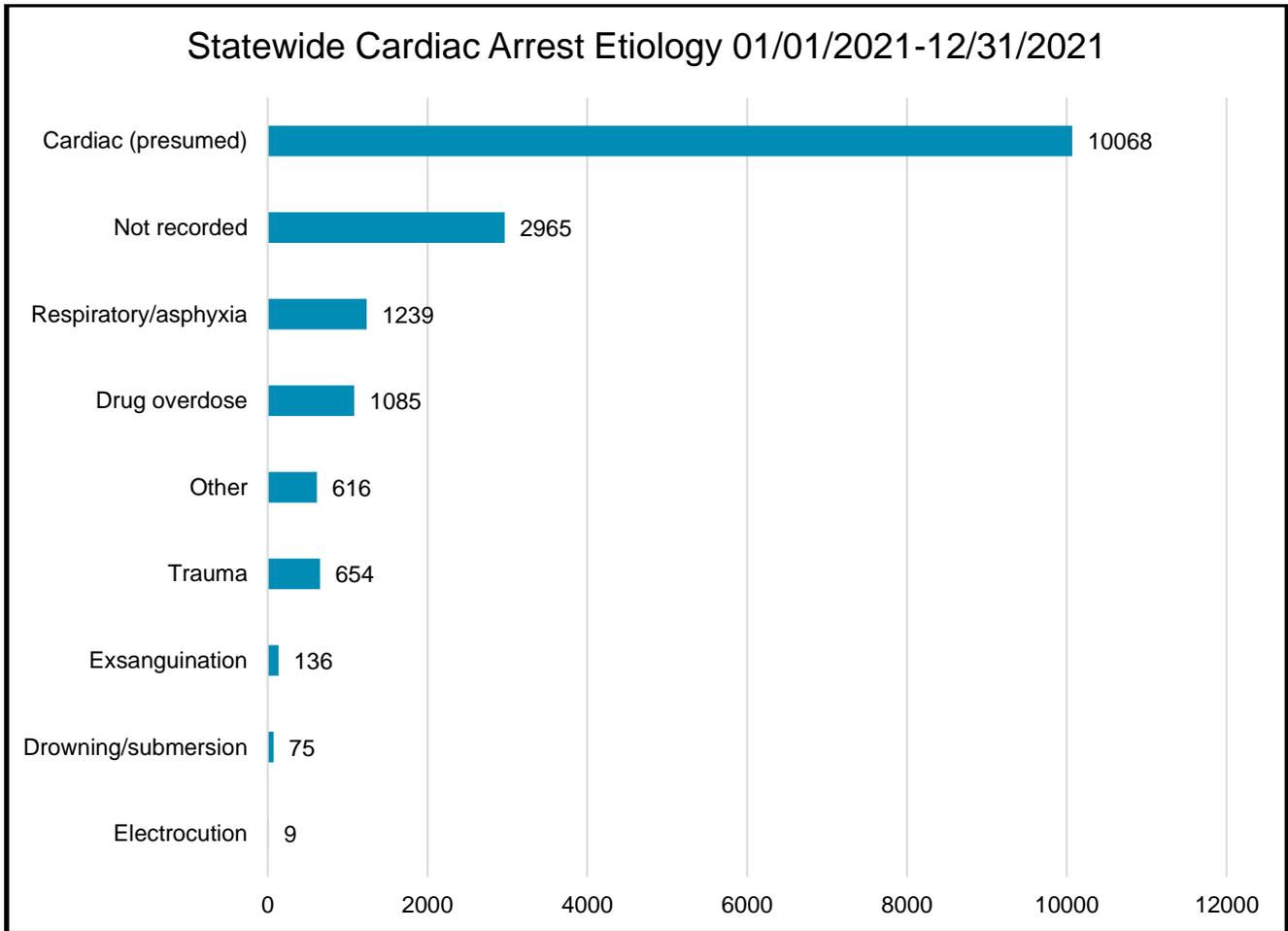
Figure 15. Was the Cardiac Arrest Witnessed?, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Activation of the EMS system is the first step in the cardiac arrest chain of survival. When a cardiac arrest is witnessed by a family member or bystander, that activation can occur sooner and ultimately give the patient a greater chance of survival--even more so when it is combined with bystander CPR. Figure 15 shows that 38 percent of reported cardiac arrests were witnessed. Fifteen percent of reported cardiac arrests did not have this value recorded, so there exists the possibility that this metric is higher than reported.

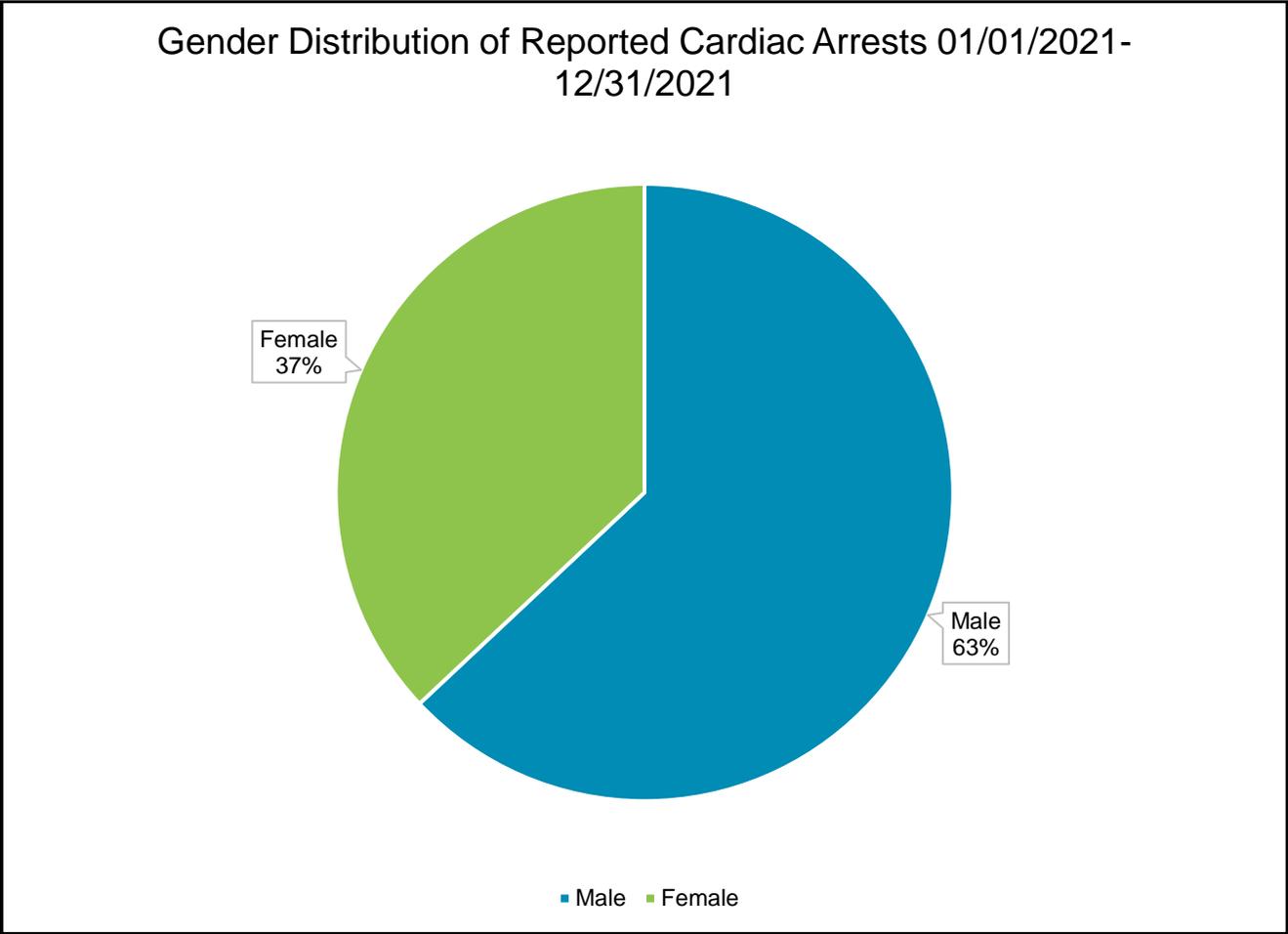
Figure 16. Statewide Cardiac Arrest Etiology, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 16 displays the etiology of cardiac arrests reported to the Department, when it was documented that the cardiac arrest occurred prior to EMS arrival. The overwhelming number of these arrests were categorized Cardiac (presumed). Based upon this information, Pennsylvania’s cardiac arrest etiology breakdown is consistent with national statistics based on previous Cardiac Arrest Registry to Enhance Survival (CARES) reports.

Figure 17. Gender Distribution of Reported Cardiac Arrests, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 17 summarizes the gender distribution of reported cardiac arrests. In the cardiac arrests that were reported to the data bridge, males had nearly 2 times the number of out-of-hospital cardiac arrests compared to females.

Table 11. Reason CPR or Resuscitation Discontinued by EMS, 01/01/2021 – 12/31/2021

Reason CPR/resuscitation discontinued	Count of reason CPR/resuscitation discontinued
DNR	369
Medical control order	4,384
Not applicable/not reported	7,349
Obvious signs of death	1,826
Physically unable to perform	17
Protocol/policy requirements completed	615
Return of spontaneous circulation (pulse or BP noted)	2,287

Source: Pennsylvania State EMS Data Bridge, 2022

Table 11 displays the breakdown of reason for discontinuing CPR and/or other resuscitative efforts.

Table 12. End of EMS Cardiac Arrest Event, 01/01/2021 – 12/31/2021

End of EMS cardiac arrest event	Count of end of EMS cardiac arrest event	Percentage of end of EMS cardiac arrest event
Expired in ED	2,082	12.36%
Expired in the field	7,895	46.86%
Not applicable/not recorded	2,698	16.01%
Ongoing resuscitation by other EMS	74	<1%
Ongoing resuscitation in ED	1,612	9.57%
ROSC (Return of Spontaneous Circulation) in the ED	911	5.41%
ROSC in the field	1,575	9.35%

Source: Pennsylvania State EMS Data Bridge, 2022

Table 12 summarizes the final EMS status of all patients who were reported in cardiac arrest. The best metric for evaluating cardiac arrest performance is neurologically intact survival. However, currently, there is no mechanism to collect ultimate outcome information in the state data bridge.

The Bureau recommends that all EMS agencies participate in the CARES project. CARES is a registry that tracks cardiac arrest survival and includes a mechanism for collecting the final

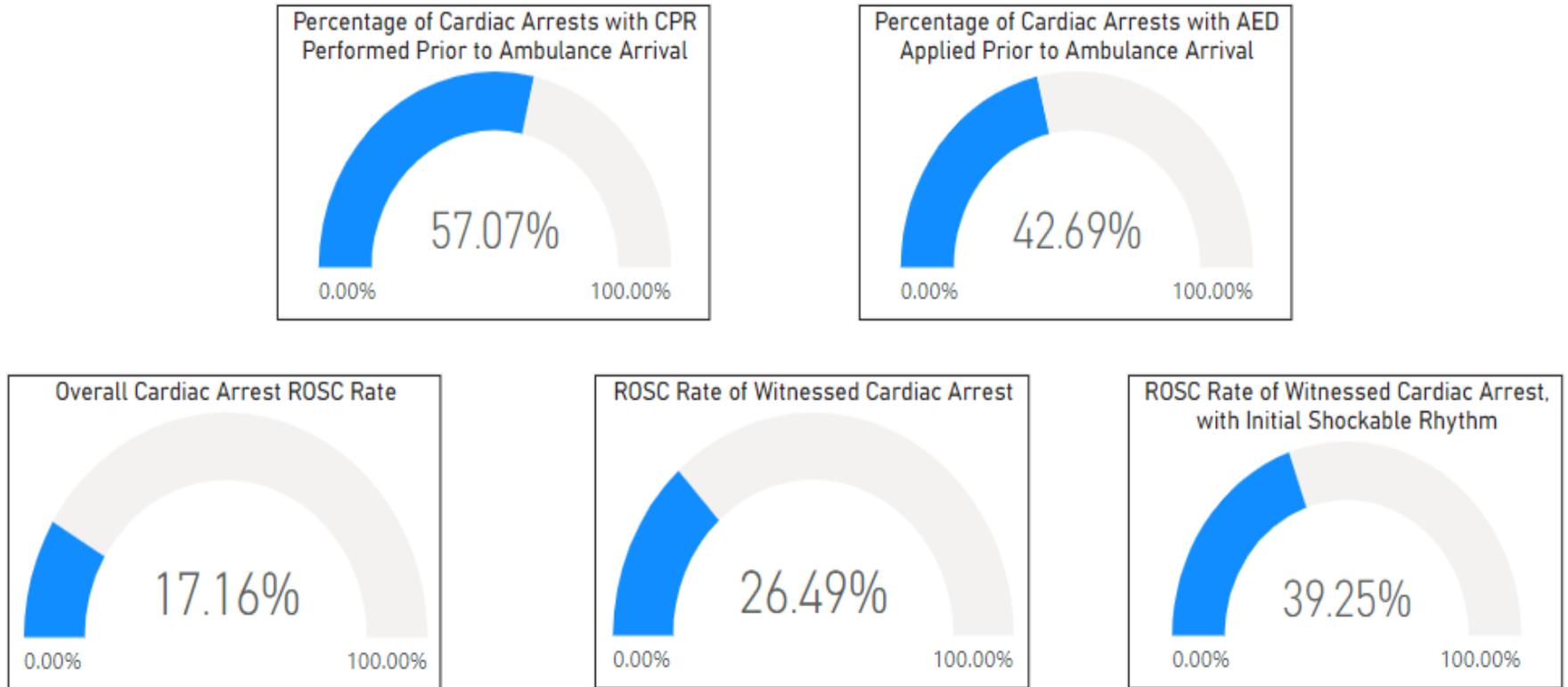
hospital outcomes; it is the current gold standard in tracking cardiac arrest statistics in the nation.

The statistics included in Figure 18 largely on return of spontaneous circulation (ROSC). For the purposes of this report, ROSC was counted if the end of the cardiac arrest event was documented as ROSC in the Field or ROSC at the hospital.

There are 3 separate ROSC rates. The first looks at all cardiac arrests that were presumed cardiac in nature, excluding those with a do-not-resuscitate (DNR) order and cases where obvious death was documented. The second looks at the same sample but with an additional filter that the cardiac arrest was witnessed. The third incorporates the characteristics of the first 2 but has an additional filter of the initial rhythm for EMS being a shockable rhythm.

Rates of CPR and AED usage prior to EMS arrival are also included to gauge the success of bystander education programs.

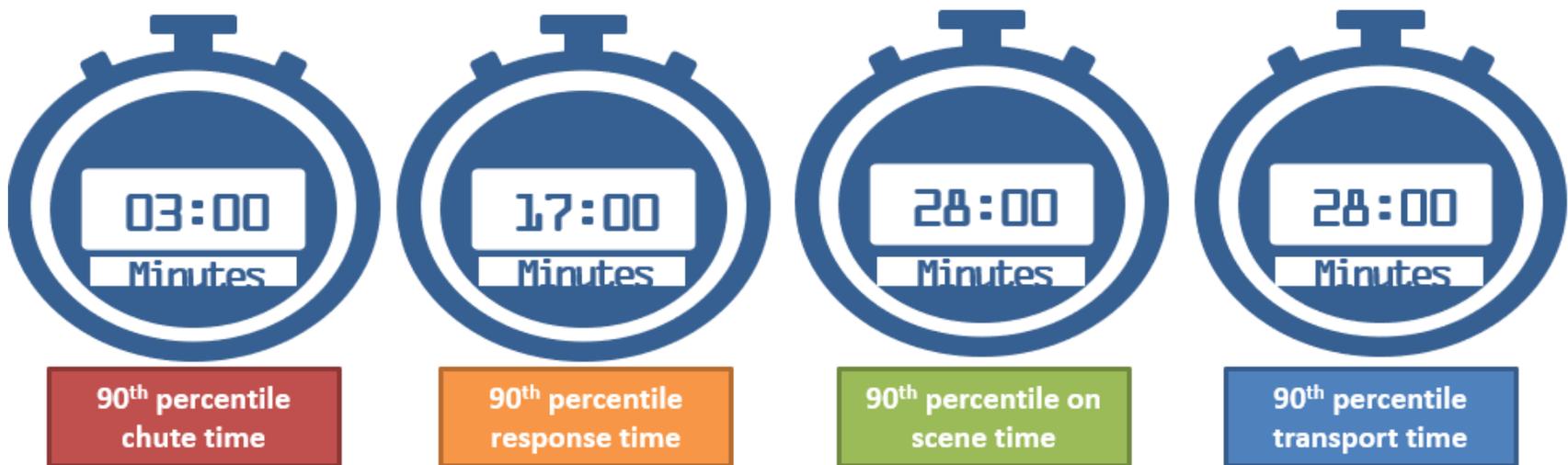
Figure 18. Statewide Cardiac Arrest Performance Metrics, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Response Time

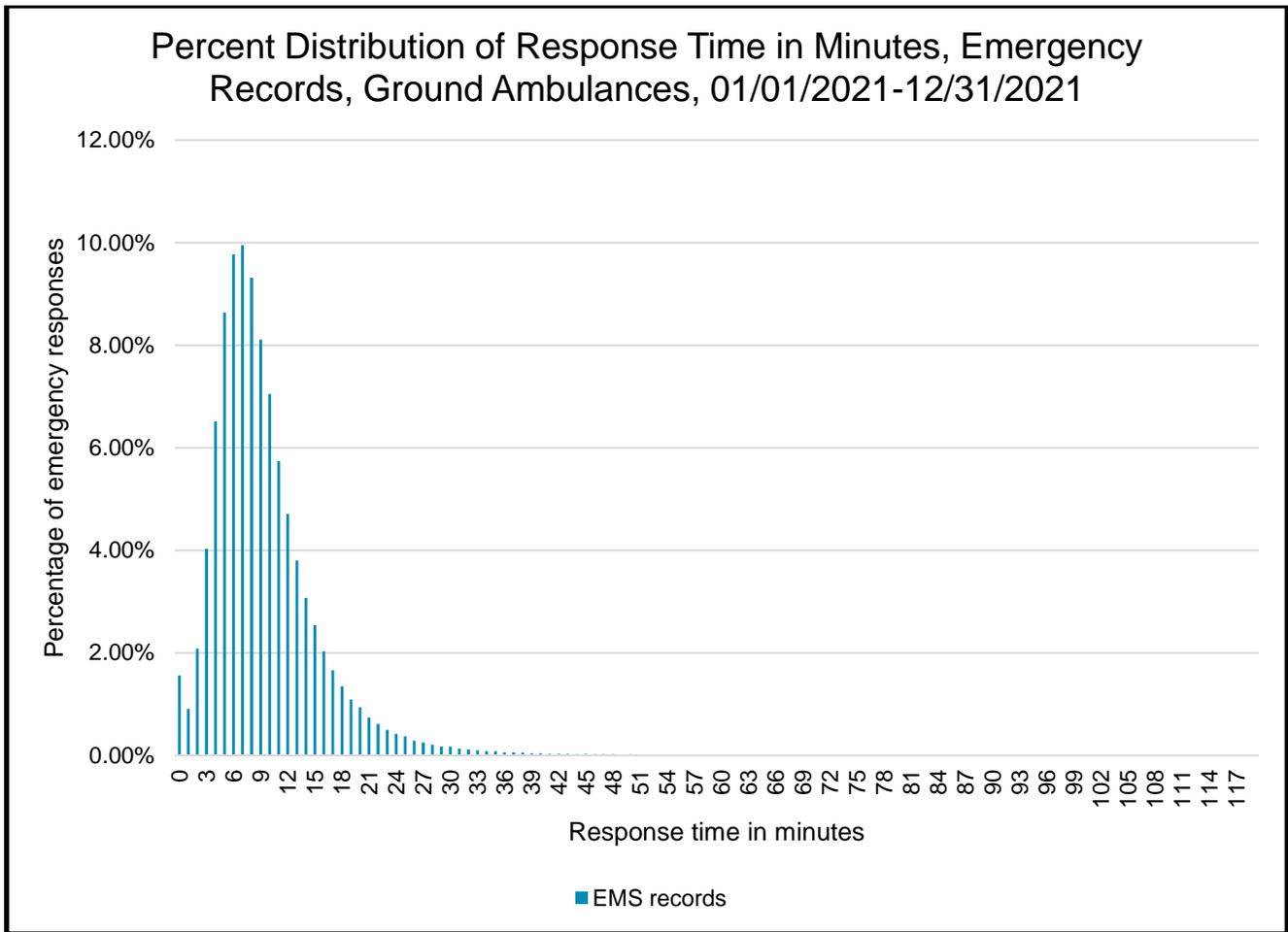
Figure 19. Statewide 90th Percentile Interval Times, Emergency Records Only, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 19 displays the statewide 90th percentile times for emergency calls for service for various intervals. Response time is a commonly requested metric. The commonwealth's 90th percentile response time is 17 minutes. This means that 90 percent of emergency calls in the commonwealth are responded to and an EMS agency is on scene in 17 minutes from the time that it was dispatched. Chute time is the interval between a unit being notified by dispatch of a call for service and the unit being enroute to the call, so the chute time is part of the response time.

Figure 20. Percent Distribution of Response Times in Minutes Emergency Records, Ground Ambulances, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Data Bridge, 2022

Figure 20 displays the percentage of emergency record type calls that are responded to in each minute of elapsed time. Sixty eight percent of emergency calls for service received a response time of 10 minutes or less. Response time is measured from the time that the unit was notified by dispatch to the time that the unit arrived on scene. Table 13 provides detailed county level information related to response time.

Table 13. Ground Ambulance Response Time Information by County, Emergency Records Only, 01/01/2021 – 12/31/2021

County	Number of EMS records	Valid records	Validity rate	90th percentile response time	Average response Time	Median response time
Adams	7,685	7,684	99.99%	16.0	9.62	9
Allegheny	155,326	155,219	99.93%	16.0	9.66	8
Armstrong	9,008	8,994	99.84%	22.0	12.41	11
Beaver	21,080	21,077	99.99%	20.0	11.53	11
Bedford	4,583	4,569	99.69%	24.0	13.93	12
Berks	52,147	52,135	99.98%	16.0	10.08	9
Blair	20,040	20,016	99.88%	13.0	7.61	6
Bradford	5,769	5,757	99.79%	23.0	11.02	8
Bucks	54,303	54,261	99.92%	14.0	9.05	8
Butler	21,039	21,021	99.91%	17.0	10.08	9
Cambria	21,155	21,108	99.78%	15.0	9.12	8
Cameron	889	889	100.00%	26.0	11.06	7
Carbon	9,183	9,168	99.84%	20.0	11.14	10
Centre	10,340	10,334	99.94%	19.0	11.71	11
Chester	37,357	37,347	99.97%	13.0	8.20	7
Clarion	4,634	4,628	99.87%	19.0	9.67	8
Clearfield	10,807	10,797	99.91%	20.0	10.92	10
Clinton	3,749	3,739	99.73%	21.0	12.14	10
Columbia	8,406	8,393	99.85%	22.0	12.73	11
Crawford	8,443	8,430	99.85%	20.0	10.19	8
Cumberland	24,307	24,300	99.97%	13.0	8.43	8
Dauphin	34,899	34,872	99.92%	16.0	9.72	9
Delaware	62,647	62,550	99.85%	11.0	6.98	6
Elk	3,357	3,354	99.91%	18.0	10.10	8
Erie	30,891	30,876	99.95%	16.0	9.11	8
Fayette	19,961	19,960	99.99%	17.0	9.05	8
Forest	748	747	99.87%	40.0	27.46	29

County	Number of EMS records	Valid records	Validity rate	90th percentile response time	Average response Time	Median response time
Franklin	10,731	10,723	99.93%	15.0	8.84	8
Fulton	1,172	1,169	99.74%	25.0	13.01	11
Greene	3,597	3,596	99.97%	25.0	13.93	12
Huntingdon	3,590	3,576	99.61%	28.0	15.27	14
Indiana	7,987	7,981	99.92%	21.0	12.98	12
Jefferson	5,631	5,605	99.54%	20.0	11.23	10
Juniata	3,116	3,108	99.74%	20.0	11.90	11
Lackawanna	28,813	28,286	99.90%	16.0	8.36	7
Lancaster	46,310	46,295	99.97%	16.0	9.52	9
Lawrence	11,895	11,892	99.97%	19.0	9.94	8
Lebanon	16,312	16,296	99.90%	16.0	8.81	8
Lehigh	42,227	42,210	99.96%	14.0	8.50	8
Luzerne	40,719	40,669	99.88%	16.0	9.36	8
Lycoming	16,421	16,323	99.40%	18.0	10.54	9
McKean	3,788	3,773	99.60%	19.0	9.09	7
Mercer	13,472	13,426	99.66%	17.0	9.46	8
Mifflin	5,130	5,125	99.90%	18.0	10.20	9
Monroe	16,216	16,206	99.94%	20.0	12.09	11
Montgomery	67,098	67,058	99.94%	12.0	7.84	7
Montour	2,952	2,946	99.80%	22.0	10.90	7
Northampton	34,984	34,972	99.97%	15.0	9.36	8
Northumberland	14,542	14,536	99.96%	18.0	9.64	8
Perry	3,491	3,490	99.97%	21.0	12.90	12
Philadelphia	193,173	193,027	99.92%	15.0	8.80	7
Pike	3,967	3,955	99.70%	27.0	15.89	15
Potter	1,764	1,757	99.60%	29.0	14.45	12
Schuylkill	17,403	17,376	99.84%	20.0	11.32	10
Snyder	3,031	3,027	99.87%	19.0	11.01	10
Somerset	8,290	8,270	99.76%	21	11.22	9
Sullivan	845	845	100%	41.0	23.64	21

County	Number of EMS records	Valid records	Validity rate	90th percentile response time	Average response Time	Median response time
Susquehanna	3,841	3,824	99.56%	28.0	16.00	16
Tioga	5,327	5,307	99.62%	32	15.84	14
Union	4,420	4,415	99.89%	16.0	8.76	7
Venango	6,207	6,203	99.94%	19	10.54	9
Warren	4,145	4,140	99.88%	19	9.18	7
Washington	26,185	26,172	99.95%	19	10.80	10
Wayne	6,504	6,483	99.68%	28	15.81	15
Westmoreland	48,128	48,101	99.94%	15	8.92	8
Wyoming	4,061	4,056	99.88%	23	13.59	12
York	34,520	34,510	99.97%	15	9.62	9
No incident county listed	27,396					

Source: Pennsylvania State EMS Data Bridge, 2022

Response time is defined as the difference between the EMS unit's arrival on scene and the time notified by dispatch. Both data points had to be present to be calculated and the en route date/time must have been later than the dispatch date/time. Additionally, the criteria for this table have been updated from previous reports. This table now only includes response time data for ground ambulances, non-transport units and air ambulances have been excluded.

Included in the table are the number of valid records as defined above, the 90th percentile response time, the average response time, and the median response time. The 90th percentile indicates that 90 percent of emergency calls for service in the selected county are answered in that time frame. The average response time is calculated by adding all the response times together and dividing by the total number of records. Finally, the median response time is also included; the median is calculated by listing the response time of all the applicable records and selecting the one that is in the middle. The median can also be referred to as the 50th percentile, meaning 50 percent of calls are answered in less time and 50 percent are answered in more time.

These figures are provided as a benchmark and are provided for a high-level overview. Because of variations in data reporting and validity, the Bureau encourages anyone who has specific questions regarding response times in their jurisdiction to contact their local 911 center, particularly if the number of valid records is not consistent with what is expected for the county.

Map 3 on the following page provides a visual representation of the median response times listed in this table by the incident county.

EMS Workforce

Table 14. Number of Pennsylvania EMS Certifications Expiring, by Certification Type, 01/01/2021 – 12/31/2021

Primary certification	Number of certifications expiring
Emergency Medical Services Vehicle Operator	51
Emergency Medical Responder	391
Emergency Medical Technician	2,606
Advanced Emergency Medical Technician	42
Paramedic	767
Pre-Hospital Registered Nurse	196

Source: Pennsylvania State EMS Certification Registry, 2021

Table 14 summarizes the number of individuals by certification type that allowed their certification to expire in 2021. The EMT certification level had the most expirations. The number of expirations for providers at and above the level of AEMT are higher than previous years due to the fact that most ALS level providers expire on the last day of the year of odd numbered years.

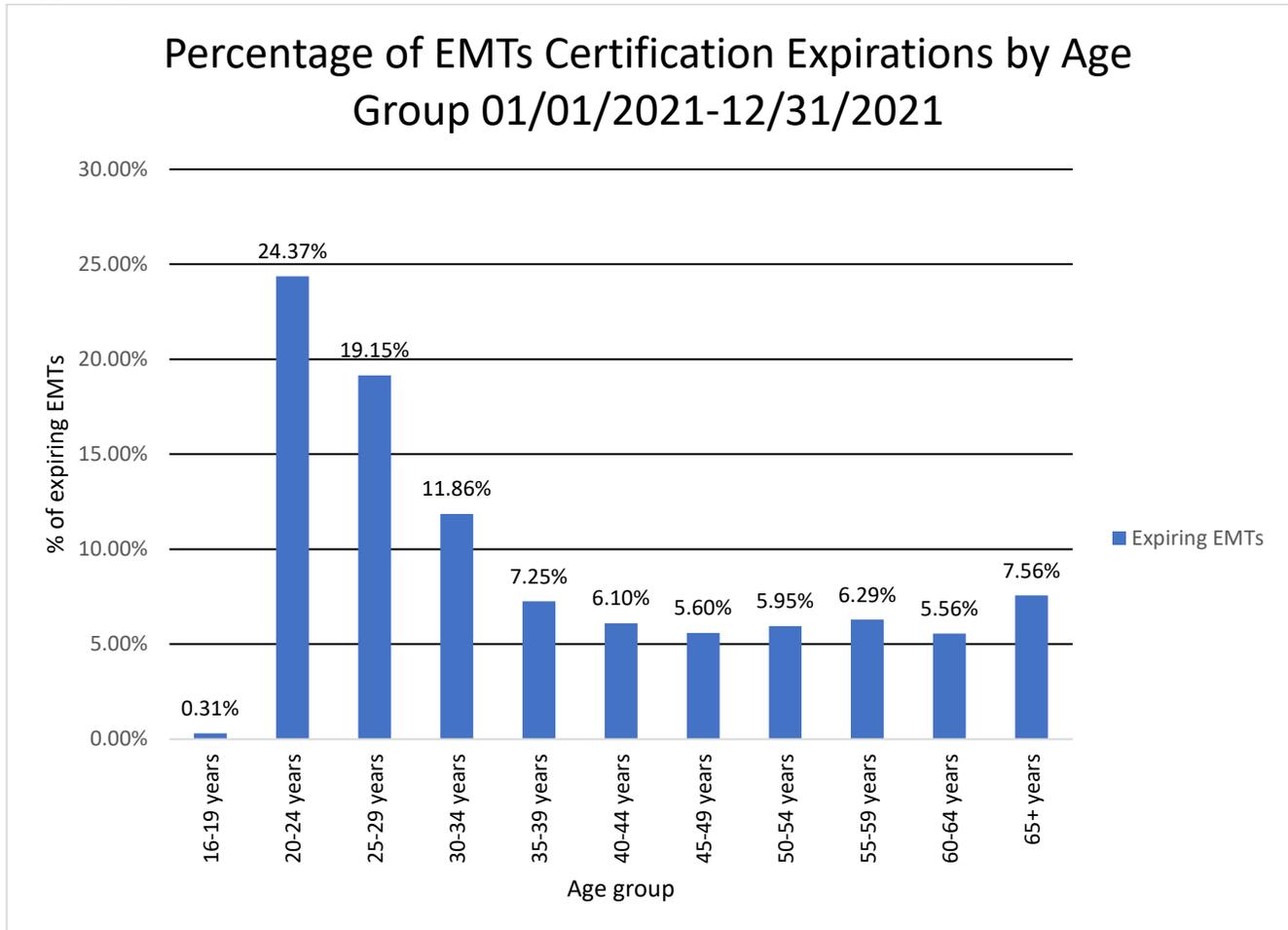
Table 15. Number of Pennsylvania Licensed EMS Agencies as of 12/31/2021

Highest level on agency license	Count of agencies
QRS	441
BLS squad	26
BLS ambulance	392
ALS squad	23
ALS ambulance	362
Air ambulance services	15
Total number of agencies	1,259

Source: Pennsylvania State EMS Licensure System, 2022

Table 15 summarizes the number of licensed EMS agencies by the highest level of their EMS agency license. The 1,259 EMS agencies reported for the year end of 2021 represents a decrease of 65 agencies from the 2020 year end report. However on further examination it was determined that there were approximately 35 agencies that had duplicate entries in the Departments licensure system for both calendar years 2019 and 2020. That duplication has been corrected in this 2021 report.

Figure 21. Percentage of EMTs Certification Expirations by Age Group, 01/01/2021 – 12/31/2021

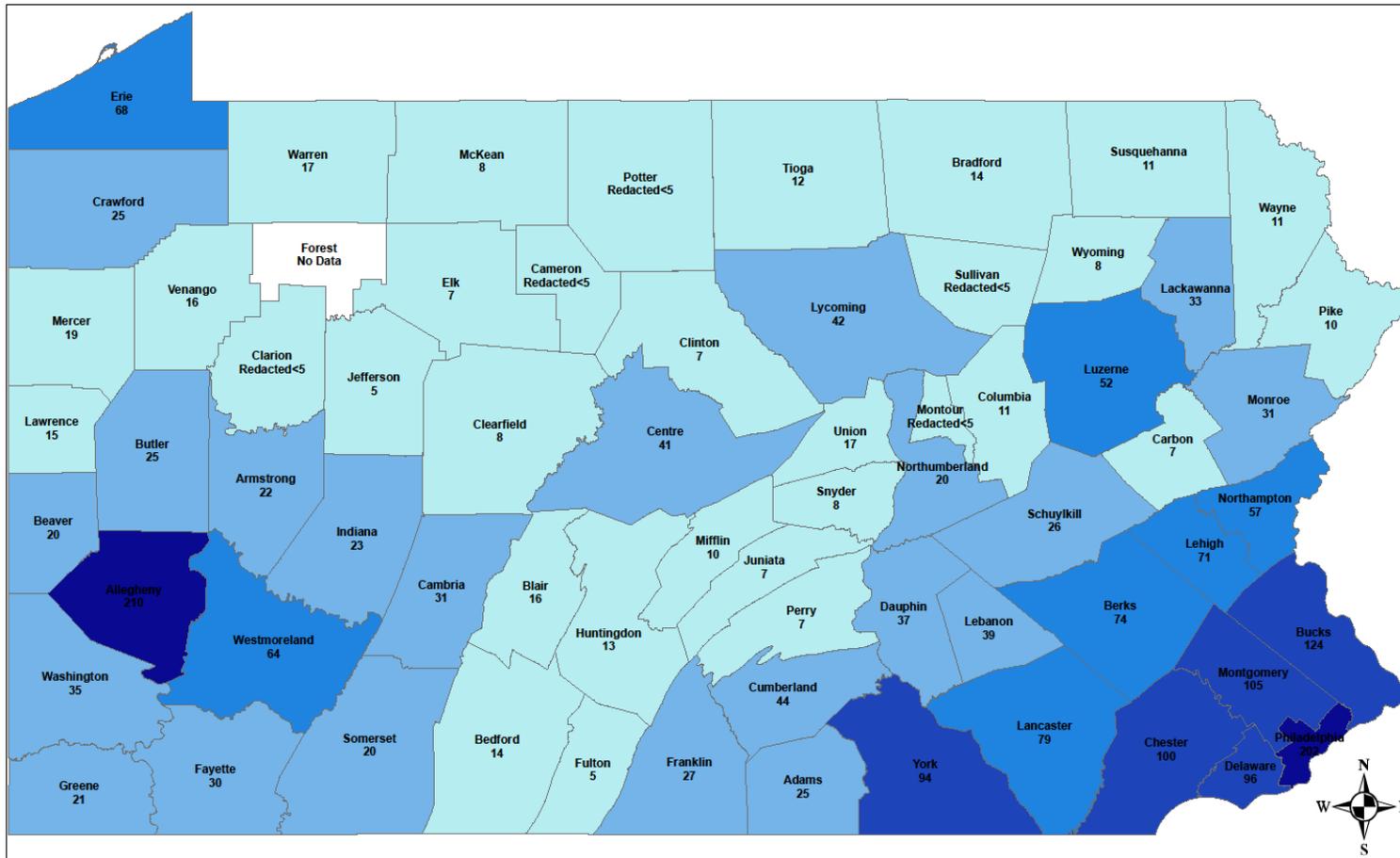


Source: Pennsylvania State EMS Certification Registry, 2022

Figure 21 shows that 63 percent of individuals with an expiring EMT certification were under the age of 40. 44 percent of expiring EMTs are under the age of 30. The rate at which younger EMTs are leaving the system remains a concern. This information is important to monitor and trend to allow for targeted retention strategies to be implemented at the state, regional, and local levels. Those who hold EMT certification are the pipeline for paramedics. Continued inability to retain EMTs will exacerbate the challenge to recruit paramedics.

Map 4 on the following page displays geographically the number of EMT certifications by county of residence. Counties which had less than 5 individuals' EMT certifications expire have had those values suppressed. In accordance with Bureau reporting policies, the information for these counties has been redacted to protect provider privacy. This map does not account for individuals who held a Pennsylvania EMS certification but who reside outside of Pennsylvania.

Map 4: 2021 EMT Expirations by County

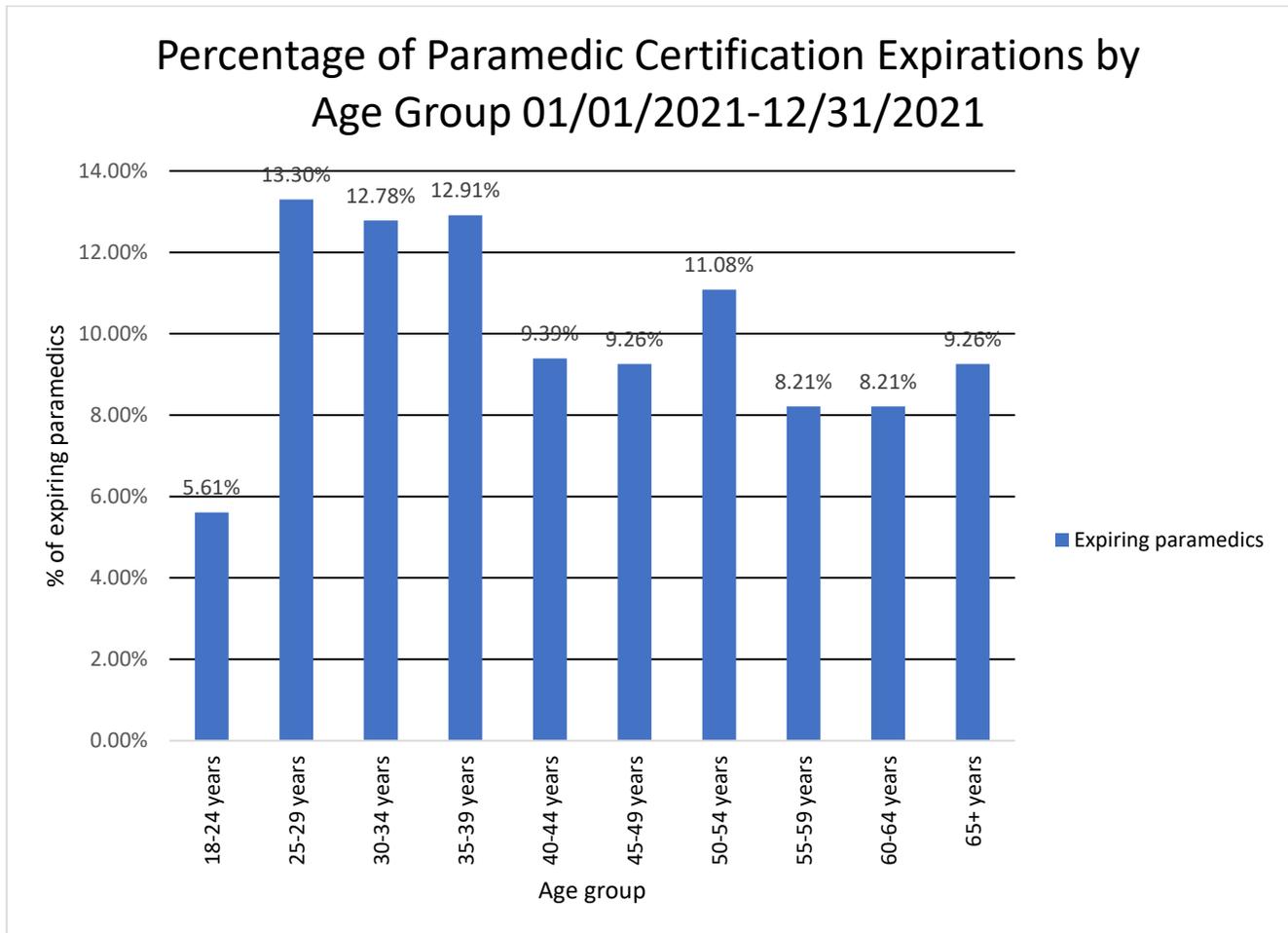


Legend



Prepared by DJF 01/24/2022
Source: EMS Certification Registry

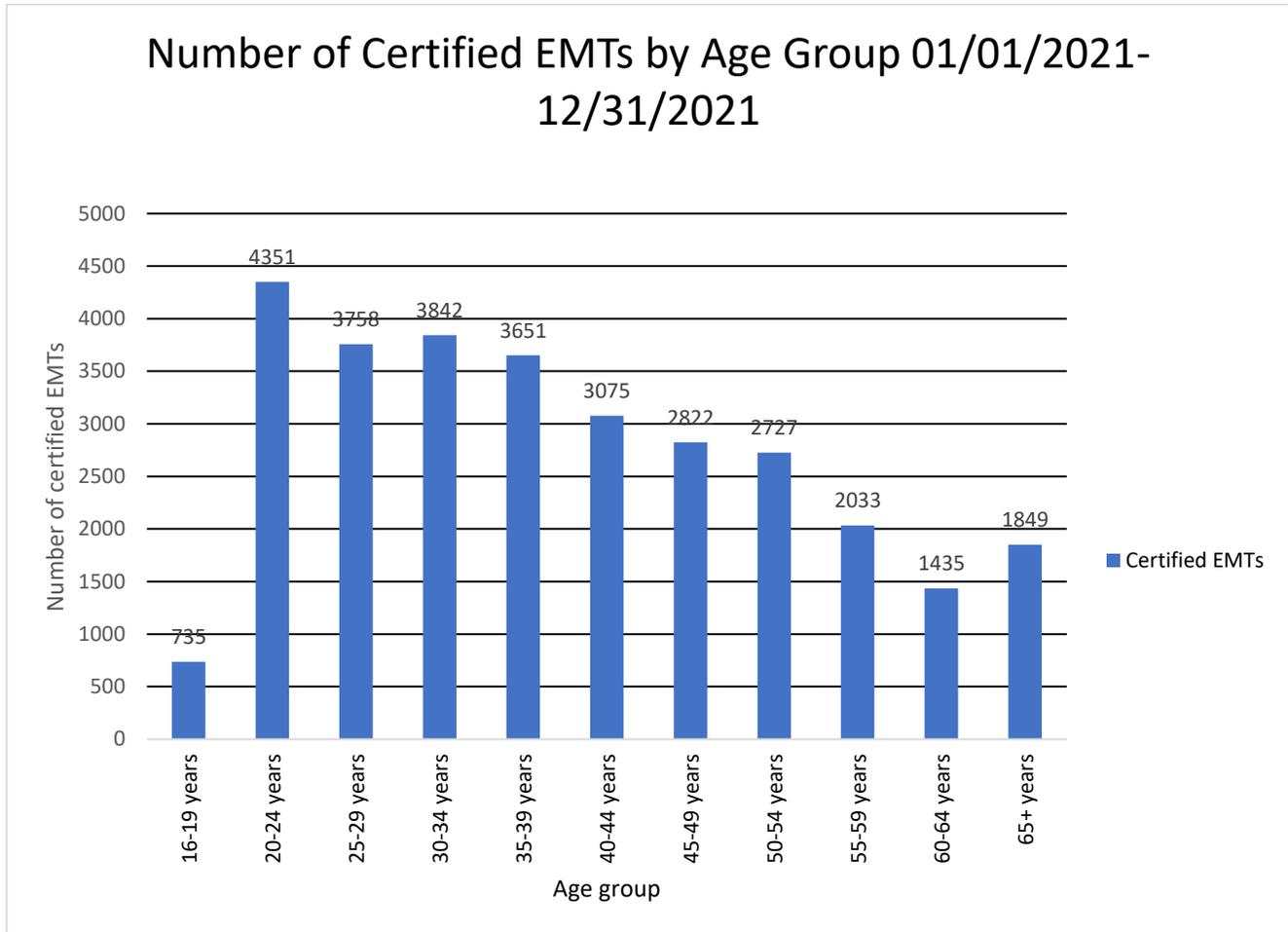
Figure 22. Percentage of Paramedic Certification Expirations by Age Group, 01/01/2021– 12/31/2021



Source: Pennsylvania State EMS Certification Registry, 2022

Figure 22 shows that nearly 45 percent of individuals with an expiring paramedic certification were under the age of 40. Approximately 19 percent of expiring paramedics are under the age of 30. The rate at which younger paramedics are leaving the system is still concerning, but not to the extent of the EMT level. This information is important to monitor and trend to allow for targeted retention strategies to be implemented at the state, regional, and local levels.

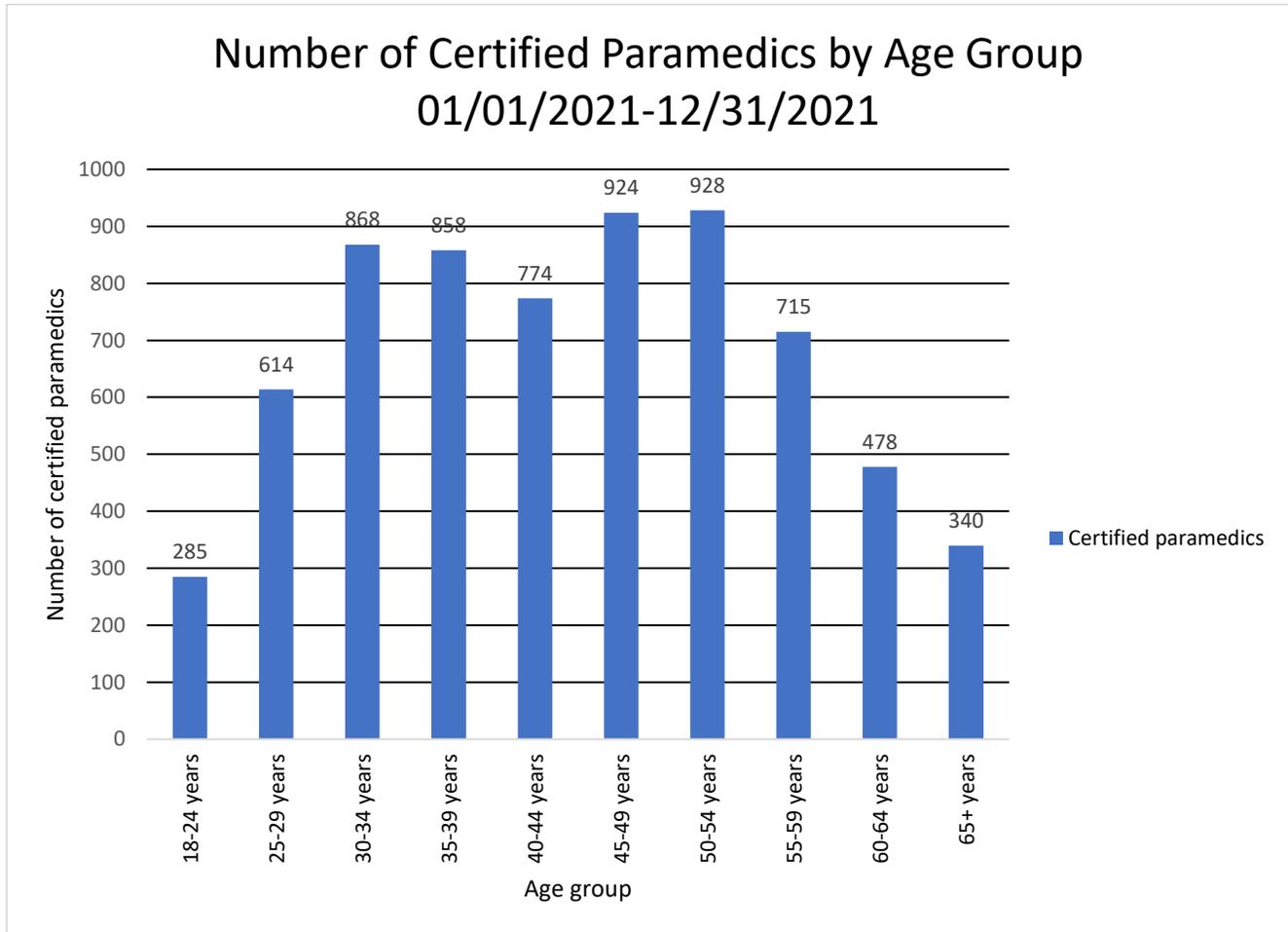
Figure 23. Number of Certified EMTs by Age Group, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Certification Registry, 2022

Figure 23 displays the age range distribution of certified EMTs within Pennsylvania’s EMS system. It is important to note that this is the available workforce, not necessarily the “active” workforce.

Figure 24. Number of Certified Paramedics by Age Group, 01/01/2021 – 12/31/2021



Source: Pennsylvania State EMS Certification Registry, 2022

Figure 24 displays the age range distribution of certified paramedics within Pennsylvania's EMS system. It is important to note that this is the available workforce, not necessarily the "active" workforce.

Table 16. Pennsylvania Certified EMS Workforce as of 01/11/2022

Primary certification	Number of certification holders	Net change from 2020
EMR	2,623	(159)
EMT	30,276	338
AEMT	509	113
Paramedic	6,784	(401)
PHRN	1,368	(39)

Source: Pennsylvania State EMS Certification Registry, 2022

The above numbers in Table 16 are all individuals who hold a certification at that level and, as such, are considered part of the available workforce. Also included is the net change from 2020. This value was calculated by comparing the values for year ending 2021 to the values previously reported in the 2020 year end report. It is important to note that this is the available workforce, not necessarily the “active” workforce.

Maps 5-8 on the following pages highlight different EMS workforce measures related specifically to county.

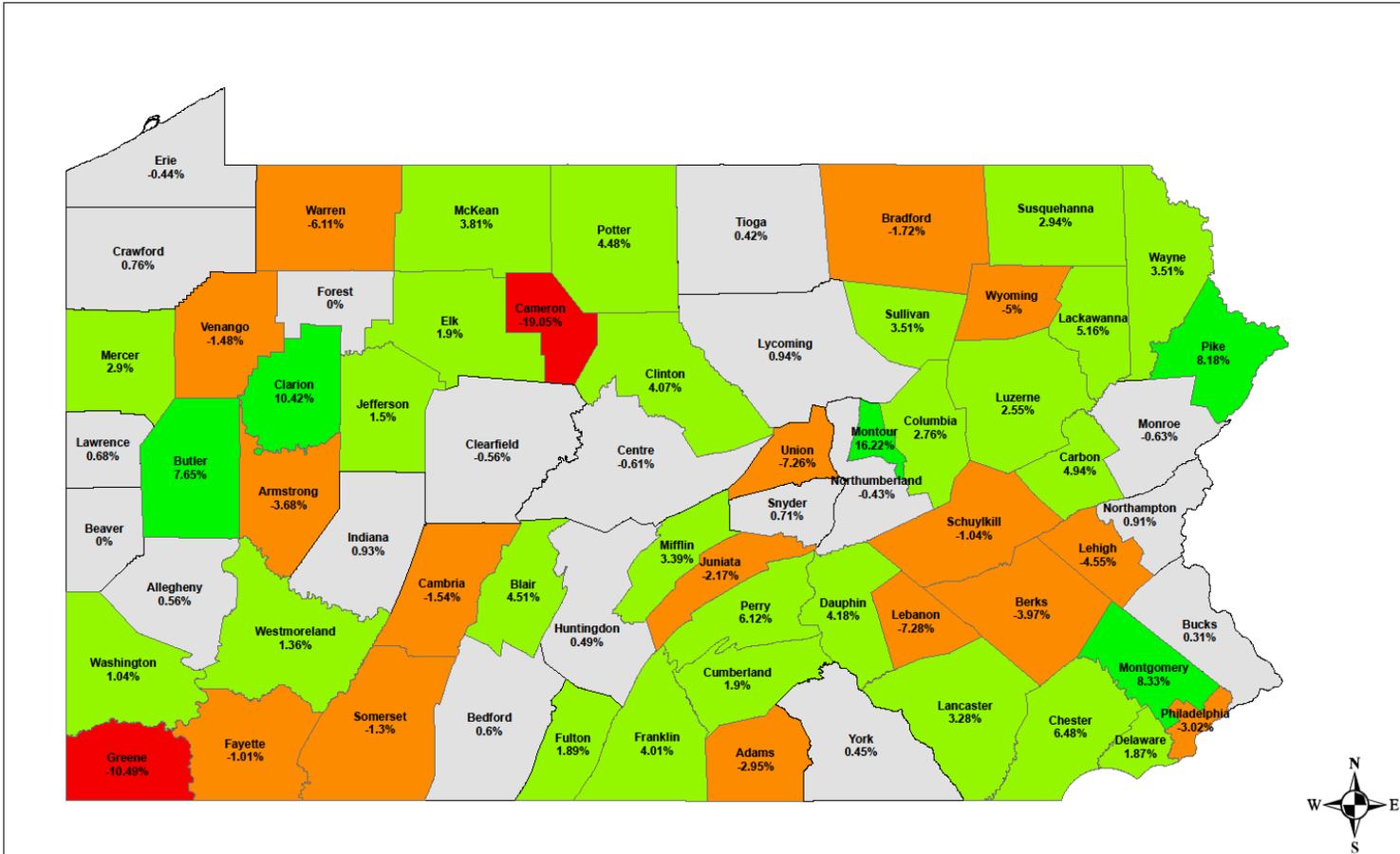
Map 5 displays the total number of certified EMS providers through the level of pre-hospital physician (PHP) that reside in each Pennsylvania county.

Map 6 displays the percentage change of EMS providers, through the level of pre-hospital physician (PHP), from 2020-2021.

Map 7 displays the percentage change of emergency medical technicians (EMT), from 2020-2021.

Map 8 displays the percentage change of paramedics, from 2020-2021.

Map 7: 2020 to 2021 % Net Change of EMT's by County



Legend



Prepared by DJF 01/24/2022
Source: PA EMS Certification Registry

Table 17. National Registry of Emergency Medical Technician Exam Statistics, by Year of Course Completion 2016-2021 ¹

Testing metric	2016	2017	2018	2019	2020	2021
PA EMT overall pass rate	78%	77%	79%	79%	76%	72%
National EMT overall pass rate	82%	81%	82%	80%	78%	79%
EMT successful completion	2,084	1,964	2,135	2,363	1,963	1,821
PA paramedic overall pass rate	83%	84%	88%	93%	88%	82%
National paramedic overall pass rate	89%	90%	90%	89%	83%	83%
Paramedic successful completion	227	167	200	197	195	161

Source: National Registry of Emergency Medical Technicians, 2022

Table 17 above shows the number of students successfully passing the National Registry of Emergency Medical Technician (NREMT) EMT and paramedic cognitive exams, by year of course completion. Pennsylvania overall pass rates are also included. National overall pass rates are also included for benchmarking purposes. The values for 2016 and 2017 are now static, as the 2-year window for exam completion has passed. The numbers for 2018, 2019, 2020, and 2021 are dynamic, as students are still testing. Values for 2018 and 2019 still have the potential to change because of testing extensions granted by the National Registry because of COVID-2019.

Citations

1. National Registry of Emergency Medical Technicians. (2021). Pennsylvania state pass/fail reports. Retrieved from www.nremt.org.