Operational Characteristics and Patient Disposition of Alcohol-Related College EMS Activations

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Abstract

Alcohol-related conditions represent a significant source of emergency medical services (EMS) utilization among college-aged students, yet national operational impact remains poorly characterized. A retrospective analysis of 2025 encounters from the National EMS Information System (NEMSIS), a standardized national EMS repository, identified alcohol-related campus responses among patients aged 18–24 years using Alcohol–Drug Use Indicators. Location, timing, disposition, and level of care were summarized descriptively. Among 5,542 encounters, most occurred in dormitories (62.97%) and involved younger students, with 18–19-year-olds comprising 72.36% (mean age 19.15). Calls averaged 47.7 minutes, 70.35% resulted in transport, and 29.61% required advanced life support. Incidents clustered during late-night weekend hours, especially 22:00–03:00 on Fridays and Saturdays. Alcohol-related campus EMS demand follows predictable demographic and temporal patterns. Targeted nighttime staffing, transport-capable units, and staging near freshman dormitories may improve efficiency and reduce reliance on municipal systems. These findings provide practical benchmarks for universities developing or expanding campus EMS programs.

Introduction

Alcohol-related conditions account for a substantial proportion of emergency medical services (EMS) encounters among college-aged students and represent a frequent source of prehospital utilization on university campuses.[1] Prior investigations have relied primarily on self-reported surveys,[2] emergency department data,[3] or single-institution reports,[4] limiting insight into system-level EMS workload. To date, no national analysis has characterized EMS resource allocation associated with alcohol-related campus activations. Standardized National EMS Information System (NEMSIS) data provide an opportunity to objectively evaluate prehospital clinical and operational characteristics across systems. This study quantifies and benchmarks the frequency and resource utilization of alcohol-related EMS encounters among college-aged patients on U.S. college campuses.

Methods

A retrospective analysis of 2025 prehospital encounters from the National EMS Information System (NEMSIS), a standardized national repository of EMS patient care records, was conducted. Included cases involved patients aged 18–24 years at campus locations (school, trade school, or dormitory sublocations). Alcohol-related encounters were identified using Alcohol–Drug Use Indicators, including scene evidence, bystander or patient report, clinical findings, documented positive levels, or alcohol odor. Location, time, disposition, and service level (ALS/BLS) were extracted, and descriptive statistics summarized encounter frequency and operational characteristics.

Results

Table 1. Demographic Characteristics of Alcohol-Related Campus EMS Activations Among Patients Aged 18-24 Years

	n	%
Age (years)		
18	2,349	42.39
19	1,661	29.97
20	649	11.71
21	430	7.76
22	229	4.13
23	128	2.31
24	96	1.73
Mean (SD)	19.15	(2.00)
Incident location		
School dorm	3,490	62.97
School buildings	2,046	36.92
Trade school	6	0.11
Alcohol Indicators[a]		
Patient admits alcohol use	5,178	93.43
Physical exam indicates suspected use	1,615	29.14
Containers/paraphernalia present	534	9.64
Positive level documented	142	2.56
Smell of alcohol	29	0.52
Total Patients	**5,542**	

[a] Alcohol/drug use indicators are not mutually exclusive

Table 2. Operational Characteristics and Patient Disposition of Alcohol-Related Campus EMS Activations

Time Interval (Minutes)		
Mean system response time	7.20	
Mean scene time	18.70	
Mean transport time	9.70	
Mean total call time	47.70	
	n	%
Level of Care		
BLS	2,622	47.31
ALS	1,641	29.61
Unknown	1,279	23.08
Transport Disposition		
Transported	3,899	70.35
Refusal	1,065	19.22
Scene Characteristics		
Multiple patients at scene	102	1.84
Total Patients	**5,542**	

Figure 1. Heatmap of alcohol-related campus EMS activations by hour of day and day of week. Encounters cluster during late-night weekend periods (22:00–03:00 Friday–Saturday), demonstrating concentrated temporal demand and minimal daytime volume.

Hour of the Day	Sunday Count of Events	Monday Count of Events	Tuesday Count of Events	Wednesday Count of Events	Thursday Count of Events	Friday Count of Events	Saturday Count of Events
00:00:00	37	25	32	22	89	194	201
01:00:00	317	29	32	36	48	116	348
02:00:00	349	29	22	30	69	115	324
03:00:00	253	26	22	29	32	103	266
04:00:00	158	12	5	16	26	63	175
05:00:00	104	9	6	5	19	28	79
06:00:00	53	5	10	9	22	25	62
07:00:00	54	5	4	4	11	19	49
08:00:00	37	5	6	4	9	10	32
09:00:00	13	4	8	4	4	8	14
10:00:00	9	0	5	7	8	4	10
11:00:00	8	6	1	4	2	1	7
12:00:00	4	5	4	2	3	6	6
13:00:00	9	3	6	5	2	7	11
14:00:00	6	5	3	6	4	8	19
15:00:00	5	10	7	6	5	5	16
16:00:00	6	4	7	6	9	10	20
17:00:00	4	4	5	2	2	8	21
18:00:00	5	2	7	3	0	7	37
19:00:00	3	4	3	4	4	9	44
20:00:00	10	9	6	5	7	10	32
21:00:00	8	6	4	10	10	17	32
22:00:00	19	11	6	10	23	47	51
23:00:00	25	16	12	28	34	118	96

Discussion/Conclusion

Alcohol-related campus EMS activations demonstrated concentrated demographic, spatial, and temporal patterns that create predictable operational demand. Most incidents occurred in dormitory settings (62.97%) and involved younger students, with 18 and 19-year-olds comprising 72.36% of encounters. Calls were operationally intensive, averaging 47.7 minutes, with 70.35% resulting in transport and nearly one-third receiving ALS-level response, representing substantial ambulance time and resource utilization. Event volume clustered during late-night weekend hours, particularly between 22:00 and 03:00 on Fridays and Saturdays. These findings support targeted deployment of campus EMS resources during these windows, including additional staffing, transport-capable units, and strategic staging near freshman dormitories where incident density is greatest. Concentrating coverage during peak periods may improve response times and reduce reliance on municipal EMS systems. Although ALS involvement was frequent, utilization may reflect both patient presentation and local dispatch protocols for altered mental status. Future studies incorporating clinical severity measures may better distinguish drivers of ALS use, transport, and refusal patterns, enabling more precise resource planning. Overall, these data provide actionable benchmarks to guide staffing models, unit placement, and nighttime operations for universities developing or expanding campus EMS programs.

References

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