Clinical Infectious Diseases

SUPPLEMENT ARTICLE

Changes in Emergency Medical Services Before and During the COVID-19 Pandemic in the United States, January 2018–December 2020

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Background. As a result of the continuing surge of coronavirus disease 2019 (COVID-19), many patients have delayed or missed routine screening and preventive services. Medical conditions, such as coronary heart disease, mental health issues, and substance use disorder, may be identified later, leading to increases in patient morbidity and mortality.

Methods. National Emergency Medical Services Information System data were used to assess 911 emergency medical services (EMS) activations during 2018–2020. For specific activation types, the percentage of total activations was calculated per week, and Joinpoint analysis was used to identify changes over time.

Results. Since March 2020, the number of 911 EMS activations has decreased, while the percentages of on-scene death, cardiac arrest, and opioid use/overdose EMS activations were higher than prepandemic levels. During the early pandemic period, percentages of total EMS activations increased for on-scene death (from 1.3% to 2.4% during weeks 11–15), cardiac arrest (from 1.3% to 2.2% during weeks 11–15), and opioid use/overdose (from 0.6% to 1.1% during weeks 8–18). The percentages then declined but remained above prepandemic levels through calendar week 52.

Conclusions. The COVID-19 pandemic has indirect consequences, such as relative increases in EMS activations for cardiac events and opioid use/overdose, possibly linked to disruptions is healthcare access and health-seeking behaviors. Increasing telehealth visits and other opportunities for patient–provider touch points for chronic disease and substance use disorders that emphasize counseling, preventive care, and expanded access to medications can disrupt delayed care-seeking during the pandemic and potentially prevent premature death.

Keywords. COVID-19; emergency medical service; cardiac events; opioid use disorder; risk perception.

The coronavirus disease 2019 (COVID-19) pandemic has had direct and indirect impacts on the healthcare system and on healthcare-seeking behavior. As a result of the continuing surge of COVID-19, many patients have delayed or missed routine screening and preventive services, such as annual check-ups [1]. The rates of emergency department (ED) visits and hospital admissions for conditions not related to or affected by COVID-19 also decreased during the start of the pandemic in 2020 compared with prepandemic times [2, 3]. Medical conditions, such as coronary heart disease, mental health issues, and substance use disorder may be identified later than usual given disruptions in availability of health services and changes in health-seeking behaviors, leading to increases in patient morbidity and mortality [4].

Data from 911 emergency medical services (EMS) activations provide a novel source for understanding people's first touch points with the medical system. The information about 911 activations can add insights into resource capacity and limitations. Additionally, EMS response data can complement ED visit data, as it can provide additional information about on-scene deaths, which is not always reflected in ED data.

In this study, we sought to assess changes in the percentages of 911 EMS activations before and during the COVID-19 pandemic for specific medical and behavioral reasons.

METHODS

The National Emergency Medical Services Information System (NEMSIS) is the US national database used to standardize, aggregate, and store EMS point-of-care data from states and territories and represents a convenience sample of participating agencies within each state and territory. Reporting to NEMSIS

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is voluntary, and the number of agencies that report has increased from 9599 in 2018, to 10 620 in 2019, and to 11 257 in 2020. As such, the number of total EMS activations increased by 15% over the study period. To account for the increasing number of agencies and activations, we examined the percentages of certain activation types (ie, count of activation type divided by count of all activations) to describe trends over time.

The NEMSIS data were used to assess 911 EMS activations before (January 2018–February 2020) and during (March 2020–December 2020) the COVID-19 pandemic in the United States. Activations were included if the 911 call resulted in patient contact. Activations for encounters related to cardiac arrest, opioid use/overdose, injury, and mental/behavioral health and activations with an on-scene death disposition were examined. Cardiac arrest activations were identified in the NEMSIS national data if the eArrest.01—Cardiac Arrest field was marked "yes," meaning there was an "indication of the presence of a cardiac arrest at any time during the EMS event" [5]. Opioid-related activations were identified if the *International Classification of Disease*, *10th edition, Clinical Modification* (ICD-10-CM) codes F11 (opioid-related disorders) or T40.0–T40.4 and T40.6 (poisoning by and adverse effects of opioid related drugs) were found in the NEMSIS elements for primary symptom, or other associated symptoms, or provider's primary impression, or secondary impressions (eSituation.09-12). Injury activations were identified if the NEMSIS field eSituation.02—Possible Injury was marked "yes," indicating there was an injury related to the EMS event; injury type, location, and cause were not indicated in this field [5]. Mental/behavioral health activations were identified if eSituation.09-12 had any of the following ICD-10-CM codes: anxiety disorder, F41.9, F41.1, R41.82; major depressive disorder, F32.9; unspecified mental disorder, F99; symptoms and signs involving emotional state, R45.89, R45.7, R45.82; or symptoms and signs involving appearance and behavior, R46.2, R46. Last, eDisposition.12—Incident/Patient Disposition was examined to identify on-scene death activations. Any event with "the type of disposition/treatment and/or transport of the patient by the EMS unit" described as "patient dead at scene-no resuscitation attempted (with or without transport)" and "patient dead at scene-resuscitation attempted (with or without transport)" was identified as an on-scene death activation [5].

Percentages of total activations with an on-scene death disposition and with encounters related to cardiac arrest, opioid use/overdose, injury, and mental/behavioral health were calculated annually for 2018, 2019, and 2020 and by calendar week for 1 January 2018 through 27 December 2020 (corresponding to weeks 1 through 52 in each year). The annual counts and percentages of activations were then stratified by sex, age group (12–21, 22–60, and 61+ years), and race/ethnicity. The race/ethnicity groups assessed were American Indian (AI)/Alaska Native (AN), Asian, Black/African American, Hispanic/Latino (H/L), Native Hawaiian (NH)/Pacific Islander (PI), and White. The percent change between the averaged 2018–2019 annual percentages and the 2020 annual percentages was calculated overall and for each stratified group.

Changes in temporal trends in weekly percentage of EMS activations during 2020 were also investigated using Joinpoint regression modeling, and a P value of 0.05 was considered as a significant change (Joinpoint Regression Program, version 4.8.0.1, April 2020; Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute). Joinpoint fits a linear regression model to identify statistically significant changes in the slope of the trend line, that is, inflection points.

RESULTS

The total number of annual 911-initiated EMS activations increased 34% between 2018 (16M) and 2019 (22M) and 10% between 2019 and 2020 (25M). The average weekly count of EMS activations during 2018–2019 was fairly consistent throughout the year. However, in 2020, there was a sharp 26% decrease in total EMS activations from calendar week 10 (2 March to 8 March; n = 546 754) to week 16 (13 April to 19 April; 419 018), which coincided with the start of the COVID-19 pandemic in the United States (Figure 1). Total EMS activations gradually increased back to 2020 prepandemic levels during weeks 17–28 (20 April to 12 July), then decreased slightly during weeks 29–31 (13 July to 2 August); activations decreased 10% and remained lower than 2020 prepandemic levels through week 52 (21 December to 27 December).

The percentages of EMS activations related to cardiac arrest, opioid use/overdose, injury, and mental/behavioral health and activations with an on-scene death disposition were stable during weeks 1–10 before the pandemic (Figure 2). In 2020, cardiac arrest and on-scene death activations began to increase in week 11 (Joinpoint $P < .001$; Table 1). During weeks 11–15, the percentage of cardiac arrest activations increased from 1.3% to 2.2% (n = 7260 to 9411) and the percentage of on-scene death activations increased from 1.3% to 2.4% (n = 6782 to 10 213).

In 2020, the percentage of opioid-related EMS activations increased from 0.6% to 1.1% (n = 3264 to 4802) during weeks 8–18 (Joinpoint $P < .001$; Table 1) followed by a gradual decrease (Joinpoint $P < .001$) to 0.7% (n = 3411) by week 43; the percent of activations remained above baseline through week 52 (Figure 2B). The percentage of mental/behavioral health–related EMS activations increased from 7.2% to 8.3% (n = 39 145 to 34 829) during weeks 11–16 (Joinpoint $P < .001$), then declined to 7.0% (n = 27 255) by week 48 and increased back above baseline through week 52. The percentage of injury-related activations decreased sharply from 18.5% to 15.4% (n = 102 765 to 71 736) during weeks 10–13 (Joinpoint $P = 0.007$), then increased to 19.6% (n = 99 196) by week 23 (Figure 2D). Injury-related activations fluctuated

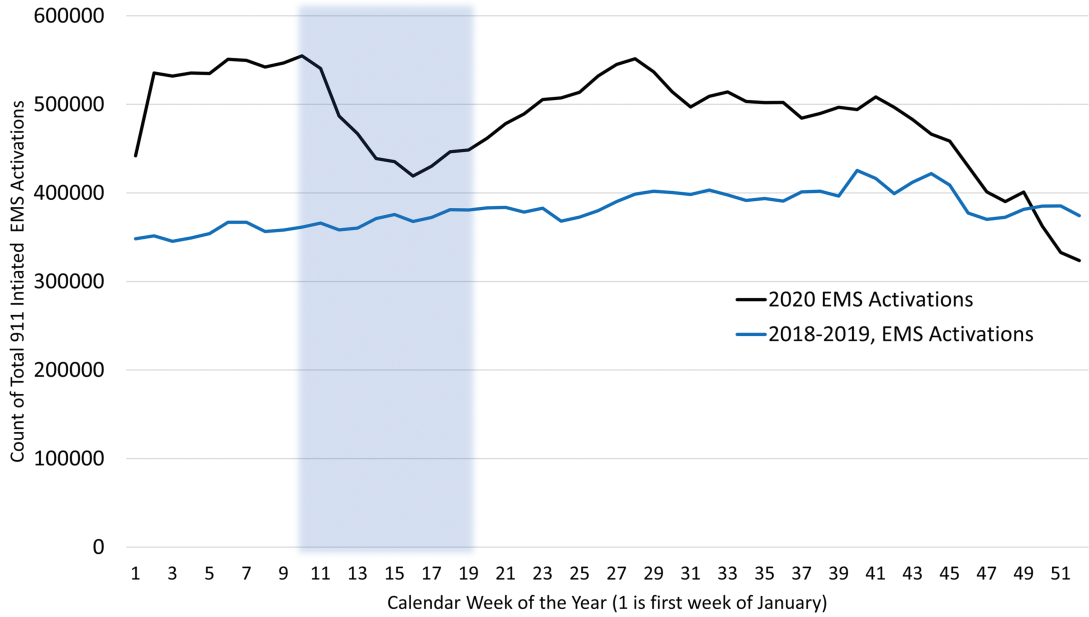

Figure 1. Count of total EMS activations by week for 2018–2019 (baseline) and 2020. This chart illustrates the number of 911 call EMS activations before and during the coronavirus disease 2019 (COVID-19) pandemic. Each line trends the count of EMS activations from the first week through the fifty-second week of the calendar year. The solid black line represents the 2020 week count of total EMS activations. The solid blue line represents an averaged 2018–2019 baseline count. The blue shading represents the 2020 weeks in which the Centers for Disease Control and Prevention reported community spread of the COVID-19 virus (week 10) and states initiated stay-at-home orders (week 12) through when states began to lift restrictions (week 19). Abbreviation: EMS, emergency medical services.

at or below baseline through week 40 and then began another decline (Joinpoint $P < .001$), dropping to 17.3% (n = 56 070) by week 52.

When stratified by sex, age group, and race/ethnicity, the percent change for on-scene death activations increased more among females than males (34.1% vs 24.5%) and increased more for adolescents and younger adults (aged 12–21 years; 40.6%) compared with those aged 22–60 years (25.8%) and older adults (61+ years old; 30.3%). There was little difference by race/ethnicity (range, 27.5% for H/L to 33.6% for NH/PI; Table 2). For stratified cardiac activations, the percent change increased more among females than males (28.6% vs 18.9%) and increased more for adolescents and younger adults (41.2%) compared with middle-aged (23.7%) and older adults (21.5%). Race/ethnicity stratification showed that the percent change increased most among AI/AN (26.8%) and least among Asian (19.1%) and NH/PI (16.1%) and was similar among White, H/L, and Black/African American (23.3% for White and Black/African American; 24.6% for H/L). Opioid use–related activations increased more among males than females (39.2% vs 31.6%). As with the other activation types, opioid use–related activations increased more for adolescents and younger adults (63.9%) compared with middle-aged (36.4%) and older adults (20.0%). When examined by race/ethnicity, opioid use–related activations increased more among Asian (44.4%), NH/PI (43.4%), and AI/AN (41.2%) and least among White (34.5%) and Black/African American (33.3%).

Percent activation stratified by calendar week in addition to sex, age group, and race/ethnicity was also examined (Supplementary Tables A–C). Opioid-related activations for the 22- to 60-year age group increased from week 7 and continued above baseline (Supplementary Table A). Cardiac arrest, on-scene death disposition, and opioid-related activations increased a similar amount among persons of Black/African American race (cardiac, 1.38% to 2.08%; on-scene death, 1.29% to 2.24%; opioid, 0.61% to 1.17%) and White race (cardiac, 1.34% to 2.14%; on-scene deaths, 1.26% to 2.31%; opioid, 0.58% to 1.10%). Cardiac arrest (1.29% to 2.12%) and on-scene death (1.20% to 2.34%) activations also increased among persons of H/L ethnicity (Supplementary Table B). There was little change for Asian and AI/AN populations. Percentages were higher for males than females for all activation types (Supplementary Table C).

DISCUSSION

Findings from this study of EMS activations emphasize the indirect effects of the COVID-19 pandemic. The proportion of mental/behavioral health–related activations increased initially and then returned to baseline levels, while the proportion of injury-related activations decreased and remained below baseline levels. Most notably, our study results show that the proportion of activations with an on-scene death disposition, cardiac arrest, and opioid relation remained above 2018–2019

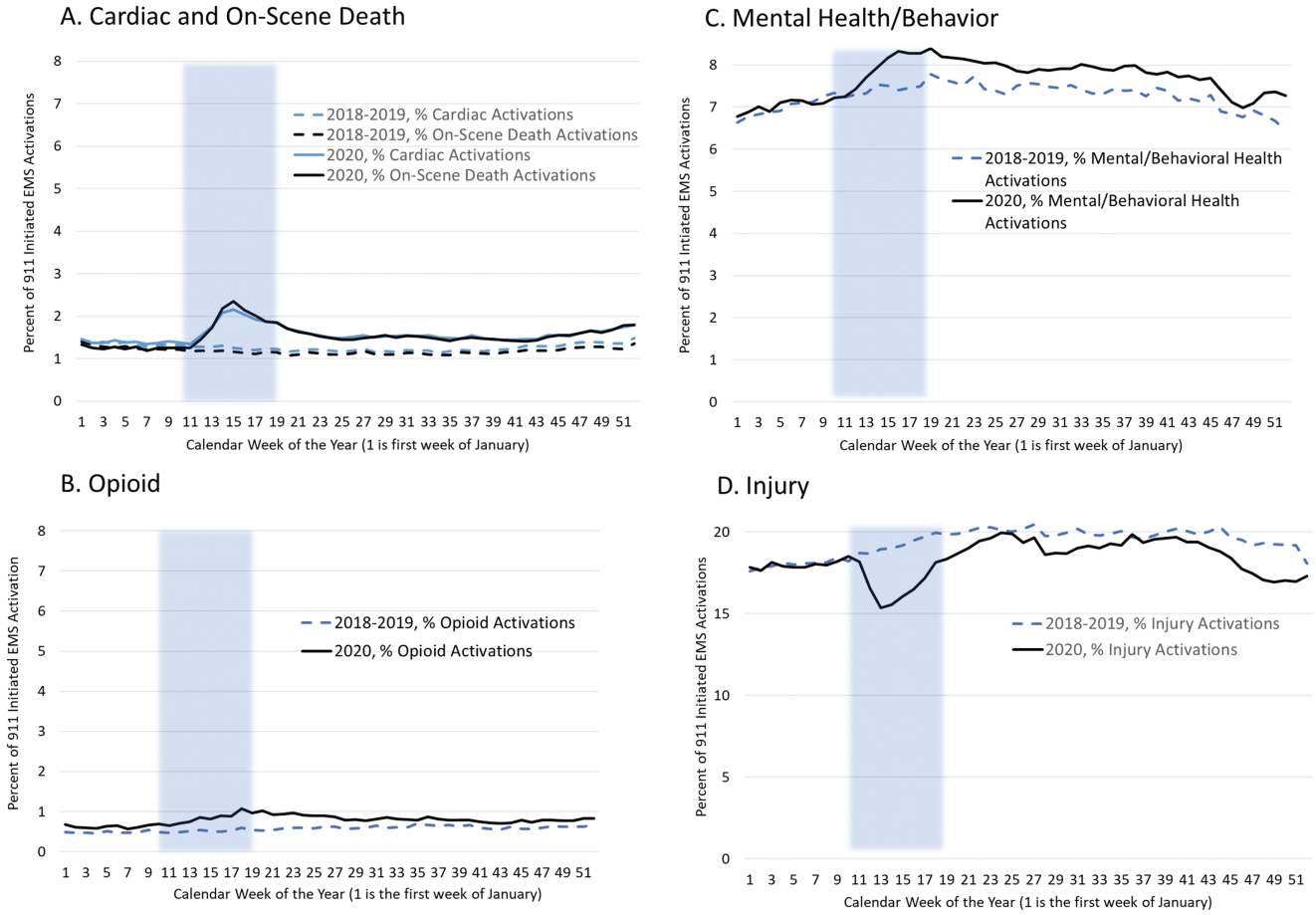

Figure 2. Percent of emergency medical services (EMS) activations for cardiac arrest, on-scene death, opioid use/overdose, mental/behavioral health, and injury by week for 2018–2019 (baseline) and 2020. These charts illustrate the percentage of 911 call EMS activations for *(A)* cardiac arrest and on-scene death, *(B)* opioid use/overdose, *(C)* mental/behavioral health, and *(D)* injury before and during the coronavirus disease 2019 (COVID-19) pandemic. Each line trends the percentage of EMS activations that resulted in a patient encounter from week 1 through week 52 of the calendar year. The solid lines represent the percent of EMS activations in 2020. The dashed lines represent an averaged 2018–2019 percentage baseline. The blue shading represents the 2020 weeks in which the Centers for Disease Control and Prevention reported community spread of the COVID-19 virus (week 10) and states initiated stay-at-home orders (week 12) through when states began to lift restrictions (week 19).

baseline levels during all of 2020, supporting a previously reported increase of on-scene death activations [6].

In 2020, EMS activations for cardiac arrest closely followed the trend for on-scene death. Increases in cardiac events have been similarly reported for US emergency room visits [2], while cardiac catheter laboratory visits have decreased 38% compared with the prior year [1]. Together, these data suggest that cardiac events are increasing while treatment and intervention visits are decreasing. Traditional ambulatory care-seeking behavior has been disrupted, and many patients are delaying or deferring necessary care, including preventive care [1, 7]. However, people with chronic medical conditions such as coronary heart disease are at higher risk for poor outcomes without active screening and monitoring by providers [8]. Focused messages to providers that recommend increased patient telemedicine or other touch point encounters are needed, as is preventive counseling for patients at risk for cardiac events. Specifically, touch points that concentrate on the signs and symptoms of heart disease may increase access to medications and early intervention. Increasing visit emphasis on cardiac disease prevention and interventions can help detect issues earlier, thereby decreasing sudden acute events, and may decrease the need for EMS activations and the number of on-scene deaths from cardiac arrests.

The United States has experienced an increase in opioid overdose deaths since 2013, and the rates of nonfatal drug overdoses involving opioids, cocaine, and amphetamines increased from 2018 to 2019 [9, 10]. In December 2020, the Centers for Disease Control and Prevention (CDC) issued a health advisory alert describing substantial increases in drug overdose deaths across the United States before and during the COVID-19 pandemic [11]. EMS activations for opioid use/overdose were elevated above baseline throughout most of 2020. Precautions taken to slow transmission of COVID-19, including physical distancing and stay-at-home orders, may lead to disruptions in access to medications for opioid use disorder, naloxone (an opioid overdose reversal drug), recovery support services, and

Table 1. Percentage of On-Scene Death, Cardiac, and Opioid Use/Overdose Emergency Medical Services 911 Call Activations per Week in 2020

Week Number	Cardiac	On-Scene Death	Mental/Behavioral	Opioid	Injury
1	1.46	1.33	6.78	0.67	17.83
2	1.37	1.26	6.88	0.61	17.64
3	1.37	1.23	7.02	0.6	18.13
4	1.43	1.28	6.89	0.58	17.91
5	1.38	1.23	7.11	0.63	17.83
6	1.4	1.28	7.17	0.65	17.83
7	1.34	1.19	7.16	0.56	18.04
8	1.37	1.25	7.07	0.60[a]	17.97
9	1.41	1.25	7.09	0.67	18.22
10	1.38	1.26	7.21	0.7	18.52[a]
11	1.34[a]	1.25[a]	7.24[a]	0.65	18.17
12	1.53	1.46	7.42	0.71	16.58
13	1.76	1.74	7.7	0.75	15.36[a]
14	2.08	2.18	7.93	0.85	15.54
15	2.16[a]	2.35[a]	8.17	0.81	16.08
16	2.04	2.14	8.33[a]	0.89	16.5
17	1.93	2.01	8.28	0.88	17.19
18	1.87	1.88	8.28	1.08[a]	18.14
19	1.86	1.85	8.39	0.96	18.34
20	1.7	1.71	8.2	1.02	18.69
21	1.65	1.63	8.17	0.93	19.03
22	1.58[a]	1.59[a]	8.14	0.94	19.44
23	1.55	1.52	8.1	0.96	19.62[a]
24	1.5	1.49	8.04	0.91	19.96
25	1.48	1.45	8.05	0.9	19.89
26	1.51	1.44	7.98	0.89	19.36
27	1.55	1.49	7.86[a]	0.87	19.66
28	1.5	1.51	7.82	0.79	18.6
29	1.52	1.55	7.9	0.8	18.72[a]
30	1.53	1.5	7.88	0.78	18.67
31	1.55	1.54	7.91	0.82	19.02
32	1.54	1.52	7.91	0.85	19.14
33	1.55	1.5	8.02	0.82	19.01
34	1.49	1.47	7.96	0.8	19.27
35	1.49	1.42	7.89	0.79	19.19
36	1.48	1.48	7.88	0.87	19.87
37	1.55	1.5	7.98	0.81	19.37
38	1.49	1.47	7.99	0.79	19.55
39	1.45	1.46	7.82	0.78	19.61
40	1.45	1.44	7.78	0.78	19.68[a]
41	1.45	1.42	7.84	0.75	19.38
42	1.46[a]	1.41[a]	7.71	0.72	19.39
43	1.47	1.43	7.74	0.71[a]	19.03
44	1.56	1.51	7.65[a]	0.71	18.8
45	1.56	1.55	7.69	0.78	18.42
46	1.52	1.55	7.4	0.73	17.74
47	1.6	1.6	7.11	0.78	17.46
48	1.66	1.65	6.98[a]	0.78	17.08
49	1.64	1.62	7.09	0.78	16.94
50	1.69	1.68	7.34	0.77	17.02
51	1.74	1.78	7.36	0.82	16.98
52	1.79	1.79	7.27	0.82	17.32

[a]Indicates a significant change in trend from Joinpoint analysis. *P* value was ≤ .05.

other forms of treatment for substance use disorder [12]. In an effort to help mitigate these effects for individuals experiencing substance use disorder, the US Substance Abuse and Mental Health Service Administration, the US Drug Enforcement Administration, and state regulators approved exemptions to expand take-home doses of methadone and buprenorphine,

Table 2. Annual Counts and Percentage of On-Scene Death, Cardiac, and Opioid Use/Overdose Emergency Medical Services 911 Call Activations and Change in Percentage (2018–2019 vs 2020), Stratified by Sex, Race/Ethnicity, and Age

			2018, N = 16 915 214	2019, N = 22 758 045	2020, N = 25 118 999	2018–2019 vs 2020
		Activation Type	Count (Percentage of Total)			Change in Percentage of Total Activations (95% Confidence Interval)
Overall		On-scene death	201 210 (1.19)	266 473 (1.17)	382 134 (1.52)	28.8% (28.3%–29.3%)
		Cardiac	211 404 (1.25)	291 276 (1.28)	391 337 (1.56)	23.3% (22.8%–23.8%)
		Opioid	94 989 (0.56)	132 342 (0.58)	196 534 (0.78)	36.8% (36.1%–37.6%)
Sex	Male	On-scene death	124 214 (1.56)	165 766 (1.54)	237 369 (1.93)	24.5% (24.1%–25.0%)
		Cardiac	131 251 (1.65)	181 663 (1.68)	243 237 (1.98)	18.9% (18.5%–19.4%)
		Opioid	61 339 (0.77)	87 162 (0.81)	133 415 (1.10)	39.2% (38.6%–39.9%)
	Female	On-scene death	73 550 (0.84)	96 875 (0.83)	140 126 (1.12)	34.1% (33.5%–34.7%)
		Cardiac	78 783 (0.90)	107 929 (0.92)	146 002 (1.17)	28.6% (28.0%–29.2%)
		Opioid	32 940 (0.38)	44 430 (0.38)	62 259 (0.50)	31.6% (30.7%–32.5%)
Race/Ethnicity	American Indian/Alaska Native	On-scene death	1247 (1.15)	1175 (1.15)	1953 (1.53)	33.0% (32.5%–33.6%)
		Cardiac	1350 (1.24)	1244 (1.22)	1992 (1.56)	26.8% (26.3%–27.3%)
		Opioid	647 (0.60)	599 (0.59)	1067 (0.84)	41.2% (40.5%–41.9%)
	Asian	On-scene death	1072 (1.19)	1838 (1.19)	3189 (1.54)	29.4% (28.9%–29.9%)
		Cardiac	1164 (1.29)	1975 (1.28)	3185 (1.53)	19.1% (18.6%–19.6%)
		Opioid	479 (0.53)	849 (0.55)	1621 (0.78)	44.4% (43.7%–45.2%)
	Black/African American	On-scene death	24 105 (1.20)	29 914 (1.17)	55 777 (1.53)	29.1% (28.6%–29.6%)
		Cardiac	25 050 (1.25)	32 470 (1.28)	56 946 (1.56)	23.3% (22.8%–23.8%)
		Opioid	11 772 (0.59)	14 800 (0.58)	28 584 (0.78)	33.3% (32.6%–34.1%)
	Native Hawaiian/Pacific Islander	On-scene death	342 (1.15)	397 (1.14)	610 (1.53)	33.6% (33.1%–34.1%)
		Cardiac	366 (1.23)	456 (1.32)	588 (1.48)	16.1% (15.6%–16.6%)
		Opioid	161 (0.54)	180 (0.52)	303 (0.76)	43.4% (42.6%–44.1%)
	White	On-scene death	65 604 (1.18)	82 934 (1.18)	137 171 (1.52)	28.8% (28.3%–29.3%)
		Cardiac	68 701 (1.24)	91 053 (1.29)	140 803 (1.56)	23.3% (22.8%–23.8%)
		Opioid	32 142 (0.58)	40 783 (0.58)	70 584 (0.78)	34.5% (33.8%–35.2%)
	Hispanic/Latino	On-scene death	7525 (1.21)	10 655 (1.19)	21 080 (1.53)	27.5% (27.0%–28.0%)
		Cardiac	7795 (1.26)	11 334 (1.26)	21 632 (1.57)	24.6% (24.1%–25.1%)
		Opioid	3292 (0.53)	5346 (0.59)	10 726 (0.78)	39.3% (38.6%–40.0%)
Age, years	12–21	On-scene death	3683 (0.32)	4790 (0.32)	6814 (0.45)	40.6% (39.7%–41.6%)
		Cardiac	3728 (0.33)	5264 (0.35)	7296 (0.48)	41.2% (40.2%–42.1%)
		Opioid	4594 (0.41)	6264 (0.42)	10 337 (0.68)	63.9% (63.0%–64.7%)
	22–60	On-scene death	71 652 (0.97)	95 395 (0.97)	137 772 (1.22)	25.8% (25.2%–26.3%)
		Cardiac	75 299 (1.02)	104 104 (1.05)	143 944 (1.28)	23.7% (23.1%–24.2%)
		Opioid	78 615 (1.07)	111 152 (1.13)	169 425 (1.50)	36.4% (35.8%–36.9%)
	61+	On-scene death	115 970 (1.55)	156 810 (1.52)	230 465 (2.00)	30.3% (29.8%–30.7%)
		Cardiac	123 521 (1.65)	171 862 (1.66)	232 511 (2.01)	21.5% (21.0%–21.9%)
		Opioid	9138 (0.12)	13 353 (0.13)	17 677 (0.15)	20.0% (18.4%–21.6%)

The total count (and average yearly percent) of emergency medical services 911 calls from calendar week 1 to week 52 of each year, stratified by sex, race/ethnicity, and age, are provided.

allowing medications to be initiated and maintained during telemedicine visits [13]. Because study results support findings that EMS activations for opioid use/overdose events and mental health events have increased during the pandemic, a finding supported in ED visits as well, the suggested shift suggests a change in health-seeking behavior from primary care to emergency care. This change emphasizes the need to integrate care for mental health and substance use disorder screening

and prevention services into regular touch points of care during the pandemic [14]. Primary care providers are urged to continue to emphasize frequent visits and counseling and to routinely discuss the availability of naloxone [15], which may improve adherence and outcome for patients at risk for substance use disorder or opioid overdose.

Mental/behavioral health EMS activations were higher than baseline levels in 2020. This finding is supported by results from a nationally representative web-based survey that showed US adults have experienced higher levels of adverse mental health conditions associated with COVID-19 and that racial/ethnic minority populations, essential workers, and unpaid adult caregivers report increased substance use and elevated suicidal ideation [16]. Additionally, higher demand on EMS services on top of COVID-related demands may also contribute to higher stress and other adverse conditions for EMS workers themselves. Deferring preventative care has indirect cost implications for both the patient and supportive service providers.

There are limitations that should be considered when interpretating these study results. First, although NEMSIS data accounted for 911 EMS activations from 11 257 agencies (53% total licensed agencies) in 2020 [17], it did not include information from agencies that do not send their data to NEMSIS. Therefore, results may not be generalizable. Second, the number of total EMS activations varied over time, increasing across the 3-year study period as new agencies began submitting data to NEMSIS and fluctuating throughout the pandemic in 2020, most notably during weeks 10–28. The percentage of total activations was used to address the changing denominator and assess trends over time; however, the percentages of total activations during weeks 10–28 of 2020 should be interpreted with caution because of the changing denominator. Increased percentages during this time may be attributed to the smaller denominator rather than an increase in activations for specific causes. Third, multiple EMS units may respond to the same event, which would result in overcounting the total number of activations. However, this effect should be consistent over each year and through the year and is not likely contributing to the overall trend. Fourth, EMS providers are not licensed to make a diagnosis for the patients they evaluate and treat. The ICD-10-CM codes used to identify opioid-related or mental/behavioral health–related activations may be misclassified. Fifth, data for injuries cannot be differentiated by cause of injury, classification, or severity nor by intentionality. Because injury is heterogeneous and differing types of injuries may have increased while others decreased during the public health crisis, caution is suggested when interpreting the change over the pandemic period. Sixth, readers should consider the fluctuating denominator of total EMS activations over the 3-year, annual study period when interpreting trends in the percentage of different activation types. Finally, though the current analysis can identify when a change in a trend occurs, it does not explain reasons for shifts seen in the data. Of note, during the study period, no state stopped submitting data nor was there a notable reduction in the number of reporting agencies, although the frequency with which agencies submit records often fluctuate over a 1-year period.

This study brings to light some of the indirect consequences of the COVID-19 pandemic, such as cardiovascular disease and opioid use–related morbidity and mortality, which are likely to persist without directed intervention. Increased opportunities for patient–provider touch points, including telehealth visits, may minimize unintended and lasting effects of changed care-seeking behavior. Although access to telehealth visits has increased as a result of the COVID-19 pandemic [18], access to routine healthcare visits remains low [19]. Increasing touch points that focus on initiating or maintaining care for individuals with chronic diseases and substance use disorders during the pandemic may help prevent acute events that require 911 emergency activations and premature death.

Supplementary Data

Supplementary materials are available at *Clinical Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

Notes

Disclaimer. The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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