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Naloxone Use by Emergency Medical Services During the COVID-19 Pandemic: A National Survey

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Objectives: The COVID-19 epidemic in the United States has hit in the midst of the opioid overdose crisis. Emergency medical services (EMS) clinicians may limit their use of intranasal naloxone due to concerns of novel coronavirus infection. We sought to determine changes in overdose events and naloxone administration practices by EMS clinicians.

Methods: Between April 29, 2020 and May 15, 2020, we surveyed directors of EMS fellowship programs across the US about how overdose events and naloxone administration practices had changed in their catchment areas since March 2020.

Results: Based on 60 respondents across all regions of the country, one fifth of surveyed communities have experienced an increase in opioid overdoses and events during which naloxone was administered, and 40% have experienced a decrease. The findings varied by region of the country. Eighteen percent of respondents have discouraged or prohibited the use of intranasal naloxone with 10% encouraging the use of intramuscular naloxone.

Conclusions: These findings may provide insight into changes in opioid overdose mortality during this time and assist in future disaster planning.

Key Words: COVID-19, emergency medical services, naloxone, opioid, overdose

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The SARS-CoV-2 coronavirus is transmitted via droplets and secretions and may present a risk to emergency

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medical services (EMS) clinicians who perform procedures such as overdose reversal with intranasal naloxone.¹ COVID-19 in the United States (US) has occurred in the midst of an opioid crisis that averages 128 overdose deaths per day.² Anecdotal reports cite an increase in opioid overdoses during the COVID-19 pandemic, leading to responses from the American Medical Association and loosening of regulations regarding access to medications for opioid use disorder by federal entities.^{3–5} Notably, some law enforcement jurisdictions have banned the administration of intranasal naloxone to avoid potential exposure of their personnel to SARS-CoV-2.⁶ Current guidelines for EMS clinicians recommend the use of intranasal over intramuscular naloxone⁷ whereas recent guidance from the Substance Abuse Mental Health and Services Administration (SAMHSA) favors intramuscular use if sufficient personal protective equipment is not available.⁵ In the midst of the COVID-19 pandemic and to provide information on one aspect of the effect of the pandemic on frontline EMS practices, we sought to determine the effect of COVID-19 on the perceived prevalence of opioid overdoses and the use of intranasal naloxone by EMS in the US.

METHODS

Between April 29, 2020 and May 15, 2020, we conducted an online anonymous survey of 201 physicians who are members of the Council of EMS Fellowship Directors, part of the National Association of EMS Physicians. EMS fellowship programs provide postresidency training for physicians planning careers in EMS medical oversight and out-of-hospital clinical care with EMS and interfacility transport services. The Council's members include Program Directors and Associate Program Directors at the 67 Accreditation Council of Graduate Medical Education accredited EMS fellowship programs in the US. Council members received an invitation to participate in the survey by email from one of the authors (DCC) and 2 weekly reminders to complete the survey if they had not yet done so. To avoid duplicate responses, only one respondent per fellowship program was requested. Survey items were developed by consensus of the authors, and pilot tested and edited based on feedback from a separate group of 6 EMS physicians before surveying the Council. The survey included questions asking the respondents to compare the situation after March 1, 2020 (post COVID-19) to that of January and February 2020 (pre-COVID-19). Items covered the respondent's impression regarding changes in the number

of EMS responses for opioid overdose, and number of EMS responses that required naloxone administration (increased, decreased, no change) in their catchment area. They were asked about intranasal naloxone use (no change vs discouraged and/or recommend alternative delivery methods) and if they had authorized a change from intranasal to intramuscular naloxone (yes, no or considering but have not implemented). This last item would reflect a change for basic life support personnel who typically do not draw up and administer intramuscular medications. Respondents were asked separately about EMS services at their hospital/health care system, in their region, and in their state. To preserve anonymity, respondents were only asked to identify the region of the country in which they were located (Northeast, Midwest, South, West). We used descriptive statistics in our primary analysis assuming the respondents reflected unique communities and assessed for regional variation in responses using ANOVA.

RESULTS

Sixty physicians completed the survey. Nineteen (32%) were in the Midwest, 17 (28%) were in the South, 12 (20%) were in the Northeast, and 12 (20%) were in the West. The primary findings are in the Table 1. Eleven of 60 (18%) respondents indicated that EMS responses for overdose in their area increased while 24 (40%) indicated they had decreased compared with the pre-COVID-19 timeframe. Eleven (18%) indicated that they had discouraged or prohibited the use of intranasal naloxone by their EMS agencies/system, while 47 (78%) indicated no change. Six (10%) indicated that EMS services in their area had discontinued intranasal naloxone of their own initiative. Six (10%) indicated that they had authorized EMS clinicians to use intramuscular naloxone to avoid intranasal administration and another 6 (10%) were considering but had not yet implemented this change. Programs in the Midwest and Northeast were more likely to report decreases in overdose compared to those in the South and West ($P=0.02$). There was no other evidence of regional variation.

DISCUSSION

This survey of physicians who oversee EMS services nationally demonstrates that they perceive that approximately one fifth of communities have experienced an increase in opioid overdoses and events during which naloxone was administered since the beginning of March 2020, while 40% have experienced a decrease. These findings varied by region. Similarly, 18% of communities surveyed have discouraged or prohibited the use of intranasal naloxone with 10% authorizing the use of intramuscular naloxone in a group of EMS clinicians who previously do not use this route of delivery.

Current EMS guidelines and systematic reviews support the use of either intranasal or intramuscular naloxone.^{7,8} Intranasal use has been recommended by some because it decreases risk of needlestick injuries and is less likely to lead to patient agitation and refusal of services.⁷ The proportion of EMS naloxone reversals conducted with intranasal formulations nationally is not known. Additionally, while intramuscular administration is an option for clinicians

TABLE 1. Changes in Opioid Overdose Responses and Intranasal Naloxone Use During COVID-19 Pandemic by Emergency Medical Services in the US

	N (%)
EMS responses for opioid overdoses have...	
Decreased	24 (40)
Increased	11 (18)
No change	25 (42)
The percentage of EMS runs involving naloxone administration have...	
Decreased	25 (42)
Increased	11 (18)
No change	24 (40)
Have you discouraged or prohibited the use of intranasal naloxone by the EMS agencies/system for which you and your colleagues at your institution provide medical oversight?	
Discouraged and/or recommended alternative delivery methods	11 (18)
No change	47 (78)
We do not use intra-nasal naloxone in our system	02 (3)
Have other medical directors in your catchment area discouraged or prohibited the use of intranasal naloxone?	
Discouraged and/or recommended alternative delivery methods	11 (18)
No change	49 (82)
Have any EMS agencies in your catchment area discontinued intranasal naloxone on their own initiative?	
No	54 (90)
Yes	06 (10)
Have you authorized basic life support personnel to draw up and inject intramuscular naloxone (as some systems are doing with epinephrine), to avoid intranasal administration?	
Considering but have not implemented	06 (10)
No	48 (80)
Yes	06 (10)
Have other medical directors in your area authorized basic life support personnel to draw up and inject intramuscular naloxone (as some systems are doing with epinephrine), to avoid intranasal administration?	
Considering but have not implemented	06 (10)
No	48 (80)
Yes	06 (10)
Have any changes in naloxone administration options been made at the state-wide level in your state?	
No changes	57 (95)
Other	02 (3)
State has discouraged using intranasal naloxone and/or recommended alternative delivery methods	01 (2)
Census region	
Midwest	19 (32)
Northeast	12 (20)
South	17 (28)
West	12 (20)

EMS, Emergency medical services.

certified to provide advanced life support, it is typically not an option for the majority of EMS clinicians who are certified to provide basic life support services.⁹ Despite the advantages of intranasal naloxone and its endorsement in current guidelines,⁷ a recent clinical trial conducted in a supervised injection facility demonstrated greater efficacy of intramuscular naloxone over intranasal when the 2 medications were provided at equal doses in the same concentration.¹⁰

Our findings have limitations. Although our sample includes individuals from all parts of the country, EMS fellowship programs are generally associated with academic medical centers and our results may not reflect rural settings. Our results are based on expert report. The effect of the

reported changes in intranasal naloxone use on mortality are not known. Although we asked recipients to limit their responses to 1 per program and kept the respondents anonymous to encourage honest reporting, it is possible the responses do not represent 60 unique programs. Finally, the extent to which EMS clinicians are aware of the SAMHSA guidance⁵ and the extent to which the administration of intranasal naloxone constitutes a risk for SARS-Co-V2 transmission are not known.¹

Our results indicate that COVID-19 has been associated with reports of increased opioid overdose and use of naloxone in approximately 20% and decreased events in 40% of settings around the US. Approximately one fifth of jurisdictions report limiting their use of intranasal naloxone. These findings may provide insight into changes in opioid overdose mortality during this time and assist in future disaster planning, especially given the central role that EMS fellowship directors can play in providing guidance to their local and state entities.

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