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Trends in visits related to drug use adverse effects in an urban ED during COVID-19



To the Editor:

Recent reports have shown that there was an increase in drug use adverse effects (DUAЕ) related visits to emergency departments throughout the COVID-19 pandemic [1–3]. Specifically, studies have noted a significant increase opioid-related mortality across states, caused primarily by illicit fentanyl and its analogs [4,5]. While recent studies looking at emergency department (ED) visits related to substance use during COVID-19 have focused on comparing the overall change of visits pre and during COVID for overdoses, none of the studies have compared the rate of all DUAЕ visits to those of ED volume at different time points within the first wave of the pandemic. This ‘intra-pandemic’ variation may be important to understanding how this segment of patients has been affected by the pandemic and how to more appropriately meet their needs.

1. Methods

This was a single-center retrospective study comparing trends in DUAЕ and emergency department visits in an urban ED during weeks 5 through 25 (February–June) of 2019 and 2020. We computed the total number of ED and DUAЕ visits that occurred in each week for weeks 5 through 25 for each year. We defined the “first wave” as visits that occurred within the 6 week time frame of March 19th 2020 - April 30th 2020 (weeks 12–18). DUAЕ encounters were defined as all patient encounters with ICD-10 codes pertaining to poisoning by or adverse effect of drugs, medicaments, and biological substances (T-codes T36–T50) and well as mental and behavioral disorders due to psychoactive substance use (F-codes F10–F19).

All data were reported using proportions. We divided 2020's volume of ED and DUAЕ visits by 2019's volume to quantify the impact of the pandemic on each type of visit at different time points.

2. Results

Prior to the first wave of the pandemic, ED volume ranged from 88.9% to 102% of 2019's volume of visits within the same time frame (see Table 1). During the first wave, the total number of visits dropped to as low as 62.8% of 2019's ED volume. Between weeks 19–25, ED volume recovered to a maximum of 70.4% at week 24. Within this time frame, ED volume never reached or surpassed the baseline volume it was at in 2019.

Prior to the initial COVID surge of 2020, the volume of visits related to drug complications were about equal to or surpassed that of the volume for 2019 every single week (minimum: 100.1% of 2019 visits,

maximum: 123.8% of 2019 visits). During the first wave, visits related to drug complications dropped as low as 52.1% of 2019's volume during the same time frame. However, during weeks 19–25, visits related to DUAЕ surpassed that of 2019's volume for every week, with a minimum of 103% of 2019's volume and at a maximum 145% of 2019's volume. This is in contrast to overall ED volume which similarly had a drop in visits during the first wave but was only beginning to recover by the end of June (see Fig. 1).

3. Discussion

Our analysis demonstrated that during the first wave there was a reduction of ED utilization for all patients including those with drug abuse-related visits. In contrast to the overall ED volume, which lagged in its return, DUAЕ-related visits returned to pre-pandemic baseline more quickly and even surpassed that of prior years' volume.

At least part of the initial decrease in visits during the first wave was likely related to intentional avoidance of the emergency department out of fear of contracting coronavirus. National reports have shown that there was an increase in drug use deaths during the pandemic, possibly justifying that fear of reporting to the emergency department and

Table 1
2020 ED visits and drug complication visits as a function of 2019 visits.

Week	Total ED visits (% of 2019 visits)	Total visits related to drug complications (% of 2019 visits)
5	93.5	100.1
6	96.0	104.2
7	102	114.5
8	90	119
9	97	123.8
10	89	100.6
11	96	103.9
12	88	134
13	92	98.6
14	78.4	75.2
15	82.9	52.1
16	68.4	87.7
17	64.2	80.3
18	62.8	131
19	63.1	116.9
20	64.8	118.2
21	59.2	152
22	61.3	102.5
23	59.3	109.8
24	70.4	144.7
25	66.3	118.1

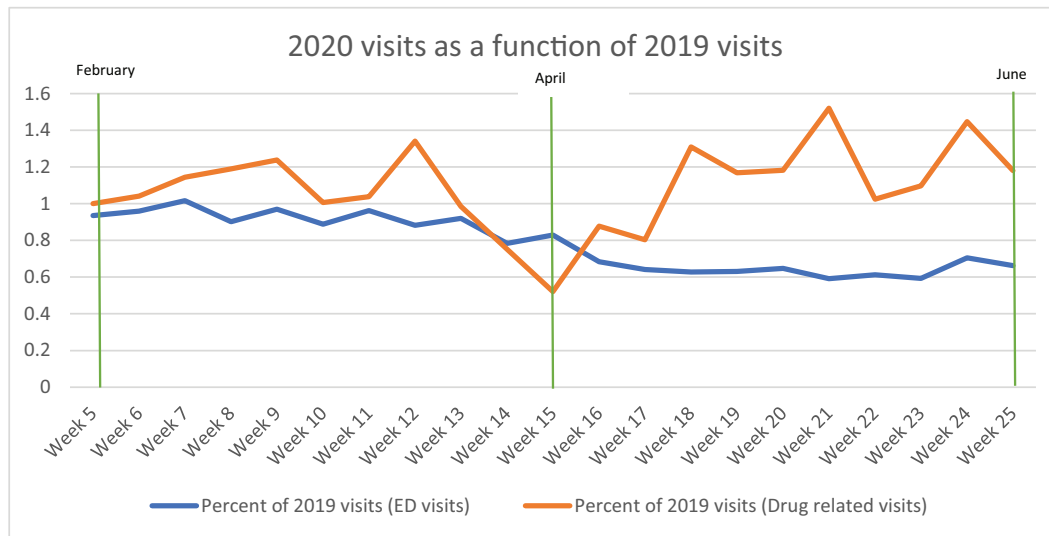


Fig. 1. 2020 DUAЕ visits and ED visits as a function of 2019 visits.

contracting the disease may have prevented patients from coming to the ED. [6] As a healthcare community, we also communicated this risk to the general public. Other factors such as reduced availability of family, friends, or even ambulances to transport patients to healthcare facilities, in addition to economic hardship could also have played a role. Factors related to drug use such as increased availability and/or use of naloxone at home, and deaths due to fear of infection could also be attributed to the decrease in visits due to DUAЕ.

Similar to the initial decrease in ED visits, the rebound in the proportion of ED visits related to drug complications after the first wave is likely multifactorial as well and related to access and underlying usage. Changes in use could be attributed to additional byproducts of the pandemic, which include but are not limited to, the effects of isolation, psychosocial stressor caused by loss of a family member or financial instability, and changes in availability of specific drugs [7,8]. Future studies should look at determining the causes for these changes in emergency department utilization during the pandemic by our substance use population, particularly, the struggles they may face when accessing the care that they need.

Declarations of interest

None.

Funding sources

None.

References

- [1] Overdose deaths accelerating during COVID-19; 2020 Retrieved from [https://www.cdc.gov/media/releases/2020/p1218-overdose-deaths-covid-19.html#:~:text=Over%201%2C000%20drug%20overdose%20deaths,Control%20and%20Prevention%20\(CDC\)](https://www.cdc.gov/media/releases/2020/p1218-overdose-deaths-covid-19.html#:~:text=Over%201%2C000%20drug%20overdose%20deaths,Control%20and%20Prevention%20(CDC)).
- [2] Drug Overdose Deaths. Retrieved from <https://www.cdc.gov/drugoverdose/data/statedeaths.html>; 2020.
- [3] Holland KM, Jones C, Vivolo-Kantor AM, Idaikkadar N, Zwald M, Hoots B, et al. Trends in US emergency department visits for mental health, overdose, and violence outcomes before and during the COVID-19 pandemic. *JAMA Psychiat*. 2021. <https://doi.org/10.1001/jamapsychiatry.2020.4402>.
- [4] Issue brief. Reports of increases in opioid- and other drug-related overdose and other concerns during COVID pandemic; 2021 Retrieved from: <https://www.ama-assn.org/system/files/2020-11/issue-brief-increases-in-opioid-related-overdose.pdf>.
- [5] Wainwright JJ, Mikre M, Whitley P, Dawson E, Huskey A, Lukowiak A, et al. Analysis of drug test results before and after the US declaration of a National Emergency Concerning the COVID-19 outbreak. *Jama*. 2020;324(16):1674–7. <https://doi.org/10.1001/jama.2020.17694>.
- [6] Overdose Deaths Accelerating During COVID-19. <https://www.cdc.gov/media/releases/2020/p1218-overdose-deaths-covid-19.html>; 2020.
- [7] Zaami S, Marinelli E, Vari MR. New trends of substance abuse during COVID-19 pandemic: an international perspective. *Front Psych*. 2020;11(700). <https://doi.org/10.3389/fpsy.2020.00700>.
- [8] Ornell F, Moura HF, Scherer JN, Pechansky F, Kessler FHP, von Diemen L. The COVID-19 pandemic and its impact on substance use: implications for prevention and treatment. *Psychiatry Res*. 2020;289:113096. <https://doi.org/10.1016/j.psychres.2020.113096>.

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