Suspected Opioid Overdose in Emergency Medical Services (EMS) Data

Background

This report describes suspected opioid overdoses documented by EMS providers during 2021. The data comes from the Montana EMS incident dataset.[1] Montana statute requires that licensed ground and air transporting EMS agencies submit a patient care report (PCR) to the dataset for each patient they encounter. Non-transporting agencies may also submit data. Therefore, the dataset may contain multiple records (EMS activations) that pertain to the same patient or incident.

In order to zero-in on a single record per overdose event, this report is restricted to 911 responses by ground transporting agencies (N=85 records excluded). It includes records with an incident date between January 1, 2021, and December 31, 2021, and scene location in Montana. EMS activations are labelled as opioid-related if they meet the **Montana opioid overdose syndrome criteria**.[2]

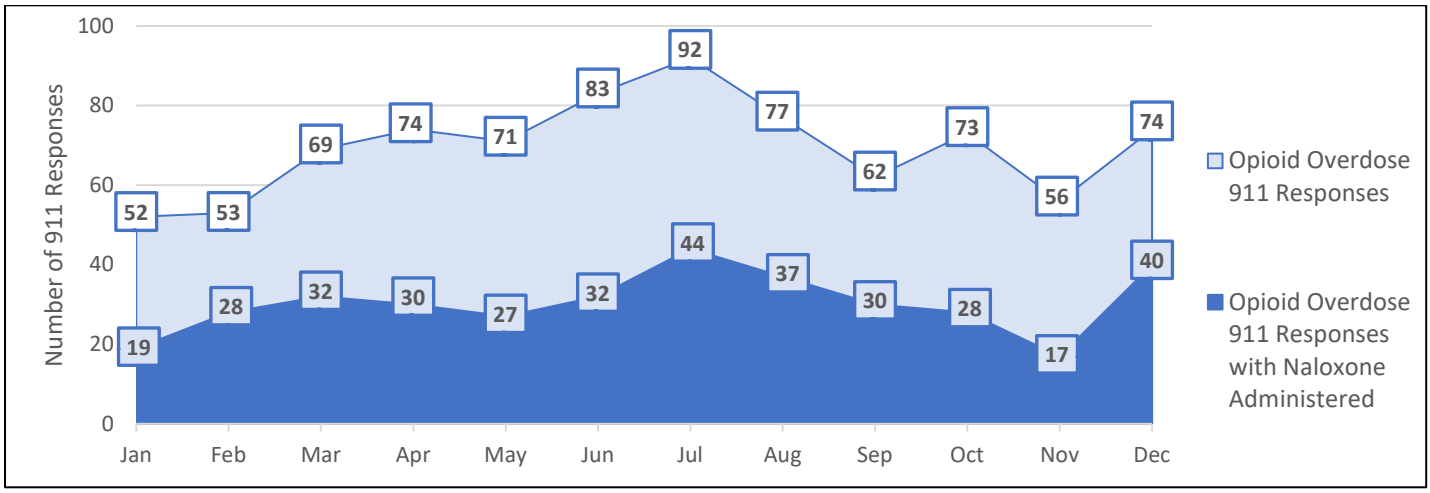
Data Limitations

- Numbers in this report are provisional and subject to change due to latent record submissions or updates
- Data quality issues
- Does not capture overdoses where EMS did not make patient contact
- Does not capture most naloxone administrations by law enforcement or the public

Results

There were **836** opioid overdose-related 911 responses by ground transporting EMS agencies in 2021 – an average of 70 per month. July had the highest number of opioid overdose-related 911 responses (Figure 1). Naloxone, a medication used for the emergency treatment of a known or suspected overdose, was documented in **364** of the 836 cases (**43.1%**)[3].

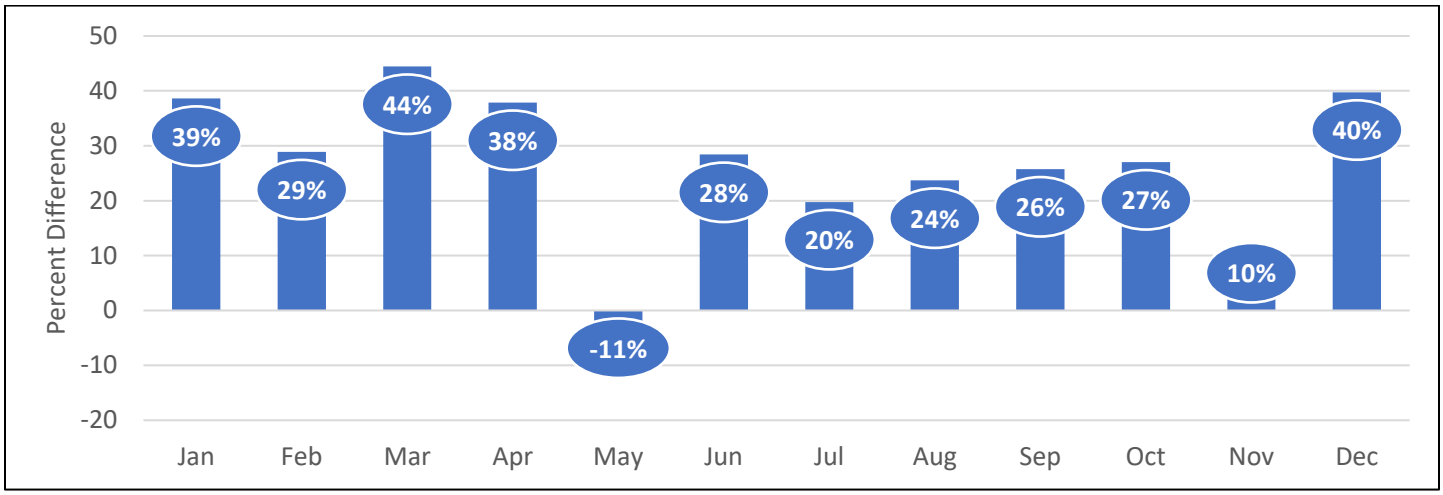
Figure 1. Opioid-overdose related 911 responses with/without naloxone, Ground Transporting Agencies, 2021



[1] Montana uses the **NEMSIS v3.4.0 data standard**
[2] Version 01.11.2022
[3] To learn more about accessing free naloxone, contact Ki-Ai McBride, Opioid Prevention Program Manager at naloxone@mt.gov

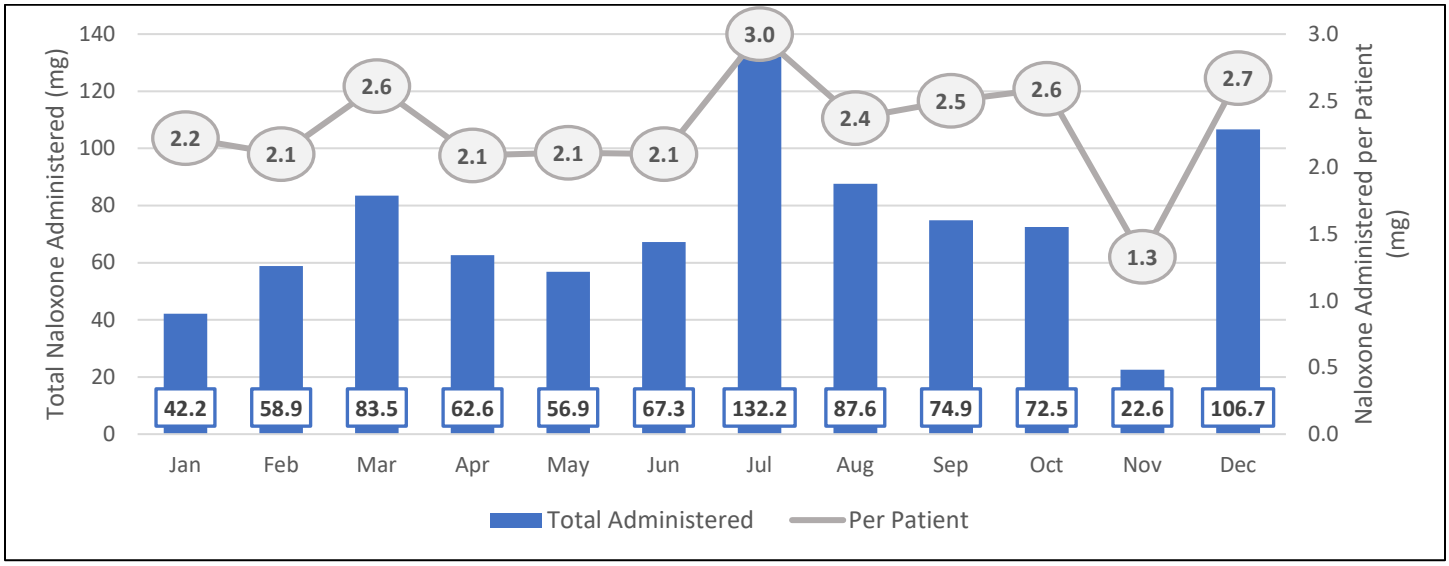
The number of opioid overdose-related 911 responses increased by approximately **35%** in 2021 compared to 2020. Every month in 2021, except for May, had more responses than the same month in 2020 (Figure 2).

Figure 2. Percent difference in monthly number of opioid-related 911 responses, Ground Transporting Agencies, 2021 vs 2020



Among the 364 opioid-related cases where naloxone was given, there were 482 naloxone administrations documented with a total amount of **868 milligrams** (mg)—however, this total does not include data from records missing dosage information. The yearly average was **72 mg** per month. July and December both saw totals over 100 mg, while November saw a lower amount than expected[4] (Figure 3). An average of **2.4 mg** of naloxone was given per opioid overdose patient, with month-to-month variation. Individuals overdosing from stronger opioids may require a higher dose of naloxone to reverse their overdose.

Figure 3. Monthly total mg naloxone administered and average mg per patient, 911 responses, Ground Transporting Agencies, 2021



[4] New facility list implemented in Nov 2021 may have affected the import of some EMS records to the database.

Opioid overdose-related 911 responses, Ground Transporting Agencies, Montana, 2021

	Q1	Q2	Q3	Q4	All	All %
Naloxone Administration						
No documentation of naloxone administration	95	139	120	118	**472**	56.5%
Naloxone administered, Response=Improved	67	72	93	71	**303**	36.2%
Naloxone administered, Response=Unchanged	12	14	15	13	**54**	6.5%
Naloxone administered, Response=No answer	†	†	†	†	**7**	0.8%
Patient Disposition						
Patient Transported by this EMS Unit	159	207	222	179	**767**	91.7%
Patient Treated/Evaluated, No Transport (per protocol)	†	†	†	†	**7**	0.8%
Patient Refusal, No Transport	9	11	7	17	**44**	5.3%
Patient Dead at Scene, No Transport	†	†	†	†	**18**	2.2%
Incident County NCHS Urban-Rural Classification						
Small Metro	72	129	103	94	**398**	47.6%
Micropolitan	48	53	50	52	**203**	24.3%
Non-core (Rural)	48	46	70	53	**217**	26.0%
Not Reported	†	†	†	†	**18**	2.2%
Patient Sex						
Female	79	98	108	81	**366**	43.8%
Male	95	128	121	120	**464**	55.5%
Not Reported	†	†	†	†	**6**	0.7%
Patient Age						
0-17 Years	†	10	†	†	**19**	2.3%
18-24 Years	18	26	24	31	**99**	11.8%
25-44 Years	82	113	122	117	**434**	51.9%
45-64 Years	40	57	52	28	**177**	21.2%
65+ Years	30	22	30	21	**103**	12.3%
Not Reported	†	†	†	†	**4**	0.5%
Patient Race*						
American Indian or Alaska Native	37	53	53	48	**191**	22.8%
Asian	†	†	†	†	**1**	0.1%
Black or African American	†	†	†	†	**10**	1.2%
Hispanic or Latinx	†	†	†	†	**14**	1.7%
Native Hawaiian or Other Pacific Islander	†	†	†	†	**1**	0.1%
White	102	112	114	102	**430**	51.4%
Other Race	†	13	10	†	**32**	3.8%
Race Not Listed	28	44	49	38	**159**	19.0%
Total	**174**	**228**	**231**	**203**	**836**	**100.0%**

*Race is a multi-select field, therefore the sum of all race categories may exceed the total.
†= Suppressed according to departmental policy if cell count is <5

For further information, please visit our website: *Injury Prevention Program*

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