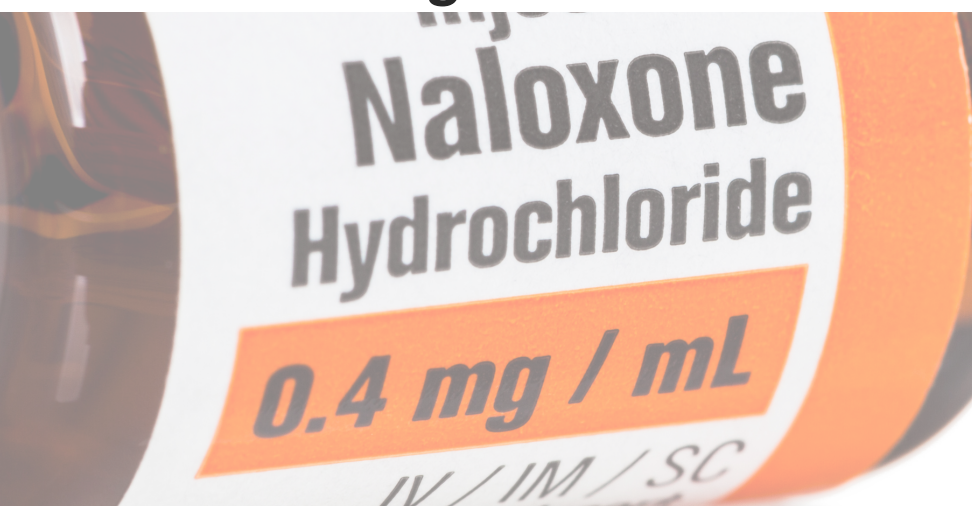


QUALITY IMPROVEMENT NEWSLETTER



A publication from the Maine EMS Quality Improvement Committee

Naloxone Usage & Substance Use Disorder



OVERVIEW

Substance use disorder (SUD), and more specifically opioid use disorder (OUD), continue to be a major public health threat to the residents and visitors of the state of Maine with hundreds of Mainers dying from preventable deaths every year. Learning as much as we can about these events will help our collective response to this public health emergency. This newsletter attempts to revisit a few measures identified in a 2019 QI Newsletter published by Maine EMS as well as highlight some additional measures. Maine EMS is excited about the Naloxone Dispensation Protocol and the upcoming Overdose Prevention Through Intensive Outreach Naloxone and Safety (OPTIONS) Referral Program and the opportunities that these programs present to EMS clinicians and patients experiencing SUD. The OPTIONS initiative is a coordinated effort of the Maine Office of Behavioral Health (OBH) and other state agencies to improve the health of Mainers using substances through harm reduction strategies, helping them on the road to recovery, and dramatically reducing the number of fatal and non-fatal drug overdoses.

TAKE AWAYS:

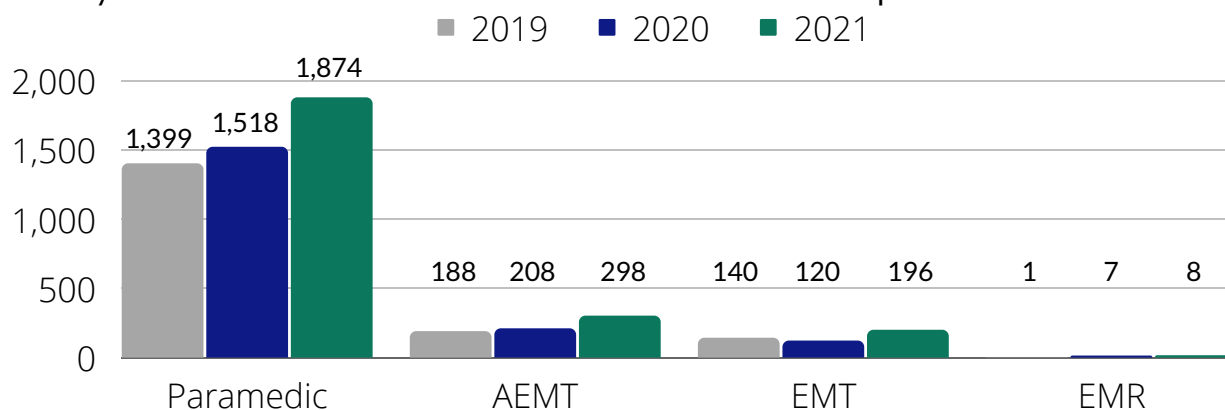
- Substance use disorder (SUD) is a disease, not a choice. EMS clinicians must treat substance use disorder patients with compassion.
- EMS clinicians must titrate naloxone to an adequate respiratory drive with sufficient airway protection rather than a completely awakened state.
- Leave-behind naloxone resources are a risk-prevention tool that helps reduce the overall morbidity and mortality burden associated with SUD.
- The fastest way for an EMD to get to naloxone administration and airway management instructions is to use the ECHO determinant in case entry for patients who are not breathing normally.

Quality Improvement Leaders should think about:

- Immediate oxygenation and ventilation are the priority for a patient experiencing an overdose. Quality leaders should consider this as an educational opportunity for EMS clinicians.
- Consider adopting the "Substance use disorder" CQI category to ensure proper documentation of prior-to-arrival (PTA) administration of naloxone, appropriate dosing of naloxone, airway management, and the Naloxone Dispensation protocol.

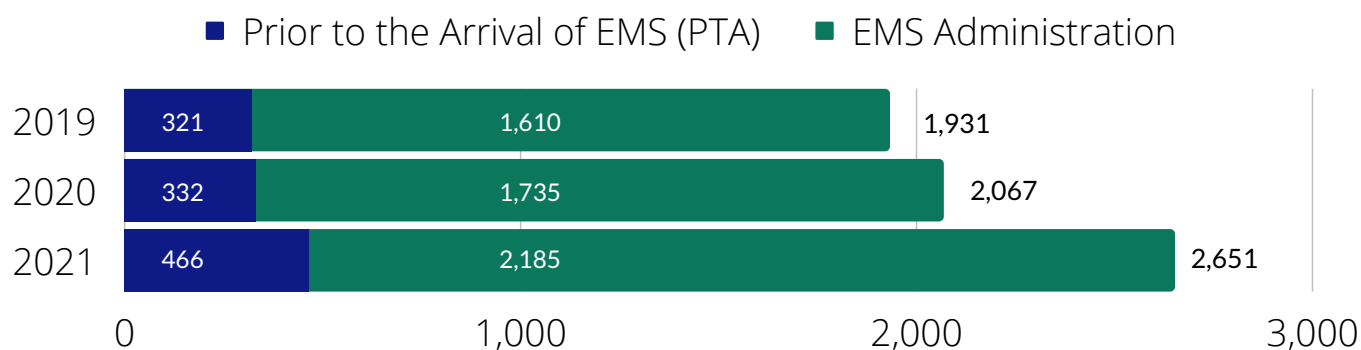
EMS Administrations of Naloxone

The chart below demonstrates the type of EMS clinicians documented to have administered naloxone. Please recall that this review only evaluates medications recorded in the medications administered field of MEFIRS. Any medications recorded in the narrative alone are not captured.



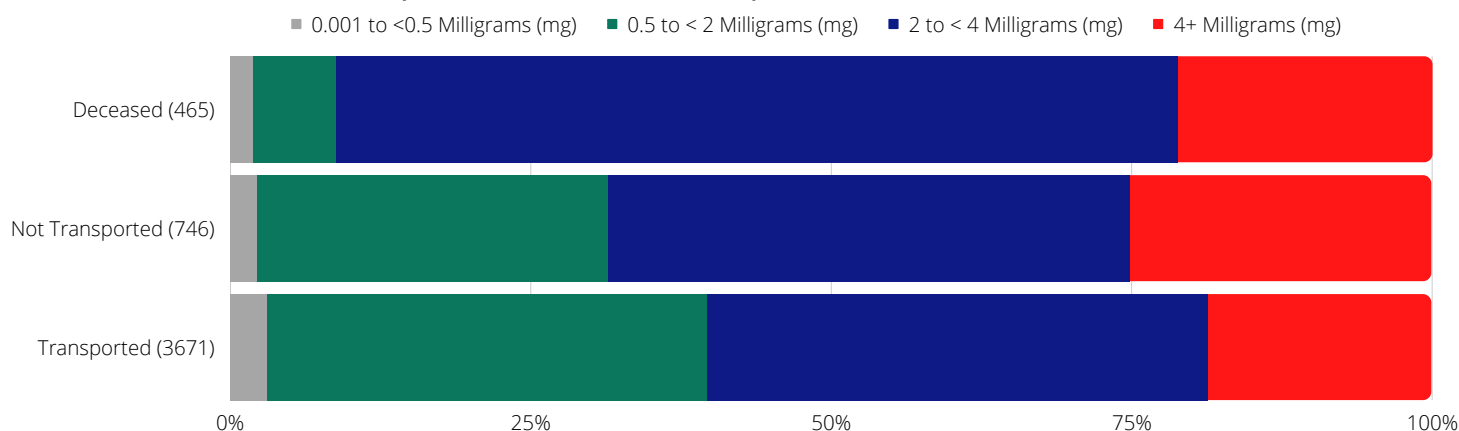
How Many Times Has Naloxone Been Administered?

Maine EMS clinicians and services administered naloxone 5,530 times between January 1, 2019, and December 31, 2021. Maine EMS Clinicians have also documented 1,119 administrations of naloxone before the arrival of EMS units on the scene in the same period.



Dispositions Based on Naloxone Dosing

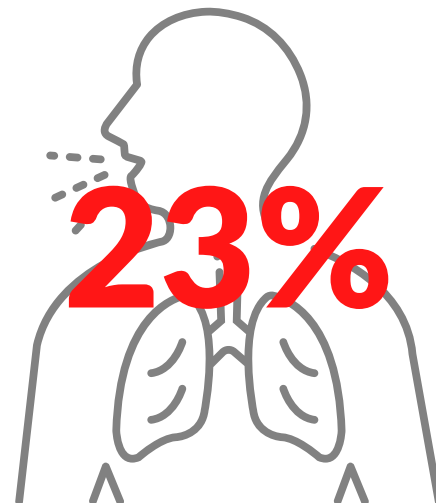
The chart below shows patient dispositions from 2019, 2020, and 2021 for persons receiving naloxone from an EMS clinician. Of note, 465 documented administrations of naloxone are to deceased patients, with 347 (70%) of deceased patients receiving a dose of naloxone between 2 and 4 Milligrams (mg). Do not give naloxone to a patient who is in cardiac arrest. This practice is not helpful and may be harmful as it distracts from the best performance of necessary tasks for successful cardiac arrest resuscitation.¹



(1) Maine Emergency Medical Services, & Medical Direction & Practices Board, Maine EMS Prehospital Treatment Protocols (December 1, 2021). Augusta, Maine; Medical Direction & Practices Board. Yellow 3 Page 114. Accessed March 22, 2022

Poisoning/Overdose (Yellow 1)

The Poisoning/Overdose protocol provides clear dosing instructions for patients with "**respirations less than 12/minute AND narcotic overdose** suspected." In 2021, out of the 1,752 patients having naloxone administered, 399 (23%) had documented respiratory rates greater than 12 breaths per minute prior to the administration of naloxone. Administering naloxone to a patient that does not have a depressed respiratory rate, may cause harm to a patient that is being treated for pain. Remember, naloxone is an opioid receptor antagonist meaning it binds to opioid receptors and reverses or blocks the effects of other opioids. Giving naloxone rapidly reverses the effects of opioid drugs, restoring normal respiration, and is intended solely for that purpose.³



LEAVE-BEHIND NALOXONE PROGRAM

In January 2022, Maine EMS launched a Naloxone Leave-Behind Program, where patients resuscitated with naloxone who also refuse transportation to the hospital are eligible to receive a naloxone kit provided to themselves, their families, or other bystanders on the scene. Learn more about the Naloxone Leave-Behind program by scanning the QR code here.



Providing naloxone kits enables lay rescuers to administer naloxone to an overdose victim sooner than if the victim would receive naloxone from a first responder. The MEMS QI Committee anticipates that the leave-behind program will assist in decreasing the morbidity and mortality of repeat overdose patients (see Repeat Patients section below). This program may also have the effect of decreasing the number of emergency calls for repeat overdose patients. Maine EMS closely follows overdose rates and bystander naloxone administration.

To allow Maine EMS to accurately measure the naloxone leave-behind program's success, EMS providers must document the distribution of naloxone leave-behind kits and any naloxone administration to patients by bystanders before first responder arrival. Service QI leaders may consider a QI process to ensure proper documentation of prior-to-arrival (PTA) naloxone, documentation of naloxone administration by EMS clinicians, and leave-behind naloxone education documentation/training.

The Maine EMS QI Committee recognizes the public health burden of substance use disorders. In addition to leave-behind naloxone kits, the Naloxone Dispensation protocol requires services to "...provide a list of local substance use disorder resources" ⁴ to be distributed to patients and family members to help patients overcome their substance use.

(3) U.S. Department of Health and Human Services. (2022, January 23). Naloxone for opioid overdose: Life-saving science. National Institutes of Health. Retrieved March 24, 2022, from <https://nida.nih.gov/publications/naloxone-opioid-overdose-life-saving-science>

(4) Maine Emergency Medical Services, & Medical Direction & Practices Board, Maine EMS Prehospital Treatment Protocols (December 1, 2021). Augusta, Maine; Medical Direction & Practices Board. Yellow 4 Page 114. Accessed March 22, 2022

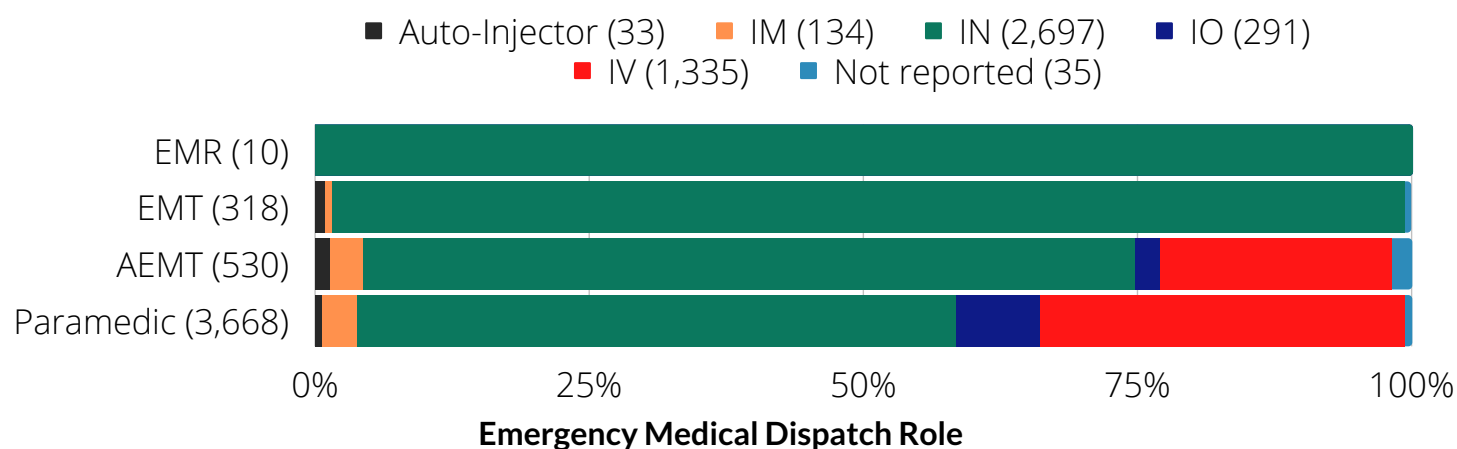
Repeat Patients Experiencing an Opioid Overdose and Receiving Naloxone

In the three years from 2019 to 2021, Maine EMS clinicians treated 3,164 patients experiencing a suspected opioid overdose. Of those patients, 388 (12.3%) interacted with EMS and received naloxone more than once. There were 82 individuals who received naloxone more than two times during this same period as described in the table below. Therefore, patients, their families, and the public may benefit more from receiving naloxone kits for bystander use, as well as from resources directing patients to SUD treatment services.

Number of Overdoses	2	3	4	5	6-10	Total
Number of Patients	306	62	15	3	2	388

Naloxone Administration Routes by EMS Clinicians

The EMS clinician's initial priority when managing an opioid overdose is to prioritize ventilatory support and subsequently administer naloxone. The chart below explores the routes of administration of naloxone by clinicians throughout the state for the first dose of naloxone. It is interesting that over 41% of the time, paramedics in Maine opt to first initiate intraosseous/intravascular (IO/IV) access prior to administration of naloxone. It should be noted that intranasal (IN) naloxone has been shown to be equally effective at reversing overdoses as IV administration.⁵ Therefore, it may be more beneficial for the patient if all clinicians, including paramedics, prioritized early administration of IN naloxone with subsequent dosing administered via IV, as needed, to regain return of sufficient respiratory function.



Emergency Medical Dispatch Role

"MPDS version 13.1 contains revisions to Protocol 23: Overdose/Poisoning (Ingestion) to include a truly frightening addition to the synthetic drug world: fentanyl—and its chemical analog carfentanil. Fentanyl is anywhere from 50 to 100 times more potent than morphine, and carfentanil is up to 4,000 times more potent than heroin and 1,000 times more potent than fentanyl. Instructions an EMD provide also depend on the availability of naloxone and the patient's condition (not breathing, started moving, still unconscious, waking up now) following administration, with the possibility of subsequent doses based on the patient's medical response."⁶ Remember that in addition to rapid administration of available naloxone, it is essential to follow through with airway support for these patients.

(5) Sabzghabae, A. M., Eizadi-Mood, N., Yaraghi, A., & Zandifar, S. (2014). Naloxone therapy in opioid overdose patients: intranasal or intravenous? A randomized clinical trial. Archives of medical science: AMS, 10(2), 309–314. <https://doi.org/10.5114/aoms.2014.42584>

(6) Fraizer, A. (February 6, 2017). When you need it most. IAED Journal. Retrieved March 25, 2022, from <https://www.iaedjournal.org/when-you-need-it-most-2>

THOUGHTS ON IMPROVING DOCUMENTATION

- It is critical to assess and document a patient's respiratory rate prior to the administration of naloxone as well as a post-administration respiratory rate. Naloxone administration is indicated for a patient with a respiratory rate of fewer than 12 breaths per minute, and a narcotic overdose is suspected.
- Be sure to document airway management procedures prior to the administration of naloxone. Airway management should be the primary focus for these patients.
- Do not give naloxone to a patient who is in cardiac arrest. This practice is not helpful and may be harmful as it distracts from the best performance of tasks that are necessary for the successful resuscitation of cardiac arrest.
- Naloxone dosing should be administered to produce an adequate respiratory drive and airway protection for the patient and documentation should reflect the same.
- Amendments to Maine Law in 2021 allow EMS clinicians in the state of Maine to dispense naloxone to patients who are treated for opioid overdose but refuse transport to the hospital. The "Naloxone Dispensation" protocol (Yellow 4) establishes the conditions for naloxone dispensation (i.e., Naloxone Leave-Behind Program).

CONTINUOUS QUALITY IMPROVEMENT COMPONENT

TO LEARN ABOUT CQI RESOURCES IN MEFIRS

1. The Image Trend University has a CQI overview for users unfamiliar with the CQI module.
2. Login to MEFIRS at www.mefirs.org.
3. Select *Community* and then *Help/University*.
4. Select "CQI" from the menu on the left-hand side of your screen

TO USE THE "SUBSTANCE USE DISORDER" REVIEW CATEGORY FOLLOW THE STEPS BELOW

1. Select the *Incidents* tab and "switch to" CQI.
2. Select the *Substance Use Disorder* CQI Review.
3. Answer the questions in the review using the information presented on the screen.

Note: Be sure to update the *Reviewer Status* and click *Save* before navigating to the next incident to review.

TO QUERY THE "SUBSTANCE USE DISORDER" REVIEW CATEGORY DATA, FOLLOW THE STEPS BELOW

1. Login to MEFIRS at www.mefirs.org.
2. Select *Tools* and then *Report Writer*.
3. Then search for the "Substance Use Disorder CQI Query"
4. Select *Generate Report*.

Scan this QR Code to watch our
Substance Use Disorder CQI
Query video on YouTube



The data included in this report is retrospective and originates from the 273 EMS agencies and the approximately 5,600 EMS clinicians and emergency medical dispatchers (EMDs) in the State of Maine who collectively provide data to the EMS Run Reporting system MEFIRS.