Community Response to the Opioid Crisis

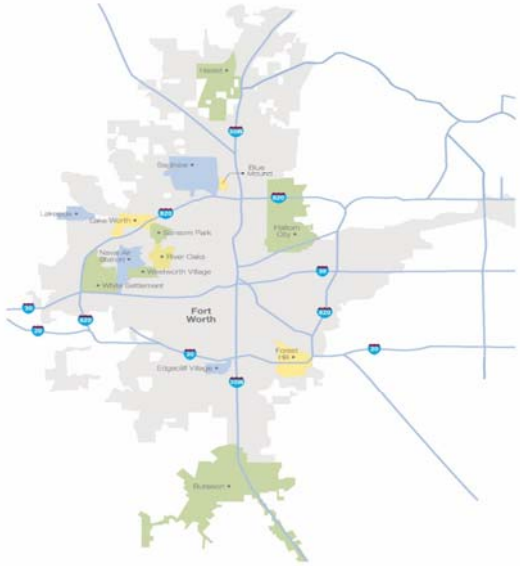
The EMS Conundrum…

About MedStar…

- **Governmental agency (PUM) serving Ft. Worth and 14 Cities**
  - Self-Operated
  - 1,016,963 residents, 434 Sq. miles
  - Exclusive provider - emergency and non emergency
- **146,000 responses in 2017**
- **515 employees**
- **$45 million budget**
  - **No tax subsidy**
- **Fully deployed dynamic resource management**
- **Medical Control from 16 member Emergency Physician's Advisory Board (EPAB)**
  - Physician Medical Directors from all emergency departments in service area + 5 Tarrant County Medical Society reps

Member Cities

Blue Mound
Burleson
Edgecliff Village
Forest Hill
Fort Worth
Haltom City
Haslet
Lakeside



Lake Worth
River Oaks
Saginaw
Sansom Park
Westover Hills
Westworth Village
White Settlement

Narcan Administration Protocol

Medication	Class
Naloxone	Opiod antagonist
Indications:	Contraindications:
→ Opiate overdose with CNS depression → Coma of unknown origin	→ Use with caution in narcotic dependent patients → Use with caution in neonates of narcotic-addicted mothers → Hypersensitivity to naloxone

OFFICE OF THE MEDICAL DIRECTOR
EMERGENCY PHYSICIANS ADVISORY BOARD

Narcan Administration Protocol

Protocol, Dosage, and Administration

Adult – Altered Mental Status/CNS Depression

Basic

If suspected opiate intoxication

2 mg IN (1 mg in each nostril)

IIRR x1 in 5 min

Assist

If suspected opiate intoxication

0.4 mg IV/IM

IIRR in 0.4 mg increments q 5 min to 4 mg max total dose

Adult – Overdose/Poisoning

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If suspected opiate intoxication

2 mg IN (1 mg in each nostril)

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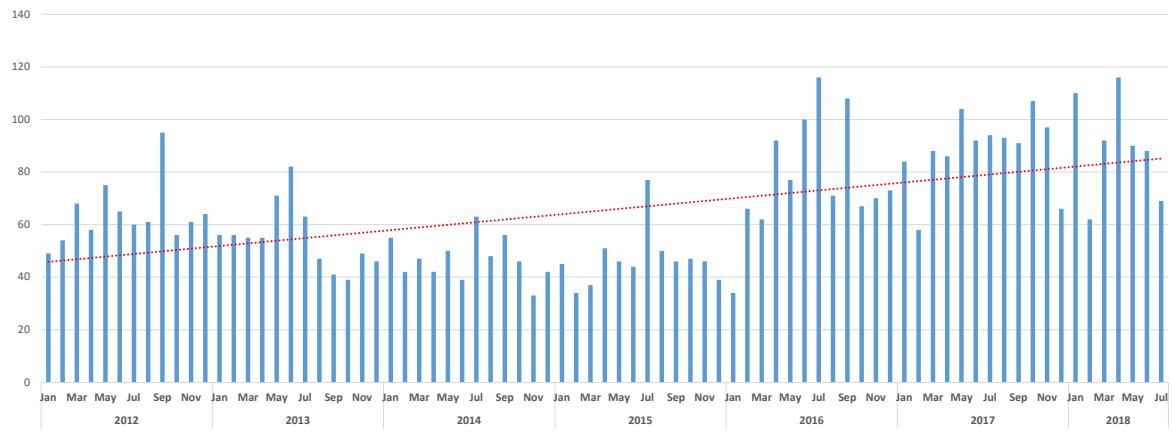
Incidents in Which Narcan was Administered



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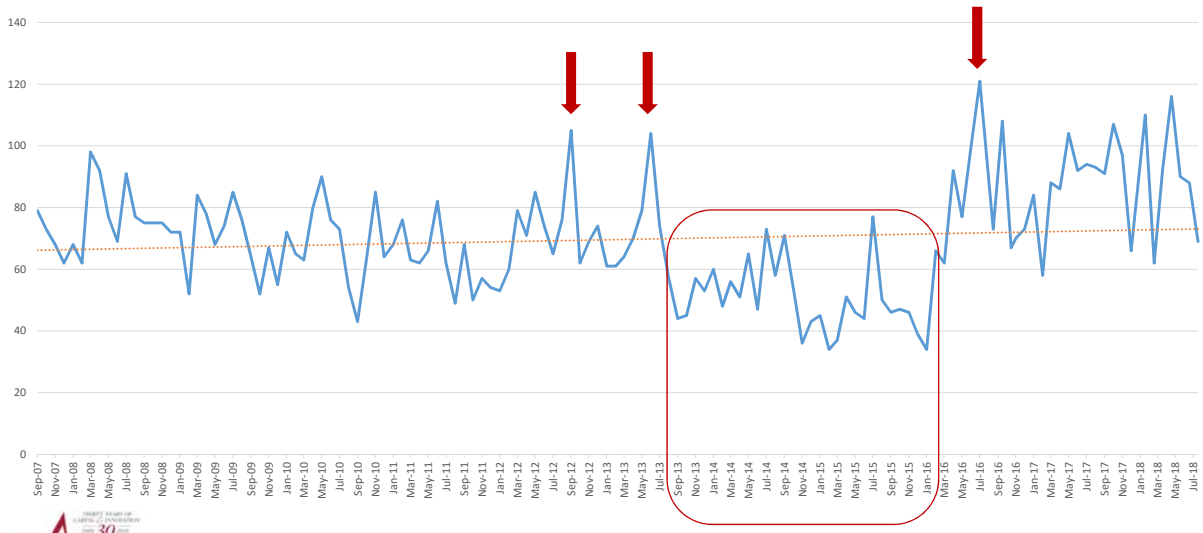
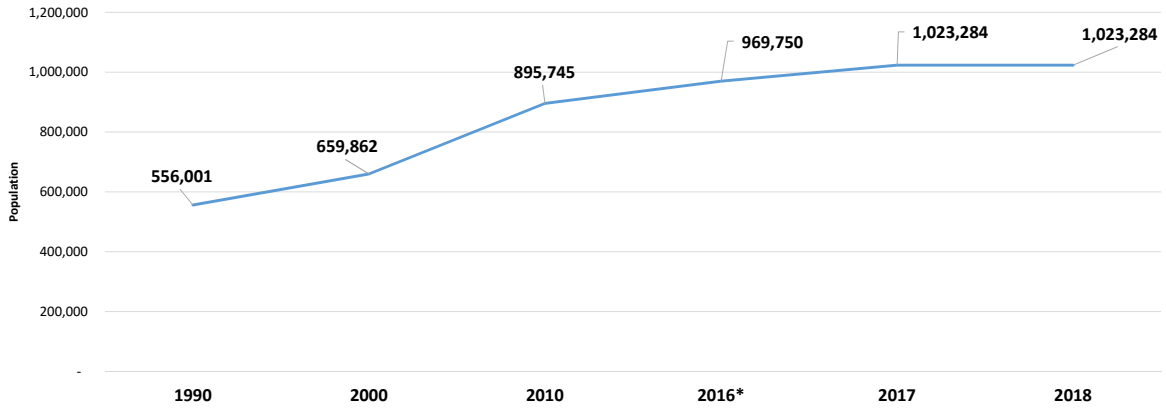
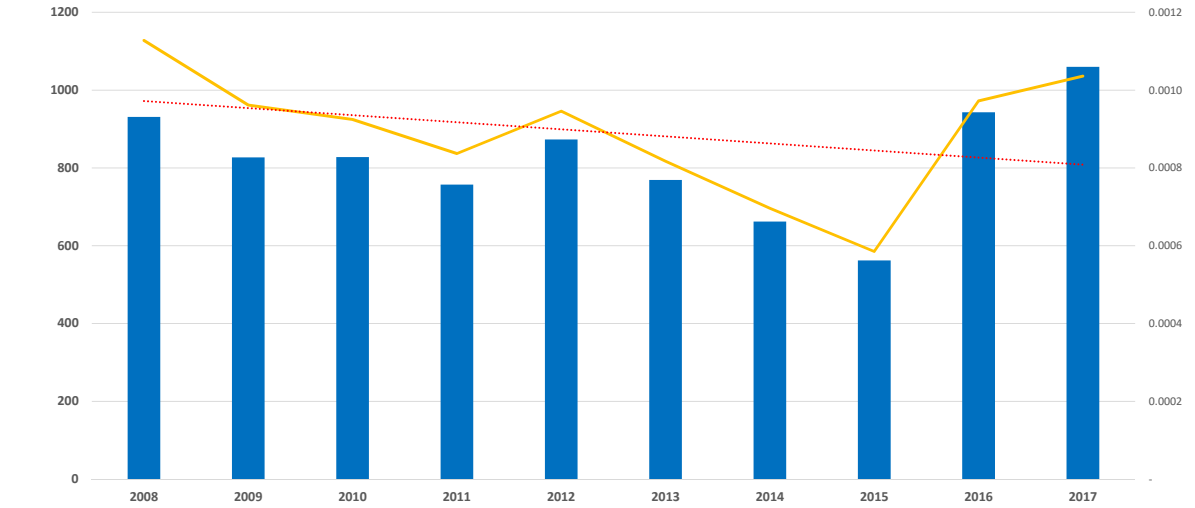


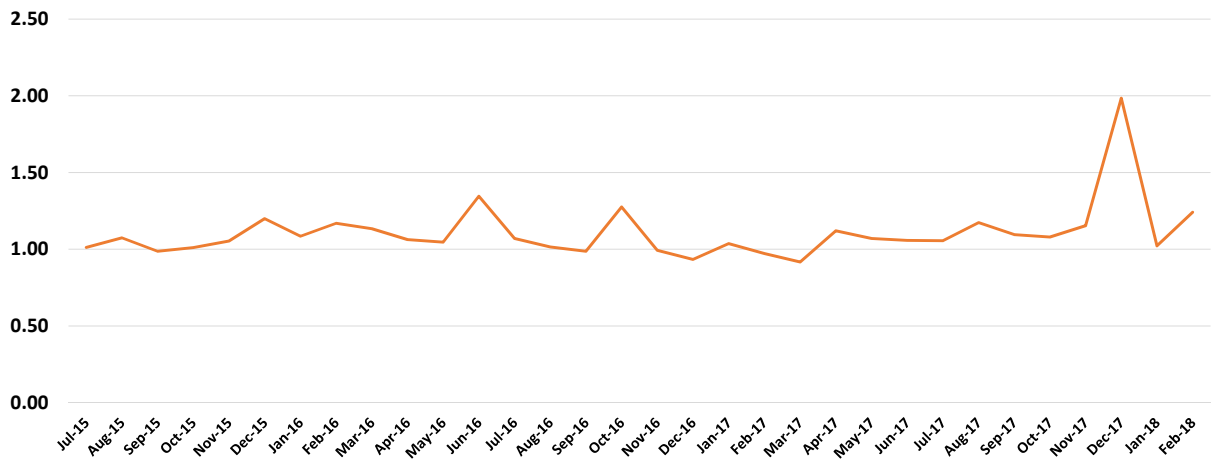
Population Growth, Member Cities



Normalized Data – Population Based



Narcan dosage (in MG) per capita



"Profile" Stats – August 2018 (through 8/28):

- **68 Patients**
- **Average Age = 42**
  - Youngest = 23
  - Oldest = 75
- **59% Male**
- **Average dose per patient = 1.2mg**

"Profile" Stats – August 2018 (through 8/28):

- **On-Scene Cardiac Arrest = 6**
  - Average age = 41
  - 4 males, 2 females
  - 2 dead on scene

- **Crew documented:**
  - Unintentional/accidental = 32%
  - AMS w/suspected opioid intoxication = 25%

EMS Utilizations Costs – MedStar Time Only

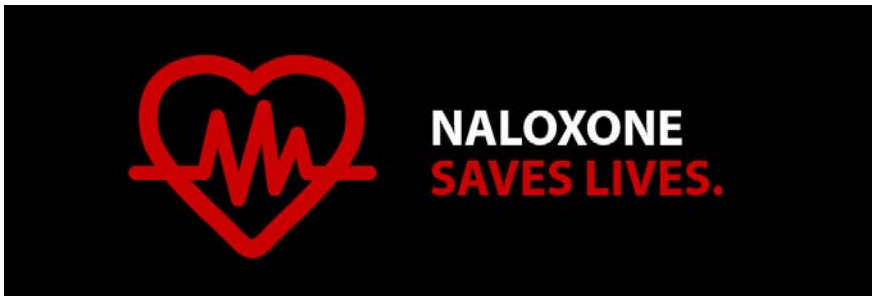
Narcan Use and Responses - Calendar Year 2017

Responses w/Narcan Administration		Average Minutes on Task	Minutes/Month	Hours/Month	Unit Hour Cost	Monthly Cost
Jan-17	85	67	5,695	94.9	$ 170.00	$ 16,136
Feb-17	58	67	3,886	64.8	$ 170.00	$ 11,010
Mar-17	89	67	5,963	99.4	$ 170.00	$ 16,895
Apr-17	86	67	5,762	96.0	$ 170.00	$ 16,326
May-17	104	67	6,968	116.1	$ 170.00	$ 19,743
Jun-17	92	67	6,164	102.7	$ 170.00	$ 17,465
Jul-17	93	67	6,231	103.9	$ 170.00	$ 17,655
Aug-17	93	67	6,231	103.9	$ 170.00	$ 17,655
Sep-17	91	67	6,097	101.6	$ 170.00	$ 17,275
Oct-17	107	67	7,169	119.5	$ 170.00	$ 20,312
Nov-17	97	67	6,499	108.3	$ 170.00	$ 18,414
Dec-17	67	67	4,489	74.8	$ 170.00	$ 12,719
Total	**1062**		**71,154**	**1185.9**		**$ 201,603**

EMS Utilization Costs – Materials

Narcan Administrations	Responses	Average Dose per Response	Cost per Dose	Cost per Month
Jan-17	85	1.04	$ 15.00	$ 1,321.50
Feb-17	58	0.97	$ 15.00	$ 846.00
Mar-17	89	0.92	$ 15.00	$ 1,224.00
Apr-17	86	1.12	$ 15.00	$ 1,445.25
May-17	104	1.07	$ 15.00	$ 1,669.50
Jun-17	92	1.06	$ 15.00	$ 1,459.50
Jul-17	93	1.06	$ 15.00	$ 1,472.25
Aug-17	93	1.17	$ 15.00	$ 1,636.50
Sep-17	91	1.10	$ 15.00	$ 1,495.50
Oct-17	107	1.08	$ 15.00	$ 1,732.50
Nov-17	97	1.15	$ 15.00	$ 1,679.25
Dec-17	67	1.99	$ 15.00	$ 1,995.00
Total	**1062**			**$ 17,976.75**

Response Cost	$ 201,603.00
Administration Cost	$ 17,976.75
Total Cost	**$ 219,579.75**



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Naloxone treatment in opioid addiction: the risks and benefits

Eveline LA van Dorp, Ashraf Yassen & Albert Dahan

Risks related to naloxone use in opioid-dependent patients are:

i) the induction of an acute withdrawal syndrome (the occurrence of vomiting and aspiration is potentially life threatening);

ii) the effect of naloxone may wear off prematurely when used for treatment of opioid-induced respiratory depression; and

iii) in patients treated for severe pain with an opioid, high-dose naloxone and/or rapidly infused naloxone may cause catecholamine release and consequently pulmonary edema and cardiac arrhythmias.

These risks warrant the cautious use of naloxone and adequate monitoring of the cardiorespiratory status of the patient after naloxone administration where indicated.

https://www.ncbi.nlm.nih.gov/pubmed/17367258

Opioid overdose prevention and naloxone rescue kits: what we know and what we don't know

Todd KerenskyEmail author and Alexander Y. Walley

Published: 7 January 2017
Addiction Science & Clinical Practice 2017 12:4

How should naloxone be administered and at what dose?

There are now four different formulations of naloxone that are used in naloxone rescue kits:

(1) injectable naloxone that is drawn up out of a vial with a needle into a syringe with a dose concentration of 0.4 mg/1 ml,

(2) an auto injector with audio prompts that administers a 0.4 mg intramuscular dose via a retractable needle,

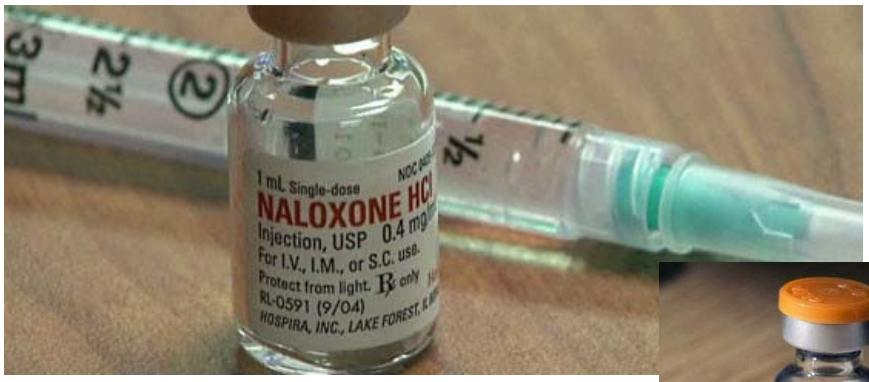
(3) a single-step nasal spray that administers a dose concentration of 4 mg/0.1 mL into one nostril, and

(4) a multi-step nasal spray assembled by combining a pre-filled luer lock syringe with a nasal atomizer, that administers a dose concentration of 2 mg/2 ml, where 1 ml is administered to each nostril.[1]

OEND programs have favored syringe and vial intramuscular naloxone and multi-step nasal naloxone because of lower cost and early availability.

Naloxone kits, regardless of formulation, generally include two doses, so that if the first dose does not result in spontaneous respirations, then a second dose may be administered.

https://ascpjournal.biomedcentral.com/articles/10.1186/s13722-016-0068-3



Most common and clinically important adverse effect of naloxone is precipitated opioid withdrawal. Ideally the dose of naloxone would be large enough to successfully reverse respiratory depression, yet small enough to avoid opioid withdrawal.

It is not well known whether the dose of naloxone currently being utilized optimally balances the lifesaving properties of naloxone with risk of inducing withdrawal.

The newer one-step nasal spray delivers naloxone at higher concentration and larger dose compared to intramuscular delivery of 0.4 mg/1 ml naloxone in healthy volunteers.

It is expected, but not yet proven, that the one-step device will result in more successful reversals of respiratory depression compared to other delivery devices.

However, it is also anticipated that naloxone induced withdrawal symptoms will be more frequent and possibly more severe because a higher dose of naloxone is used in this device.

https://ascpjournal.biomedcentral.com/articles/10.1186/s13722-016-0068-3

The Medical/Community Conundrum

Scenario #1

- 2 a.m.
- 9-1-1 call for a possible overdose
- Male in his 30s whose very concerned family members inform you possibly overdosed on fentanyl.
- Apneic, HR 60, BP 110/60
- BVM initiated
  - Secondary survey confirms index of suspicion that your patient may be experiencing potential opioid overdose
- Patient packaged, airway effectively managed
- Naloxone titrated to the desired effect
- During non-lights and siren transport, spontaneous respirations return
- At the ED, the patient is slowly aroused to consciousness, where he is greeted by concerned and loving family members, and a well-trained substance abuse counselor
- After listening to how close he came to death, and with the motivational interviewing skills of the substance abuse counselor, the patient consents to in-patient substance abuse treatment

Scenario #2

- It's 2 a.m.
- 9-1-1 call for a possible overdose, unconscious and not breathing.
- Male in his 30s, yelling, agitated, doubled over in pain and shaking, oriented to person, place, time and events
- The family tells you the patient has been addicted to carfentanil and they have been trying to get him into rehab for months, to no avail.
- Out of fear of a fatal overdose, they purchased OTC intra-nasal Narcan from their neighborhood pharmacy and have kept it handy for just such an emergency.
- The family administered the Narcan while you were responding and the patient woke up in this current state.
- Despite the best efforts of you, the family and law enforcement on scene, the patient refuses all care, and signs an AMA. He tells his family to leave him alone, goes to his bedroom and locks the door. The following morning, the patient is unresponsive, and his family breaks open the door to find him obviously dead.

Tough Questions:

- **Is the use of naloxone by non-medically trained personnel helping or hurting victims of an opioid overdose?**
  - The average half-life of fentanyl is 219 minutes, while the average half-life of naloxone is 60-90 minutes
    - This means that without follow-up care, although the risk is low, it is possible that the overdose victim will suffer another apnea event when the naloxone wears off
  - The sudden reversal of the overdose effects caused by naloxone results in the patient experiencing severe withdrawal symptoms, vomiting, irritability, severe body aches and greatly disturbed mood
    - At best, this reaction triggers the patient to refuse transport to the hospital against medical advice, leading to a missed opportunity for further management and observation
    - The above manifestations could also create scene safety risks for the patient, other responders and even bystanders.

https://dailymed.nlm.nih.gov/dailymed/archives/fdaDrugInfo.cfm?archiveid=4059

Levine M, Sanko S, Eckstein M. Assessing the risk of prehospital administration of naloxone with subsequent refusal of care. "Prehosp Emerg Care," March 2016:1-4.

Tough Questions:

- **What is EMS's role in helping communities navigate the myriad of issues relating to the opioid crisis?**
  - EMS agencies enjoy some of the highest community trust of any profession
    - People will listen to us
    - We are the experts
    - We often respond to calls related to the untoward effects of opioid addition
    - We are supposed to be patient advocates
    - This places us squarely in the community influencer role in the opioid crisis
  - Does the outcome of scenario 2 seem to be in the best interest of the patient?
  - Is there a difference between saving a life and preserving a life?

Mobile Integrated Healthcare options for the opioid crisis

- **Community Connect program (Pittsburgh)**
  - Grant funding to create a post-overdose response team
  - A community paramedic and a peer specialist post 9-1-1 overdose calls
  - Navigate people into rehab if they are ready to quit
  - If they are not willing to enter rehab, they will discuss harm-reduction strategies, and help the patient manage any comorbidities
- **Palm Beach County (FL) Fire Rescue (PBCFR)**
  - Opioid medication assisted treatment (MAT) program
  - Overdose patients given an initial dose of Suboxone in the ED
  - After 8-12 hour ED stay, the patients were discharged
  - PBCFR MIH paramedics & peer provide follow-up care for the patients in their own homes for eight days
  - Including a daily dose of Suboxone

Public Policy Questions/Actions

- **Single dose vs. titrated Naloxone?**
- **Train First Responders in BVM/Airway management vs. Naloxone?**
- **Fort Worth initiative:**
  - Partnership with My Health/My Resources (MHMR) on SAMHSA grant
  - Community Education on the proper use of Naloxone
  - Retrain FROs on benefits of titration and airway management
  - Goal – less AMAs and more referrals to mental health resources

Bottom Line

- **New EMS service models can play an important role**
- **This epidemic requires a community approach – no one agency/group can manage it**
- **We need to seriously evaluate whether the prevalence of Naloxone is helping or exacerbating the problem**