Opioid Overdose Trends and Treatment Opportunities in the Emergency Department

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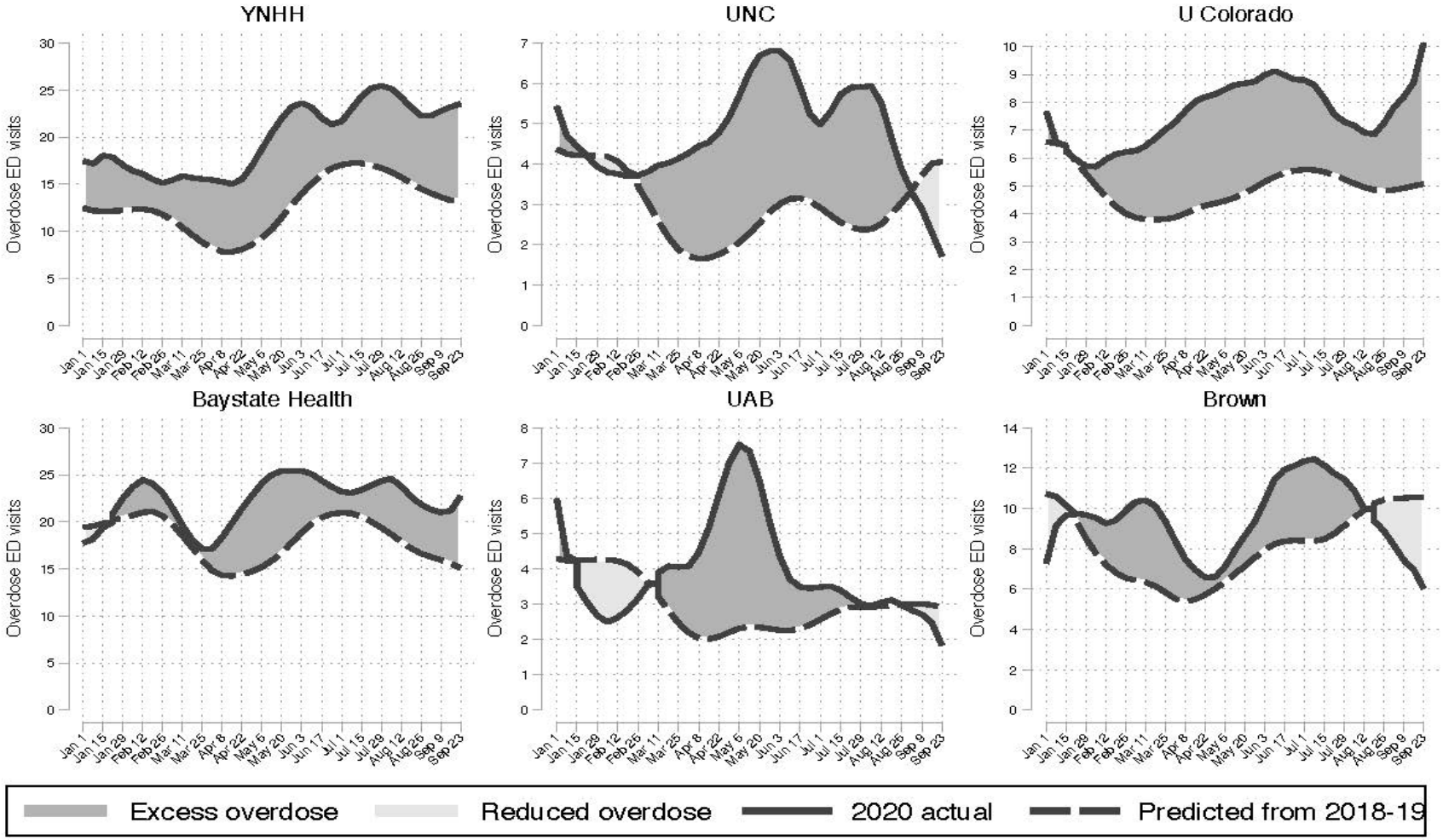
Non-fatal Overdose Trends During COVID



Excess Emergency Department visits for opioid overdose in 6 healthcare systems (25 EDs) January 1 to September 30, 2020; 2018 and 2019 data and 2020 all-cause ED visit counts were used to predict OUD positive visit counts for 2020. Soares W et al.

Increased Non-fatal Overdose During COVID

EMBED:
PRAGMATIC TRIAL OF USER-CENTERED CLINICAL DECISION SUPPORT TO IMPLEMENT EMERGENCY DEPARTMENT-INITIATED BUPRENORPHINE FOR OPIOID USE DISORDER

OD visit counts and rates per 100 all-cause ED visits during COVID were compared to levels predicted based on 2018-2019 visits by modeling the rate of ED per all cause ED visits accounting seasonal effects

- 11.3% (N=2639) (95%CI: 3.52%-19.1%; p=0.004) in 2020

  Compared with 2018 (2302) and 2019 (2439) despite 14% decline in all visit

- OD rates increased 30.1% (95% CI: 24%-36.42%); p<.001 from 0.25 per 100 visits in 2018-1019 to 0.33 per 100 ED visits in 2020

An ED visit for opioid overdose offers a opportunity for intervention

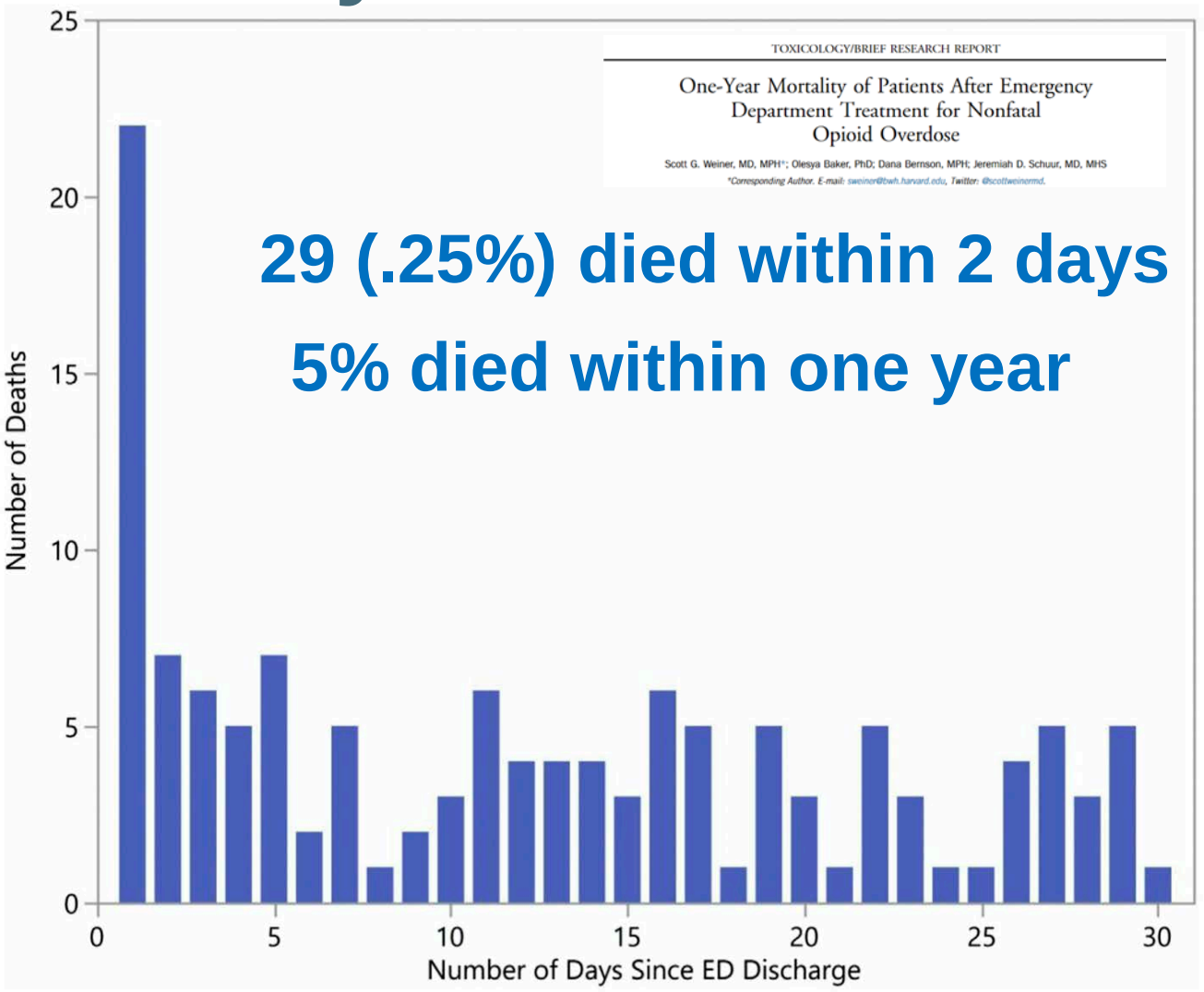
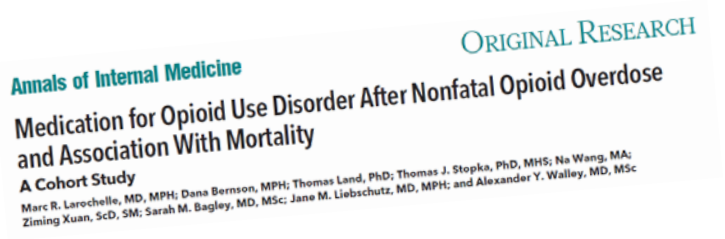


Figure 2. Number of deaths after ED treatment for nonfatal overdose by number of days after discharge in the first month, by day (n=130).

An ED visit for opioid overdose offers a opportunity for intervention


Annals of Internal Medicine

ORIGINAL RESEARCH

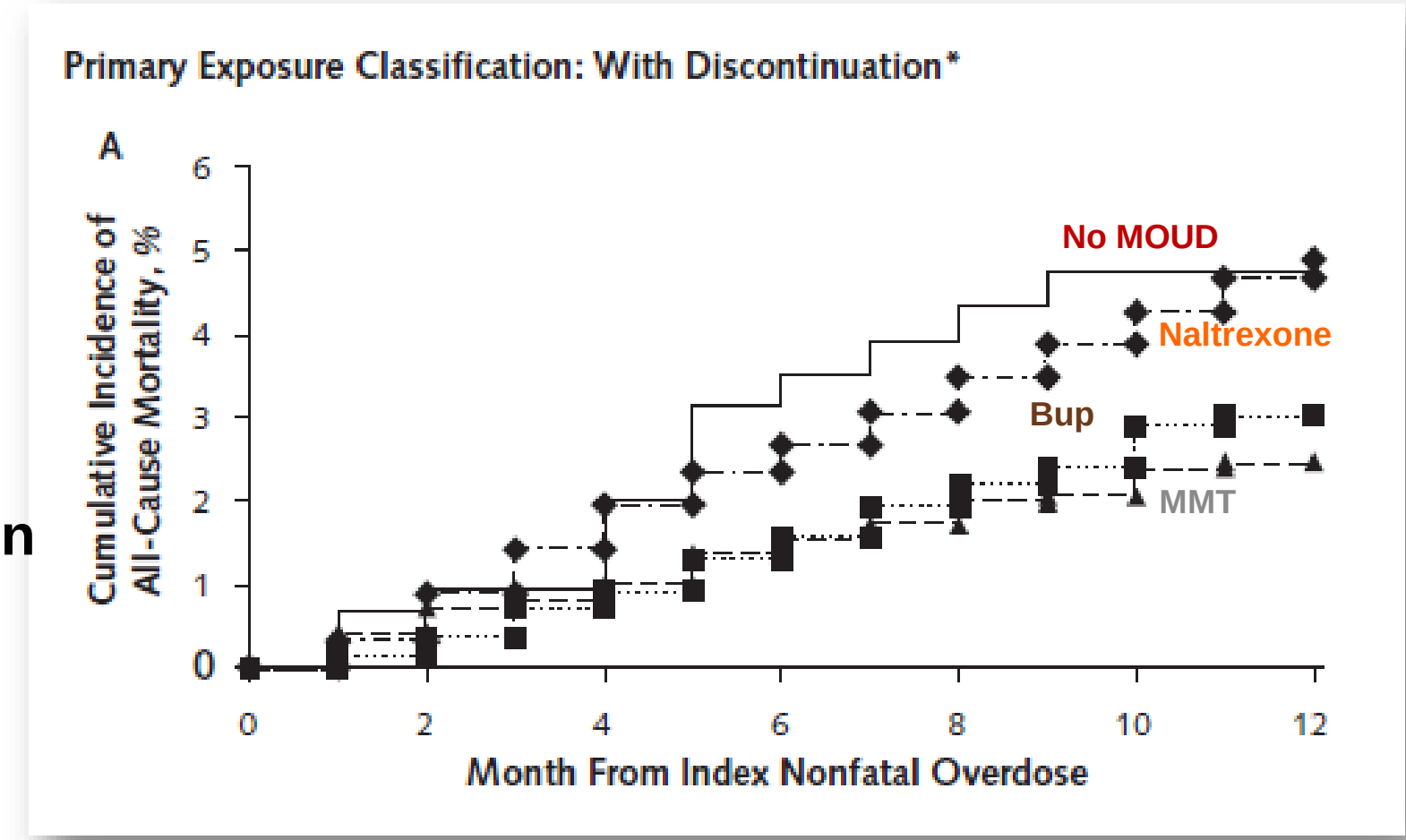
Medication for Opioid Use Disorder After Nonfatal Opioid Overdose and Association With Mortality

A Cohort Study

Marc R. Larochelle, MD, MPH; Dana Bernson, MPH; Thomas Land, PhD; Thomas J. Stopka, PhD, MHS; Na Wang, MA; Ziming Xuan, ScD, SM; Sarah M. Bagley, MD, MSc; Jane M. Liebschutz, MD, MPH; and Alexander Y. Walley, MD, MSc

12 months post non-fatal OD

- **30% received MOUD**
- **4.7% all-cause mortality**
  2.2% opioid-related
- **BUP and MMT decreased in mortality**



Overdose Receiving Centers – An Idea Whose Time Has Come?

Hern & Herring
Prehosp Emerg Care 2021 Feb 2

- EMS systems are uniquely positioned to direct patients to hospitals that can provide the best care for patients with Opioid Use Disorder (OUD.)

- Emergency Departments which have established systems for early intervention and treatment for patients with opioid use disorders have shown higher engagement in treatment programs.

- Engagement in treatment for OUD after non-fatal overdose leads to lower subsequent mortality.

Overdose Receiving Centers – An Idea Whose Time Has Come?

Hern & Herring
Prehosp Emerg Care 2021 Feb 2

Attributes of an Opioid Receiving Center

- 24-7 capacity to administer and prescribe buprenorphine
- Buprenorphine after naloxone reversal of overdose
- Active Substance Use Navigation
- Low-threshold Partner Clinic with next day follow up
- Overdose Education and Naloxone Distribution
- Additional Harm Reduction – safer injection kits
- HIV / HCV screening and referral for treatment
- Suicide screening and treatment
- Resources to address social determinants

Buprenorphine can be administered after naloxone precipitated withdrawal

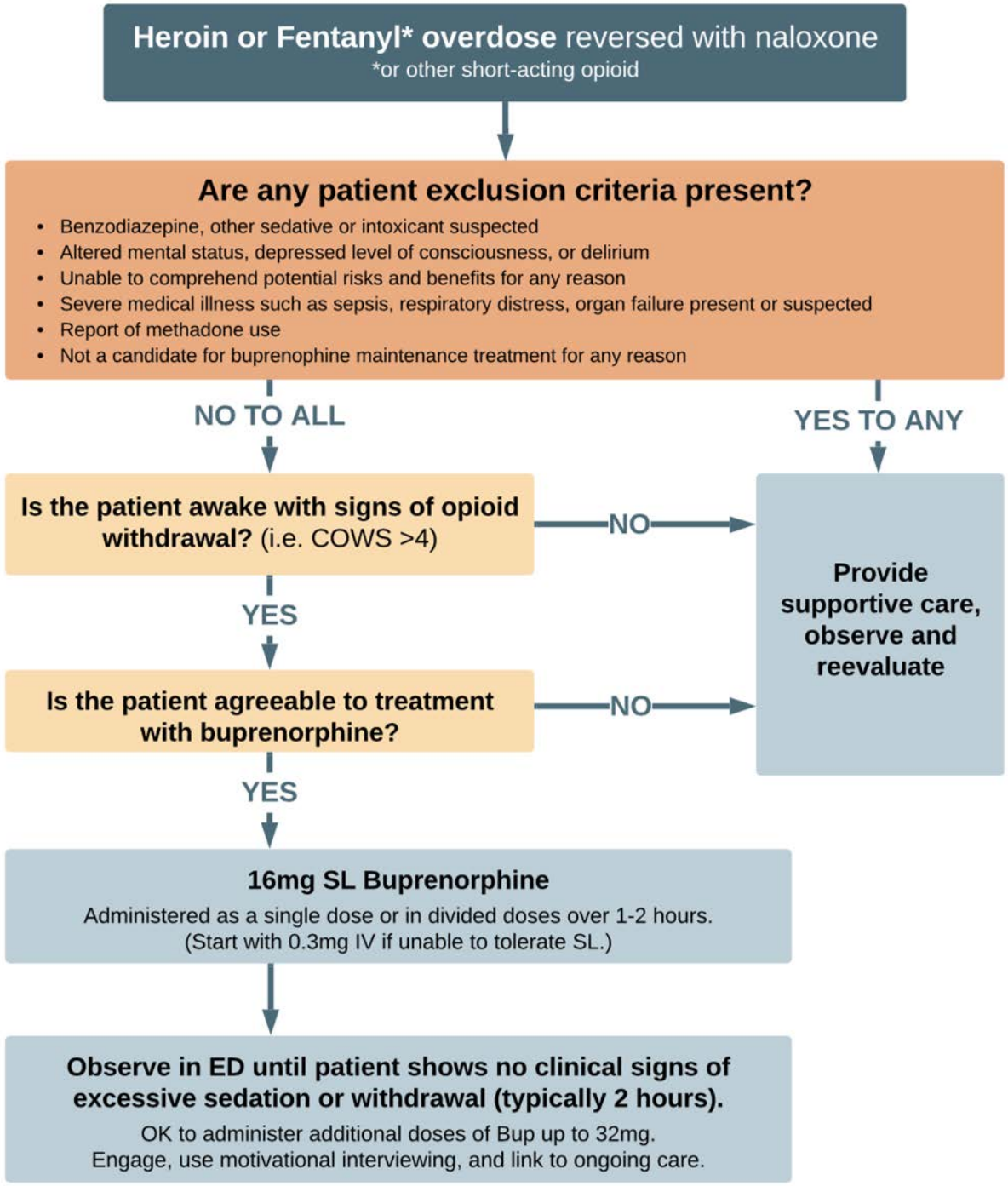
- Ceiling effect permits rapid induction
- Blockade is protective against residual opioid

Herring. “Postoverdose Initiation of Buprenorphine After Naloxone-Precipitated Withdrawal” .*Annals of Emergency Medicine 2020*

Herring &. Greenwald. “Rapid Induction onto Sublingual Buprenorphine after Opioid Overdose and Successful Linkage to Treatment for Opioid Use Disorder.” *The American Journal of Emergency Medicine* 2019

Chhabra. “Treatment of Acute Naloxone-Precipitated Opioid Withdrawal with Buprenorphine.” *The American Journal of Emergency 2020*

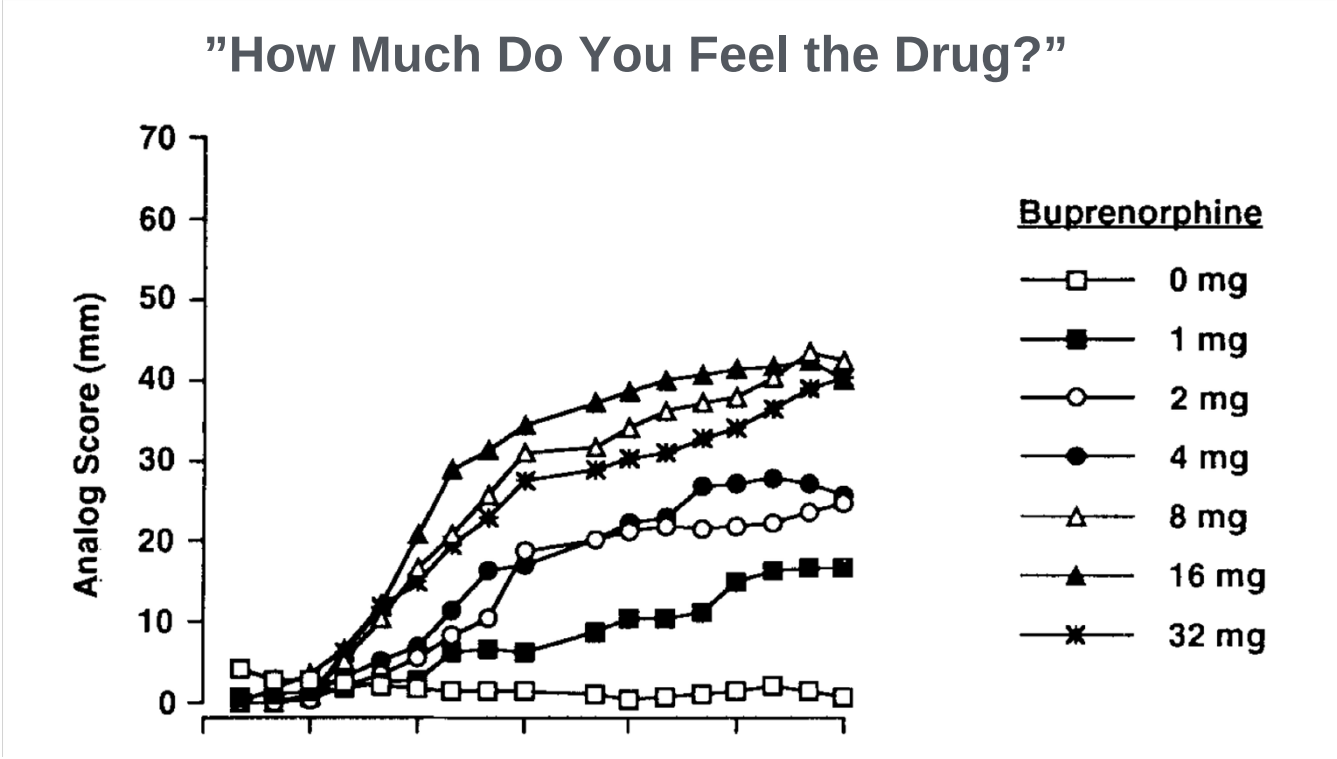
Phillips. “Elective Naloxone-Induced Opioid Withdrawal for Rapid Initiation of Medication-Assisted Treatment of Opioid Use Disorder.” *Annals of Emergency Medicine 2019*



Bup Induction after Overdose

Ceiling Effect: Sharon Walsh

16 healthy non-opioid dependent volunteers



Clinical pharmacology of Buprenorphine: Ceiling effects at high dose

Blockade

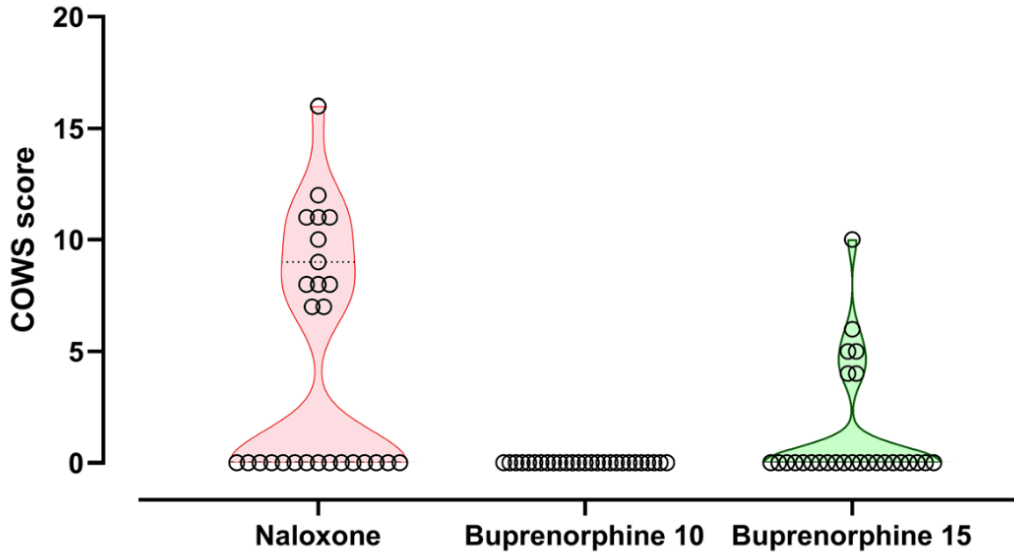
Zamani et al. Critical Care (2020) 24:44
https://doi.org/10.1186/s13054-020-2740-y

Critical Care

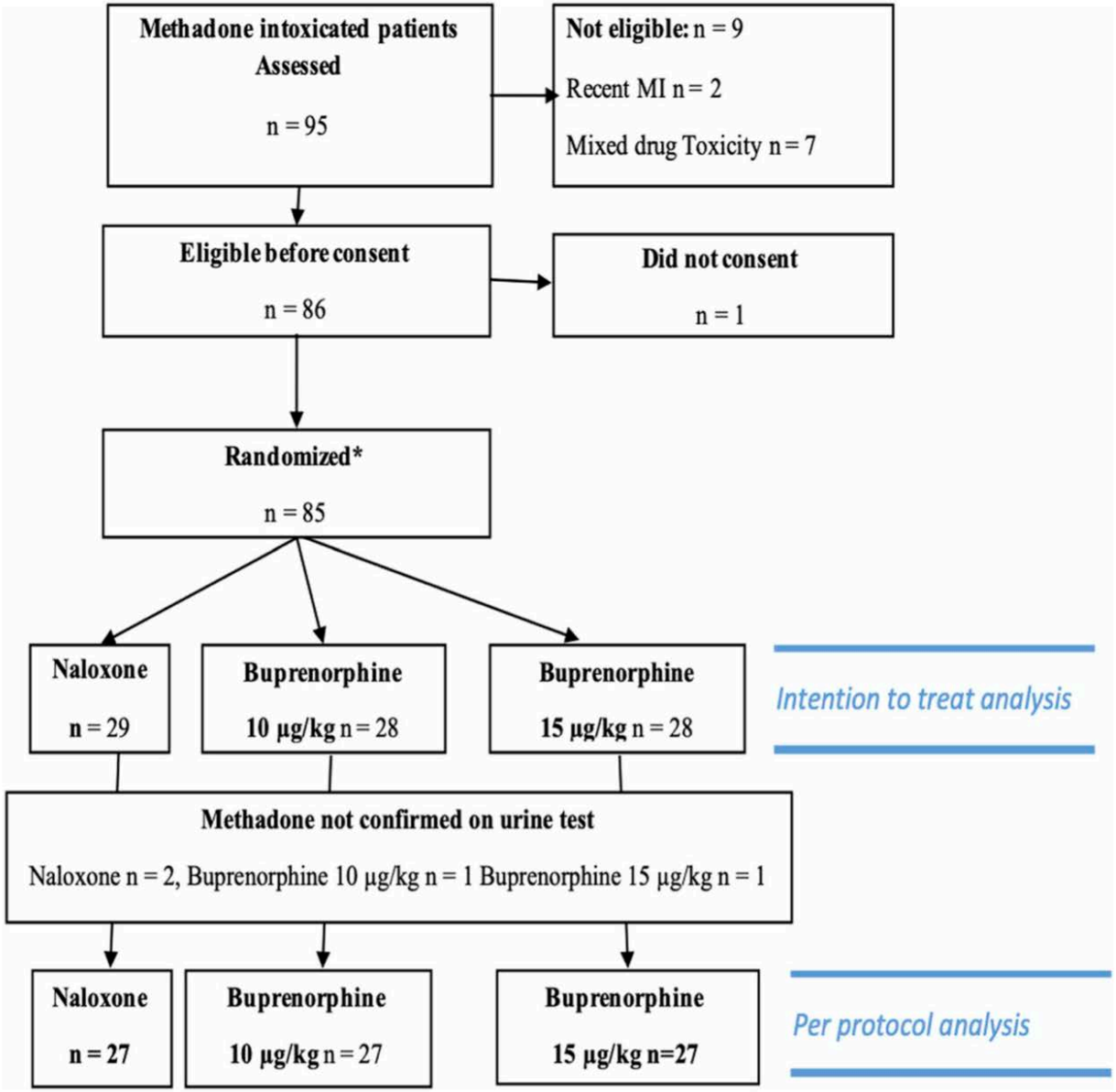
RESEARCH Open Access

Buprenorphine to reverse respiratory depression from methadone overdose in opioid-dependent patients: a prospective randomized trial

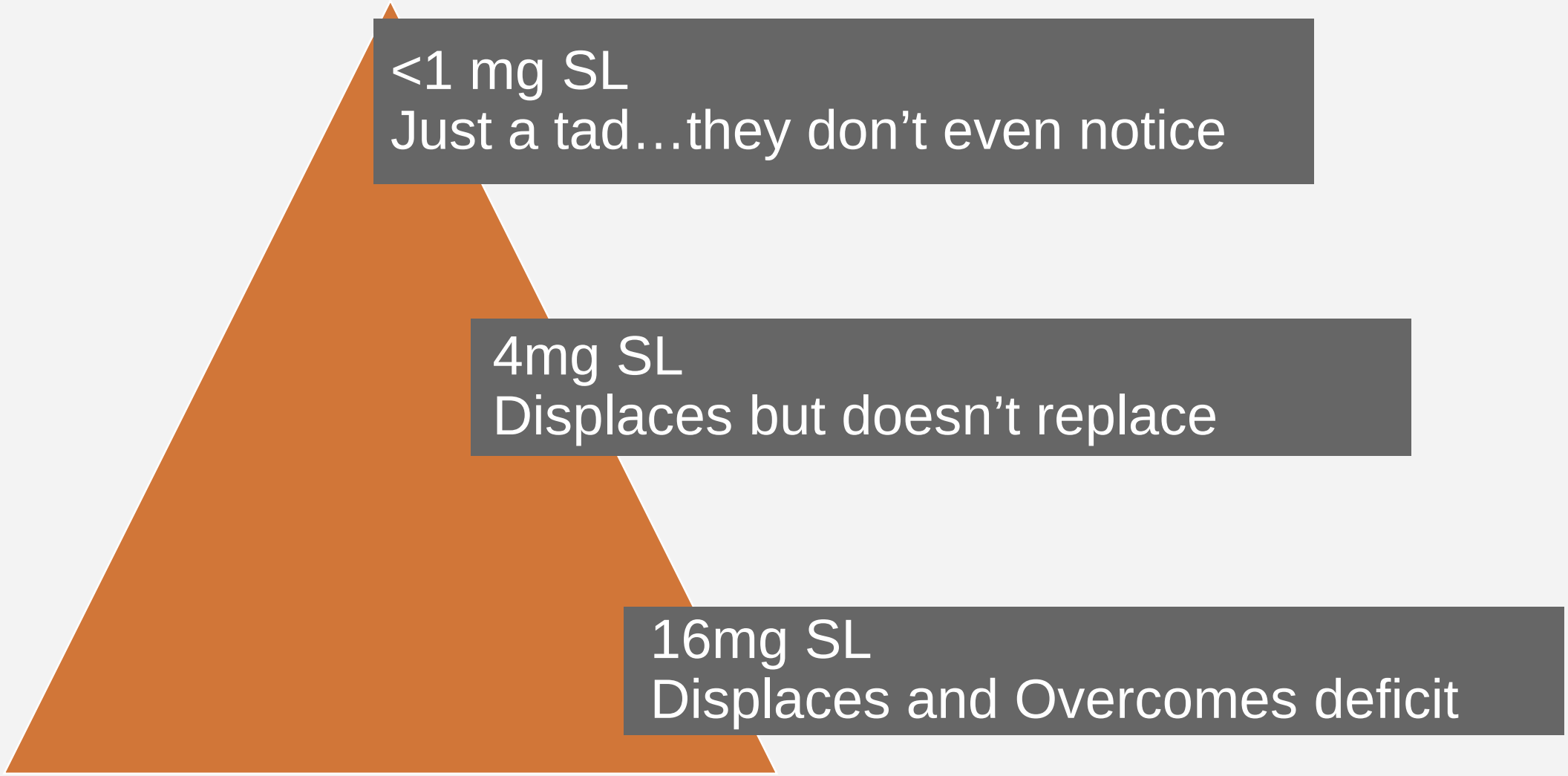
Nasim Zamani[1,2,3], Nicholas A. Buckley[4] and Hossein Hassanian-Moghaddam[1,2*]



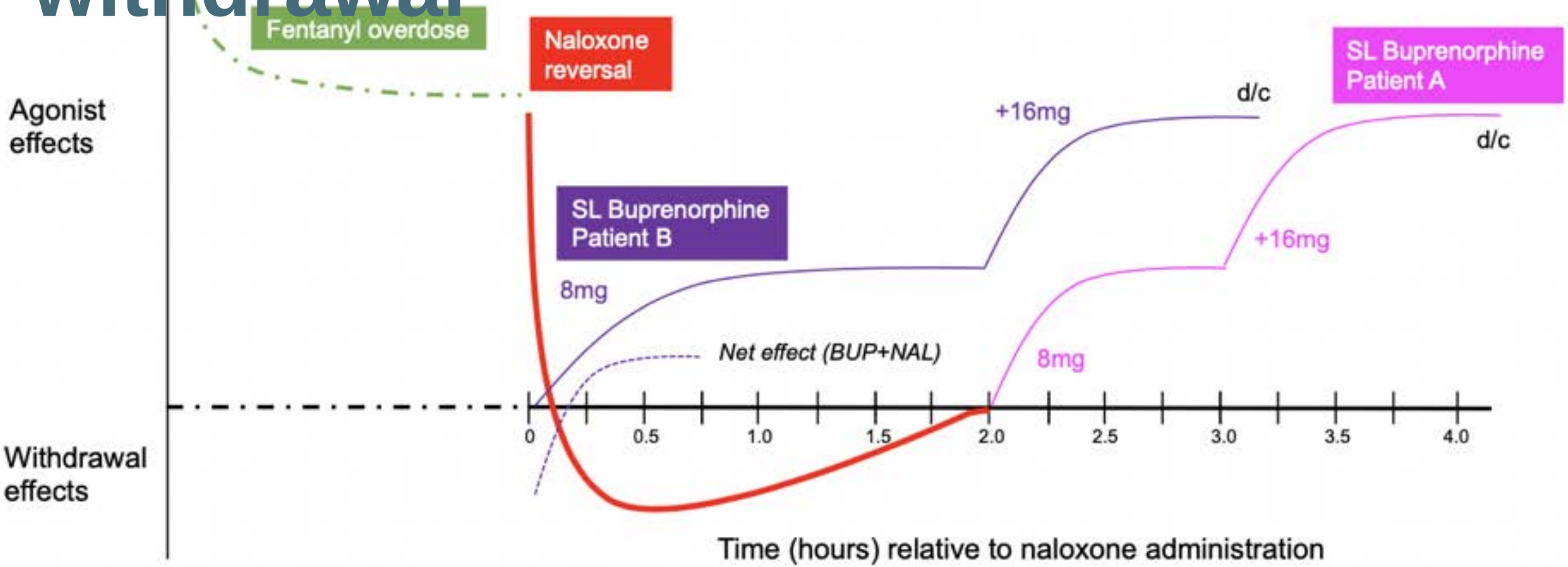
lot of withdrawal scores after initial doses of buprenorphine vs naloxone (COWS scale)



Single Big Dose



Buprenorphine can be administered after naloxone precipitated withdrawal



Herring. “Postoverdose Initiation of Buprenorphine After Naloxone-Precipitated Withdrawal” .*Annals of Emergency Medicine 2020*

Herring &. Greenwald. “Rapid Induction onto Sublingual Buprenorphine after Opioid Overdose and Successful Linkage to Treatment for Opioid Use Disorder.” *The American Journal of Emergency Medicine* 2019

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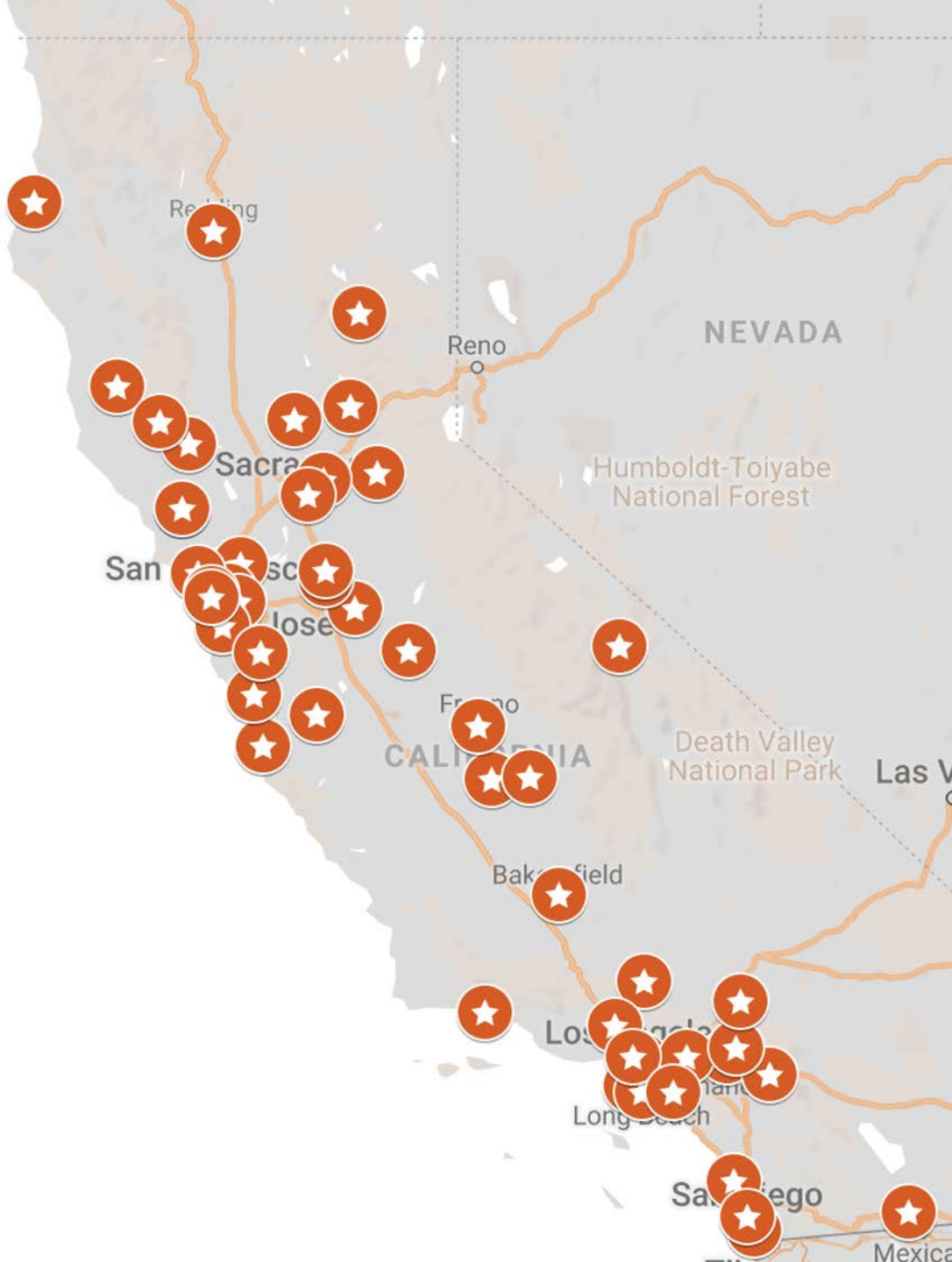
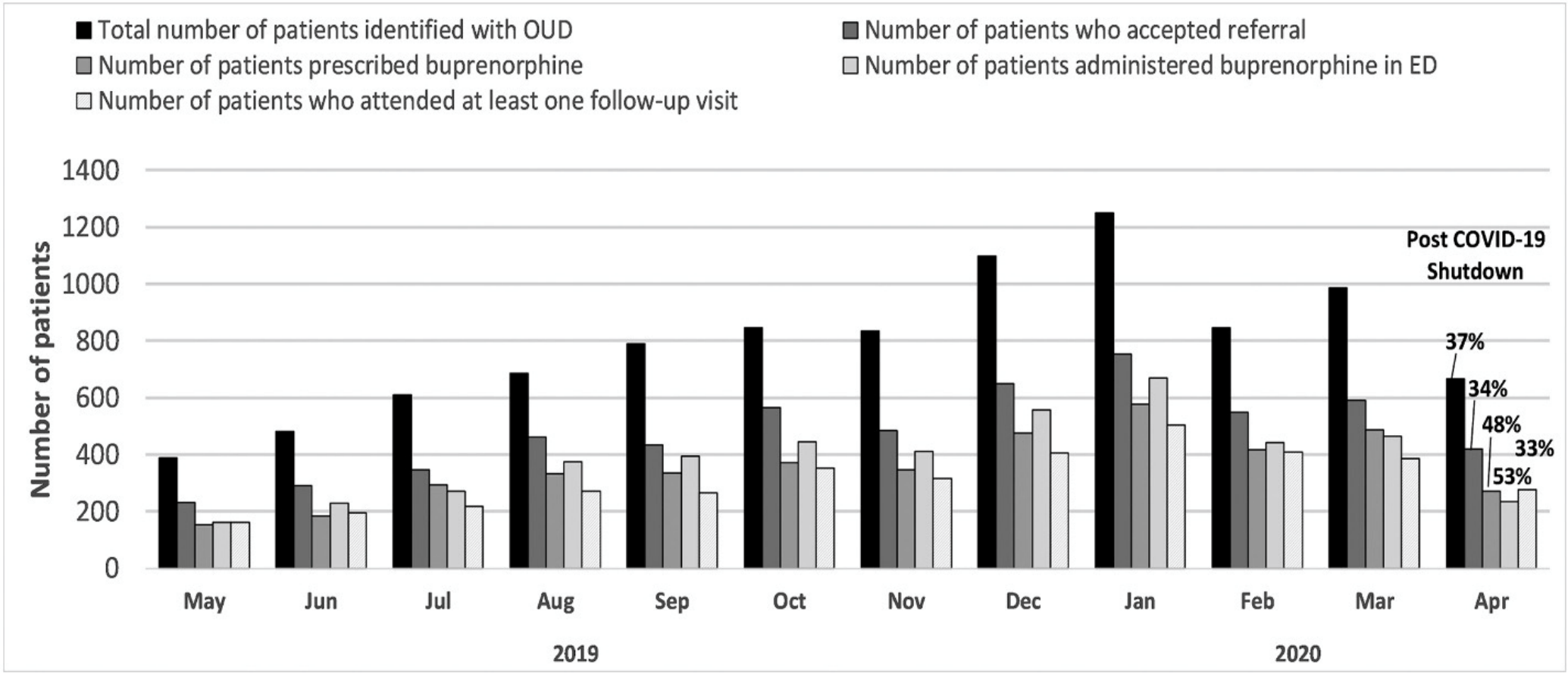
45 of 52 EDs report offering Buprenorphine after Opioid Overdose.

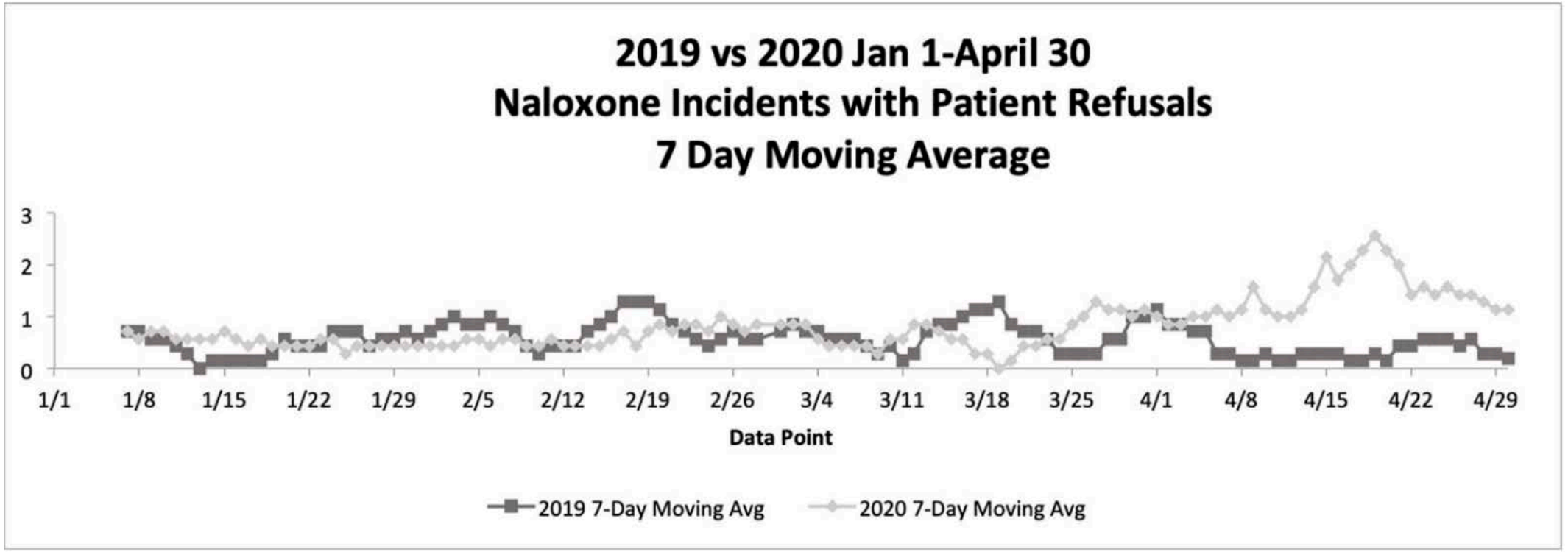


Reduced ED Visits for Buprenorphine During COVID

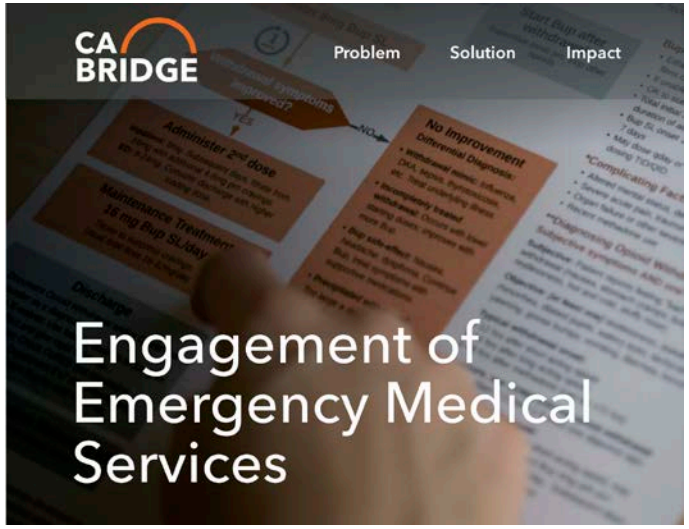


Herring & Shoptaw. “Sharp Decline in Hospital and Emergency Department Initiated Buprenorphine for Opioid Use Disorder during COVID-19 State of Emergency in California.” *Journal of Substance Abuse Treatment* 123 (April 2021)

Reduced ED Visits for Buprenorphine During COVID



Glenn & Gaither. “Refusals After Prehospital Administration of Naloxone during the COVID-19 Pandemic.” *Prehospital Emergency Care* 25, no. 1 (January 2, 2021): 46–54.



Carroll et al., “Buprenorphine Field Initiation of ReScue Treatment by Emergency Medical Services (Bupe FIRST EMS).” 2020

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Emergency Medical Services
Opioid Withdrawal: Adult Medical Treatment Guidelines

Any Exclusion criteria present?
- Under 18 years of age
- Pregnant
- Any methadone use
- Altered mental status and unable to give consent
- Severe medical illness (sepsis, respiratory distress, etc)
- Recent benzodiazepine, alcohol, or intoxicants suspected
- Clinical Opioid No
- Unable to comprehend potential risks and benefits for any reason
- Not a candidate for buprenorphine maintenance treatment for any reason

NO → **Clinical Opioid Withdrawal Scale (COWS)>7**

Signs and Symptoms
- Tachycardic
- Gastrointestinal distress
- Hot and cold flashes
- Poor concentration
- Diaphoresis
- Rhinorrhea
- Restlessness
- Piloerection
- Yawning

Clinical Opioid Withdrawal Scale (COWS)>7 → NO → **Not eligible for prehospital treatment**

YES / YES → **Provide supportive treatment**
Provide counseling and assess patient interest in buprenorphone
Is patient agreeable to treatment?

NO → **Give Medication for Addiction Treatment brochure**

YES →

P — Contact Opioid Protocol Physician
Request buprenorphine protocol

P — **With Approval**
Give water to moisten muscous membranes
Administer 16mg buprenorphone SL
Reassess after 10 minutes

P — **If symptoms worsen or persist**
Redose with 8mg buprenorphine
Total Maximum Dose 24mg

Inform patient Public Health will initiate contact within 72 hours to offer additional treatment

Recommend transport to designated Opioid Receiving Facility Process

Conclusions

- The post-overdose period is an important opportunity to engage patients in buprenorphine treatment bundled with of additional interventions including harm reduction, mental health treatment, and assistance for social determinants of health. Designation of opioid receiving centers may facilitate implementation of comprehensive services.

- Initiation of buprenorphine directly after overdose reversal with naloxone is increasingly common and should be studied.

- EMS is a significant touchpoint with post-overdose victims and high-risk OUD that has been integrated into the treatment continuum.

Thanks!

CABridge.org

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CME:1. Based on regional data, During COVID-19
a. Both overall Emergency department visits and visits for non-fatal overdose increased
b. Overall Emergency department visits increased and visits for non-fatal overdose decreased
c. Overall Emergency department visits decreased and visits for non-fatal overdose increased
d. Both overall Emergency department visits and visits for non-fatal overdose increased

c. Overall Emergency department visits decreased and visits for non-fatal overdose increased
Soares, William E., Edward R. Melnick, Bidisha Nath, Gail D'Onofrio, Hyung Paek, Rachel M. Skains, Lauren A. Walter, et al. "Emergency Department Visits for Nonfatal Opioid Overdose during the COVID-19 Pandemic across 6 US Healthcare Systems." *Annals of Emergency Medicine*, March 19, 2021. https://doi.org/10.1016/j.annemergmed.2021.03.013.

2. Initiation of buprenorphine in the post overdose period during naloxone induced precipitated withdrawal is
a. Clearly dangerous and should not be practiced
b. Has been reported effective in some cases, but high quality evidence is lacking
c. a standard of care practice supported by strong evidence
d. Has not been described

b. Has been reported effective in some cases, but high quality evidence is lacking
Herring, Andrew A. "Postoverdose Initiation of Buprenorphine After Naloxone-Precipitated Withdrawal Is Encouraged as a Standard Practice in the California Bridge Network of Hospitals." *Annals of Emergency Medicine* 75, no. 4 (April 1, 2020): 552–53. https://doi.org/10.1016/j.annemergmed.2019.12.015.

Herring, Andrew A., Cody W. Schultz, Elaine Yang, and Mark K. Greenwald. "Rapid Induction onto Sublingual Buprenorphine after Opioid Overdose and Successful Linkage to Treatment for Opioid Use Disorder." *The American Journal of Emergency Medicine* 37, no. 12 (December 2019): 2259–62. https://doi.org/10.1016/j.ajem.2019.05.053.