Addiction Medicine in the ICU: Considerations for Starting Buprenorphine in the Intubated Patient

Anthony Spadaro, MD MPH, Assistant Professor in EM at the University of Pennsylvania

Jessica J. Krueger MD, Assistant Professor in EM, Rutgers New Jersey Medical School

Robert. Cole Pueringer MD, Department of IM at Essentia Health, Duluth Minnesota

Ryan JJ Buckley MD, Assistant Professor of EM and IM (Section of Pulm/Critical Care/Sleep), Yale School of Medicine, New Haven CT

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Disclosure Information

- Presenter 1: Anthony Spadaro, MD MPH, Assistant Professor in EM at the University of Pennsylvania
- Presenter 1 Disclosures: No Disclosures
- Presenter 2: Jessica J. Krueger MD, Assistant Professor in EM, Rutgers New Jersey Medical School
- Presenter 2 Disclosures: No Disclosures
- Presenter 3: R. Cole Pueringer MD, Department of IM at Essentia Health, Duluth Minnesota
- Presenter 3 Disclosures: No Disclosures
- Presenter 4: Ryan Buckley MD, Assistant Professor in EM and CCM, Yale New Haven Hospital
- Presenter 4 Disclosures: No Disclosures

Learning Objectives

- Discuss rationales for starting or not starting buprenorphine in intubated patients
- Compare different strategies for buprenorphine initiation in this setting
- Compare specific clinical cases in which buprenorphine could be considered

Background

- Patients with substance use disorders are overrepresented in ICU populations
  - SUD in 1 in every 6 ICU admissions, 4% with OUD
- Substance use disorders may impact ICU care
  - Analgesia and sedation plans, treatment completion
- Patients with substance use disorders may need complex multi-day interventions as part of their SUD care, such as low-dose buprenorphine initiation
- Addiction care and consult services can begin in the ICU, though institutional infrastructure for this remains inconsistent

Hills-Dunlap K, McGrath M, Peterson R, et al. Epidemiology of Substance-Related Admissions to ICUs in the United States. *Crit Care Med*. Published online July 30, 2025. doi:10.1097/CCM.0000000000006803

Background

- There is implied consent for giving low-risk medications with morbidity and mortality benefits in critically ill patients, ie antibiotics, sedation, analgesia
- Methadone has been used in ICU patients to reduce the need for sedatives and weaning from mechanical ventilation
- Low-dose buprenorphine has also been described in intubated patients, both to initiate MOUD and as part of an analgesia and sedation plan

Wanzuita R, et al. *Crit Care.* 2012.
Hamata B, et al. *J Addict Med.* 2020.
Carroll DK, et al. *J Addict Med.* 2025.

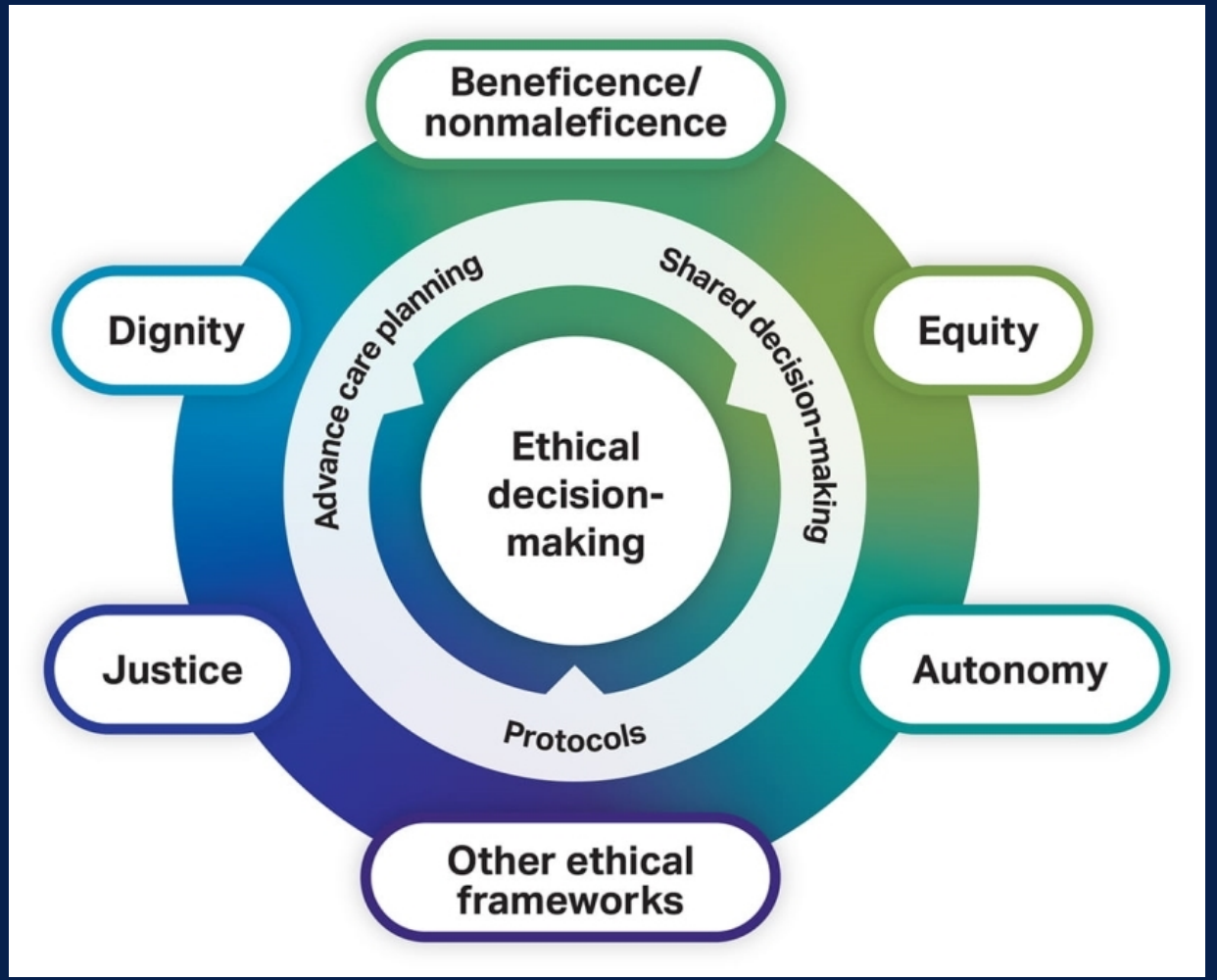
Background

- The choice of MOUD is individualized and patients need to be able to communicate if they want MOUD at all
- There is no clear evidence that starting buprenorphine in intubated patients leads to improved patient-centered outcomes
  - There is some experience with patients intubated for naltrexone induction, and the consensus in the literature was it was not effective
- Quaye et al. found buprenorphine continuation during critical illness was associated with significantly decreased full-agonist opioid use in ICU patients maintained on buprenorphine for opioid use disorder.

Feeney ME, Law AC, Walkey AJ, Bosch NA. Variation in Use of Medications for Opioid Use Disorder in Critically Ill Patients Across the United States. *Crit Care Med*. 2024;52(7):e365-e375. doi:10.1097/CCM.0000000000006257

Quaye A, et al. *J Clin Pharmacol.* 2023;63:1067–1073.

Ethical Framework



https://cpr.heart.org/en/resuscitation-science/cpr-and-ecc-guidelines/ethics

Case 1

- A patient with OUD on buprenorphine 8mg TID is admitted to the ICU after a severe trauma from a motor vehicle collision, the patient was intubated in the emergency department
  - Family at bedside says patient was taking buprenorphine up until day of presentation
  - The ICU asks you if they should continue the patient's buprenorphine

Case 1 Discussion

- Would you continue buprenorphine in this patient while they were intubated?
  - If yes, what regimen would you use?
  - If no, how would you approach restarting buprenorphine after extubation?
- If the patient needed surgery for their injuries would that change you decision?
- On chart review: the patient has multiple outpatient urine drug screens positive for fentanyl, does this change you decision?

Case 1: Conclusion

- You decided to go with protocol 2 (IV buprenorphrine) since the patient's nurse was unsure how to give sublingual buprenorphine to an intubated patient
  - Transdermal buprenorphine microinductions also studied, although not specifically in intubated patients
- Patient extubated on hospital day #2 and transitioned to SL buprenorphine 8mg three times a day

Case 2

- A patient with OUD, but unknown as to whether they were on MOUD, is intubated in the emergency department after having multiple seizures and is admitted to the ICU

Case 2 Discussion

- Would you start buprenorphine in this patient while they were intubated?
  - If yes, what regimen would you use
- Would you start buprenorphine or methadone in this patient if the ICU was having difficulty weaning IV sedation?

Buprenorphine Initiation

- Protocol 1:
  - 8-hour infusion of 1.2 mg of buprenorphine followed by SL buprenorphine 4mg
- Protocol 2:
  - IV bolus of buprenorphine 0.15mg x2 every 12 hours, 0.3mg x2 every 12 hours, 0.6mg every 12 hours then SL 8mg
- Protocol 3:
  - Day 1: Buccal buprenorphine 450 mcg every 4 h x4 doses,
  - Day 2: SL 2mg every 4 h x4 doses,
  - Day 3: SL 4mg every 4 h x4 doses,
  - Day 4+: SL 8mg BID indefinitely

Hamata B, et al. Rapid micro-induction in ICU (case). *J Addict Med.* 2020.
Carroll DK, et al. IV buprenorphine micro-infusion. *J Addict Med.* 2025.
Moore J, et al. Low-dose initiation in intubated patient. *J Addict Med.* 2025.

Duluth Initiation Protocol

- Day 1:
  - Place 20ug/H/week Butrans patch + 0.15-0.3mg IV buprenorphine q3H
- Day 2:
  - Increase IV buprenorphine to 0.6-0.9mg q3H
- Day 3:
  - Continue above until extubation, stop FAO, start SL buprenorphine 8mg TID, remove patch
- Often accompanied by low-dose ketamine
  - IV ketamine at 0.15-0.3mg/kg/H or PO soln at 20-30mg q4-6H or QID
- Variants
  - Day 1 can be broken into 2 days
  - If extubation occurs on day 2, continue with the same plan (day 3 above)
  - Use SL buprenorphine instead of IV buprenorphine (~IV dose x3)
  - Decrease dosing frequency to q6H, double dose each adminsitration

Tell Us Your Protocol

https://upenn.co1.qualtrics.com/jfe/form/SV_41SfmTCyTBxPJlQ

Case 2 Conclusion

- Started a SL buprenorphine microinduction on patient
- Was able to wean sedation and ultimately extubated on SL buprenorphine 8mg TID
- Once more awake after extubation patient expressed their preference to stay on buprenorphine

Case 3

- A patient with OUD is intubated after being found unconscious from a presumed opioid overdose and is admitted to the ICU.

Case 3 Discussion

- Would you start buprenorphine in this patient while they were intubated?
  - If yes, what regimen would you use?
- Does the fact that they were intubated after an opioid overdose change your decision ?

Case 3 Conclusion

- Started a SL buprenorphine microinduction on patient
- Was able to wean sedation and ultimately extubated on SL buprenorphine 8mg TID
- After extubation the patient stated they wanted to be on methadone so buprenorphine was stopped and methadone was started at 40mg PO daily and increased during their hospitalization

Case 4

- A patient with OUD is intubated for respiratory distress from pneumonia and is admitted to the ICU. Family at bedside reports they were on long-acting injectable buprenorphine and that their last dose was 3 weeks ago
  - Patient is starting to buck the vent, manifest piloerection and nursing has noted increased stool output

Case 4 Discussion

- Would you start buprenorphine in this patient while they were intubated?
  - If yes, what regimen would you use

Final Takeaways/Summary

- If you do use buprenorphine in intubated patients, consider having a framework or guideline for how to select patients
- There are sublingual and intravenous buprenorphine initiation strategies
- Engage in shared decision making with patients about choice of MOUD
- Collaborate with critical care specialties to take care of complex critically ill patients with opioid use disorder

References

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