SAEM 2026 · OPERATIONS / PAIN

Who Moved My Button? The Impact of Reduced Hydromorphone Default Dosing on Ordering Patterns in the Emergency Department

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−8.0%

REDUCTION IN CUMULATIVE IV HYDROMORPHONE DOSE PER ENCOUNTER

95% CI 6.7 – 9.3 · **adjusted mixed-effects model**

11,288
ADULT ED PATIENTS RECEIVING IV HYDROMORPHONE
Aug 2023 – Dec 2025

1.0/0.5 → 0.5/0.25
MG RADIO BUTTON DOSES (AUG 2024)
Suggested dose halved at the EHR

4,081 / 6,494
PRE-CHANGE / POST-CHANGE PATIENTS
Patients in the comparison cohorts

BACKGROUND

The default dose displayed on the order screen is also the dose most often given.

Effective pain control is central to emergency medicine practice, and hydromorphone is commonly used for moderate-to-severe pain despite variation in dosing.

While lower starting doses may reduce opioid-related adverse events, this may also lead to inadequate analgesic effect.

In August 2024, an academic emergency department modified the suggested radio button doses of intravenous hydromorphone

1.0 / 0.5 mg → 0.5 / 0.25 mg

We evaluated whether this change was associated with differences in cumulative hydromorphone ordering.

METHODS

Retrospective cohort, mixed-effects regression with patient and provider random intercepts.

Design. Retrospective cohort study of adult ED patients receiving IV hydromorphone from August 2023 through December 2025.

Window. Periods before and after the displayed recommended dose change.

Exclusion. ED length of stay greater than 48 hours.

Outcome. Cumulative hydromorphone dose per encounter.

Model. Mixed-effects regression with log-transformed cumulative dose as the outcome, including random intercepts for patients and providers and adjusting for demographic and pain-related covariates.

RESULTS

Modest, statistically significant reduction in cumulative dose.

11,288	Total patients included in the analysis
4,081	Patients in the pre-change period
6,494	Patients in the post-change period
−8.0%	Reduction in cumulative hydromorphone dose *(adjusted, post vs pre)*
95% CI	6.7 – 9.3 percent reduction

CONCLUSION

Default dose selections influence ordering behavior — a scalable strategy to reduce opioid exposure.

Changing the preconfigured hydromorphone dosing radio buttons in the electronic health record to reduced dosages was associated with a modest but statistically significant decrease in cumulative opioid ordering. These findings suggest that default dose selections displayed to the end user influence ordering behavior and represent a scalable strategy to reduce opioid exposure in emergency department care. Further studies should evaluate patient-centered outcomes, including adequacy of pain control and frequency of repeated dosages.

ASK ME ABOUT

- EHR default-dose design choices
- Mixed-effects modeling approach
- Adjustment covariates
- Next steps: patient-centered outcomes