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Identifying Optimal Buprenorphine Dosing for Opioid Use Disorder Treatment and Overdose Prevention in the Fentanyl Era Using Linked Statewide Administrative Data

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Background

For patients who use fentanyl, higher than currently recommended doses of buprenorphine treatment for opioid use disorder (OUD) may be needed to prevent cravings and withdrawal. Some clinicians and regulators are concerned that higher doses may increase overdose risk.

Conclusions

Buprenorphine remains effective for overdose prevention in the fentanyl era among patients who remain in treatment. Higher doses than currently recommended should be considered for improving treatment retention. Higher doses were not associated with greater overdose risk.

Methods

We conducted a retrospective cohort study of Rhode Island residents initiating buprenorphine for OUD (October 2016–September 2022) using linked data from five statewide administrative databases: controlled substance prescribing, emergency medical services, medical examiners, vital records, and behavioral health treatment. Generalized estimating equations compared non-fatal and fatal opioid overdose risk on days with vs. without buprenorphine treatment in the 365 days following initiation, controlling for potential confounding and clustering by patient. Cox regression estimated the association between buprenorphine dose (16 mg standard dose vs. 24 mg higher dose, defined starting at initiation) and time to treatment discontinuation in the 180 days following initiation, controlling for potential informative censoring and confounding.

Results

Among 8,676 patients initiating buprenorphine, most were aged 25–44 years (56%) and male (61%). Opioid overdose risk was 61% lower on days with vs. without buprenorphine treatment (adjusted risk ratio = 0.39, 95%CI = 0.31–0.49). Patients prescribed 16 mg had 20% higher risk of treatment discontinuation than those prescribed 24 mg (adjusted hazard ratio = 1.20, 95%CI = 1.06–1.37). Doses prescribed on days with and without an opioid overdose were similar ($P = 0.261$).

