

Emergency Department presentations for overdose across nine pharmaceutical opioids

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Introduction and Aims: In Australia, 70% of opioid-related mortality is attributed to pharmaceutical opioids. Yet, few studies have comprehensively distinguished between types. We examined whether nine common pharmaceutical opioids varied in their rates of harm.

Design and Methods: This was a retrospective observational study of Emergency Department (ED) presentations for non-fatal overdose related to pharmaceutical opioid use. Data were obtained from all 38 public hospitals with a 24 hour ED in Victoria, Australia. Cases were extracted for July 2009 to June 2018, via free-text and ICD-10 based searches, with a manual check for the relevance of each case (n=4703). We calculated supply-adjusted rates of overdose using Poisson regression for comparisons across opioids.

Key Findings: Supply-adjusted rates of overdose varied up to 27 fold by pharmaceutical opioid type. The highest rates [per 100 000 oral morphine equivalent mg (OME)] were for codeine (0.078), oxycodone (0.029), and tramadol (0.015). The lowest rates were for buprenorphine (0.006), tapentadol (0.004), and fentanyl (0.003). Rates of overdose appeared to be stable over time for all opioids except oxycodone (rates increased over time; IRR 1.04; p<0.0001).

Discussions and Conclusions: Rates of non-fatal overdose varied by pharmaceutical opioid, and researchers should consider disaggregating trends by opioid type where possible. As not all ED overdose cases described the specific opioid(s) involved, these rates are an underestimate of harm, and future work should consider comprehensive coding of drug types. The relative risk of overdose for various opioids may be of interest to prescribers.

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