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Change in prescription opioid dose and the risk of mental health-related and substance use-related emergency department presentations: a case-crossover study

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Background

Opioid Use

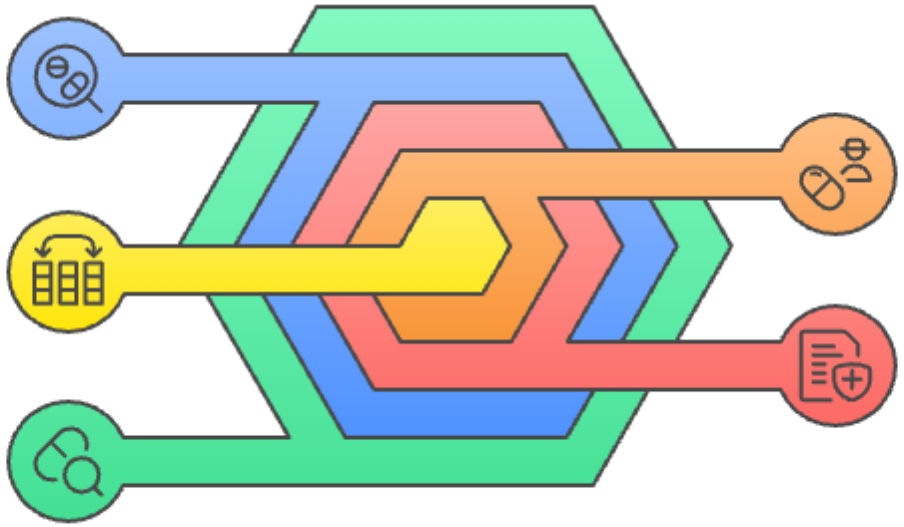
Widely prescribed for chronic pain

Gradual Tapering

Recommended approach for opioid reduction

Evidence Support

Need for stronger evidence in guidelines



Persistent Opioid Use

Long-term dependence on opioids

Policy and Guidelines

Strategies to reduce opioid access

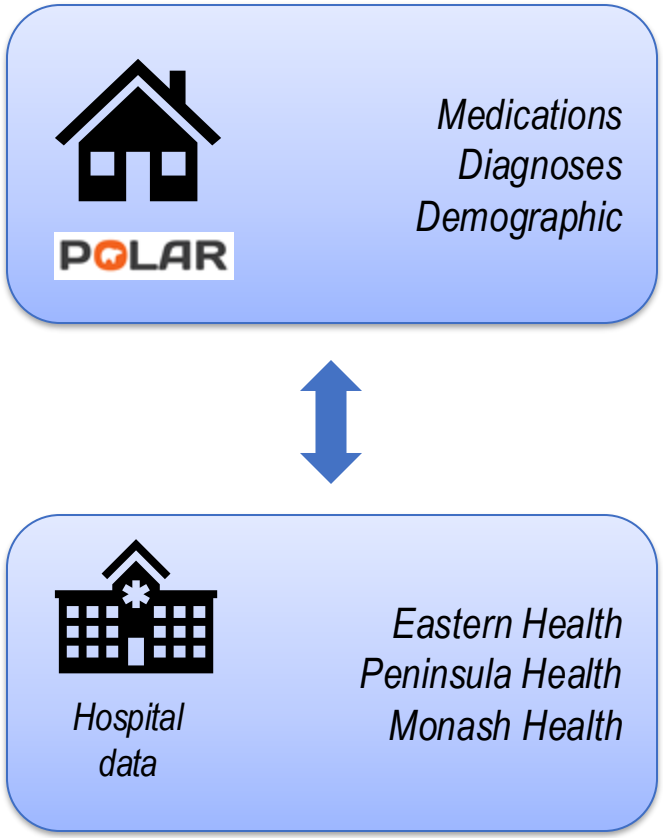
Background and Aim

- *Pain management guidelines have historically provided limited guidance on opioid deprescribing.*
- *Emerging evidence suggests that rapid or forced tapering may result in adverse outcomes, including withdrawal and unintended harms.*
- *While gradual, individualised tapering is recommended, there is limited high-quality evidence supporting the optimal approach to opioid dose reduction.*

Aim: to examine the association between opioid dose changes and emergency department (ED) presentations.

Method

Setting and Data Source



Study design: *Self-controlled case-crossover study*

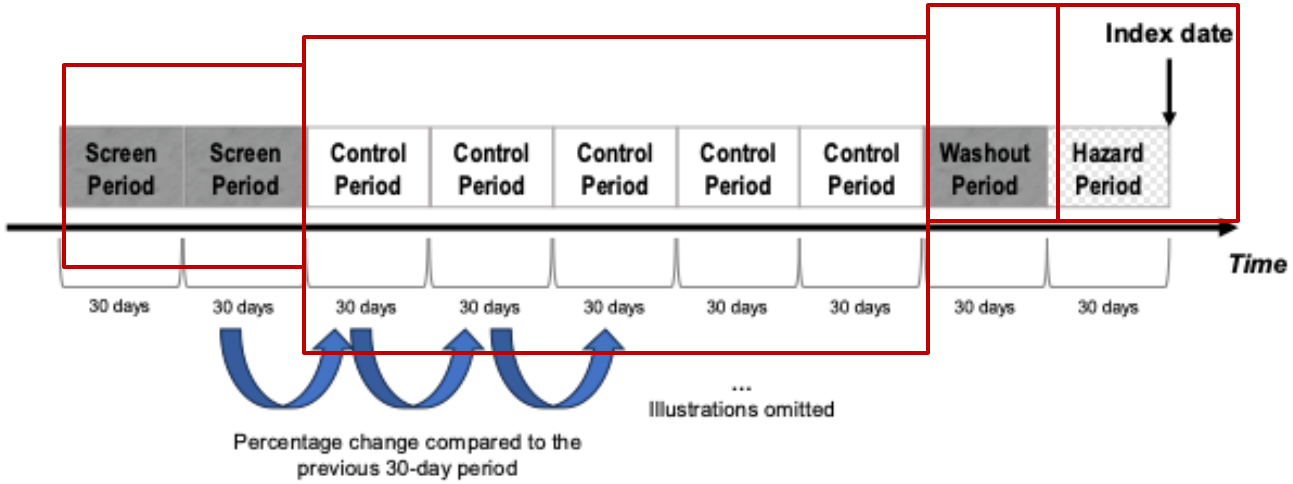
Data source: *General practice data sourced via the POpulation Level Analysis and Reporting (POLAR) platform (used with permission from three Victorian Primary Health Networks) and linked with data from three metropolitan hospitals in Victoria, Australia.*

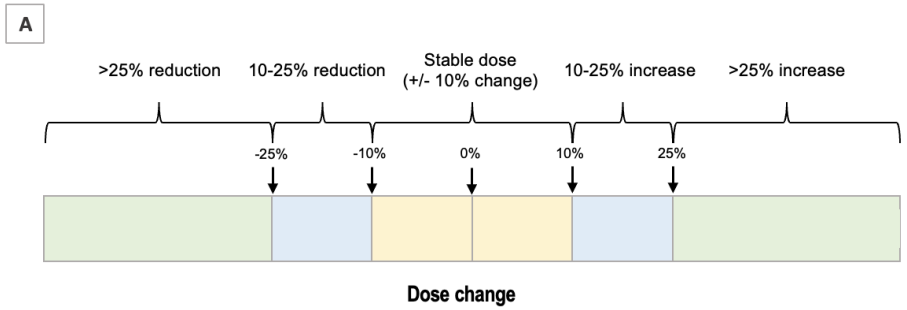
Outcomes: *ED presentations due to mental health or substance use.*

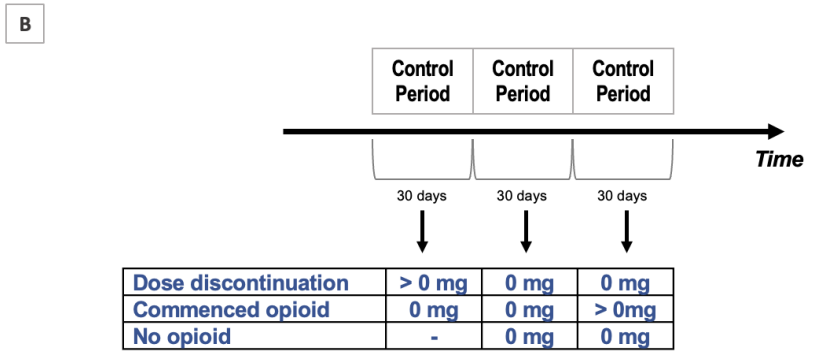
Inclusion: *People who had an ED presentation between April 2018 and May 2022 and had received ≥4 opioid prescriptions in the 12 months preceding their ED presentation were included.*

Method

Exposures: *Opioid dose changes between adjacent 30-day periods*







Dose discontinuation	> 0 mg	0 mg	0 mg
Commenced opioid	0 mg	0 mg	> 0mg
No opioid	-	0 mg	0 mg

Hazard period: *30 days prior to ED presentation*

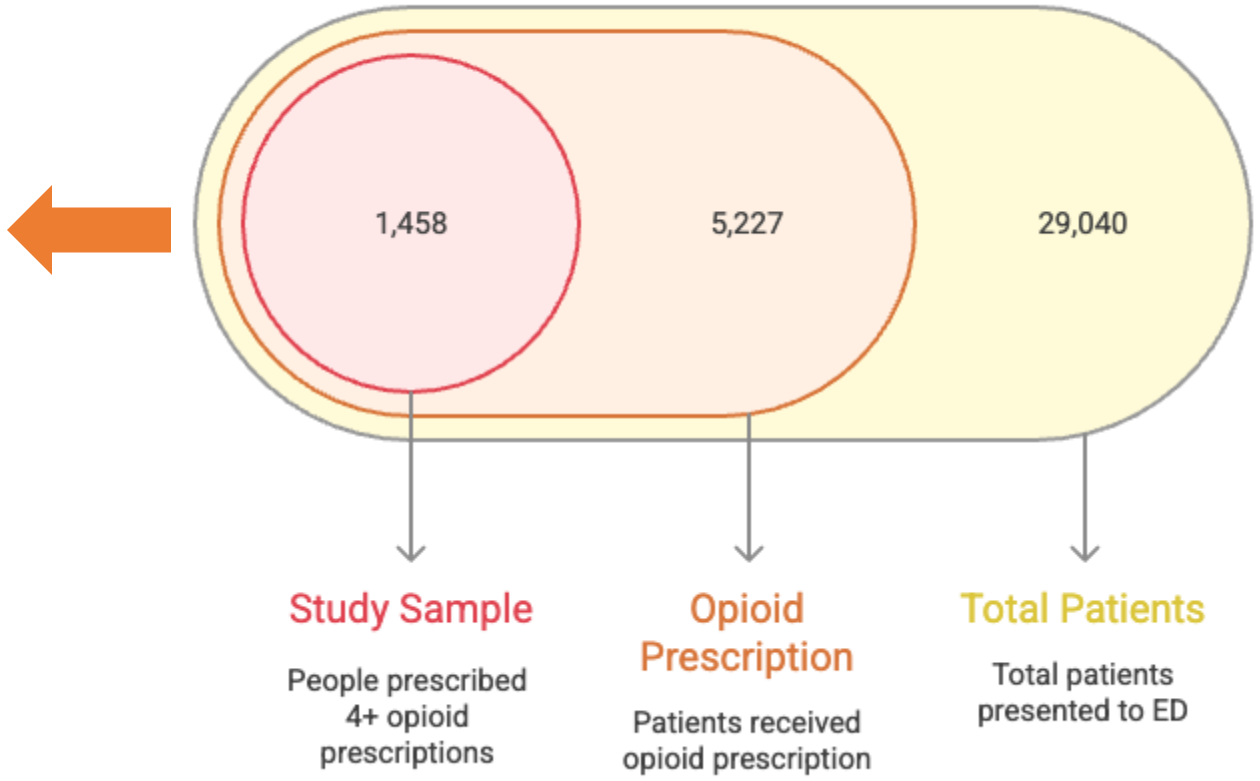
Washout period: *30 days preceding the hazard period to minimize overlap and confounding*

Control period: *five corresponding sets of control periods of equal length without an ED presentation.*

Screen period: *additional time frame for opioid dose change, commencement, and discontinuation.*

Results

Age 18-39 years	31.1%
Age 40-64 years	38.7%
Age ≥ 85 years	9.1%
Female	58.3%
Concessional Beneficiaries	78.5%
Metropolitan Residents	86.4%
Lowest SES Deciles	24.1%



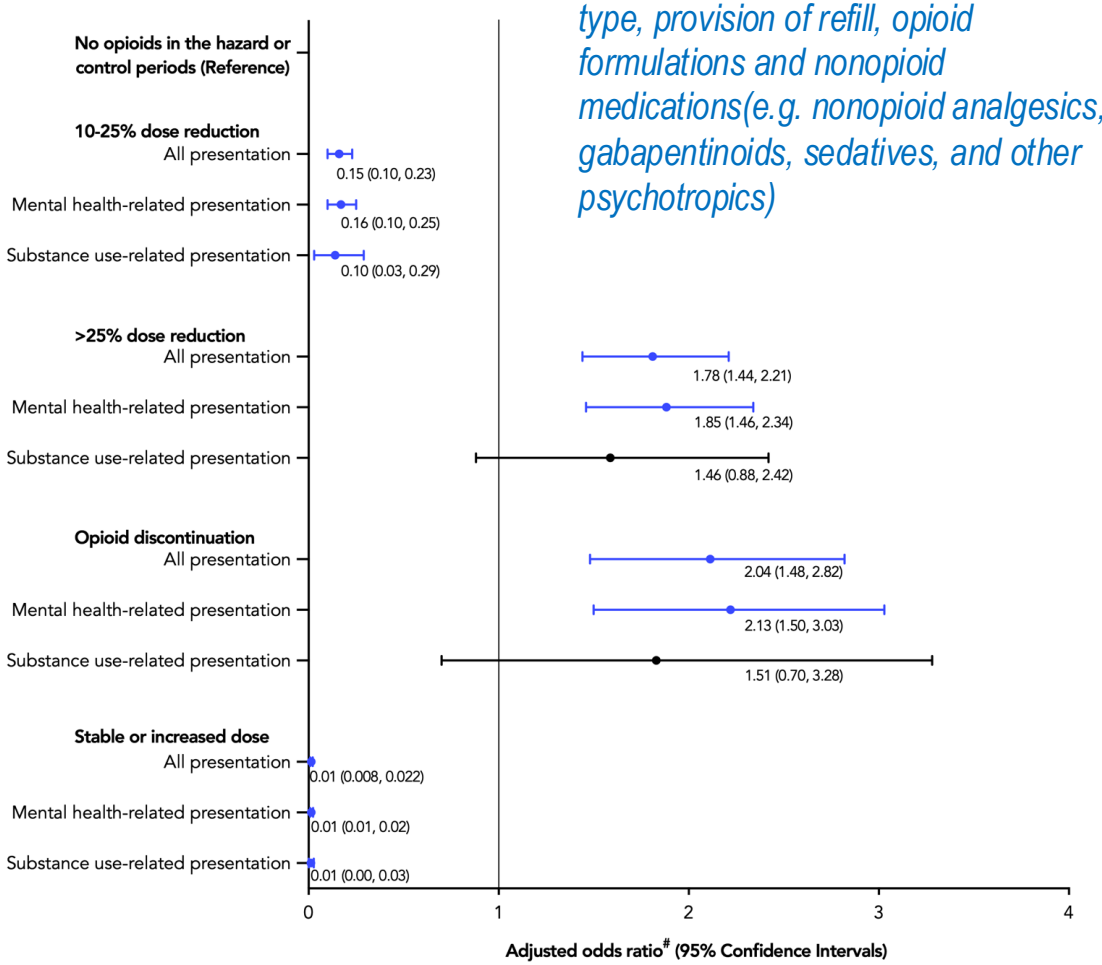
Results

Opioid Dose Changes During Hazard and Control Periods

	Exposed in hazard period (n=1,458)	Exposed in control period (n=7,290)
OPIOID DOSE CHANGE		
No opioid in the 30-day period	*192 (13.2%)*	*1,045 (14.3%)*
10-25% reduction	*38 (2.6%)*	*595 (8.2%)*
>25% reduction	*1,107 (75.9%)*	*1,427 (19.6%)*
Discontinued	*74 (5.1%)*	*160 (2.2%)*
Stable (+/- 10% change)	*21 (1.4%)*	*1,598 (21.9%)*
10-25% increase	*Nil*	*459 (6.3%)*
>25% increase	*Nil*	*1,692 (23.2%)*
Commenced opioid	*Nil*	*314 (4.3%)*

Results

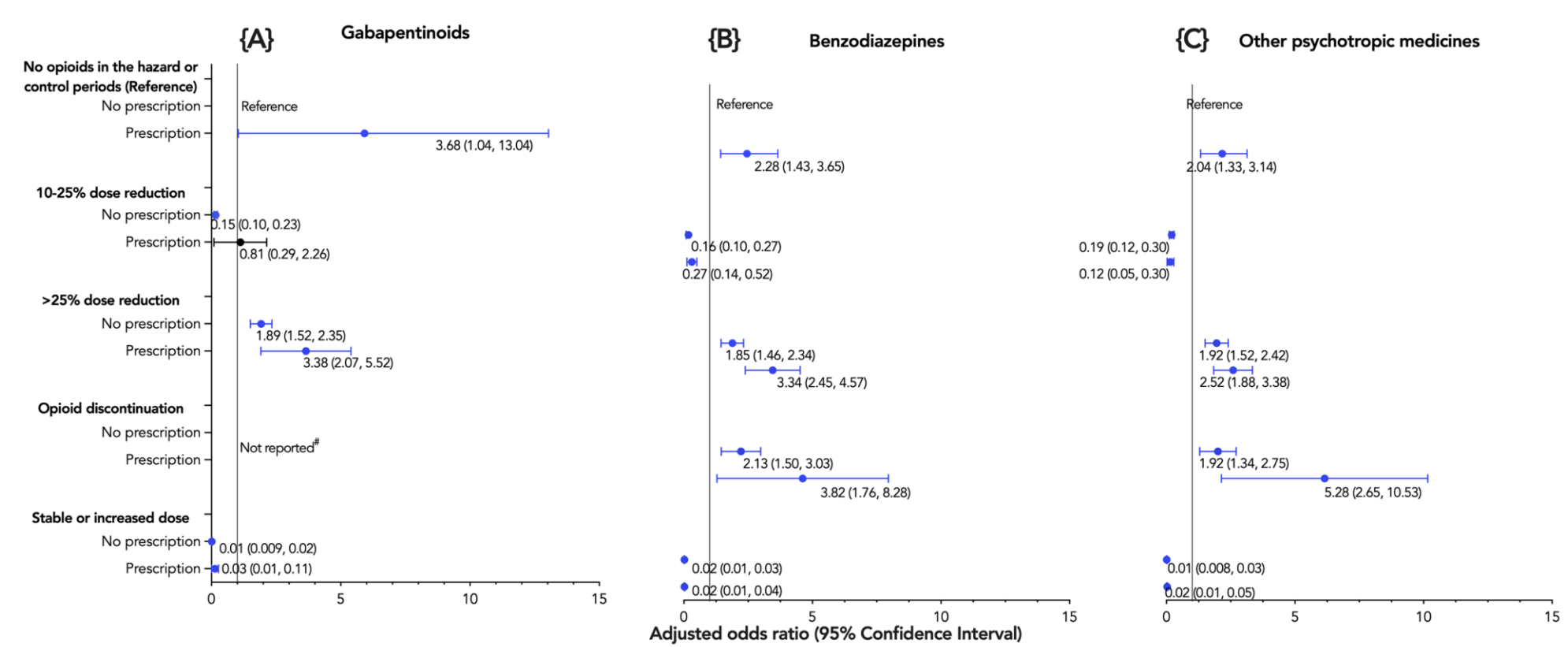
Adjusted odds ratio adjusted for opioid type, provision of refill, opioid formulations and nonopioid medications(e.g. nonopioid analgesics, gabapentinoids, sedatives, and other psychotropics)



Opioid dose reduction of >25% or discontinuation of opioid prescribing

Double the odds of ED presentations related to mental health or substance use

Results



Association between exposure (opioid dose changes) and prescription of other high-risk medicines (gabapentinoids, benzodiazepines and other psychotropic medicines) in the 30-days prior to ED presentation.

Discussion

- *Large opioid dose reductions (>25%) or discontinuation were linked to higher ED presentation risk, particularly mental health–related.*
- *Moderate dose reductions (10–25%) or stable doses were associated with lower risk.*
- *Co-prescribing gabapentinoids, benzodiazepines, or other psychotropics further elevated ED presentation risk.*
- *Our results provide critical evidence to support gradual tapering of opioids for people who are prescribed long-term opioids for pain.*

Limitations

- *Daily opioid doses were estimated from prescription data and median supply days, which may not capture actual patient use, although this method was applied consistently across all doses.*
- *The data largely reflect prescriptions from general practice, which may limit generalisability to specialist care settings.*
- *Important time-invariant confounders, such as pain scores and surgeries, were not available.*

Acknowledgements

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