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Persistent opioid use after surgery in New Zealand

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Introduction

Opioids are routinely prescribed for postoperative pain management, and may lead to adverse outcomes such as persistent opioid use (POU), the use of opioids beyond 90 days after hospital discharge.[1] Patients undergoing surgery has significant increased risk of POU.[2] There is a paucity of data in New Zealand (NZ) on opioid utilisation and adverse outcomes after surgery.

Our study aims to determine the rates and predictors of persistent opioid use after hospital discharge due to surgery in NZ.

Methods

Retrospective cohort study, using linked national Ministry of Health databases between 2007 to 2019. Five databases were used including the National Minimum Dataset (hospitalisation), Pharmaceutical Collection (medication), National Health Index (identifier), Primary Health Organisation (sociodemographic), National Non-Admitted Patient Collection (acute care) and Mortality Collection (death).

The index date was the date of hospital discharge after surgery. Patients were followed up for a maximum of 365 days.

Primary outcome: POU= subsequent dispensing of any opioids between 91-365 days.

Only surgical patients without concomitant diagnosis of trauma were included. All patients included were dispensed opioids within seven days of hospital discharge. We excluded patients if they had recurrent surgery or died during follow up. We also excluded patients if they had opioid exposure and previous opioid misuse up to 365 days preceding the index date.

Multivariable regression including sociodemographic, clinical, baseline comorbidities, baseline medication use and discharge variables was used to assess predictors. Analysis was undertaken via SPSS v28.

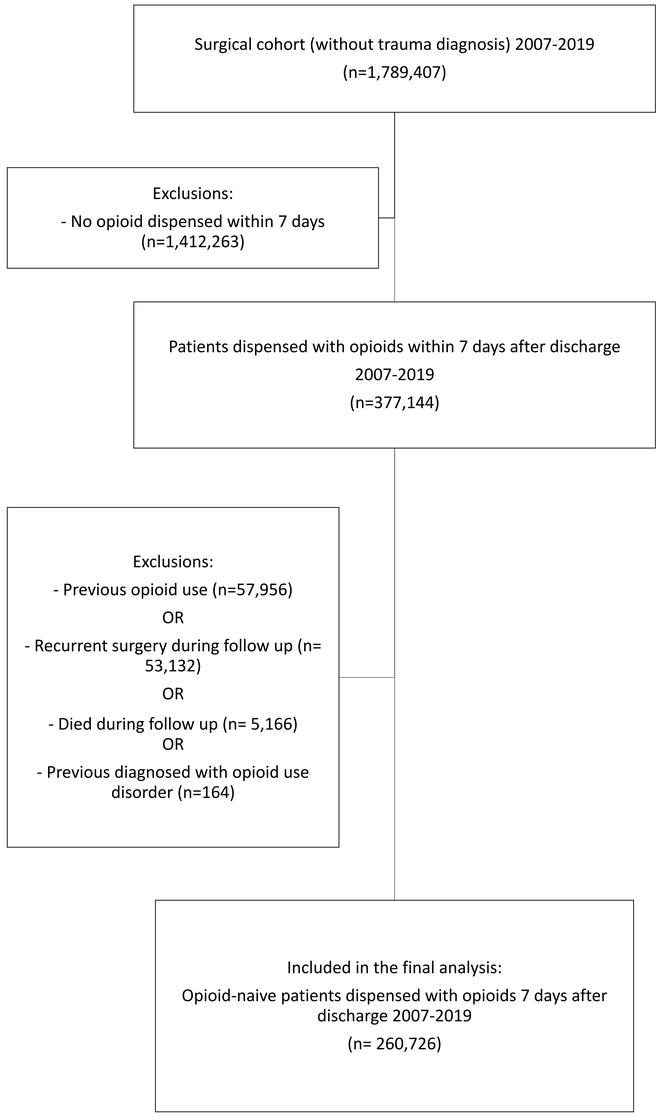


Figure. 1 Patient selection

Results

377,144 (21.0%) of surgical patients received opioids within seven days of discharge, among the 260,726 patients included for analysis, 23,656 (9.1%) met our criteria for POU (fig 2).

The key predictors included the following discharge- related variables: switching opioid types before 91 days and opioid type. Other variables included preoperative non-opioid analgesic use, preoperative hypnotic use, higher comorbidity, smoking, and surgical specialty. Non-opioid analgesic on discharge reduced the odds of POU.

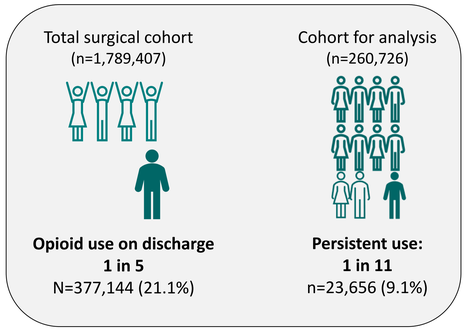
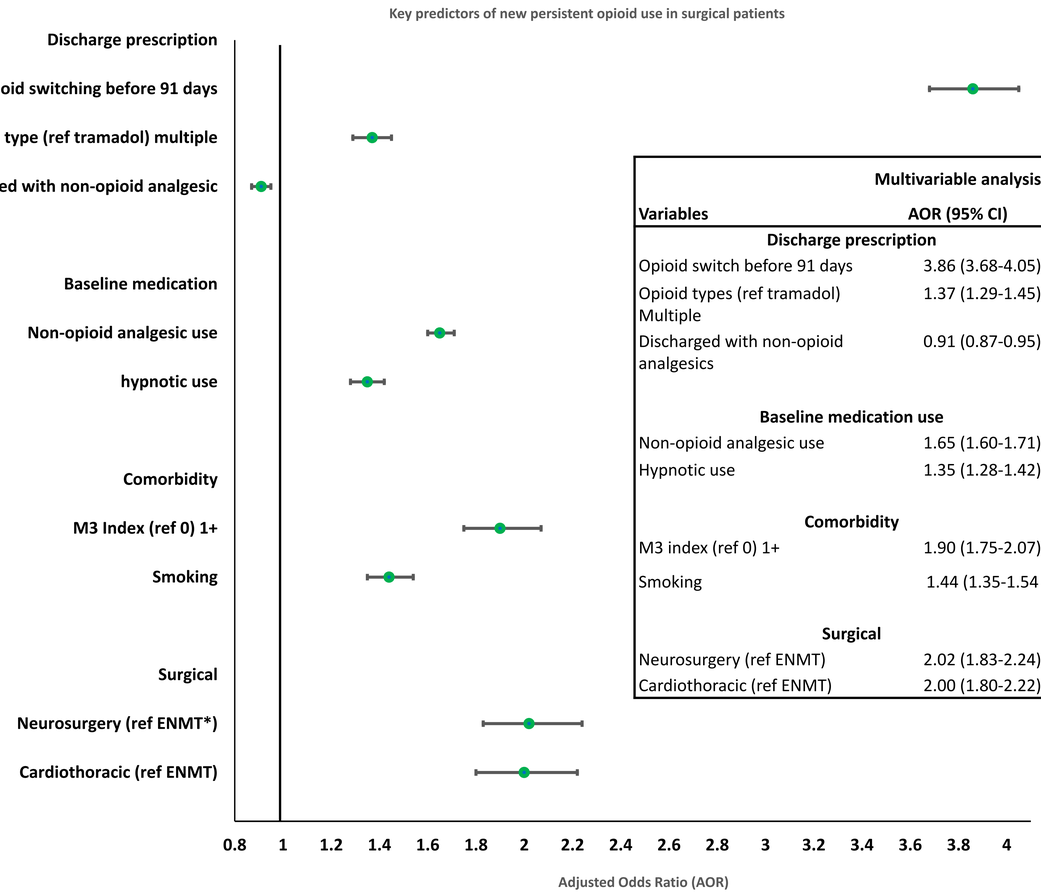


Figure 2. Visual summary of opioid use after surgery



Variables	Multivariable analysis AOR (95% CI)
Discharge prescription	
Opioid switch before 91 days	3.86 (3.68-4.05)
Opioid types (ref tramadol) Multiple	1.37 (1.29-1.45)
Discharged with non-opioid analgesics	0.91 (0.87-0.95)
Baseline medication use	
Non-opioid analgesic use	1.65 (1.60-1.71)
Hypnotic use	1.35 (1.28-1.42)
Comorbidity	
M3 index (ref 0) 1+	1.90 (1.75-2.07)
Smoking	1.44 (1.35-1.54
Surgical	
Neurosurgery (ref ENMT)	2.02 (1.83-2.24)
Cardiothoracic (ref ENMT)	2.00 (1.80-2.22)

Figure 3. *Ear, nose, mouth and throat. Forest plot of key predictors (P<0.001) of AOR and 95% CI in surgical (n=260,726)

Conclusion

One in 11 opioid-naïve patients prescribed opioids after surgery may develop POU. Avoiding unnecessary switching, multiple opioids and consider using non-opioid analgesic in addition to opioids on discharge may reduce the risk of POU. We recommend discussing with patients the risk of POU before and after surgery.

References:
1. US centres for Disease Control and Prevention. Drug overdose deaths in the United States hit record numbers in 2014: US centres for Disease Control and Prevention; 2014 [cited 2020 1st January]. Available: http://www. cdc. gov/ drugoverdose/ epidemic/ [Accessed 1 January 2020].
2. Brummet et al. New Persistent Opioid Use After Minor And Major Surgery in U.S Adults. *JAMA Surg;* 2017: doi:10/1001/jamasurg.2017.0504