

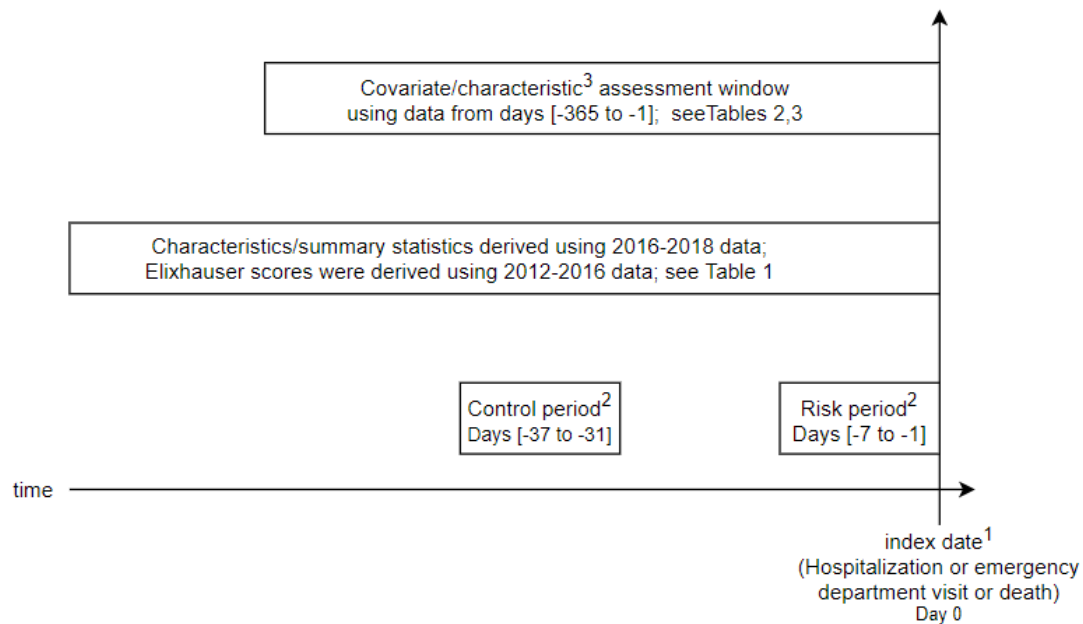
eAppendix

eTable 1. ATC codes (Anatomical Therapeutic Chemical codes) used to identify opioid and benzodiazepine/Z-drug prescriptions from prescription data (Pharmaceutical Information Network)

Opioid	ATC Code	4th Level Sub-Group
	N02AF	Morphinan derivatives
	N02AG	Opioids in combination with antispasmodics
	N02AE	Oripavine derivatives
	N02AD	Benzomorphan derivatives
	N02AC	Diphenylpropylamine derivatives
	N02AB	Phenylpiperidine derivatives
	N02AA	Natural opium alkaloids
	N07BC	Drugs used in opioid dependence
	N01AH	Opioid anesthetics
	R05DA	Opium alkaloids and derivatives
	N02AJ	Opioids in combination with non-opioid analgesics
	N02AX	Other opioids
BZRA		
	N03AE	Benzodiazepine derivatives
	N05BA	Benzodiazepine derivatives
	N05CD	Benzodiazepine derivatives
	N05CF	Benzodiazepine related drugs

BZRA: benzodiazepine/Z-drug

eFigure 1. Schematic of case crossover design. Each patient's exposure category (opioid only, BZD only, concurrent, none) was coded in both the risk and control periods. These exposures were contrasted using conditional logistic regression.



BZD: benzodiazepine

Note:

1. Hospital admission or emergency department visit between Jan 1 2016 to Dec 31, 2018; Death between Jan 1, 2016 and Dec 31, 2017
2. Exposure categories measured in each of risk and control periods: 1) BZD only, 2) opioid only, 3) concurrent BZD and opioid, and 4) none
3. Characteristics include cumulative days of concurrent use, total days of opioid use, number of opioid dispensations, and health care utilization