The contribution of ED to the opioid crisis

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The contribution of an emergency department to the opioid crisis

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Empathogens
Stimulants
Depressants
Dissociatives
Cannabinoids
Psychedelics
Opioids
PMA/PMMA
Mephedrone
MDMA
Ethylone
anxious
sweaty
dehydration
depression
mood swings
sexual arousal
connected
understanding
sense of belonging
Amphetamines
Betel Nut
Caffeine
Cocaine
Ice
Khat
Synthetic cathinones
Nicotine
euphoria
increased confidence
rapid heartbeat
confidence
reduced appetite
sexual arousal
mood swings
anxiety
dehydration
Alcohol
Benzodiazepines
GHB
Kava
euphoria
nausea
confidence
vomiting
dependence
mood swings
unconsciousness
coma
death
Nitrous oxide
Ketamine
Methoxetamine (MXE)
hallucinations
panic
disconnected
bladder damage
in a 'hole'
safe
numb
floaty
euphoria
Synthetic cannabis
Medicinal cannabis
Cannabis
Butane hash oil
anxious
dry mouth
paranoia
unmotivated
excited
loss of memory
bloodshot eyes
relaxed
calm
Psilocybin
NBOMes
LSD
Ayahuasca
euphoria
panic
paranoia
anxiety
disorganised thoughts
distorted perceptions
hallucinations
loss of coordination
increased body temp.
heart & lung problems
constipation
sweating
reduced sex drive
sleepy
impaired concentration
pain relief
relaxation & wellbeing
euphoria
Buprenorphine
Codeine
Fentanyl
Heroin
Methadone
Naltrexone
Opium
Oxycodone

Background

- Misuse of prescription opioids is described as : having reached the scale of an 'epidemic'
- Responsible for an average of 46 deaths each day[4]
- EDs in USA → Significant contributor[5]

Oxycodone on discharge from ED :

increased risk of opioid abuse at 12-months[6]

increased costs to the healthcare system[7]

Mandatory ED prescribing guidelines →reduce the volume of hospital-supplied opioids

Anecdotal concern → similar patterns in Australian EDs (limited Australian literature)

Background

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the changing climate of emergency medicine

- Misuse of prescription opioids → public health issues in Australia
- Rapid rise over the past two decades (associated increase in dependence, abuse and overdose.[1])

- Australia: 8th highest opioid prescribing rate per capita internationally (three million people dispensed an opioid each year.[1,2])

- Deaths related to prescription opioids: exceed the road toll and double the amount by heroin.[1]

550 Australian deaths in 2016 → attributed to toxicity from pharmaceutical opioids such as oxycodone.[3]

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Objective

Primary aim:

To quantify the volume of prescribed oral opioids in an Australian ED

Secondary outcome:

To identify any trends in prescribing behaviour

To improve understanding of the contribution of EDs to the public health (opioid abuse)

Hypothesis:

High volume of oral opioids prescribed within our EDs with an increasing trend.

Method

- A multi-centre, observational, retrospective data analysis of all oral opioid {immediate-release (IR) or slow-release (SR) schedule 8 (controlled)} prescribed within the Monash Health EDs over a four-year period (2015 - 2018)

- The largest health network in the state of Victoria, Australia
- Combined annual ED network census of over 200,000 presentations
- Three hospitals: Monash Medical Centre, Dandenong and Casey Hospitals

Monash Health and Monash University Human Research and Ethics Committee (RES-18-000-326Q)

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Method

- **Primary outcome :**

  Incidence of administration of an oral opioid medication to a patient during their ED stay. (electronic Merlin®)

- **Secondary outcome:**

  Supply of a prescription for an oral opioid medication to a patient on their discharge from the ED into the community, over the same time period. (MerlinMap®)

Result

- 890,557 presentations to EDs during the study period (2015-2018).
  Mean 222,639 annual presentations with a modest uptrend.

	MMC	Dandenong	Casey	Monash Health (Total)
2015	86,053	68,276	60,516	214,845
2016	86,680	69,930	64,115	220,725
2017	90,588	70,620	66,207	227,415
2018	90,836	70,401	66,335	227,572
Total	354,157	279,227	257,173	890,557

Three common oral opioid tablets :

- Oxycodone immediate-release (Endone®)
- Oxycodone slow-release (Oxycontin®)
- Oxycodone/naloxone slow-release (Targin®)

Primary outcome: opioid prescriptions during ED admission

- 288,242 episodes of opioid administration
- Equivalent to 324 opioid prescriptions per 1,000 presentations to the ED
- The most frequently administered opioid : Oxycodone immediate-release (Endone®); 5mg
- 10.3% slow-release opioid

	Number of presentations	Oxycodone IR (Endone®)	Oxycodone/Naloxone SR (Targin®)	Oxycodone SR (Oxycontin®)	Total opioids
2015	214,845	57,186	3,378	1,492	62,056
2016	220,725	63,092	5,978	1,314	70,384
2017	227,415	68,380	7,446	1,279	77,105
2018	227,572	70,000	7,794	903	78,697
Total	890,557	258,658	24,596	4,988	288,242

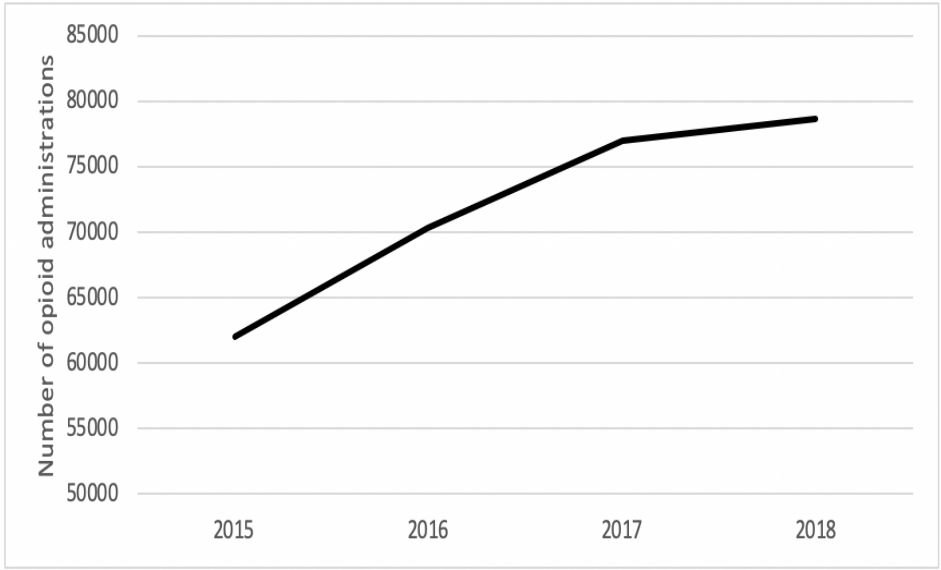
Result

- Increasing trend out of proportion to the increase in patient numbers
- Oxycodone/naloxone SR greatest increase from 5.4% to 9.9%

? New into the market and more comfortable with prescribing over Oxycontin (decline in Oxycontin use)

	MMC	Dandenong	Casey	Monash Health
2015	24,090	20,254	17,712	62,056
2016	26,333	22,915	21,136	70,384
2017	27,119	25,876	24,110	77,105
2018	26,707	28,622	23,368	78,697

Annual opioid administration within individual emergency departments



Annual trend of overall opioid administration during ED stay across health network

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Secondary outcome: opioid prescriptions on discharge from ED

- 39,381 prescriptions on discharge from ED into the community
- Equivalent to an average of 44 opioid prescriptions per 1,000 presentations for any reason to the ED.
- The mean annual number of prescriptions : 9,845
- The most frequently prescribed opioid on discharge : oxycodone IR 5mg (89.1%).

Result

	Number of presentations	Oxycodone IR (Endone®)	Oxycodone/Naloxone SR (Targin®)	Oxycodone SR (Oxycontin®)	Total opioid
2015	214,845	8,382	550	275	9,207
2016	220,725	9,138	1,011	193	10,342
2017	227,415	9,617	1,050	115	10,782
2018	227,572	7,965	1,020	65	9,050
Total	890,557	35,102	3,631	648	39,381
Maximum PBS supply of tablets		78.8%	77.8%	75.6%	78.6%

Annual opioid discharge prescriptions within health network by medication type

Over 75% of all opioid prescriptions allowed for a maximum supply of tablets available under the pharmaceutical benefits scheme (PBS) with no deliberate reduction by the prescriber

	MMC	Dandenong	Casey	Monash Health
2015	3,427	2,379	3,401	9,207
2016	3,630	2,984	3,728	10,342
2017	3,464	3,064	4,254	10,782
2018	3,163	2,660	3,227	9,050

Annual opioid discharge prescriptions within individual emergency departments

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Limitations

- Population of patients who attended emergency departments within metropolitan Melbourne, which may affect external validity to other centres

- Individual patient indications for opioid prescriptions weren't reviewed (inappropriate indications)

Conclusion

- Significant use of opioid medications in EDs
- Likely to be inappropriately over-prescribed and may be contributing to adverse patient outcomes and a public health crisis.
- Safeguards by prescribers against opioid-associated harms can be improved.

Recommendations

- Hospitals steps to reduce the overall volume of opioids prescribed.
- Education for prescribers : opioids in acute pain, risks and public health consequences
- Introduction of opioid prescribing guidelines (Jr. medical staff)

USA: best-practice guidelines →reducing overall opioid prescriptions with an aim of reducing associated harms.[5,7,12]

Possible guidelines :

- Simple analgesia
- Limited tablets to be dispensed per prescription
- Discouragement of SR opioids in the management on acute pain

Further research on the efficacy of prescribing guidelines in the Australian ED setting.

Discussion

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- Large number of opioids prescribed within ED during a 4-year period
- For every 1,000 patients presenting to the ED:
  - 324 administrations of an opioid within the department
  - 44 opioid prescriptions provided on discharge.

Our EDs supplied an average of
9,845 prescriptions, or 165,899 opioid tablets each year
(23.2% of all discharge prescriptions) into the local community

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Discussion

- This review of close to 1 million presentations across multiple EDs is the largest study conducted on ED opioid prescribing in Australia. (only one smaller, single-centre audit by Stanley et al.[9])

- Reassuring → rate of opioid discharge prescribing in our network significantly lower than reported in the USA (In 2012, 11.9% of all patients presented to American EDs[10])

- Important role in the management of acute severe pain.
- Restricted under the PBS in Australia, for use in 'severe disabling pain that is unresponsive to non-opioid analgesics'[8]
- Opioids are over-prescribed

Discussion

- Up to 5% of patients commenced on an opioid will continue to use the medication at 12-months.[2]
- Discharge prescriptions from our ED could therefore have resulted in up to 492 cases of chronic opioid use in a single year.

Respiratory depression

Opioid-induced ventilatory impairment

and subsequent death

SR opioids not in acute pain by the Australian Therapeutic Goods Administration.

10.9% of overall opioid discharge prescriptions are for a slow-release formulation in our network

Discussion

To minimise the risks of chronic use:

- Decision to instigate opioid should be accompanied by a plan to wean and cease
- Discuss a weaning plan with the patient and GP
- A recommended safeguard is to limit the number of opioid tablets supplied, to match the expected duration of severe pain.[11]

- In our EDs , over 78.6% of discharge prescriptions had no limit, allowing for a maximum supply of tablets under the PBS to be dispensed (higher than previously reported both in Australia[9] and in USA[10])

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