

## Oxycodone use in back pain after implementation of an analgesic guideline in the Emergency Department

Ly J<sup>1</sup>, Roman C<sup>1,2</sup>, Luckhoff C<sup>2</sup>, Cameron P<sup>2,3</sup>, Dooley M<sup>1</sup>, Mitra B<sup>2,3</sup>

<sup>1</sup>Department of Pharmacy, Alfred Health, Melbourne, Victoria; <sup>2</sup>Emergency & Trauma Centre, Alfred Health, Melbourne, Victoria; <sup>3</sup>Department of Epidemiology & Preventive Medicine, Monash University, Melbourne, Victoria



### Background

Back pain is the most common musculoskeletal presentation to emergency departments (ED) [1]. Opioids are increasingly being used to treat back pain in ED despite little evidence of effectiveness and long-term safety issues [2,3]. The widespread misuse of prescription opioids is a current concern internationally.

### Aim

To assess the introduction of a pain management guideline, incorporating an analgesic ladder, and targeted education on oxycodone use for patients presenting with back pain to the ED.

### Methods

This retrospective cohort study was conducted pre- and post-implementation of a new ED analgesic guideline and ladder in the EDs of a major metropolitan health service in May 2017. The guideline encourages a multi-modal approach with responsible use of oxycodone and an analgesia escalation plan (Figure 1). Education sessions were provided for all ED medical, nursing and pharmacy staff. Data were collected from June to July 2016 and June to July 2017 including consecutive adult patients who presented to the ED with back pain and were admitted to emergency short stay units at Alfred Health Emergency.

**Primary outcome:** proportion of patients prescribed and administered oxycodone

**Secondary outcomes:** dose of oxycodone; proportion of patients discharged on oxycodone; other analgesic use

**Sample size:** To observe a reduction in oxycodone use from 60% to 40%, 107 patients were required in each arm ( $\alpha=0.05$ ; power: 80%)

Alfred Emergency Services Pain Escalation Plan	
<b>NON-PHARMACOLOGICAL INTERVENTIONS</b> Wound dressings, ie Burnaid, Biadex or gauze Splinting Slings Positioning R.I.C.E. Distraction techniques	<b>Specific conditions</b> Acute gout: NSAIDs, corticosteroids, colchicine Renal colic: NSAIDs (including IM/IV/PR options) Acute migraine: NSAIDs, Triptans, Chlorpromazine Neuropathic pain: Pregabalin, Tramadol Cardiac chest pain: GTN, Morphine IV stat #NOF: femoral nerve block (see guideline) Distal forearm#: Biers block (see guideline)
<b>Mild Pain Pain Score 1-3 Functional Activity Score A</b> Recommended analgesia Paracetamol 1 g PO qid AND/OR Naproxen 250 mg PO tds (+/- PPI)	All discharge prescriptions for oxycodone must be approved by the ED consultant or senior registrar (after hours)
<b>Moderate Pain Pain Score 4-7 Functional Activity Score B</b> Recommended analgesia Paracetamol 1 g PO qid AND/OR Naproxen 250 mg PO tds (+/- PPI) Consider adding Tramadol 50-100 mg PO/IV qid prn (Avoid in patients >65years old, history of seizures)	
<b>Severe Pain Pain Score 8-10 Functional Activity Score C</b> Recommended analgesia Paracetamol 1 g PO qid AND/OR Naproxen 250 mg PO tds (+/- PPI) And Tramadol SR 100mg bd AND Tramadol 50mg qid prn (Avoid in patients >65years old, history of seizures)	
<b>PATIENT INFORMATION</b> A completely pain free state may be difficult to achieve, depending on the cause and nature of your pain. Effective pain relief means that someone is comfortable with the sensation(s) that they experience. All pain relief approaches involve balancing pain relief against medication side effects, including nausea, constipation and drowsiness. It is important to have a step wise approach to pain relief so as to minimise unwanted side effects and it can take a few minutes for medication(s) to start working Non-medication based approaches can be highly effective for adequate pain management. These can include splinting, immobilisation, elevation, plaster cast, crutches, ice and physiotherapy exercises.	

Figure 1. Alfred Health E&TC Analgesic Ladder and Treatment Guideline

### Results

Two hundred and fourteen patients were included (107 pre- and 107 post-intervention), see Table 1.

Table 1. Patient demographics

	Pre-intervention (n=107)	Post-intervention (n=107)	p-value
Age in years; mean (SD)	53.2 (20.1)	53.9 (21.4)	0.80
Male sex, n (%)	51 (47.7%)	55 (51.4%)	0.58
Ambulance transport	41 (38.3%)	36 (33.6%)	0.48
Pre-hospital analgesia: - ambulance	13 (12.1%)	24 (22.4%)	0.05
- self-admin.	42 (39.3%)	28 (26.2%)	
ATS Triage category, median (IQR)	4 (3,4)	4 (3,4)	0.14
Initial pain score; mean (SD)	7 (3-8)	6 (4-7)	0.14
Prior long-term (>2wks) analgesia use	30 (28.0%)	16 (14.9%)	0.02

### Results (cont.)

After implementation of the guideline and targeted education, the proportion of patients who were prescribed and administered oxycodone significantly decreased from 73% to 51% ( $p=0.001$ ). Among patients who received oxycodone during their ED stay, the total median dose administered decreased from 14mg (IQR: 5-20mg) to 5mg (IQR: 5-10mg), ( $p<0.001$ ) (Figure 2).

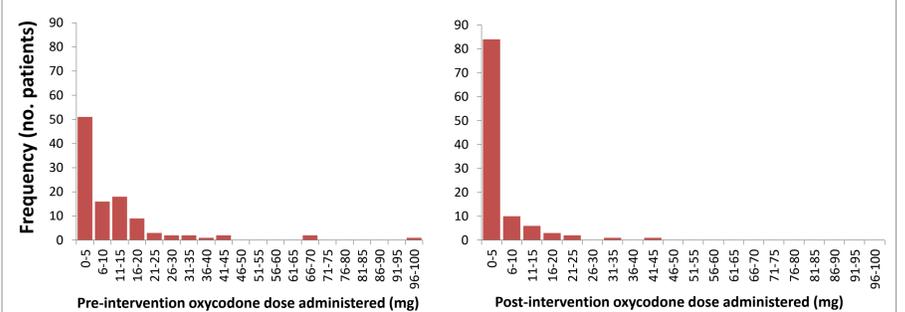


Figure 2. Oxycodone prescribing before and after Analgesic Ladder implementation

Significantly higher rates were observed in the use of non-steroidal anti-inflammatory drugs (NSAIDs) and tramadol (Table 2) after guideline implementation. There was no change in oxycodone prescriptions at discharge (34% vs 24%,  $p=0.13$ ).

Table 2. Analgesic prescribing before and after Analgesic Ladder implementation

n (%)	Pre-intervention (n=107)	Post-intervention (n=107)	p-value
Oxycodone	78 (72.9%)	55 (51.4%)	0.001
Paracetamol	85 (79.4%)	90 (84.1%)	0.38
NSAIDs	47 (43.9%)	68 (63.5%)	0.004
Tramadol	4 (3.7%)	38 (35.5%)	<0.001
Paracetamol/Codeine	2 (1.9%)	6 (5.6%)	0.28
Pregabalin	13 (12.5%)	15 (14.0%)	0.68
Morphine	5 (4.7%)	2 (1.9%)	0.44
Other	2 (1.9%)	7 (6.5%)	0.17

### Discussion

As increasing evidence demonstrates the lack of benefit and associated risks of using opioids for the management of back pain it has become pertinent to use opioids with caution [4]. Encouragingly, our intervention showed a decrease in the use of oxycodone and increase in the use of NSAIDs. An expected increase in the usage of tramadol was observed. Although still an opioid, it is associated with lower abuse potential and mortality compared to other opioids [5].

### Conclusion

Implementation of an analgesic ladder was associated with a statistically significant but modest reduction in oxycodone prescription for back pain.

Consideration should be given to restricting supply of oral opioids.

### References

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