Quality indicators for opioid prescribing for acute postoperative pain: a scoping literature review

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Background

Inappropriate opioid prescribing for acute postoperative pain increases patients' risk of adverse effects such as opioid-induced ventilatory impairment or persistent post-surgical opioid use.

Optimising postoperative opioid prescribing is key to opioid stewardship in hospitals. However, there is currently no set of quality indicators designed specifically for opioid prescribing for acute postoperative pain.

Aim

To identify candidate quality indicators for opioid prescribing for acute postoperative pain through a scoping literature review.

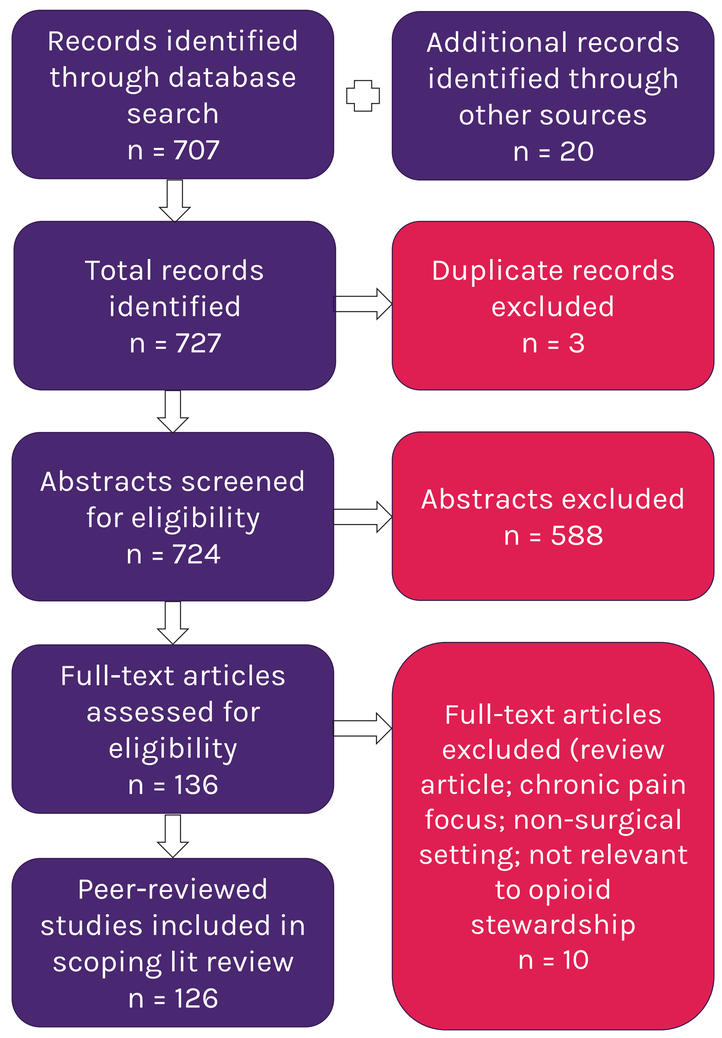
Method

Peer-reviewed and grey literature were searched for opioid stewardship metrics publications and evidence-based guidelines or expert consensus statements relevant to opioid prescribing for acute postoperative pain.

A literature review was performed in the MEDLINE database to identify opioid stewardship intervention studies for adult surgical patients, supplemented by review of reference lists. For local relevance in Australia, published final studies of abstracts from SHPA's Medication Management conferences 2015-2020 were also included.

From these references, measures that were relevant to opioid prescribing for acute postoperative pain were extracted as candidate quality indicators. Similar candidate quality indicators were combined to provide a single metric description and were categorised into domains and subdomains through investigator consensus.

Fig: 1: Literature search for peer-reviewed opioid stewardship intervention studies with adult surgical patients



Results

The scoping literature review identified 11 relevant opioid stewardship metrics publications, 25 recent prescribing guidelines or consensus statements, and 126 opioid stewardship intervention studies in surgical settings.

From these publications, **65 candidate quality indicators were derived across 3 domains and 10 subdomains.**

Opioid exposure: Opioid administration as inpatient
- Proportion of inpatients who received opioids in hospital
- Total postoperative inpatient opioid consumption (OME)
- Average postoperative administered OMEDD (oral morphine equivalent daily dose)
- Duration of inpatient opioid exposure
- Inpatient opioid consumption in the 24 hours prior to discharge
- Proportion of opioid naïve patients with opioid doses >=50 OMEDD
- Proportion of patients with opioid doses >=90 OMEDD

Opioid exposure: Opioid prescribing on discharge
- Proportion of patients prescribed (or dispensed) opioids on discharge
- Number of discharge opioid prescriptions per prescriber
- Number of opioid pills prescribed (or dispensed) on discharge
- Oral morphine equivalent (OME) of discharge prescription
- Oral morphine equivalent daily dose (OMEDD) of discharge prescription
- Oral morphine equivalent daily dose (OMEDD) of modified-release opioids prescribed on discharge
- Duration of discharge opioid prescription
- Proportion of patients receiving a discharge opioid prescription of >3 days supply
- Proportion of patients receiving a discharge opioid prescription of >7 days supply

Opioid exposure: Opioid utilisation after discharge
- Volume of opioids used after discharge (number of opioid pills or OME)
- Volume of unused opioids after discharge (number of opioid pills or OME)
- Storage method for unused opioids
- Disposal method for unused opioids
- Proportion of patients who required opioid prescription refills after discharge
- Time to opioid cessation after discharge

Patient outcomes: Opioid-related morbidity or mortality
- Proportion of patients who received opioids and experienced constipation
- Proportion of patients who received opioids and experienced opioid-related side effects
- Number of inpatients who experienced opioid-induced ventilatory impairment (OIVI)
- Number of inpatients who were administered naloxone for opioid toxicity
- Proportion of opioid naïve patients who were discharged with opioids and developed persistent opioid use
- Rate of opioid-related deaths

Patient outcomes: Pain management & patient satisfaction
- Pain scores
- Proportion of hospital days with one or more severe pain scores
- Functional outcomes
- Patient reported satisfaction with postoperative pain management
- Patient reported satisfaction with discharge analgesia education
- Patient reported satisfaction with surgical experience

Patient outcomes: Organisational performance
- Length of hospitalisation
- Proportion of patients who were discharged with opioids and required unplanned care related to pain or opioid adverse effects
- Proportion of postoperative patients presenting to emergency department within 30 days of discharge
- Proportion of postoperative patients readmitted to hospital within 30 days of discharge
- Proportion of postoperative patients who required reoperation
- Proportion of patients with major postoperative complications
- Medication costs

Quality improvement processes: Medication review
- Proportion of patients prescribed opioids who were also prescribed paracetamol and/or other simple analgesics
- Proportion of inpatients prescribed standard order sets for acute pain management
- Proportion of discharge opioid prescriptions that meet local prescribing guideline recommendations
- Proportion of patients who were prescribed opioids on discharge and did not use opioids in the preceding 24 hours
- Proportion of opioid naïve patients prescribed modified-release opioids for acute pain
- Proportion of patients prescribed opioids who were also prescribed other sedatives (e.g. benzodiazepine or gabapentinoid)
- Proportion of patients prescribed opioids who were also prescribed a laxative
- Proportion of patients prescribed more than one type of opioid
- Percentage of parenteral opioid dosage units that are pethidine
- Proportion of patient at risk of opioid toxicity who were prescribed take-home naloxone
- Proportion of patients receiving opioids for who were reviewed by a pharmacist and a prescribing intervention was recommended

Quality improvement processes: Planning and communication
- Proportion of inpatients who have documented pain and function goals
- Proportion of patients with a documented opioid management plan
- Proportion of patients prescribed opioids for acute pain on discharge who had a documented opioid management plan for the primary care prescriber
- Proportion of patients prescribed opioids who received written and verbal education about pain management and safe use of opioids, including the intended number of days that opioid analgesia will be required

Quality improvement processes: Assessments and monitoring
- Proportion of patients with baseline assessments of pain and opioid utilisation upon admission
- Proportion of patients who received opioids and had documented pain assessments
- Proportion of patients who received opioids and had documented functional assessments
- Proportion of patients offered regular analgesia, and analgesia when pain is not relieved
- Proportion of patients who received opioids and had documented sedation assessments
- Proportion of patients who received opioids and were assessed for risk of opioid-related harm
- Proportion of patients prescribed opioids who had a prescription drug monitoring program (PDMP) checked

Quality improvement processes: Staff education
- Proportion of staff who completed opioid stewardship-related education
- Staff reported education benefit

Conclusion

Implementing quality indicators to guide improvements in opioid prescribing for acute postoperative pain will require expert consensus to select metrics that represent the range of stewardship subdomains and are feasible to measure with automated reporting.

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