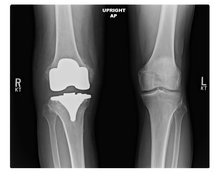
# Evaluation of the Use of Long Acting Opioids For Post-operative Pain Control in Orthopaedic Surgery

THE Dartmouth INSTITUTE FOR HEALTH POLICY & CLINICAL PRACTICE

**Shuang Chen, Samuel T. Kunkel, Michael L. Ormont and Clifford Reilly Jr.**

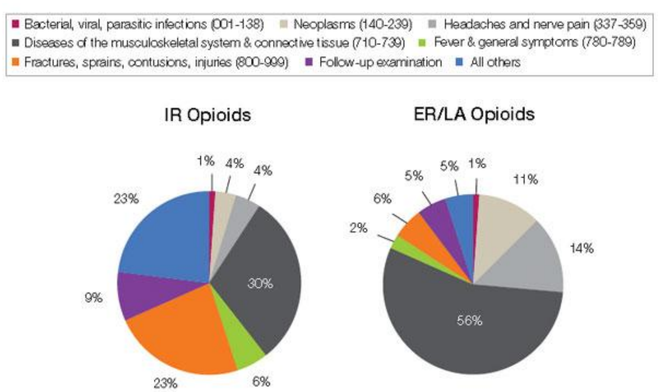



## Aim

- Evaluate the use of long-acting opioids (LAOs) in the post-operative total joint arthroplasty population, with regard to effectiveness and risks.
- Provide recommendations regarding the use of long-acting opioids in this population.

## Methods

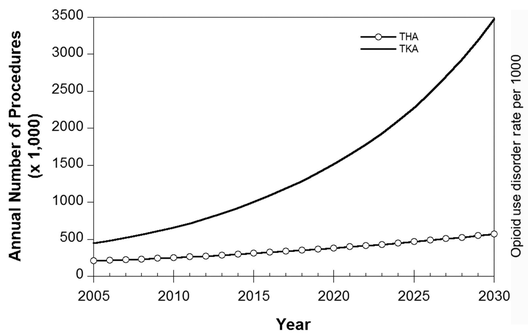
- Medical literature contained within the Medline database was searched for original articles and reviews pertaining to long acting opioids.
- Particular focus was placed on their mechanism of action, side effect profiles, and distinguishing features between long and short acting formulations.
- Specific attention was paid to their use in total joint arthroplasty post-operative protocols
- All identified articles relevant to this topic were reviewed.



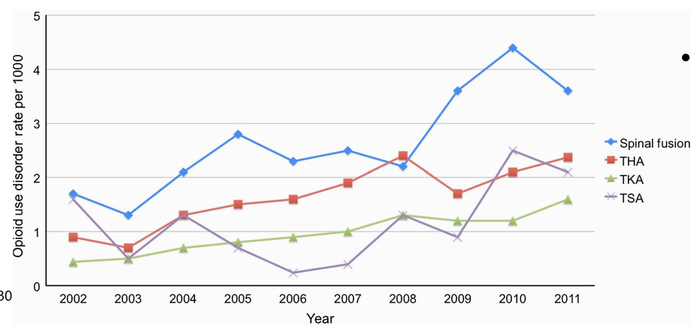

Indications for prescriptions for immediate release (IR) and long acting (ER/LR) opioids.

## Background

- About 300,000 total hip arthroplasty (THA) and 700,000 total knee arthroplasty (TKA) operations are performed annually in the US, and this is expected to increase substantially over the coming decades.
- Adequacy of pain management in this population affects recovery of functional mobility and patient satisfaction.
- Post-operative pain management protocols often involve narcotic analgesia.
- Controlled release, long-acting opioid formulations (LAOs) have the theoretical benefit of stable serum concentrations, however use of LAOs may have distinct risks including abuse and diversion potential. The risk is higher in patients who are using narcotics preoperatively, the number of whom are increasing.
- It is important to evaluate this critical issue and provide recommendations regarding the use of LAOs in post-operative total joint arthroplasty patients.



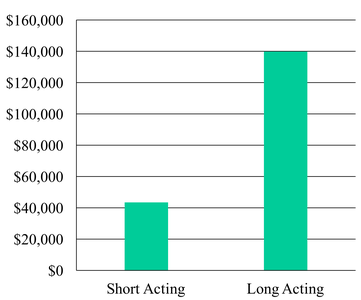

Estimated number of knee and hip arthroplasties.




Opioid abuse and dependence per 1000 orthopaedic inpatients by procedure type in the United States from 2002 to 2011. TSA = total shoulder arthroplasty.

## Long Acting Opioids in Orthopaedic Surgery

- Approximately 13% of patients undergoing total joint arthroplasty are prescribed LAOs after surgery.
- Current evidence remains equivocal with regard to whether these medications provide substantive benefit to patients after joint replacement surgery in terms of pain relief or side effect profile.
- There is compelling empiric evidence to suggest that LAOs may carry a risk of abuse, diversion, and unintentional overdose.




Average Cost of Claims Paid For Long and Short Acting Opioids

## Potential Actions

- Continued utilization of LAOs in post-operative pain protocols, with close monitoring and enhanced patient education regarding the risks of these medications.
- Elimination of LAOs from total joint arthroplasty post-operative analgesic protocols.

## Recommended Actions

- Evidence does not support the routine use of LAOs in total joint arthroplasty patients for the management of acute post-surgical pain.
- LAOs should be used very selectively in post arthroplasty patients, and preferably avoided.
- We recommend pursuing multimodal pain management for arthroplasty patients, including a combination of some or all of the following strategies:
  - Patient education
  - Administration of pre-emptive analgesics
  - Epidural analgesia
  - Peripheral nerve blocks
  - Periarticular nerve blocks
  - Periarticular injections
  - Oral analgesics

## Evaluation Plan

- Implementation of this recommendation could be evaluated through patient centered subjective pain metrics and objective clinical assessment (including measures of overall opioid consumption).
- On a community and population level its impact might be assessed through evaluation of addiction, illicit narcotic diversion, and accidental overdose.

## References


1. Kurtz S, Ong K, Lau E, Mowat F, Halpern M.et al., Projections of primary and revision hip and knee arthroplasty in the United States from 2005 to 2030. J Bone Joint Surg. 2007; 89:780-5.
2. Menendez ME, Ring D, Bateman BT. Preoperative Opioid Misuse is Associated With Increased Morbidity and Mortality After Elective Orthopaedic Surgery Clin Orthop Relat Res (2015) 473:2402–2412
3. Governale L. Outpatient Prescription Opioid Utilization in the U.S., Years 2000 – 2009, Division of Epidemiology Office of Surveillance and Epidemiology July 22, 2010