Removal of Codeine in Pediatric Oncology: A Qualitative Evaluation of Success and Attitudes

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• 80 – 90 new oncology diagnoses per year

• Multidisciplinary team care in both inpatient and outpatient settings
  – >50 team members
    • 8 physicians
    • 3 Nurse Practitioners
    • 3 Pharmacists
    • + supportive services
Northern Alberta Children’s Cancer Program

• Heavy prescribers of codeine for analgesia
  – Acetaminophen and ibuprofen avoided due to masking of fever in potentially neutropenic patients
  – Ibuprofen also has anti-platelet effects
Codeine

• Prodrug: converted in the liver by CYP 2D6 to morphine for pain relief

• CYP 2D6 population polymorphisms lead to unpredictable morphine conversion
CYP 2D6

- **Ultra-rapid metabolizers**
  - 1 – 30% of population
  - Increased potential for serious adverse events

- **Poor metabolizers**
  - 0.5 – 10% of population
  - Lack of efficacy
TO THE EDITOR: Obstructive sleep apnea is not rare in children with hypertrophic tonsils, and the common curative procedure is adenotonsillectomy. Codeine was detected in the femoral blood by means of gas chromatography–mass spectrometry; there was no evidence of other drugs or metabolites. Ciszkowski et al. NEJM. 2009;361:827–828.

More Codeine Fatalities After Tonsillectomy in North American Children

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abstract
In 2009 we reported the fatal case of a toddler who had received codeine after adenotonsillectomy for obstructive sleep apnea syndrome.
Has the time come to phase out codeine?
MacDonald N, MacLeod SM. CMAJ 2010; 182:1825.

Post-surgery codeine still killing children, new study says
By ANDRÉ PICARD
From Monday's Globe and Mail

Children are overdosing on post-surgery painkillers because of a common gene that causes their bodies to process them ultra-rapidly, a Canadian-led study found
What we decided to do

• Volunteered to pilot codeine removal in our program
  – Patients were prescribed oral morphine

• Clinical Concerns Committee took on the initiative
  – Strong nursing membership
What is the ideal strategy for removal of codeine?

• No strategies have been published by centres who have removed codeine from their formulary

• Barriers to change have also not been reported
Perceived Barriers

- Triplicate Prescription Program
- Parent resistance
- Morphine misconceptions
- Some patients on codeine, others on morphine during transition
Objectives

• Assess attitudes of NACCP health professionals at different time points during practice change

• Evaluate whether prescription of codeine was reduced

• Determine if our implementation strategies were successful
Methods

- Planned education program
  - Information sheet for health professionals
  - Seminars for team members
  - Parent and patient
  - Information sheets
  - Posters in our outpatient clinic
Methods

• Electronic survey:
  – prior to implementation
  – 3 months
  – 6 months

• Survey examined:
  – attitudes about codeine and other opioids
  – real and perceived barriers to codeine removal
Methods

• Cerner pharmacy system at Stollery
  – Printed reports linking individual physicians to specific medications

  – Examined codeine dispensation by NACCP physicians:
    • 2 months prior to practice change
    • 2 months after
    • 12 months after time point #1
Participants

- Nursing: 12
- Physician: 8
- Pharmacist: 3
- Nurse Practitioner: 3
Own Beliefs - Use of Other Opioids

- Not a Problem
- Neutral
- Problem/Significant Problem

Before Implementation | 3 months | 6 months

- Not a Problem: Bar heights are significantly higher than Neutral and Problem/Significant Problem.
- Neutral: Bar heights are lower than Not a Problem but higher than Problem/Significant Problem.
- Problem/Significant Problem: Bar heights are the lowest of the three categories.
Family - Use of Other Opioids

- Not a Problem
- Neutral
- Problem/Significant Problem

- Before Implementation
- 3 months
- 6 months
# Codeine Prescriptions

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<th>March 2011</th>
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Uptake of Education Methods

- Family Poster
- Dose Information PDF
- Shift Change Information Sessions
- Wednesday Program Rounds
- Unaware/Did Not Use Any

- Before Implementation
- 3 months
- 6 months
Conclusions

• Practice change was successful overall

• Initial perceived barriers diminished over time and did not hinder change

• A well-planned, multi-faceted education and implementation strategy was key to successful change
Why we were successful

- Engaged frontline staff and prescribers early in planning
- Had information available in multiple forms to explain issues to families
- Presence of early adopters, innovators, agents of change within our program