DESCRIPTIVE ANALYSIS OF OPIOID ORDERS IN UNIVERSITY TEACHING HOSPITALS IN THE PROVINCE OF QUEBEC - PHASE III - 2011

Marie-Claude Michel [1], B. Pharm., M. Sc. • Céline Dupont [2], B. Pharm., M. Sc. • Julie Leblond [3], B. Pharm., M. Sc. • Nathalie Marcotte [1], B. Pharm., M. Sc. • Élaine Pelletier [4], B. Pharm., M. Sc.
Martin Turgeon [3], B. Pharm., M. Sc. • France Varin [5], B. Pharm., M. Sc. • Louise Deschênes [1], M.D. • Raghu Rajan [2], M.D. • Paul Farand [3], M.D. • Pierre Gaudreault [4], M.D. • Daniel Froment [5], M.D.

Programme de GESTION THÉRAPEUTIQUE des médicaments

1- CHU de Québec, 2- McGill University Health Centre (MUHC), 3- Centre hospitalier universitaire de Sherbrooke (CHUS)
4- Centre hospitalier universitaire Sainte-Justine (CHU Sainte-Justine), 5- Centre hospitalier de l'Université de Montréal (CHUM), 1 - 5: The Therapeutic Drug Management Program (TDMP)

INTRODUCTION:

Opioids are among the drugs most commonly linked to adverse outcomes in case of medication error. The Therapeutic Drug Management Program (TDMP) has published three descriptive analyses (2006, 2008, and 2011) to assess the quality of opioid prescriptions in the five university teaching hospitals (UTH) in the province of Quebec. The TDMP provides information to healthcare professionals in order to promote safe opioid prescribing habits.

OBJECTIVES:

To validate whether the various measures implemented following the first two analyses have improved opioid prescribing patterns and to describe current opioid use in the UTHs.

METHODOLOGY:

On June 9th 2011, the five UTHs identified all the patients having at least one active opioid order in their chart *(from the pharmacy database)*. Only inpatients were studied. The following data were recorded : frequency of use, dosage, route of administration and multiple opioid drug use. Prescriptions of co-analgesics and drugs that potentiate opioid-associated respiratory depression were also recorded.

RESULTS:

- ► 4697 patients were hospitalized in the five UTHs on June 9th 2011 (3876 adults, 821 children)
- ► 2060 patients (1908 adults, 152 children) had at least one active opioid order in their pharmacy chart (43.9 % of the patients) (2006: 44 % 2008: 48 %)
- ► 3269 opioid orders were studied (3034 adult orders, 235 pediatric orders)

Description of the opioid orders (Adult population)

- Route : 51 % were PO orders, 36 % were SC.
- 57 % of orders with fixed interval and fixed dose (e.g. morphine 5 mg PO q 6h).
- 10 % of orders with variable dose and variable interval (e.g. morphine 2.5 – 5 mg PO q 4-6h).
- 33 % of orders with variable dose or variable interval (e.g. morphine 5-10 mg q 6h or 5 mg q 4-6h).
- « prn or if pain » mentioned on 72 % of orders.

Description of the opioid orders (Pediatric population)

- Route : 44 % were PO orders, 6 % were SC and 48 % were IV.
- 86 % of orders with fixed interval and fixed dose.
- 1 % of orders with variable dose and variable interval.
- « prn or if pain » mentioned on 68 % of orders.

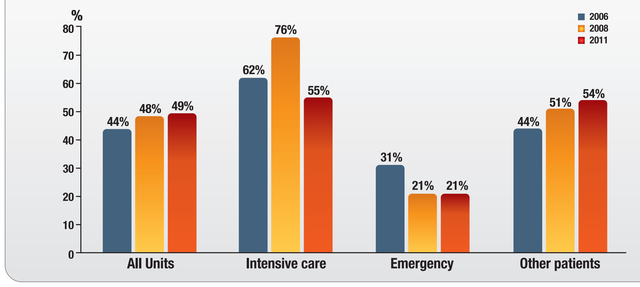
Description of concomitant medications (Adult population)

- ≥ 2 central nervous system (CNS) depressant drug orders : 58% (2006: 68 %, 2008: 59 %).
- 85% received acetaminophen, 15 % NSAIDs and 19 % gabapentin or pregabalin.

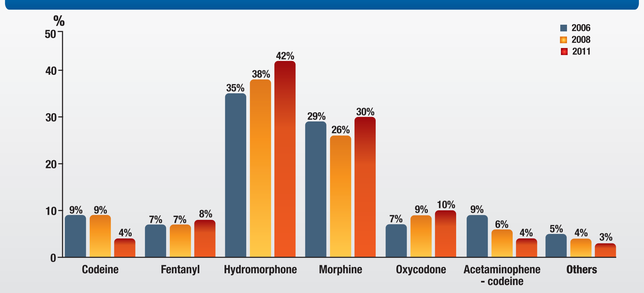
Description of concomitant medications (Pediatric population)

- ≥ 2 CNS depressant drug orders: 22 % (2006: 28 %, 2008: 29 %).
- 72 % received acetaminophen and 11 % NSAIDs.

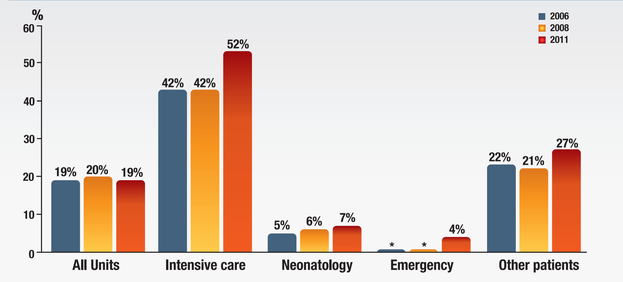
GRAPH - 1
Percentage of hospitalized patients with at least one active opioid order (Adults)



GRAPH - 2
Active opioid orders (Adults)

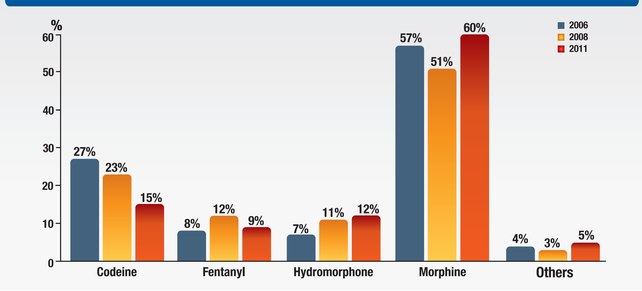


GRAPH - 3
Percentage of hospitalized patients with at least one active opioid order (Pediatric)

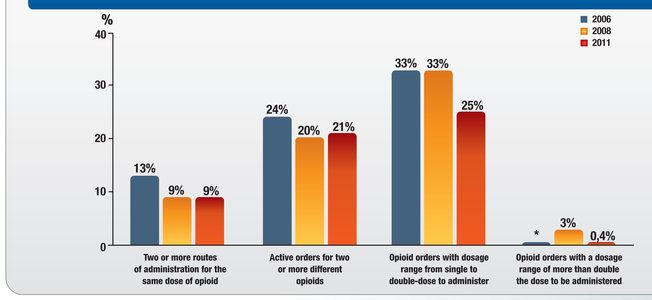


**Data not available for emergency in 2006 and 2008.*

GRAPH - 4
Active opioid orders (Pediatric)



GRAPH - 5
Percentage of "at risk" practices when prescribing opioids (Adults)



**Data not available in 2006.*

TABLE - 1 : Actions

Actions implemented to improve safety in the use of opioids	% of UTH having implemented action
Pharmacist training and collaboration with a sub-committee working on the safe use of opioids.	100 %
Design and distribution of preprinted orders for opioids: - In different contexts (e.g. pre-op, post-op, surgery, pain); - In all contexts (preprinted order used for all opioid prescriptions in one UTH).	 100 % 20 %
Development and distribution of dose equivalence tables for opioids.	80 %
Design and distribution of "collective" prescriptions: - for opioids; - for drugs affecting the security of opioids (e.g. naloxone).	 0 % 60 %
Design and distribution of pain rating scales.	100 %
The results of document analyses from phases I and II performed in 2006 and 2008 were presented to various committees.	100 %
Educational meetings were conducted with physicians and residents.	40 %
Educational meetings were conducted with pharmacists.	100 %
Educational meetings were conducted with nurses.	100 %
Usage rules and procedures for writing opioid prescriptions have been developed.	80 %
Intervention notes or pre-written pharmaceutical opinions have been developed.	60 %

ANALYSIS (OR DISCUSSION):

Some improvements in potentially dangerous opioid prescribing habits have been noticed, but the TDMP reports only slight changes between the 2011 results and the two previous analyses. Despite several implemented measures and actions, a lack of dose adjustment according to the administration route *(orders of the same opioid at the same dose for two different routes, for example 5 mg of oral or subcutaneous morphine)* is still noted in 9 % of the adult samples studied. The TDMP has also found wide dose ranges (e.g. morphine 5-10 mg) for 25 % of the adults orders.

CONCLUSION:

The widespread use of opioids in UTH patients in the province of Quebec warrants the need for permanent measures in order to ensure safety and effectiveness.

The recommendations from the TDMP scientific committee were as follow :

- **To maintain active advisory committees working on the safety in the use of opioids.**
- **To develop, distribute and ensure the implementation of prescribing recommendations, rules, and protocols to manage opioid prescribing patterns.**
- **To continue to systematically supervise the patients receiving an opioid throughout administration, through validated scales, assessment of pain and monitoring.**
- **To implement measures to reduce "at risk" practices.**
- **To provide training to prescribers and nursing staff.**

Le pGTm est une initiative des cinq centres hospitaliers universitaires du Québec

CHUS Centre hospitalier universitaire de Sherbrooke
CHU de Québec
Centre universitaire de santé McGill McGill University Health Centre
CHUM Centre hospitalier de l'Université de Montréal
CHU Sainte-Justine Le centre hospitalier universitaire mère-enfant
Université de Montréal