Pain Management Tools
Information Technology

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Information is not knowledge.

-Albert Einstein
"Americans deserve a seamless and secure national health information infrastructure. This system must provide accurate, complete patient data to providers wherever they are, in time to be useful—even in an emergency. It must allow doctors to prescribe medications electronically, so the medications can be checked for safety before they are administered. And it must do all this without revealing personally identifiable information without the patient's consent."

Tommy Thompson, U.S. Department of Health and Human Services Secretary; Remarks at Health IT Summit; May 6, 2004
American Recovery and Reinvestment Act of 2009 (ARRA)

- “the Stimulus”
- $831 Billion between 2009 – 2019
- Infrastructure, education, energy, health
Health Information Technology for Economic and Clinical Health Act (HITECH Act)

- Reimbursement for “meaningful use”
- Incentives beginning in 2011
- EHR ($36.5 billion)
- $25.9 billion to promote and expand adoption of health information technology
Meaningful Use

- Use of EHR in a meaningful manner (ie. e-prescribing)
  - Use of EHR for health information exchange
  - Use of EHR for clinical quality measures
- Computerized Physician Order Entry (CPOE)
- Clinical Decision Support Systems (CDSS)
Health Information Exchange

- Mobilization of healthcare information
- Protects confidentiality, privacy and security of the information
- Locally and nationally
- Southwest Michigan Health Information Exchange (http://www.mihealthelink.org/)
- Southeast Michigan Health Information Exchange (http://www.semhie.org/index.html)
All For Cost

- Patient Protection and Affordable Care Act (ACA)
- ACOs
So lets talk about cost.
Burden of Pain

• Economic Impact
  – Direct costs
  – Indirect costs (ie. productivity costs)

• Local & Global
Burden of Pain

• > 100 million people
• Est. $560 - $635 Billion
  – More than costs of cancer, heart disease, and DM nearly combined

Health and Human Services

- Healthy People 2020 has a focus on pain
- Medical Product Safety (MPS) Objective 2 – *Increase the safe and effective treatment of pain*
Medical Product Safety (HHS)

• Reduce the proportion of patients suffering from untreated pain due to lack of access to pain treatment
• Reduce the number of non-FDA-approved pain medications
• Reduce serious injuries from the use of pain medications
• Reduce deaths from the use of pain medicines
“Treating a chronic pain patient can be like fixing a car with four flat tires. You cannot just inflate one tire and expect a good result. You must work on all four.”
Pain is Complex

• Issues often involve:
  – Biological
  – Psychological
  – Social
  – Family/Cultural
The Multidisciplinary Approach

- Interventional therapy
- Pharmacological therapy
- Psychological therapy
- Physical therapy
Let's Revisit Information Technology

- EHRs offer the ability to defragment the delivery of care
- Quality
- Safety
"Dilaudid is the only thing that works for me"

-Any ER
Opioids

• Fact: Opioids are beneficial and have a major role in the care of patients

• Fact: Opioids are dangerous and must be utilized correctly and with appropriate precautions
Opioids

There needs to be adequate availability of narcotic drugs and psychotropic substances for medical and scientific purposes while ensuring that such drugs are not diverted for illicit purposes.

International Narcotics Control Board
International Narcotics Control Board

• “independent and quasi-judicial control organ monitoring the implementation of the United Nations drug control conventions”
Statistics of Opioid Consumption
Figure 3. All regions: average consumption of opioid analgesics, 1987-1989, 1997-1999 and 2007-2009

21 Figures 3-13 provide information on the development in consumption levels of opioid analgesics globally and regionally over the last 20 years. Due to the significant differences in consumption levels, the scales used in the graphs are different.
Benzodiazepine Consumption

Figure 17.  All regions: average consumption of benzodiazepines (anxiolytics), 1997-1999 and 2007-2009

* Approximate consumption calculated by the Board.
Stimulant Consumption

Figure 13. Selected countries: average consumption of methylphenidate, 1997-1999 and 2007-2009

* Approximate consumption calculated by the Board.
Pain Management and Information Technology

- EHR systems
- Equianalgesic conversions
- PCA
- Prescription monitoring systems
Pain Management and EHR

- E-prescribing abilities (DrFirst)
  - Efficient
  - Safe
- Coordination of care
Equianalgesic Conversions

- Equianalgesia
- No “authority”
- Apps
- Online resources
- Remembering incomplete cross-tolerance
Equianalgesic Conversions

Typical Oral Q4H doses of short-acting opioids shown as equivalents to morphine:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30 mg</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>20 mg</td>
</tr>
<tr>
<td>Hydromorphone (Dilaudid)</td>
<td>6 mg</td>
</tr>
<tr>
<td>Oxymorphone (Opana) <em>use not recommended</em></td>
<td>10 mg</td>
</tr>
<tr>
<td>Hydrocodone (Vicodin, Norco, Lorcet)</td>
<td>2 x 10 mg tabs</td>
</tr>
<tr>
<td>Codeine (Tylenol #3 or #4)</td>
<td>2 x #4 = 120 mg codeine</td>
</tr>
</tbody>
</table>

- Unresponsiveness
- Unmanageable adverse effects
- Route of administration
- Potency
- Cost
Equianalgesic Conversions

• No authority

• Online resources
  – Hopkins Pain Program http://www.hopweb.org/
  – MedCalc.com
  – Practical Pain Management (http://opioidcalculator.practicalpainmanagement.com/)
  – Global RPh (http://www.globalrph.com/narcoticconv.htm)

• Electronic “Mobile”
  – Hopkins Mobile App
  – Opioids Dosage Conversion (iTunes)
  – Opioid Converter (Android)
  – E-Opioid (iTunes)
<table>
<thead>
<tr>
<th>Opioid</th>
<th>Dosage</th>
<th>PME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydromorphone (oral)</td>
<td>10 mg/day</td>
<td>13.3 mg/day</td>
</tr>
<tr>
<td><strong>Total PME</strong></td>
<td></td>
<td><strong>13.3 mg/day</strong></td>
</tr>
</tbody>
</table>

### New Regimen

<table>
<thead>
<tr>
<th>Opioid</th>
<th>New Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxycodone (oral)</td>
<td>26.0 mg/day</td>
</tr>
</tbody>
</table>

### Warnings

**Morphine, Oxycodone and Hydromorphone**

Morphine, Oxycodone and Hydromorphone: Sustained-release dosing formulations of opioids should not be crushed, as this is likely to convert them to an immediate-release product. Kadian capsules may be opened and sprinkled on food without compromising the sustained-release characteristic of the product.

**Morphine, Fentanyl, Oxycodone, Hydromorphone**

Morphine, Fentanyl, Oxycodone, Hydromorphone: Immediate-release opioids should be provided as “rescue” medication with all sustained-release oral opioids, transdermal fentanyl, and continuous parenteral opioid infusions. This is often ordered as 20% of the total daily opioid dose given every 1-2 hours PRN for oral preparations and every 15 minutes PRN with intravenous infusions.

**Incomplete cross-tolerance**

Incomplete cross-tolerance and differences in absorption are potentially important issues in every conversion to a different opioid or route of administration. As a result, the estimated dose of the new regimen should be decreased by approximately 30% and additional "PRN" doses should be provided until the proper dose for the new regimen is ascertained for each patient.

### Detail Calculations

<table>
<thead>
<tr>
<th>Current Regimen</th>
<th>Dosage</th>
<th>Conversion Factor</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydromorphone (oral)</td>
<td>10 mg/day</td>
<td>1.33</td>
<td>10.0 mg/day x 1.33 = 13.3 mg/day</td>
</tr>
<tr>
<td><strong>Total PME</strong></td>
<td></td>
<td></td>
<td><strong>13.3 mg/day</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New Regimen</th>
<th>Conversion Factor</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxycodone (oral)</td>
<td>0.8</td>
<td>13.3 mg/day / 0.8 = 26.6 mg/day</td>
</tr>
</tbody>
</table>
Incomplete Cross Tolerance

- Tolerance
- Decreasing dose
PCAs

• Valuable for management of acute pain
• Baseline + new requirements
• Helps with conversion
Our Concerns

- Pseudoaddiction
- Addiction
- Diversion
Monitored Prescription Services

- Many states now have systems in place
- Work in progress to increase transparency
- Regional collaboration
Michigan Automated Prescription System (MAPS)

- Goal to help prevent abuse, addiction and diversion
- Who
  - Physicians/Dentists/Veterinarians
  - NP/Nurse Midwives
  - PAs
- Requires DEA or DEA mid-level substance registration
Management and Monitoring Michigan

- MAPS registration
- MAPS regional partners
- Schedule 2-5
- Information
  - Providers
  - Frequency
  - Dose
MAPS

Request a Patient Report - Patient Details

Current Patient Details
* First Name: [ ]
* Date of Birth: [ ]
State: MI

Middle Name: [ ]
Address: [ ]
City: [ ]

* Last Name: [ ]
Zip: [ ]

States

Check all states you wish to request reports from:

- Arizona
- Connecticut
- Delaware
- Florida
- Georgia
- Hawaii
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Note: All fields marked with * must be completed.

Next >>
High-dose Opioid Taper Initiative

• Multidisciplinary quality assurance and patient safety effort
• Address post-operative pain control before, during and after a patient's elective surgery
• Identifying issues before they become a problem
• Optimization of the patient's perioperative pain management
High-dose Opioid Taper Initiative

PO Morphine Equiopotency Calculator
It is recommended that patients decrease their daily opioid dose by 10mg PO Morphine equivalents prior to elective surgery. This tool will help determine a patient's equivalent dose and provide an approximate dose-reduction plan.

Identification of High-risk Patients
This flow chart provides a simple means to determine if a patient may benefit from tapering his or her opioid dosage prior to surgery.

Provider and Patient Letters
This link houses downloadable copies of the letters sent to both the patient and the primary opioid prescriber.

Michigan Automated Prescription System
Here you will find documents detailing effective use of the MAAPS. Resources include registration instructions, how to request a report and an explanation of what a MAAPS report provides and how it is used.

Setting Expectations
Having a conversation about decreasing dosing with a patient who is dependent on opioids can be very difficult. This link provides some suggestions to facilitate the conversation, as well as evidence-based justification for this initiative's importance.

Detailed Taper Guide
This link is to a host of detailed resources for clinicians and patients. The first resource on the page provides detailed guidelines to manage and taper opioid dosing; the remaining resources may also be helpful.

Relevant Literature
Perioperative pain control research remains in its infancy and participation in the initiative could lead to more evidence for future practice. This list is a collection of the relevant peer-reviewed literature to date.

UM Pain Clinic
If further assistance with pain medication management would be beneficial, consider using the University of Michigan Back and Pain Center as a referral resource.
Michigan Preoperative Analgesic Assessment Tool

**Michigan Preoperative Analgesic Assessment Tool**
Department of Anesthesiology

**Patient is taking > 100 mg PO morphine equivalents daily**

- Pain is well controlled on current regimen
- Pain is poorly controlled on current regimen
- Patient has history of substance abuse, psychiatric disease that is not optimized, evidence of multi-sourcing on MAPS or is on buprenorphine

Further optimization of analgesic regimen may not be necessary. However, if the patient desires to decrease the opioid dose, consider implementing the High Dose Opioid Taper Initiative.

The patient has not been medically optimized for elective surgery. Please refer to Anesthesia Pre Op clinic at Domino Farms for High Dose Opioid Taper Initiative. A letter will be sent to the patient and opioid prescriber with guidance on how to prepare for surgery. Elective surgery should be delayed until medically optimized.

**Equivalents of 100mg PO Morphine**
- Hydrocodone – equal mg per mg
- Oxycodone 60mg
- Fentanyl 50mcg/hr transdermal
- Hydromorphone 25mg
- Oxymorphone 25mg
- Methadone 15mg
- Buprenorphine/Subutex 6mg
- Any amount of Actiq or Fentora

*For a conversion calculator or more information and resources, please visit: http://anest.med.umich.edu/opioidtaper

Disclaimer: This document is for informational purposes only and is not intended to take the place of the care and attention of your personal physician or other professional medical services. Talk with your doctor if you have questions about individual health concerns or specific treatment options.

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PO Morphine Equipotency Calculator

Please use the following fields to enter your patient’s current opioid daily dose; an equipotent dose of PO Morphine will be generated. If the dose is greater than 100mg, we strongly recommend decreasing your patient’s daily opioid dose.

Taper Guidelines:
- Taper 10% of the original dose, weekly, down to the lowest tolerated level and to a maximum daily dose of 100mg PO morphine.
- If your patient is on multiple medications, discontinue or reduce short-acting medications as much as possible, then taper the remaining long-acting opioid by 10% weekly to a total of less than 100mg PO morphine equivalents.
- If your patient is on methadone, ideally all other opioids will be stopped and the methadone dose can then be weaned following the 10% weekly taper to, at most, 15mg PO methadone daily.
- If your patient is on an agonist/antagonist (Buprenorphine), please refer him or her to the specialty prescriber for preoperative optimization.
- Patients currently taking Actiq or Fentanyl should discontinue any amount.

Medication 1
- Dose (mg):
- Select Medication 1

Medication 2
- Dose (mg):
- Select Medication 2

Medication 3
- Dose (mg):
- Select Medication 3

Medication 4
- Dose (mg):
- Select Medication 4

Special Case Medications:
- Transdermal Fentanyl:
- Dose (mcg/hr):

Equipotent PO morphine daily dose

Approximate Dose Reduction Schedule:
All doses below are based on a 10% weekly taper.
Week 1:
Week 2:
Week 3:
Week 4:
Week 5:
Week 6:
Week 7:
Week 8:

Note: This is not a finished product and should not be used for any medical purpose.
Information and Knowledge in Pain Management

• Information provides us valuable data
• Technology provides a means to integrating this data seamlessly
• Clinical decisions using data and technology
• Pain management is complex
  – Ask the right questions
  – Do the right thing
Questions?

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