Pain Management & Opioids

2016 - 17
Purpose & Objectives

Purpose: “The purpose of this activity is to enable the learner to utilize epidemiological information and the nursing process related to pain management using opioids”

Objectives:
1. Identify several issues related to the public health “crisis” caused by the use of opiates and prescription opioids.
2. Describe recommendations for preventing complications in patients receiving opioids.
The Institute of Medicine (IOM) encourages federal and state agencies and private organizations to accelerate the collection of data on pain incidence, prevalence, and treatments. Because pain varies from patient to patient, healthcare providers should increasingly aim at tailoring pain care to each person’s experience, and self-management of pain should be promoted. In addition, because there are major gaps in knowledge about pain across health care and society alike, the IOM recommends that federal agencies and other stakeholders redesign education programs to bridge these gaps. Pain is a major driver for visits to physicians, a major reason for taking medications, a major cause of disability, and a key factor in quality of life and productivity.

*Given the burden of pain in human lives, dollars, and social consequences, relieving pain should be a national priority!*
Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research

• The 2010 Patient Protection and Affordable Care Act required the Department of Health and Human Services (HHS) to enlist the Institute of Medicine (IOM) in examining pain as a public health problem.

• Acting through the National Institutes of Health (NIH), HHS asked the IOM to assess the state of the science regarding pain research, care, and education & to make recommendations to advance the field.
IOM: Four Key Areas

IOM Committee offers Findings and Recommendations in the following areas:

– Public health challenges
– Pain management
– Education of providers
– Research
EXAMPLE OF RESEARCH
FRIDAY, Oct. 30, 2015 (Health Day News) -- Chronic pain conditions pose a substantial utilization burden on the health care system, according to a study published online Oct. 7 in Pain Practice.

Peter W. Park, Ph.D., from Pfizer Inc. in New York City, and colleagues analyzed electronic medical records and health claims data from the Henry Ford Health System to determine health care resource utilization and costs for patients with 24 chronic pain conditions (January to December 2010).

Based upon 12,165 patients, the researchers found that aside from pharmacy, outpatient visits were the most used resource, with a mean 18.8 visits per patient for the post-index period. Specialty visits accounted for 59.0 percent of outpatient visits. A mean of 5.2 discrete imaging tests were utilized per patient. Opioids were the most commonly prescribed medication (38.7 percent). For all conditions, the total annual direct costs were $386 million ($31,692 per patient; a 40 percent increase from the pre-index). Over 14 percent of total costs were from pharmacy costs, but outpatient visits were the primary cost driver.

"This type of research supports integrated delivery systems as a source for assessing opportunities to improve patient outcomes and lower the costs for chronic pain patients," the authors write.

Andrew Kolodny, M.D. Chief Medical Officer
Phoenix House Foundation New York, NY
Underlying principles

• Pain management is a moral imperative
• Chronic pain can be a disease in itself
• The value of comprehensive treatment
• The need for interdisciplinary approaches
• The importance of prevention
• Wider use of existing knowledge
• Recognition of the dilemma surrounding opioids
• Collaborative roles for patients and clinicians
• The value of a public health and community based approach

IOM Report, 2010
On March 26, 2015 U.S. Health and Human Services Secretary announced a targeted initiative aimed at reducing prescription opioid and heroin related overdose, death and dependence.

The HHS Secretary’s plan focuses on three priority areas:

1. **Providing training and educational resources**, including updated prescriber guidelines, to assist health professionals in making informed prescribing decisions and address the over-prescribing of opioids.

2. **Increasing use of naloxone**, as well as continuing to support the development and distribution of the life-saving drug, to help reduce the number of deaths associated with prescription opioid and heroin overdose.

3. **Expanding the use of Medication-Assisted Treatment (MAT)**, a comprehensive way to address the needs of individuals that combines the use of medication with counseling and behavioral therapies to treat substance use disorders.

Mar 26, 2015 - U.S. Health and Human Services
Secretary Sylvia M. Burwell
Types of Pain to be treated

• ACUTE
  – Follows injury
  – Generally disappears when injury heals
  – Well-defined temporal onset

• CHRONIC
  – Persists beyond expected healing time
  – Cause may be hard to define

• CANCER
  – Definable cause
  – Can be acute, recurrent, or chronic
• **Overdose**: When a drug is swallowed, inhaled, injected, or absorbed through the skin in excessive amounts and injures the body. Overdoses are either intentional or unintentional. If the person taking or giving a substance did not mean to hurt themselves or others, then it is unintentional.

• **Misuse**: The use of prescription drugs in a manner other than as directed.

• **Abuse**: Continued use of illicit or prescription drugs despite problems from drug use with relationships, work, school, health, or safety. People with substance abuse often experience loss of control and take drugs in larger amounts or for longer than they intended.

• **Naloxone**: A prescription drug that can reverse an opioid or heroin overdose if administered in time.
Heroin overdose deaths in the United States nearly quadrupled between 2002 and 2013, fueled by lower costs as well as increased abuse of prescription opiate painkillers, according to U.S. health officials.

Such medicines, which include Vicodin, OxyContin and Percocet, increase individuals' susceptibility to heroin addiction, Dr. Thomas Frieden, director of the U.S. Centers for Disease Control and Prevention, told Reuters.

"Everything we see points to more accessible, less-expensive heroin all over the country," Frieden said of the joint report by the CDC and the U.S. Food and Drug Administration which analyzed national survey data on drug use from 2002 to 2013.

The report found that for nearly all people (96 percent) the strongest risk factor for heroin abuse is prescription opiate abuse.

Pain Prescriptions in the US

From 1999 to 2013, the amount of prescription painkillers prescribed & sold in the U.S. nearly QUADRUPLED.

Yet there has not been an overall change in the amount of pain that Americans report.
According to the report, individuals who abuse prescription opiates have a 40 times greater risk of abusing heroin. The increased use has fueled sharp increases in overdose deaths.

As many as 8,200 people died from heroin overdoses in 2013 alone, according to the report.

Frieden said reversing the trend will require an "all-society response" to improve opioid prescribing practices and expand access to effective treatment, increasing the use of drugs such as naloxone to reverse drug overdoses and working with law enforcement partners such as the Drug Enforcement Administration to disrupt the supply of heroin.

"There are lots of people who have not yet gotten an opiate and we need to protect them from the risk of getting addicted," Frieden said.

He said doctors are prescribing "way too much of these medications, and the result of it is large numbers of people who are addicted."

What is an Opioid?

- An opioid is a psychoactive chemical, an analgesic, that is derived from the opium poppy.
- The drug works by binding to opioid receptors that are found within the gastrointestinal tract, central and peripheral nervous system.
- When the opioid drug reaches these receptors, the pain experienced is dulled.

Opioid (Narcotic) Pain Medications WebMD
Reviewed by Jennifer Robinson, MD on, April 23, 2015
Opioids

- When these drugs attach to their receptors, they reduce the perception of pain.
- Opioids can also produce drowsiness, mental confusion, nausea, constipation, and, depending upon the amount of drug taken, can depress respiration.
- Some people experience a euphoric response to opioid medications, since these drugs also affect the brain regions involved in reward.
- Those who abuse opioids may seek to intensify their experience by taking the drug in ways other than those prescribed.
Opioids

- Morphine
- Codeine
- Thebaine
- Diacetylmorphine (Heroin)
- Hydrocodone (Vicodin)
- Oxycodone (Oxycontin)
- Oxymorphone (Opana)
- Hydromorphone (Dilaudid)

Naturally occurring opioids - also called opiates

Semi-synthetic opioids

Opioid (Narcotic) Pain Medications WebMD
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Opiates

* Narcotic analgesic derived from the opium poppy (natural)
* Not manufactured by chemical synthesis
* Derived from the opium poppy plant

Opioids

* A synthetic narcotic that mimics the natural poppy plant
* Chemically manufactured narcotics
* Narcotic analgesic that is not found in nature
The Opium Poppy
Papaver Somniferum
The term *neuraxial* pain therapy refers to the delivery of medications (opioids & local anesthetics) into the subarachnoid or epidural space to reduce feelings of pain.
Multimodal analgesic approach to pain management. ASA = aspirin; LAs = local anesthetics; NSAIDs = nonsteroidal anti-inflammatory drugs; SNRIs = serotonin-norepinephrine reuptake inhibitors; SSRIs = selective serotonin reuptake inhibitors; TCAs = tricyclic antidepressants
Opioids – What’s the big deal?

• First of all, we had a huge drug problem before the pain medication crisis: “Addiction is the largest preventable health problem in the United States- affecting 16 percent of the population- more than heart disease, cancer or diabetes”, says Susan Foster, CASA Columbia’s Vice President and Director of Policy Research (2013).

• Then add prescribed opioids … a tragic combination of good intentions, deception, and irresponsible oversight

• **Weak research lead to overuse of opioids**

• Our current drug abuse epidemic has been responsible for a 137% increase in overdose deaths since 2000, according to the Centers for Disease Control and Prevention

https://iom.nationalacademies.org/~media/Foster%20Presentation
Figure 1: Promotional Spending for Three Opioid Analgesics in First 6 Years of Sales

Sentinel Event Alerts

• Opioid analgesics rank among the drugs most frequently associated with adverse drug events.
• Research shows that opioids such as morphine, oxycodone and methadone can slow breathing to dangerous levels, as well as cause other problems such as dizziness, nausea and falls.
• The reasons for such adverse events include dosing errors, improper monitoring of patients and interactions with other drugs, according to The Joint Commission’s data base.
• Reports also show that some patients, such as those who have sleep apnea, are obese or very ill, may be at higher risk for harm from opioids.

The Joint Commission, Safe use of opioids in hospitals, Issue 49, August 8, 2012
Opioid STATS

• Vicodin and Oxycontin are the two most misused prescription drugs in the country

• More people are addicted to prescribed opioids (over 2 million) than to heroin and cocaine combined, and prescription drug misuse “remains the fastest-growing drug problem in the US,” according to the CDC

• More people die of drug overdoses than by any other cause of accidental death, with the majority dying each year from prescribed opioids

• Unintentional drug overdose is second leading cause of death in US
Every 3 minutes, a woman goes to the emergency department for prescription painkiller misuse or abuse.

Women between the ages of 25 and 54 are most likely to go to the emergency department because of prescription painkiller misuse or abuse.

**Commonly Abused Medications**

**OPIOIDS**

Derived from the opium poppy (or synthetic versions of it) and used for pain relief. Examples include hydrocodone (Vicodin®), oxycodone (OxyContin®, Fentora®), methadone, and codeine.

**BENZODIAZEPINES**

Central nervous system depressants used as sedatives, to induce sleep, prevent seizures, and relieve anxiety. Examples include alprazolam (Xanax®), diazepam (Valium®), and lorazepam (Ativan®).
Women Hit Hardest by Fatal Opioid Overdoses

• The number of women overdosing on prescription painkillers such as Vicodin and OxyContin has increased by more than 400 percent in the past decade, a new American survey on drug use and health from the U.S. CDC.

• About 18 women die every day from taking prescription painkillers, according to the survey.

• Since 2007, more women have died from overdosing on prescription painkillers than in motor vehicle accidents.

• Death rates from opioid abuse in women are more than four times higher than death by cocaine and heroin use combined.

• In 2010, nearly a million women visited emergency rooms for drug misuse or abuse, and 6,600 of them died.

• Prescription drug abuse by women doubled between 2004 and 2010.

Alcohol-Drug Education Service, 2013
Opioid STATS - CDC

• People who are addicted to opiates are almost 6x more likely to die.
• More than 47,000 Americans died in 2014 as a result of a drug overdose, according to the CDC, with 61% of those cases involving some kind of opioid like heroin.
• The rise in the use of heroin has coincided with spikes in prescribed pain relievers.
• The number of infants born dependent on opioid painkillers and diagnosed opiate withdrawal upon delivery has tripled in the last decade.
• In certain regions of the country, Florida is famously one, parts of Appalachia another, up to ten percent of infants are born addicted to opiates.
• 9.2 million Americans use for long term pain
• 2.1 million are “hooked” according to the NIH
• 4 of 5 heroin addicts started with prescription painkillers
• An average of 46 Americans die every day from prescription opioid over doses
• Middle-aged Americans are most at risk
These changes might represent the first documented substantial decline in drug overdose mortality in any state during the past ten years.
Prescription Painkiller Sales and Deaths

Sales (kg per 10,000)\textsuperscript{a}
Deaths (per 100,000)\textsuperscript{b}

Sources:
\textsuperscript{a}Automation of Reports and Consolidated Orders System (ARCOS) of the Drug Enforcement Administration (DEA), 2012 data not available.
Some states have more painkiller prescriptions per person than others.

Number of painkiller prescriptions per 100 people

- Yellow: 52-71
- Orange: 72-82.1
- Purple: 82.2-95
- Dark purple: 96-143

Source: IMS, National Prescription Audit (NPA™), 2012.
MAPS

• According to the DEA, the majority of states have active or planned prescription drug monitoring programs using information captured electronically at the point of sale.

• The state agency distributes data from the database to individuals who are authorized under state law to receive the information for purposes of their profession.

• In Michigan, the Michigan Automated Pharmacy Program (MAPS) provides prescription-filled information to providers and pharmacies within 24 business hours.

• Accessing this information from a combination of sources could be used to identify patients in need of improved pain management.
Sources of Prescription Opioids

- Most people who abuse prescription opioids get them for free from a friend or relative.
- However, those who are at highest risk of overdose (using prescription opioids non-medically 200 or more days a year) get them in ways that are different from those who use them less frequently.
- These people get opioids using their own prescriptions (27 %), from friends or relatives for free (26 %), buying from friends or relatives (23 %), or buying from a drug dealer (15 %).
- Those at highest risk of overdose are about four times more likely than the average user to buy the drugs from a dealer or other stranger.
## Substance Use In Michigan

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<th>National</th>
<th>MI</th>
<th>UP</th>
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<td>Alcohol dep. or abuse in past year</td>
<td>7.53</td>
<td>7.79</td>
<td>8.05</td>
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<td>Illicit drug dep. or abuse in past year</td>
<td>2.82</td>
<td>2.88</td>
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<td>Dep. on or abuse of any illicit drug or alcohol in past year</td>
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<td>Nonmedical use of pain relievers in past year among person age 12 or older</td>
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<td>5.63</td>
<td>5.29</td>
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</tbody>
</table>

MDCH, Mental Health & Substance Abuse Administration
Bureau of Substance Abuse & Addiction Services
State & Substate Estimates of Substance Use in Michigan
2006-2008 National Surveys on Drug Use and Health
McCabe, S.E.; West, B.T.; Teter, C.J.; and Boyd, C.J. Medical and nonmedical use of prescription opioids among high school seniors in the United States. Archives of Pediatric and Adolescent Medicine 166(9):797-802, 2012b
Pain Management

• At a fundamental level, improving pain management is simply the right thing to do.
• As an expression of compassion, it is a cornerstone of nursing and health care’s humanitarian mission.
• It is just as important from a clinical standpoint, because unrelieved pain has been associated with undesirable outcomes such as delays in postoperative recovery, and development of chronic pain conditions.

Nurses play an important role in:

1) identifying patients at risk for unintended advancing sedation and respiratory depression from opioid therapy
2) implementing plans of care to assess and monitor patients
3) intervening to prevent the worsening of complications and adverse events

Do you know what opioid-tolerant means?

According to the Food and Drug Administration, a patient is considered *opioid-tolerant* if he or she has received at least the following for one week or longer:

- 60 mg oral morphine/day
- 25 mcg transdermal fentanyl/hour
- 30 mg oral oxycodone/day
- 8 mg oral hydromorphone/day
- 25 mg oral oxymorphone/day
- an equianalgesic dose of another opioid
What about *opioid* -naïve?

- Patients who don’t meet these criteria and haven’t received opioid doses at least as much as those listed above for 1 week or longer are deemed *opioid naïve*.

- The National Comprehensive Cancer Network provides these definitions of the two terms:
  - *Opioid naïve*: patients not chronically receiving opioid analgesics on a daily basis
  - *Opioid tolerant*: patients chronically receiving opioid analgesics on a daily basis.
Opioid Drugs

- **codeine** (only available in generic form)
- **Fentanyl** (Actiq, Duragesic, Fentora)
- **hydrocodone** (Lorcet, Lortab, Norco, Vicodin)
- **hydromorphone** (Dilaudid, Exalgo)
- **meperidine** (Demerol)
- **methadone** (Dolophine, Methadose)
- **morphine** (Avinza, Kadian, MS Contin, Ora-Morph SR)
- **oxycodone** (OxyContin, Oxyfast, Percocet, Roxicodone)
- **oxycodone and naloxone** (Targiniq ER)

Some opioids, such as oxycodone, are often combined with Tylenol (acetaminophen) in one pill. Examples of these combination drugs are:

- **Lorcet, Lortab, Norco, Vicodin** (hydrocodone and acetaminophen)
- **Percocet** (oxycodone and acetaminophen)
Identifying high-risk patients

- Lack of recent opioid use
- Higher opioid dosage requirement or opioid habituation
- Sleep apnea or sleep disorders
- Pulmonary disorders
- Morbid obesity with an associated high risk of sleep apnea
- History of snoring or history of smoking
- Age older than 60 (the risk is 2.8 times > from ages 61 to 70, 5.4 times > from ages 71 to 80, and 8.7 > times after age 80)
- Postoperative status
- Use of benzodiazepines, antihistamines, diphenhydramine, sedatives, or other central nervous depressants
Risk Factors for Opioid-Induced Respiratory Depression

Patient may have one or more of the following to be considered high risk:

- Age > 55 years
- Obesity (body mass index 30 kg/m²)
- Untreated obstructive sleep apnea
- History of snoring or witnessed apneas
- Excessive daytime sleepiness
- Retrognathia (condition in which either or both jaws recede with respect to forehead)
- Neck circumference > 17.5
Risk Factors for Opioid-Induced Respiratory Depression

- Preexisting pulmonary/cardiac disease or dysfunction, such as COPD, CHF
- Major organ failure (albumin level < 30 g/L and/or blood urea nitrogen > 30 mg/dL)
- Dependent functional status (unable to walk 4 blocks or 2 sets of stairs, or requiring assistance with ambulation)
- Smoker (>20 pack-years)
- American Society of Anesthesiologists patient status classification 3-5
- Increased opioid dose requirement

www.aspmn.org/.../GuidelinesonMonitoringforOpioid-InducedSedation...by D Jarzyna - 2011
Suggestions from the Joint Commission

Effective Processes
- Monitoring Guidelines/Policies
- Assessment Procedures
- Standardized Order Sets

Safe Technology
- Bar Code Scanning
- Smart Pumps
- EtCO₂ monitoring
- Computer Support Alerts

Education & Training
- Orientation
- Newsletters
- Encourage multi-modal therapies

Effective Tools
- Pain Scales
- Risk Assessment Tools
Additional Strategies to Improve Patient Care & Safety

• Pain Resource Nurse
  – Adopted from University of Wisconsin Pain Resource Nurse Program
  – On-going education

• Hospital Pain Committee

• Ad Hoc Opioid Safety Committee
  – PCA Monitoring
  – Risk Assessment/increased monitoring
  – Continuous End-Tidal CO2, SPO2, monitoring
  – Pasero opioid-induced sedation scale
Hydromorphone vs. morphine

• Although hydromorphone is a morphine derivative, it’s much more potent than morphine.
• The estimated relative potency of hydromorphone to morphine is 7.5:1
• Some clinicians are mistakenly—and dangerously—prescribing hydromorphone at starting doses typically used for morphine
• In 2011, the Food and Drug Administration approved revisions to the prescribing information, container labels, and carton labeling for Dilaudid
• The I.V. starting dose was reduced to 0.2 to 1 mg.
Risk Control Strategies for Reducing Patient Harm with HYDROMorphone

- Differentiate HYDROMorphone from morphine where both products are available (use tall man lettering on labels, order sets, order entry screens, medication administration records, etc.)

- Include the brand name Dilaudid on order sets, order entry screens, medication administration records, etc., to help differentiate HYDROMorphone from morphine

Risk Control Strategies for Reducing Patient Harm with HYDROmorphoame

- **Limit the number of strengths available** (e.g., do not stock HYDROmorphoame 4 mg prefilled syringes in all patient care areas)
- **Avoid stocking HYDROmorphoame injection in prefilled syringes in the same strength as morphine prefilled syringes** (e.g., do not stock morphine 2 mg and 4 mg and HYDROmorphoame 2 mg and 4 mg)

The ASPMN’s definition of “monitoring”

“The practice of using nurse observations including, but not limited to, the use of sedation assessment scales and technologies to collect serial measurements to anticipate and recognize advancing sedation or respiratory depression”

“Monitoring is the act of purposeful and systematic serial assessments of the level of sedation and respiratory status - quality, character, rate, and effectiveness”

Monitoring patients receiving opioids

- Routine monitoring of vital signs may fail to detect early signs of respiratory depression
- Many nurses focus on pulse oximetry, blood pressure, and respiratory rate when assessing a patient for opioid-related over sedation
- But pulse oximetry also may not provide accurate information, especially in a patient receiving oxygen
- Low respiratory rate is a poor predictor of oxygen desaturation and occurs late in respiratory depression—or not at all

Monitoring patients receiving opioids

• In opioid-naïve patients, respiratory rate is a notoriously poor predictor of respiratory depression; it may be normal despite significant hypoventilation

• Also be aware that the patient’s respiratory status may change rapidly, and these changes may elude conventional monitoring techniques used in most settings today

Respiratory Depression

• Characterized by:
  Less than 8 to 12 breaths per minute
  Reduced oxygen saturation
  Altered arterial CO2 tension
  Cyanosis
  Periodic apnea
  Drowsiness, sedation

• Danger is progression to
  Respiratory Arrest!

Respiratory Depression

A “vicious cycle”

Opioid Induced Respiratory Distress occurs due to:

- Lowered carbon dioxide (CO2) drive
- Blunting of chemoreceptor response to oxygen & CO2
- Prolonged exhalation
- Suppression of depth of respirations
- Impaired gas exchange

What is hypercapnia?

- Hypercapnia is an unusually high concentration of carbon dioxide in the blood which may be accompanied by hypoxemia, in which the oxygen level in the blood is low.
- This condition occurs as a result of poor gas exchange at the lungs which makes it difficult for people to eliminate carbon dioxide from their bodies.

Detecting hypercapnia

• The most commonly monitored parameters of respiratory function are respiratory rate and oxygen saturation

• Significant hypercapnia may arise before oxygen desaturation occurs

• After a patient’s pain has been relieved, he or she may fall asleep and slip into respiratory depression & apnea

Detecting hypercapnia

• Be sure to assess for signs of early hypercapnia—flushed skin, a full pulse, tachypnea, dyspnea, muscle twitches, hand flaps, reduced neural activity, and possibly increased blood pressure
• Signs and symptoms of mild hypercapnia may include headache, confusion, and lethargy
• For high-risk patients, capnography is recommended

Capnography

• The term capnography refers to the noninvasive measurement of the partial pressure of carbon dioxide (CO₂) in exhaled breath expressed as the CO₂ concentration over time.

• Changes in the shape of the capnogram are diagnostic of disease conditions, while changes in end-tidal CO₂ (EtCO₂), the maximum CO₂ concentration at the end of each tidal breath, can be used to assess disease severity and response to treatment.
Capnography

• Oxygenation and ventilation are distinct physiologic functions that must be assessed in both intubated and spontaneously breathing patients

• Pulse oximetry provides instantaneous feedback about oxygenation

• Capnography provides instantaneous information about ventilation (how effectively CO₂ is being eliminated by the pulmonary system), perfusion (how effectively CO₂ is being transported through the vascular system), and metabolism (how effectively CO₂ is being produced by cellular metabolism)

Capnography outside the operating rooms, Anesthesiology 2013;118:1:192-201
Limitations of Technology

- Reliability and sensitivity issues of the equipment
- Patient compliance with equipment
- Expense
- **Hypoxemia measured by pulse oximetry is a late finding**
Checking the arousal level

- Respiratory depression may occur even with a reasonably normal arousal level
- So if the patient appears to be sleeping or resting comfortably, be sure to check arousability
- Sedation is a common adverse effect of opioids, particularly at the start and generally during the first 24 hours of opioid therapy (possibly longer for transdermal fentanyl) and with increases in opioid dose … but
- Advancing sedation is the earliest sign of respiratory compromise!

Preventing complications in patients receiving opioids
December 2013 Vol. 8 No. 12
Author: Michelle Myers-Glower, RN MSN
Checking the arousal level

• But don’t check it from the hallway by looking into the patient’s room
• This isn’t an acceptable standard of care
• Go into the room and perform the assessment
Checking the arousal level

• Post-anesthesia recovery units have a standardized sedation scale clinicians for assessing sedation depth and arousability to determine if intervention is needed
• Medical-surgical units should use a similar scale for patients receiving opioids
• Ideally, you should observe the patient before attempting arousal, and compare the current mental status and vital signs against baseline (preadmission) findings

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Pasero Opioid-induced Sedation Scale (POSS)

S = Sleep, easy to arouse
   Acceptable; no action necessary; may increase opioid dose if needed
1 = Awake and alert
   Acceptable; no action necessary; may increase opioid dose if needed
2 = Slightly drowsy, easily aroused
   Acceptable; no action necessary; may increase opioid dose if needed
3 = Frequently drowsy, arousable, drifts off to sleep during conversation
   Unacceptable; monitor respiratory status and sedation level closely
   until sedation level is stable at less than 3 and respiratory status is
   satisfactory; decrease opioid dose 25% to 50%\(^1\) or notify prescriber\(^2\)
   or anesthesiologist for orders; consider administering a non-sedating,
   opioid-sparing nonopioid, such as acetaminophen or a NSAID, if not
   contraindicated.
4 = Somnolent, minimal or no response to verbal and physical stimulation
   Unacceptable; stop opioid; consider administering naloxone\(^3,4\); notify
   prescriber\(^2\) or anesthesiologist; monitor respiratory status and
   sedation level closely until sedation level is stable at less than 3 and
   respiratory status is satisfactory.

*Appropriate action is given in italics at each level of sedation.
\(^1\)Opioid analgesic orders or a hospital protocol should include the expectation that a nurse will decrease the opioid dose if a patient is excessively sedated.
\(^2\)For example, the physician, nurse practitioner, advanced practice nurse, or physician assistant responsible for the pain management prescription.
\(^3\)Mix 0.4 mg of naloxone and 10 mL of normal saline in syringe and administer this dilute solution very slowly (0.5 mL over 2 minutes) while observing the patient’s response (titrate to effect) (Source for naloxone administration: Pasero, Portenoy, McCaffery M. Opioid analgesics, in Pain: Clinical Manual [ed 2]. St. Louis, MO, Mosby 1999, p. 267; American Pain Society [APS]. Principles of Analgesic Use in the Treatment of Acute Pain and Chronic Cancer Pain [ed 5], Glenview, IL, APS, 2003.)
\(^4\)Hospital protocols should include the expectation that a nurse will administer naloxone to any patient suspected of having life-threatening opioid-induced sedation and respiratory depression.

Source: Pain Manag Nurs © 2009 W.B. Saunders
Preventing aspiration

- Patients who are sedated from opioids may experience nausea and vomiting after eating and then suffer aspiration
- To prevent this, don’t give patients solid foods until they can tolerate clear liquids and nausea and vomiting have subsided

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Questioning opioid orders

- Of the opioid-related adverse drug events (including deaths) in hospitals that were reported to The Joint Commission’s Sentinel Event database from 2004-2011:
  - 47% were wrong-dose errors
  - 29% stemmed from improper patient monitoring
  - 11% were related to other factors, including excessive dosing

Pennsylvania Patient Safety Advisory. Adverse drug events with hydromorphone: how preventable are they? 
*Pa Patient Saf Advis.* 2010;7(3):69-75
Questioning opioid orders

• The Joint Commission’s standard for medication management of orders state that orders must be clear and accurate

• If a prescriber’s order doesn’t look familiar, question it

• Remember that as a nurse, you’re accountable for safe practice, following hospital policy

• Use critical thinking skills when taking orders that are outside parameters

Michelle Myers-Glower, RN MSN, Preventing complications in patients receiving opioids, Dec. 2013 Vol. 8 No. 12
Common Adverse Effects

- sedation
- constipation
- sense of euphoria
- cough suppression
- nausea
- vomiting
- drowsiness
- Itching

- dry mouth
- Miosis
- Opioid dependence
- withdrawal syndrome (with a dependency)

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Possible adverse effects of prolonged opioid therapy

Uncommon Adverse Effects

• Bad Dreams/Hallucinations
• Dysphoria/Delirium
• Myoclonus/Seizures
• Pruritus/Urticaria
• Respiratory Depression
• Urinary Retention

Michelle Myers-Glower, RN MSN, Preventing complications in patients receiving opioids, Dec. 2013 Vol. 8 No. 12
Constipation secondary to opioid administration is almost universal

- It is primarily the result of opioid effects on the CNS, spinal cord, and myenteric plexus of gut:
  - Reduces gut motor activity
  - Increase stool transit time
- The colon has more time to desiccate its contents, leaving large hard stools that are difficult to pass
- Other factors that may make the problem worse include:
  - Dehydration
  - Poor food intake
  - Other medications

Michelle Myers-Glower, RN MSN, Preventing complications in patients receiving opioids, Dec. 2013 Vol. 8 No. 12
**Nausea & Vomiting**

- Many patients starting opioids experience nausea with or without vomiting
  - Young women seem to be most at risk
  - Dopamine-blocking agents are most often effective

- These symptoms:
  - Are easily anticipated and treated with antiemetics
  - Usually disappear as tolerance develops within a few days
  - In refractory cases, a more aggressive approach or an alternative opioid may become necessary

Michelle Myers-Glower, RN MSN, Preventing complications in patients receiving opioids, Dec. 2013 Vol. 8 No. 12
Resolution of Sedation

• Patients sometimes complain of feeling sedated or mentally clouded immediately after beginning an opioid analgesic
  – True sedation (inability to fully wake up)
  – Exhaustion due to previous sleep deprivation with the unrelieved pain (sleeps a lot, but is able to fully wake up in between)

• Opioid-induced sedation usually disappears over a few days as tolerance develops
  – Most patients also catch up on their lost sleep over a week or two

Michelle Myers-Glower, RN MSN, Preventing complications in patients receiving opioids, Dec. 2013 Vol. 8 No. 12
Sedation in Patients with Advanced Illness

• For patients with very advanced disease, mental clouding and excessive somnolence are often issues.

• This is particularly true when patients have multiple concomitant medical conditions, medications, and declining function, even in the absence of opioid analgesics.

• Pain may, in fact, be the primary stimulant keeping them alert.

• Once pain is managed, the patient’s "natural" level of sedation may become apparent.
Myth: The risk of respiratory depression when using opioids to relieve pain is high

FACT

- Pain is a potent stimulus to breathe
- Pharmacologic tolerance to respiratory depression develops quickly
- Opioid effects are quite different from those experienced by a patient who is not in pain and receives similar doses

C Patterson Myths Regarding Opioid Use in Pain Management
https://www.michigan.gov/13
Myth: As doses increase, respiratory depression can occur suddenly in the absence of overdose

FACT

• Somnolence always precedes respiratory depression
• Adequate ongoing assessment and appropriate titration of opioids based on pharmacological principles will prevent misadventures
• Patient-controlled analgesia with an appropriate dosing interval (10-15 minutes if iv, 30 minutes if sc) can be used safely, because the patient who takes too many extra doses of opioid will fall asleep and stop pushing the button before respiratory depression occurs

C Patterson  Myths Regarding Opioid Use in Pain Management  
https://www.michigan.gov/13
Management of Respiratory Depression

- Opioid treatment of pain is generally safe with 0.5% or less events from respiratory depression.
- The only treatment currently available to reverse opioid respiratory depression is by naloxone infusion.
- The efficacy of naloxone depends on its own pharmacological characteristics and on those (including receptor kinetics) of the opioid that needs reversal.
- The clinical approach to severe opioid-induced respiratory depression is to titrate naloxone to effect and continue treatment by continuous infusion until chances for re-narcotiation have diminished.

What is naloxone?

- Naloxone hydrochloride, an opioid antagonist, is a synthetic in the same category as oxymorphone.
- Naloxone is a special narcotic drug that reverses the effects of other narcotic medicines.
- Naloxone is used to reverse the effects of narcotic drugs used during surgery or to treat pain.
- Naloxone may also be used to treat narcotic drug overdose or to diagnose narcotic drug addiction.
- Narcan is available as a sterile solution for intravenous, intramuscular, and subcutaneous administration in three strengths: 0.02, 0.4 and 1 mg

Naloxone: Uses, Dose & Side Effects - Drugs.com
www.drugs.com/naloxone.htm
Naloxone (also known as Narcan®) is a medication called an “opioid antagonist” used to counter the effects of opioid overdose, for example morphine and heroin overdose.

What is an opioid overdose?

The brain has many, many receptors for opioids. An overdose occurs when too much of any opioid, like heroin or Oxycontin, fits in too many receptors slowing and then stopping the breathing.

Narcan reversing an overdose

Narcan has a stronger affinity to the opioid receptors than opioids like heroin or Percocet, so it knocks the opioids off the receptors for a short time. This allows the person to breathe again and reverses the overdose.
Naloxone

- An intranasal form of naloxone hydrochloride, a drug that stops or reverses opioid overdose, has been approved by the US Food and Drug Administration (FDA) under a fast-track approval process.
- Naloxone hydrochloride has long been given by intramuscular injection to stop or reverse the effects of opioid overdose, in particular respiratory depression.
- It usually works within 2 minutes but must be given quickly to prevent death.
- The approval follows an expedited review of data from clinical trials in which nasal administration achieved the same or higher levels of naloxone as those obtained with intramuscular injection, and in about the same amount of time.

Michigan passed Public Act 462 in 2014, and Governor Snyder signed it into law in January of 2015, allowing peace officers to carry and administer naloxone for opioid overdose, and providing civil and criminal immunity to those officers who do so.

This has resulted in multiple MI law enforcement agencies and non-profit groups adopting procedures where Naloxone is made available and utilized to mitigate the effects of an overdose.

www.legislature.mi.gov/mileg.aspx
Naloxone

- The nasal form will be easier for first responders and others to deliver, and will eliminate the threat of contaminated needle sticks.
- Until now, unapproved naloxone kits have combined the injectable form of naloxone with an atomizer to administer the drug nasally.
- No assembly is required for the approved nasal product, and anyone can administer it, even those without medical training.
- The product can be given to adults and children.
- It is sprayed into one nostril while the patient lies on his or her back, and can be repeated if needed.
- The FDA cautions that the person administering the drug should still seek immediate medical attention for the patient.

In July the FDA sponsored a public workshop at which addiction and advocacy groups demanded expanded availability of the lifesaving drug
Pain Management Goals of Therapy for Patients with Opioid Addiction

- Prevent withdrawal
- Treat symptoms
- Provide effective analgesia
- Prevent relapse to addiction
- Effective treatment of opioid addiction (maintenance opioid therapy)
- Treatment of psychiatric disorders such as anxiety

Treatment Approaches for Patients With Opioid Tolerance

- Discussion and education with the patient and family
- Previous effective pain management strategies
- The patient's chronic baseline opioid requirements
- Patient fears and expectations
- Plans for a balanced, multimodal regimen for pain
- Multimodal approach combining analgesics with complementary, if not synergistic mechanisms of action

Example for surgery patients

- Continuation of the preoperative opioid regimen on the day of surgery
- Consideration of acetaminophen 1000 mg 1 to 2 hours before surgery
- Consideration of a selective cyclooxygenase (COX-2) inhibitor such as celecoxib 1 to 2 hours before surgery
- Administration of intraoperative opioids to avoid withdrawal issues
- Administration of adjuvant medications as Ketamine 0.5 mg/kg intravenous (IV) bolus followed by 2 μg/kg/minute infusion. Ketorolac 30 mg IV (if NSAID or COX-2 not started preoperatively)
- Acetaminophen 1000 mg rectally if not started preoperatively
- Institution of appropriate regional technique such as nerve block or epidural analgesia

Considerations for post-op patients

• Understand that no predictions of opioid requirements can be made for individual patients.

• Patients who use even modest opioid doses (< 50 mg/day oral morphine equivalent) before surgery often require their baseline opioid dose plus 2 or more times the amount of opioids typically used for adequate pain control in opioid-naive patients.

• During the acute phase of postoperative care, continue adjunct "multimodal" analgesics such as Acetaminophen 1000 mg every 6 hours …

• and/or an NSAID or COX-2 inhibitor for several days with attention to renal function and risk of bleeding

• Ketamine if started in the operating room, or consider instituting a ketamine infusion if pain proves refractory to other measures

During the transition phase of postoperative care:

- Transition from regional and parenteral techniques to oral opioids/adjuvants.
- Allow as-needed use of a short-acting opioid every 3 hours in sufficient quantity to provide the remaining required opioid dose.
- Plan to taper from postoperative opioid doses toward preoperative doses and discuss with the patient and outpatient care providers.
- Determine whether there is a need for specialty follow-up if the regimen is particularly complex.

Safe staffing practices should be determined by state boards of nursing regulations and/or mandates, acuity classification systems or criteria, evidence-based staffing guidelines, and staffing guidelines promulgated by professional nursing organizations to adhere to defined standards of care.

Consideration of patient complexity and risk for unintended advancing sedation and respiratory depression when determining patient assignment and staffing practices can be effective in ensuring quality and safe care.

The use of technology does not replace the systematic nursing assessment and should not diminish staffing levels!
American Society for Pain Management Nursing
Guidelines on Monitoring for Opioid-Induced
Sedation and Respiratory Depression

• Policies and procedures and guidelines are recommended to facilitate accurate and complete hand-off communication among all health care professionals during change of shift report and transitions of care.

• Effective communication among all health professionals should exist throughout the continuum of care during opioid therapy, because it is essential to the delivery of safe and effective care.

• Documentation forms and tools can be useful in communicating patients' underlying conditions, comorbidities and risk factors, previous use and response to opioid therapy, opioid naïve or tolerant status, anesthesia history, and current opioid therapy and response.
Types of pain for your review

Definitions:
Acute pain: Defined as intermittent pain occurring for less than 90 days (Occupational Medicine Practice Guidelines, 2009) and resulting from trauma, impact, burns, or surgery. It is abrupt, intermittent, and nociceptive.

Chronic Pain: Defined as occurring for at least 3 months by the AMA and over 6 months by the American Psychological Association. Both concur there is no active disease or unhealed tissue injury. This type of pain may be caused by faulty processing of sensory input by the nervous system. Pain interventions may be ineffective resulting in frustration, anger, and depression (Rospahl, 2010).
Somatic Pain: Defined as localized pain that becomes increasingly uncomfortable with movement and very tender when palpated. It is sometimes referred and described as, per the Occupational Medicine Practice Guidelines, sharp, throbbing, shooting, pinching, and deep aching that includes bone, post-op, and muscle pain.

Neuropathic Pain: Defined as difficult to cite the source of pain as it tends to follow dermatome pathways. Palpation tends to send pain to nerve endings distally. This pain is described as burning, radiating, and numbing at times with limb “heaviness.” There may be swelling, redness, and mottling with skin temperature fluctuations (Occupational Medicine Practice Guidelines, 2008).

(Types of pain for your review)
Visceral Pain: Defined as constant and localized but may be referred like diaphragmatic pain refers to the right shoulder and cardiac pain which can refer to the left arm and the jaw.

Cancer Pain: Defined as pain due to a malignancy which is described as very severe, chronic, and intractable causing resistance to many medications, thus long and short term analgesics are usually required to prevent “breakthrough pain” (Rosdahl, 2010). Hospice nurses are usually very skilled at pain management because of Cancer pain needs.

(Types of pain for your review)
Addiction - a primary, chronic, neuro-biologic disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include the following: impaired control over drug use craving, compulsive use, and continued use despite harm. Physical dependence and tolerance are normal physiological consequences of extended opioid therapy for pain and are not the same as addiction.

Physical Dependence - a state of adaptation that is manifested by drug class-specific signs and symptoms that can be produced by abrupt cessation, rapid dose reduction, decreasing blood level of the drug, and/or administration of an antagonist. Physical dependence, by itself, does not equate with addiction.
Pseudoaddiction: the iatrogenic syndrome resulting from the misinterpretation of relief seeking behaviors as though they are drug-seeking behaviors that are commonly seen with addiction. The relief seeking behaviors resolve upon institution of effective analgesic therapy.

Substance use disorder: the use of any substance(s) for non-therapeutic purposes or use of medication for purposes other than those for which it is prescribed.

Tolerance: a physiologic state resulting from regular use of a drug in which an increased dosage is needed to produce a specific effect, or a reduced effect is observed with a constant dose over time. Tolerance may or may not be evident during opioid treatment and does not equate with addiction.
<table>
<thead>
<tr>
<th>Michigan</th>
<th>Public Health Statute</th>
<th>Public Health Code MSA 14.15: General Provisions</th>
<th>04/01/99</th>
<th>01/08/02</th>
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<td>Pharmacy Board Guideline</td>
<td>Guidelines for the Use of Controlled Substances for the Treatment of Pain</td>
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<td>Nursing Board Guideline</td>
<td>Michigan Board of Nursing Guidelines for the Use of Controlled Substances for the Treatment of Pain</td>
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<td>Joint Board Guideline</td>
<td>Michigan Guidelines for the Use of Controlled Substances for the Treatment of Pain &amp; accompanying statement</td>
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<td>late 2003</td>
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</tbody>
</table>
The Michigan state page provides you with a quick overview of issues relating to drug and alcohol addiction and MI drug rehab centers.

- Michigan Addiction Treatment Statistics
- Alcohol Addiction in Michigan
- Commonly Abused Drugs in Michigan
- Michigan Drug and Alcohol Fatalities, Injuries and Drug Court Statistics
- Michigan Drug and Alcohol Addiction Resources

MDHHS:
Keeping Michigan Healthy
Behavioral Health & Developmental Disability Recovery & Substance Use

www.michigan.gov/.../Narcan_for_the_MFR__EMT_491995
Michigan's new guidelines for treating opiate addiction 'take it to the next level'
References

1. American Society for Pain Management Nursing – aspmn
   www.aspmn.org/.../GuidelinesonMonitoringforOpioid-InducedSedation...by D Jarzyna - 2011
2. Pain Management Nursing
3. Comparsion of Selected Sedation Scales for Reporting Opioid–Induced Sedation Assessment
   Allison Theresa Nisbet, MSN, CPN, AOCNS, RN-BC; Florence Mooney-Cotter, MSN, CNS-BC, RN-BC
4. Pain Management Nursing Role/Core Competency A Guide ...
   www.mbon.org/practice/pain
5. Acute Pain Management in the Opioid-Tolerant Individual
   www.medscape.org/viewarticle/581948
6. Acute Pain Management in the Opioid-Tolerant Individual
7. C Patterson Myths Regarding Opioid Use in Pain Management
   https://www.michigan.gov/.../7_Myths_Regarding_Opioid_Use
8. Preventing complications in patients receiving opioids ...
   www.americannursetoday.com › Pain Management/ Sedation by M Myers-Glower - 2013
References


10. McCabe, S.E.; West, B.T.; Teter, C.J.; and Boyd, C.J. Medical and nonmedical use of prescription opioids among high school seniors in the United States. *Archives of Pediatric and Adolescent Medicine* 166(9):797-802, 2012b

11. [www.michigan.gov/.../Narcan_for_the_MFR_EMT_491995](http://www.michigan.gov/.../Narcan_for_the_MFR_EMT_491995)
14. Mar 26, 2015 - U.S. *Health and Human Services* Secretary Sylvia M. Burwell
15. *IMS Health. National Prescription Audit, United States, 2012*
17. *Andrew Kolodny, M.D. Chief Medical Officer, Phoenix House Foundation New York, NY*


28. [https://iom.nationalacademies.org/~media/Foster%20Presentation](https://iom.nationalacademies.org/~media/Foster%20Presentation), January 2104.


30. Opioid (Narcotic) Pain Medications WebMD Reviewed by Jennifer Robinson, MD on, April 23, 2013
Pain Management & Opioids

POST-TEST DIRECTIONS

Carefully read the entire article. This CE is free for MNA members and $20 for non-members.

- Complete the evaluation and post-test response form and make your payment online by clicking HERE.
- OR
- Complete the evaluation and post-test response PDF FORM and send to:
  By mail: Michigan Nurses Association, 2310 Jolly Oak Road, Okemos, MI 48864
  By fax: 517-349-5818

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Participants who achieve a minimum passing score of 80% will receive a certificate awarding 1.0 contact hours. Certificates will be mailed within six weeks of receipt of evaluation and post-test. Participants who do not achieve a passing score will have the option to retake the test at no additional cost.