
WISCONSIN CANCER PAIN INITIATIVE
CASE STUDIES - HOME HEALTH

CASE STUDIES AND FACULTY GUIDE

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Case Studies

Case 1

A 29-year old male who suffered multiple pelvic and rib fractures and internal injuries in a motor vehicle accident four weeks ago has been discharged from a skilled nursing facility to continue his rehabilitation at his mother's home. He tells you that he needs some "stronger" pain medication because he is experiencing almost continuous pain which he rates at 5-7 on a 0 to 10 scale. He reports that when he moves, the pain intensifies to 9. He faces another round of surgery because his hip is not healing properly. His pain medicines include Percocet and ibuprofen which he has been advised to take as needed. His mother takes you aside to express her concerns. She says her son has had a drinking problem in the past and she's certain he's used marijuana. Furthermore, she says he's had a lot of visitors since he's been home and he jokes and smiles a lot when they're around. She's not convinced her son hurts as much as he says he does and she's worried he's becoming addicted to the Percocet because he takes several pills a day.

1. How would you respond to this patient's request for "stronger" pain medicine?
2. Do you think he is showing signs of addiction?
3. What would you say to his mother?

Case 2

You make a routine post-op visit to the home of a 65-year old man with COPD who underwent knee arthroscopy yesterday. According to the man's wife he has been sleeping "off and on" since he arrived home. On assessment, this patient reports knee pain of 7 out of 10. He says the "pain pills take the edge off the pain" for 1-2 hours but make him dizzy and somewhat nauseous. He has taken i-ii Tylenol #3 (325 mg acetaminophen and 30 mg codeine) tablets about every 4-5 hours since arriving home yesterday. He said the surgery nurse told him he couldn't have anything stronger because of his COPD.

1. What additional information do you need to communicate this patient's analgesic needs to his physician?
2. Is this patient at risk for respiratory depression if he is given a stronger opioid?
3. What are the risk factors for respiratory depression?
4. What alternative analgesic regimen would you suggest?
 - a. Two Tylenol #3 q3h ATC
 - b. One to two oxycodone 5mg/acetaminophen 325mg q4h ATC
 - c. Ibuprofen 400 mg PO q6h
 - d. ASA 650 mg PO q4h ATC
 - e. Morphine 15 mg PO q4h ATC
 - f. Norco (10 mg hydrocodone, 325 mg acetaminophen) i-ii tabs q 4h.
 - g. Other

Case 3

Mr. Jones is taking two Percocet 5/325 tablets every four hours for bone pain related to metastatic cancer. His pain is a constant 6 on a 0 to 10 scale. Since his pain goal is 3, you decide to call his physician.

1. The doctor suggests increasing the Percocet to two tablets q3h ATC. How would you respond to this order?
2. A more appropriate approach would be to start the patient on a different opioid. Calculate the equianalgesic dose and schedule for the following options:
 - a. oral MS – short acting
 - b. MS Contin or Oramorph SR
 - c. oral hydromorphone (Dilaudid)
 - d. oxycodone (Roxicodone, Oxy-IR)
 - e. Oxycontin
 - f. fentanyl patch (Duragesic)
3. Suggest new analgesic orders for this patient. Take into consideration that orders should include both scheduled and breakthrough pain medications and other drugs that might be especially effective for a patient with bone pain.

Case 4

A 28-year old woman, a quadriplegic since a motor vehicle accident eight years ago, is admitted to your agency for management of a decubitus ulcer. She has a cyst in her cervical spine which has been drained two times in the past three years. She saw a “pain management team” two years ago. A trial of opioids left her unacceptably sedated with no pain relief. She had good pain relief with nortriptyline (Pamelor) 50 mg and carbamazepine (Tegretol) 200 mg BID. However, her blood counts dropped and the carbamazepine was discontinued. She describes pain that is “burning, radiating, exploding” and “occasionally shooting” in her left abdomen and back just below her rib cage. On a scale of 0-10, it is 9 at worst, 4 at best. This pain interferes with her daily functions – eating, sleeping and the desire to engage in relationships.

What options might you suggest?

Case 5

An 85-year old woman is seated in her living room recliner when you arrive. Her medical history includes insulin dependent diabetes, and a long-standing problem with osteoporosis. Two months ago she was diagnosed with several vertebral compression fractures of her lumbar spine. The reason for your visit is a weekly check of her blood pressure, blood glucose and healing decubitus ulcer on her heel. Her husband tells you she has not been able to lie down and sleep in her bed for days. She has been able to “cat nap” but only if exhausted from lack of sleep. Her uneaten breakfast sits next to her and when questioned she says she is in too much pain to eat or drink. She is unable to give her pain a numeric rating saying “it hurts like always” and “it’s been worse than this before.”

Her 83-year old husband shows her drawer of medications. Many of the medication bottles are still full and the pain medications have been prescribed by several different physicians. The drawer of medicine includes:

Darvocet N-100 one tab q8h alternate with Tylenol #3
MS-Contin 15 mg q12h
Morphine sulfate 10mg po q2-4h, take as needed
Nabumetone (Relafen) 1 Gm BID
Extra Strength Tylenol 500 mg over the counter bottle
Alprazolam (Xanax) 0.25 mg twice daily
Restoril (temazepam) 15mg qhs prn as needed for sleep
Amitriptyline (Elavil) 25 mg at bedtime
Colace 2 tablets qd
Metamucil 2 tbls. qd
Milk of Magnesia 30-60 cc when necessary

On further assessment her husband informs you she has been taking the morphine sulfate during the day (3-4 tablets) and Darvocet and Xanax at bedtime. She has been saving the MS-Contin for when the pain is really bad, meaning she usually takes it once a week.

1. How can you assess the intensity of this patient’s pain?
2. What problems do you see with her analgesic orders?
3. How could you simplify her analgesic regimen?

Case 1: Faculty Guide

The primary goals of this case are to assure that participants

- identify ways to manage unrelieved pain
 - understand that persons can be distracted from their pain -- that lack of stereotypical pain behaviors does not mean lack of pain
 - understand the meaning of tolerance, physical dependence and addiction
1. The nurse should first find out exactly how much pain medication the patient is taking and how often. If he is taking less than prescribed, explore the reasons why (ex: fears of side effects or addiction, lack of knowledge of how to take the meds). Advise the patient to take the analgesics on a schedule.
If the patient is taking the full amount of medication prescribed, contact the physician to discuss an appropriate dose increase. This patient has pain of moderate to severe intensity, which generally requires an increase of 50-100% of the regularly scheduled opioid dose.
 2. The risk of addiction when opioids are prescribed for pain is <1%. It is important that both the patient and the health care team understand this patient's need for pain relief and reason for treatment with opioids. There may be issues of mistrust and misunderstanding of behavior that need to be addressed.

Health care professionals as well as patients and families commonly confuse addiction, physical dependence, and tolerance. Review the following definitions:

Tolerance	Need to increase the dose of opioid to achieve the same level of analgesia
Physical Dependence	Normal physiological response to chronic opioid therapy which is manifest by the appearance of withdrawal symptoms when opioids are abruptly discontinued
Addiction (Psychological Dependence)	Behavioral pattern of compulsive use, loss of control, and persistent use in spite of harm

A larger problem in this situation may be *pseudoaddiction*, which is characterized by:

- Inadequate treatment of pain
- Increased demands for analgesics by patient associated with behavioral changes to convince others of pain's severity
- A crisis of mistrust between patient and health care team

In other words, there can be a vicious cycle of mistrust which confuses unrelieved pain with addiction.

3. What alternate analgesic would you recommend? Discuss:
 - the limitation to Percocet therapy based on the toxicity of acetaminophen
 - the wisdom of combining opioids and non-opioids
 - the possibility of using a sustained release preparation (MS-Contin, Oramorph SR, Kadian, Oxycontin or Duragesic).

Case 2: Faculty Guide

The primary goals of this case are to ensure that the participants understand:

- The minimal risk of respiratory depression when low doses of opioids are used to treat acute pain.
- At least two alternatives for managing acute pain that has not responded to an initial intervention with low dose opioids.
 1. The nurse should report to the physician all the information already described in the case: the patient's pain intensity, location, response to current analgesics, and side effects. In addition the nurse should collect and report at least the following information:
 - The impact of pain, i.e., is he eating? What does sleeping "off and on" mean?
 - The patient's actual consumption of the currently prescribed analgesic.
 - Whether the patient is experiencing problems with sedation. Constipation? Other side effects?
 - Previous response to analgesics such as codeine, oxycodone, hydrocodone, NSAIDs
 - The patients pain relief goal.
 2. It is important to understand that *clinically significant respiratory depression is rare* at low doses and if the dose and strength of the medicine matches the severity of the pain. Even a patient with COPD can safely take carefully titrated doses of opioids to relieve severe pain. It is best to use the opioids with relatively short half-lives (ex: morphine, oxycodone, hydrocodone), rather than those with long half lives (ex: methadone, levorphanol). The latter drugs can accumulate over several days, and present a risk of delayed sedation or respiratory depression – particularly in acute pain which is likely to quickly diminish.
 3. The risk factors for respiratory depression include:
 - rapid dose escalation, especially if the patient is opioid naïve
 - older age
 - diminished kidney or liver function
 - concomitant use of other CNS depressants such as benzodiazepines, alcohol, older antihistamines
 - too rapid increase in the dose of opioids, particularly those with long half-lives
 4. A larger dose of Tylenol #3 is unlikely to be effective for severe pain. In addition, giving two tablets of Tylenol #3 ATC would deliver a potentially toxic dose of acetaminophen. (650mg acetaminophen X 8 doses = 5200mg/day). Acetaminophen consumption should not exceed 4000mg per day. One way to minimize acetaminophen consumption with combination products is to use one with a higher dose of opioid relative to the amount of acetaminophen. Norco is an example of this (10mg hydrocodone in combination with 325 mg acetaminophen).
Otherwise, there is not just one correct answer. In general, this patient will need a "strong" opioid (oxycodone, hydrocodone, or morphine). Adding an NSAID (ASA or ibuprofen) may be helpful.

Case 3: Faculty Guide

The goal of this case is to ensure that the participants understand

- the dose ceiling of acetaminophen
- the role of NSAIDs in bone pain
- how to do equianalgesic conversions
- concepts of opioid dose titration

1. There are two major issues with the order:
 - a. The 24 hour dose limit of acetaminophen is 4000 mg. At his current dose of two Percocet 5/325q4h, he is taking 650 mg per dose x 6 doses, or 3900 mg per day. Therefore, increasing the dose of Percocet is not a safe option. Mention that oxycodone is available without acetaminophen.
 - b. The patient's pain relief is 6/10 at best, so a dose increase is needed, not an increase in dosing frequency.
2. To calculate the oral dose, begin by noting that 2 Percocet 5/325 q4h=12 tabs per 24 hours=60 mg oxycodone per 24 hours.
 - a. **MSIR:** Look up the approximate equivalent dosages of oxycodone and morphine in an equianalgesic table. Use this dosage ratio to calculate the dose of morphine equivalent to 60 mg oxycodone. This is an easy one to start with since these drugs are equipotent.

$$\frac{30 \text{ mg PO oxycodone}}{60 \text{ mg PO oxycodone}} = \frac{30 \text{ mg PO morphine}}{X \text{ mg PO morphine}}$$

Solve for X (cross multiply)

$$60 \times 30 = 30X$$

$$X = 1800/30$$

$$X = 60 \text{ mg morphine}/24 \text{ hours}$$

Since the duration of MSIR is 4 hours, you would divide the 24 hours dose into 6 doses, or:

10 MSIR q 4 hours

- b. **MS Contin or Oramorph SR:** Follow the same process as above, except the duration of action is 12 hours and you would divide the 24 hour dose into 2 doses, or:

30 mg MS Contin or Oramorph SR q 12 hours

- c. **hydromorphone:** 30 mg oral oxycodone is equivalent to 7.5 mg oral hydromorphone

$$\frac{30 \text{ mg PO oxycodone}}{60 \text{ mg PO oxycodone}} = \frac{7.5 \text{ mg PO hydromorphone}}{X \text{ mg PO hydromorphone}}$$

Shortcut tip: Look at the top row of the equation and note the relationship of the 2 numbers in the fraction numerators. In this case, it is 30:7.5, which is a 4:1 relationship. This same relationship applies to the lower row of the fractions (the denominators), and may immediately show you the value of N ($\frac{1}{4}$ of 60 = 15). If the group can see this, skip the cross multiplication steps.

Otherwise:

Cross multiply as above:

X = 15 mg PO hydromorphone/24 hours.

Since the duration of hydromorphone is 4 hours, you would divide the 24 hours dose into 6 doses, or:

2.5 mg hydromorphone q4 hours

Since Dilaudid does not come in 2.5 mg tablets, it is reasonable to obtain 2 mg tablets instead. With the dose titration concepts discussed below, this patient will need a 50-100% increase in the strength of his medication, and so would likely need about 4mg q4h. Using 2mg tablets would allow for easier titration at this level than would 4mg tablets.

- d. **oxycodone:** Oxycodone is the opioid present in Percocet, so no conversion is needed. This drug is available without acetaminophen, which allows for dose increases without concerns about toxicity.
- e. **Oxycontin:** Oxycontin is sustained release oxycodone and has a duration of 12 hours. Since the current med is also oxycodone, take the 24 hour dose (60mg) and divide by the number of doses per day (2), which yields 30mg Oxycontin q12h.
- f. **fentanyl patch (Duragesic):** The package insert suggests that 25 µg/h transdermal fentanyl is equivalent to 45-134 mg oral MS/24 hours. Therefore the calculated morphine dose of 60 mg/24 hours would suggest an equianalgesic dose of fentanyl would be 25 µg/h q 72 hours. A useful approach is to use the following conversion:

The 24 hour dose of morphine/2 \cong *µg/hr dose of the fentanyl patch*

Round the patch dose up or down to match the nearest dosage form.

- 3. To decide on a reasonable dose increase of the opioid, consider the following:
 - *For mild (1-4/10) to moderate (5-6/10) pain, increase the dose by 25-50% of the current dose.*
 - *For moderate (5-6/10) to severe (7-10/10) pain increase the dose by 50-100%.*
 - *Provide a short acting opioid for breakthrough pain. Each dose should be 10-20% of the total 24 hour scheduled, and prescribed q2h prn.*

Since this patient's pain is 6/10, increase the scheduled dose by 50%. Some possible combinations:

- MS Contin or Oramorph SR 45 mg q12 hours, with 10-15 mg short-acting morphine q2h prn
- Oxycontin 40mg q12 hours, with 10-15mg oxycodone q2h prn.
- Duragesic 25µg/hr patch q 3days, with morphine or oxycodone 10-15mg q2h prn. The Duragesic dose is conservative, so the patient should be reminded to use the breakthrough med if there is inadequate relief. After the first 3 days, the dose of the patch may need to be increased.
- Morphine 15 mg q 4 hours, with 7.5 to 15 mg morphine q2h prn
- hydromorphone 4 mg q4 hours prn, with 2-4 mg hydromorphone q2-4 hours prn

A transmucosal formulation of fentanyl, Actiq, is available to treat breakthrough pain. It acts in about 5 minutes, peaks in 15 minutes, and lasts 1-2 hours. Actiq is available in six strengths: 200, 400, 600, 800, 1200, and 1600µg. There is no relationship between the scheduled opioid dose and the dose of Actiq required to achieve pain relief. Start each patient on 200µg and titrate upward until you find the dose that relieves the patient's

breakthrough pain. It is important to use each dose completely. Since this medication is a lozenge on a stick, children might mistake it for candy. Because of this, it is imperative that there be no unused medication left within children's reach. Any unused medication should be disposed of immediately by running it under hot water until it is completely dissolved.

Note: Since the patient has bone pain, consider adding an NSAID, such as ibuprofen 600 mg or naproxen 500 mg BID.

Case 4: Faculty Guide

The goals of this are to help the participants understand:

- that a quadriplegic can still have pain
- different approaches to neuropathic pain
- that neuropathic pain often does not respond fully to analgesics. Patients may only experience an average of a 60% reduction in pain scores.

Treatment options might include:

1. Increase the nortriptyline by 25 mg increments weekly, up to 150 mg needed. Side effects may limit the amount the patient can take. Nursing interventions would include providing encouragement through the initial sedation and suggestions for how to deal with a dry mouth (frequent sips H₂O, lemon candy, artificial saliva, etc.)
2. If the nortriptyline proves ineffective, try an alternate tricyclic antidepressant, e.g., desipramine (Norpramine), titrate as with nortriptyline.
3. Try a different anticonvulsant. Gabapentin (Neurontin) has become the first line choice for neuropathic pain in recent years. Start with a low dose (100mg bid). Increase the dose gradually, to as much as 900mg tid. Some clinicians have reported using up to 6000-8000mg in 24 hours. Other possibilities include phenytoin (Dilantin 300-600 mg/day), valproic acid (200-400 mg BID or TID) or clonazepam 0.25–0.5 mg po TID.
4. If all these attempts fail, consult a pain specialist, who might try a systemic local anesthetic. These include IV or SQ lidocaine and the oral product mexilitine. These may be contraindicated in patients with cardiac disease.

Case 5: Faculty Guide

The primary goals of this case are to assist participants to consider:

- the risks of multiple drug therapy (polypharmacy) such as
 - confusion about dosing regimen
 - difficulty of determining which drug is causing a particular side effect
- the use of alternative pain assessment tools
 1. Help this patient to try other rating scales, such as:
 - visual numeric scales

- faces scales
- mild-moderate-severe verbal scale

If she is unable to use any scale, consider asking her husband to keep a journal of when pain interferes with her functional status or quality of life.

2. What problems do you see in her analgesic orders?

- multiple opioids, inappropriate dosing intervals, unclear hierarchy, too many prescribers
- the instructions for some meds are unclear – for example, “take as needed” or “alternate with.”
- No complete pain assessment, and no assessment of depression
- pricey NSAID (Relafen = nabumetone), which also has potential for renal toxicity
- unclear reason for amitriptyline, which is a drug to avoid in the elderly.
- possibility of acetaminophen toxicity.

3. Possible ways to simplify the analgesic regimen:

- Discontinue Darvocet, as it is likely to be ineffective and is a drug to avoid in the elderly.
- Schedule the morphine. After determining the patient’s baseline needs, start scheduled MS Contin and use short acting morphine for breakthrough pain.
- Assess pain further to evaluate the need for the NSAID. If there is an indication, consider switching to a COX-2 inhibitor (celecoxib (Celebrex) or rofecoxib (Vioxx)).
- provide a written pain management plan that tells the patient and her husband when to take the scheduled medicines and possibly a journal or log in which they can record the PRN doses.

