**Maryland Next Gen NCLEX Test Bank Project**

**April 25, 2023**

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| **Case Study Topic**  (& Stand-alone bowtie) | Substance Use Withdrawal and Pain Control | **Authors** | Nancy Goldstein, DNP, ANP-BC, RNC, CNE  Krysia Hudson, DNP, RN BC |

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| **Case Summary**  The patient is a 52 yo who was discharged from the hospital 78 hrs. ago s/p appendectomy. Client reflects that pain is uncontrollable since he was discharged. Has a history of substance use disorder (Alcohol/Opioids). This case highlights the challenges of pain control with a patient with this unique disorder post-surgery. |

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| **Objectives**  1. Identify and acknowledge signs of withdrawal  2. Describe ways to approach the challenges of this patient with pain control and substance use disorder.  3. Explore unique challenges in educating a patient related to pain control and history of substance use. |

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| **Case Study Link** | **Case Study QR Code** |
| <https://umaryland.az1.qualtrics.com/jfe/form/SV_726eBnscPo98waW> |  |
| **Bowtie QR Code Link** | **Bowtie Link** |
|  | <https://umaryland.az1.qualtrics.com/jfe/form/SV_8tPP2s2EwijuxQG> |

**Case References**

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| Burcham, J.R. & Rosenthal, L.D. (2022). *Lehne’s pharmacology for nursing care* (11th ed). Elsevier.  Clinical Key (2022). Clinical overview: Opioid withdrawal. Retrieved from: <https://www-clinicalkey-com>  Dowell, D., Ragan, K.R., Jones, C.M., Baldwin, G.T., & Chou R. (2022). CDC Clinical Practice Guideline for Prescribing Opioids for Pain **—** United States, 2022. *MMWR Recomm Rep*;*71*(No. RR-3):1–95. DOI: <http://dx.doi.org/10.15585/mmwr.rr7103a1>  Hoffman, J., & Sullivan, N. (2020). *Medical surgical nursing: Making connections to practice* (2th ed.). FA Davis.  MAT Medications, Counseling, and Related Conditions. (2022, November 4). Retrieved from Substance Abuse and Mental Health Services Administration (SAMHSA) <https://www.samhsa.gov/medication-assisted-treatment/medications-counseling-related-conditions> |

**Case Study Screen 1 of 6.**

The 52- year- old client presents to an outpatient clinic for severe pain 3 days post-op appendectomy.

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| Nurses’ Notes |
| **04/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes and substance use disorder. The client has been abstinent from substance use (alcohol, opioids) for the last 6 months until he had surgery 3 days ago (3/29/xx). The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.) | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * Acetaminophen 1000 mg PO q 6 hours for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | **4/01**  **Results** |
| **Glucose**  Normal 70 - 110 mg/dL | | 130 mg/dL |

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* Which 4 findings are most important?
* Nausea\*
* Blood glucose
* Pain\*
* Blood pressure
* Respiratory rate
* Pulse oximetry
* Heart rate\*
* Tremors\*

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| **Score 0/1**  **Rationale:** Except for the tachycardia, the client’s vital signs are within defined limits. The main concern is the client’s pain. Pain with nausea and tremors is concerning. Nausea/low back pain could indicate potential gastrointestinal issues related to surgery. Tremors are concerning and related to the client’s history of substance use (Hoffman & Sullivan, 2020). A random blood glucose less than 140mg/dL in a client with diabetes is not concerning. |

**Case Study Screen 2 of 6**

The 52- year- old client presents to an outpatient clinic for severe pain 3 days post-op appendectomy.

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| Nurses’ Notes |
| **04/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes and substance use disorder. The client has been abstinent from substance use (alcohol/opioids -fentanyl) for the last 6 months until he had surgery 3 days ago (3/29/xx). The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.) | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * Acetaminophen 1000 mg PO q 6 hours for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | 4/01  Results |
| **Glucose**  Normal 70 - 110 mg/dL | | 130 mg/dL |

The nurse further assesses the client.

* Which problems/conditions could the client be experiencing? **Select all that apply**.
* Adverse effects of glargine
* Post-operative bowel obstruction\*
* Breakthrough pain\*
* Post-op infection\*
* Withdrawal symptoms\*
* Post-operative atelectasis
* Hepatotoxicity\*

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| **Score +/-**  **Rationale:** The nurse would look for possible explanations for the client’s pain. Withdrawal clinical findings may include the following: anxiety, insomnia, abdominal pain, nausea, vomiting, diarrhea, diaphoresis, mydriasis, tremor, tachycardia (Burcham & Rosenthal, 2022; Dowell, Ragan, Jones, Baldwin, & Chou, 2022). Nausea after surgery could possibly indicate a bowel obstruction. Pain near the surgical site could indicate an infection. Low back pain could be a sudden flare up of a chronic condition (breakthrough pain) which may be the reason the client developed substance abuse disorder. Hepatotoxicity can manifest as nausea, abdominal pain, and seizures. Acetaminophen toxicity can cause hepatotoxicity. The combo of acetaminophen OCT and prescription medications puts the client over the maximum daily acetaminophen dose, but clients with a history alcohol use can experience problems at lower doses. Side effects of glargine can include hypoglycemia, but the client’s blood sugar is not low, and glargine is not known to cause pain. Chest pain and changes in the client’s respiratory status would be expected with atelectasis. |

**Case Study Screen 3 of 6**

The 52- year- old client presents to an outpatient clinic for severe pain 3 days post-op appendectomy.

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| Nurses’ Notes |
| **04/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes and substance use disorder. The client has been abstinent from substance use (alcohol/opioids -fentanyl) for the last 6 months until he had surgery 3 days ago (3/29/xx). The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.) | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * Acetaminophen 1000 mg PO q 6 hours for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | 4/01  Results |
| **Glucose**  Normal 70 - 110 mg/dL | | 130 mg/dL |

The nurse reviews the chart.

* Complete the following sentence by choosing from the list of options

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| The client’s pain is most likely caused by | Select |
| hepatoxicity |
| a bowel obstruction |
| withdrawal from opioids\* |
| a post-operative infection |
| as most evidenced by the | Select |
| client history\* |
| acetaminophen use |
| nausea |
| pain location |

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| **Score rationale rule**  **Rationale:** Nausea, tremors, lower back pain can be indicators of many conditions. However, the combination of these symptoms, in conjunction with the client history of discontinuation of pain medication and lack of pain medication, is indicative of opioid withdrawal. A bowel obstruction would most likely include other abdominal symptoms. Client is afebrile and has no abdominal discomfort, so infection is less likely to be of concern. The client ran out of prescription pain meds 24 hours ago making acetaminophen toxicity less likely. |

**Case Study Screen 4 of 6**

The 52- year- old male seen in the outpatient clinic for severe pain 3 days post-op appendectomy.

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| Nurses’ Notes |
| **04/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes and substance use disorder. The client has been abstinent from substance use (alcohol/opioids -fentanyl) for the last 6 months until he had surgery 3 days ago (3/29/xx). The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.) | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * Acetaminophen 1000 mg PO q 6 hours for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | 4/01Results |
| **Glucose**  Normal 70 - 110 mg/dL | | 130 mg/dL |

The nurse determines that the client is at risk for opioid withdrawal.

* For each potential order, click to specify whether the order is anticipated or not anticipated to include in the plan of care.

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| Potential order | Anticipated | Not anticipated |
| Daily wound care | * \* |  |
| Pain management consult | * \* |  |
| Discontinue all pain meds |  | * \* |
| Obtain urine toxicity screen |  | * \* |
| Follow up in 3 days | * \* |  |

Note:Each row must have one selection.

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| **Score 0/1**  **Rationale:** Ideal therapy for pain control with a client with past substance use disorder is complex. Nurses should expect to provide pain control. Consultation with a pain expert is ideal – some pain medications may require a taper for opioids and should be paired with an order for naloxone as well (Dowell et al., 2022). Based on these findings, the nurse would expect the pain medication regimen to be adjusted to counteract pain and withdrawal. Per the pain specialist consultation, the client's orders will be changed to gabapentin, ibuprofen, and acetaminophen extra strength (ES) to provide pain treatment without relapse (Dowell et al., 2022). Pain may delay healing, so the nurse would anticipate potential wound care. Urine toxicology screen is **not** needed because it is known that opioids will be found, and the client does not report any other substances used. |

**Case Study Screen 5 of 6**

The 52- year- old client presents to an outpatient clinic for severe pain 3 days post-op appendectomy.

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| Nurses’ Notes |
| **04/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes and substance use disorder. The client has been abstinent from substance use (alcohol/opioids -fentanyl) for the last 6 months until he had surgery 3 days ago (3/29/xx). The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.) | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * ~~Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain~~ * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * ~~Acetaminophen 1000 mg PO q 6 hours for pain (over the counter)~~   New Orders   * Discontinue oxycodone/acetaminophen 5 mg/ 325 & acetaminophen 1000 mg q 6 hours * Gabapentin 300 mg TID for pain * Acetaminophen 1000 mg q 8 hours prn for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | 4/01  Results |
| **Glucose**  Normal 70 - 110 mg/dL | | 130 mg/dL |

Based on the assessment, new orders are written.

* What 3 points should the nurse teach the client about the treatment plan?
* Avoid over-the-counter medications that may also include ingredients like acetaminophen.\*
* More intense spikes of pain may indicate breakthrough pain.\*
* Immediately report any tiredness or dizziness while taking gabapentin.
* It is okay to supplement pain medications with aspirin.
* Consider using non-pharmacological means of pain relief with the prescription medications.\*

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| **Score 0/1**  **Rationale:** Due to the complexity of this client, patient teaching is essential in this case. Many OTC medication, especially those for colds or flu, include acetaminophen and taking those medications would put the client at risk of exceeding the normal recommended dose of acetaminophen 3 gm/day (outpatient max recommended) (Burcham & Rosenthal, 2022). Breakthrough pain is essential to recognize. The client should avoid aspirin if taking ibuprofen. The client should acknowledge any pain near the incision site or the lower right-hand quadrant of the abdominal region. Non-pharmacologic pain management, in conjunction with prescribed medication, is key in reducing pain medicine consumption and decreasing risk for substance abuse disorder (Burcham & Rosenthal, 2022). It is normal to feel dizzy, tired, and lightheaded when beginning gabapentin. Symptoms usually subside in a couple of weeks. |

**Case Study Question 6 of 6**

The client comes back to the outpatient clinic three days later.

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| Nurses’ Notes |
| **04/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes and substance use disorder. The client has been abstinent from substance use (alcohol/opioids -fentanyl) for the last 6 months until he had surgery 3 days ago (3/29/xx). The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.)  **4/04: 0930.** Returned to the clinic for pain medication follow-up. VS: T 98.6 F (37 C), HR 68, BP 128/66, RR 18, pulse oximetry 98% on room air, pain 2/10. No complaints of tremors, nausea, lower back pain. | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * ~~Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain~~ * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * ~~Acetaminophen 1000 mg PO q 6 hours for pain (over the counter)~~   New Orders   * Discontinue oxycodone/acetaminophen 5 mg/ 325 & acetaminophen 1000 mg q 6 hours * Gabapentin 300 mg TID for pain * Acetaminophen 1000 mg q 8 hours prn for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | 4/01  Results | 4/04  Results |
| **Glucose**:  Normal 70 - 110 mg/dL | | 130 mg/dL | 122 mg/dL |
| **Blood Urea Nitrogen (BUN):** 10-20 mg/dL | | | 20 mg/dL |
| **Creatine (Serum):** 0.9 to 1.4 mg/dL | | | 1.2 mg/dL |
| **Hematocrit:** Males: 42-52%; Females: 35-47% | | | 44% |
| **Hemoglobin:** Males: 13-18 g/dL; Females: 12-16 g/dL | | | 14 g/dL |
| **White Blood Cells:**4.5 – 10.5 x 103 cells/mm3 | | | 10.2 103 cells/mm3 |
| **Platelet:** 140,000 to 450,000/ mm3 | | | 150,000 mm3 |
| **Alanine transaminase (ALT)**<40 Units/L | | | 41 Units/L |
| **Aspartate aminotransferase (AST)**<37 Units /L | | | 19 Units/L |
| **Alkaline Phosphatase** 30-120 U/L | | | 129 Units/L |

The nurse assesses the client and reviews the labs.

* Which of the following statements indicate that the client needs further teaching.
* “I have been using both ice and warm packs to help treat my abdominal pain.”
* “I have been taking 4-200mg ibuprofen tablets 4 times a day.”
* “I did not call about an episode of intense pain because it only lasted 5 minutes.”
* “I have a cold, so I am taking over the counter medication for cough and fever.”\*

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| **Score 0/1**  **Rationale:** The client is improving – based on the client’s pain level, vital signs, and labs. The key for this client is the management of medication to prevent substance use withdrawal. Any medication taken over the counter needs to be approved by the provider. Over the counter cold remedies are often combination products that include ibuprofen or acetaminophen. The client needs more education in regard to combination medications and medications that may also have alcohol in them (Burcham & Rosenthal, 2022) |

**Bowtie Stand Alone Item**

The 52- year- old client presents to an outpatient clinic for severe pain 3 days post-op appendectomy.

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| Nurses’ Notes |
| **4/01: 1000.** Client presented to the outpatient clinic with tremors, restlessness, lower back pain, and nausea 78 hours after having an appendectomy. The client has a history of Type II Diabetes treated with glargine each night and substance use disorder. The client has been abstinent from substance use (alcohol/opioids) for the last 6 months until he had surgery 3 days ago. The client states that they ran out of pain medication > 24 hrs. ago. Abdominal incision intact. Abdomen soft. VS: T 98.0 (36.7 C), HR 100, BP 132/76, RR 20, pulse oximetry 98% on room air, Pain 9/10. Weight: 68.9 Kg (152 lb.) | | | |
| **Medications** |
| Home Medications   * Insulin Glargine 20 units SQ nightly * Oxycodone/acetaminophen 5 mg/ 325 mg PO every 4-6 hours for pain * Ibuprofen 800 mg PO prn pain every 8 hours for pain (over the counter) * Acetaminophen 1000 mg PO q 6 hours for pain (over the counter) | | | |
| **Laboratory Report** |
| **Lab and Reference range** | | **Results** |
| **Glucose**  Normal 70 - 110 mg/dL | | 130 mg/dL |
| **Blood Urea Nitrogen (BUN)**  10-20 mg/dL | | 20 mg/dL |
| **Creatine (Serum)**  0.9 to 1.4 mg/dL | | 1.2 mg/dL |
| **Hematocrit**  Males: 42-52%; Females: 35-47% | | 44% |
| **Hemoglobin**  Males: 13-18 g/dL; Females: 12-16 g/dL | | 14 g/dL |
| **White Blood Cells**  4.5 – 10.5 x 103 cells/mm3 | | 10.2 103 cells/mm3 |
| **Platelets**  140,000 to 450,000/ mm3 | | 150,000 mm3 |
| **Alanine transaminase (ALT)**  <40 Units/L | | 41 Units/L |
| **Aspartate aminotransferase (AST)**  <37 Units /L | | 19 Units/L |
| **Alkaline Phosphatase**  30-120 U/L | | 129 Units/L |

* Complete the diagram by dragging from the choices below to specify what condition the client is most likely experiencing, 2 actions the nurse should take to address that condition, and 2 parameters the nurse should monitor to assess the client’s progress.

|  |  |  |
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| Action to take |  | Parameter to monitor |
|  | Condition most likely experiencing |  |
| Action to take |  | Parameter to monitor |
|  |  |  |
| **Actions to take** | **Potential conditions** | **Parameters to monitor** |
| Provide OCT medications use education\* | hepatoxicity | Pain medication usage\* |
| Request a surgery consult | a bowel obstruction | Weekly liver functions |
| Obtain a urine toxicology screen | withdrawal from opioids\* | Pain characteristics \* |
| Request a pain management consult\* | a post-operative infection | Daily temperature |
| Obtain wound cultures |  | Incision site |

Rationale: Nausea, tremors, severe lower back pain can be indicators of many conditions. However, the combination of these symptoms, in conjunction with the client’s history of substance abuse disorder, and discontinuation of pain medication is indicative of opioid withdrawal. A bowel obstruction would most likely include other abdominal symptoms. Client is afebrile and has a normal WBC, so infection is less likely to be of concern. The client is at risk for hepatotoxicity based on the acetaminophen dose and history of alcohol use, but the liver functions are only slightly elevated making hepatoxicity less likely. The client most needs a pain management consult to adjust medications and education about using OTC medications that may also include ibuprofen or acetaminophen. Surgery consult and wound cultures are not needed. Getting a urine toxicology screen is inappropriate for this client (Clinical Key, 2022). The nurse should monitor the client’s pain and pain medication use. Pain control does affect wound healing, but given the client’s history, this is not the main issue. Daily temperatures are not needed. The liver functions are only borderline elevated and does not require weekly monitoring.