Open RN Virtual Reality Scenario Plan

ADMINISTERING NITROGLYCERIN TO A CLIENT WITH CHRONIC ANGINA

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Scenario Overview

Bjorn McClelland is a resident who was admitted to a Long-Term Care (LTC) setting yesterday. He has a history of chronic stable angina, hypertension, and heart failure. As his morning medications are prepared to be administered, he complains of chest pressure. Students must perform appropriate focused assessments, apply the nursing process, and use clinical judgment to provide safe, effective care.

Learning Objectives

1. Obtain and interpret vital signs
2. Perform a focused assessment for chest pain
3. Administer nitroglycerin safely and effectively
4. Apply the nursing process to a client experiencing chronic chest pain
5. Communicate therapeutically with a client experiencing chest pain

Curriculum Alignment

WTCS Nursing Program Outcomes

- Integrate professional nursing identity reflecting integrity, responsibility, and nursing standards
- Communicate comprehensive information using multiple sources in nursing practice
- Integrate theoretical knowledge to support decision making
- Integrate the nursing process into patient care across diverse populations
- Function as a healthcare team member to provide safe and effective care

Nursing Fundamentals Course Competencies

- Maintain a safe, effective care environment for adults of all ages
- Adapt nursing practice to meet the needs of diverse patients in a variety of settings
- Use appropriate communication techniques
- Use the nursing process

Nursing Pharmacology Course Competencies

- Apply components of the nursing process to the administration of cardiovascular medications

Nursing Skills Course Competencies

- Administer medications via the enteral and/or transdermal route

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Scenario Setup

Scene

- Room in long term care center

Patient

- Elderly Male
- Wearing pajama pants and undershirt
- Allergy band present (no patient ID band - see image on MAR)
- No oxygen or IV in place

Settings

- Vitals: Blood Pressure: BP: 165/84, HR: 56, RR 18, Temp:37.2 degrees C, O2 sat 95% on room air
- Lung sounds: clear
- Heart sounds: regular rhythm

Assets

- WOW cart has: BP Cuff, Pulse Oximeter, Thermometer, Stethoscope, Scissors, 30 cc medication cups, drinking glass and straw

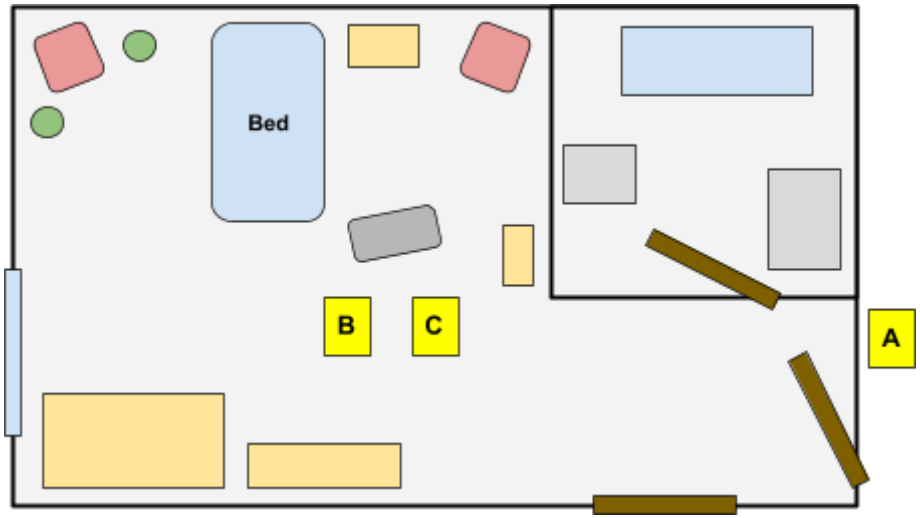
Medications

- Nitroglycerin 0.2 mg/hr Transdermal daily
- Furosemide 20 mg PO once daily
- Docusate sodium 240 mg PO daily
- Candesartan cilexetil 8 mg PO daily
- Clopidogrel bisulfate 75 mg PO daily
- Magnesium citrate 400 mg/5mL PO
- Acetaminophen 650 mg PO every 4 hours for pain or fever PRN
- Nitroglycerin tablets 0.4 mg (1/150) SL PRN for chest pain. May repeat every 5 minutes x 2 for up to 3 tablets

EMR Chart Forms

- Provider Orders
- MAR
- Progress Notes

Scenario Map



A. Spawn point
Student begins the scenario outside of the room in the hallway.

B. Patient
The patient is sitting in a wheelchair near the bed. The patient can be animated and controlled via the Simulation Manager.

C. Workstation on Wheels/EHR and Medications
The screen asset is interactive, with arrow keys on both sides of the screen to flip through different charts. There is equipment on top of the cart, including a stethoscope and blood pressure cuff. The drawer of the cart can be opened and closed using the button next to the drawer handle. Medication assets in the drawer can be picked up and moved. A rosary is lying on the bedside table.

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State 1

Bjorn was just previously transferred from his bed to the wheelchair in preparation for breakfast. He has a remote in his hand and the TV is on with a loud volume. There is a rosary on the side table. Students should perform the appropriate cardiac, lung, and pain assessments before administering cardiac medications while also communicating therapeutically to address Bjorn's concerns.

Students receive a handoff report from the night nurse: "Bjorn McClelland is a 81 year old male admitted yesterday afternoon from the hospital. He was admitted to the hospital from home for pneumonia and heart failure exacerbation. He has a history of heart failure, hypertension, and chronic angina. He had a cardiac cath a few months ago with stents placed. His gait is slow and unsteady and we asked him to use his call light when getting in and out of bed. He voided twice during the night. His vital signs were stable yesterday. His heart and lung sounds were normal and he had a bowel movement yesterday in the hospital. We just got Bjorn up in his wheelchair to get ready to go to breakfast. He wanted to watch TV while waiting. He said the food here is tasteless and not very pleasant. We asked the nutritionist to come visit him today.

Events	Expected Student Behaviors	Prompts, Questions, Teaching Points
State 1: Assessment **Scenario Settings** • Scenario time: 0820 • HR – 88 normal sinus rhythm • BP – 134/90 • RR – 22 • Temp – 98.4 C • SpO2 - 96% RA • Slightly diaphoretic • Lung Sounds – clear but diminished • Chest pressure: rates 6/10 with no radiation **Technician Prompts** Patient is slightly anxious about the chest pressure he is experiencing. If the student doesn't introduce themselves, ask them who they are. If students begin to assess the chest pressure, corresponding responses include: • "I can't seem to catch a deep breath." • "The pressure is in the middle of my chest."	• Introduce themselves to the patient • Perform hand hygiene • **Critical behavior:** Verify patient identity with name, date of birth and patient picture in the MAR • Obtain and interpret vital signs • Communicate therapeutically regarding patient concerns • Perform a focused cardiac, lung, and pain assessment • Verify the previous Nitroglycerin patch was removed; if not, take it off after applying gloves • Review orders for medications to treat chest pressure • Administer scheduled medications based on assessment • Notify provider of any abnormal findings using SBAR format	**Suggested Facilitator Questions:** (based on NCSBN's Clinical Judgment Model) **Recognize Cues:** What do you know about this patient? -What psychosocial data do you know about this patient that can be incorporated into the nursing care plan (support from family/friends, spiritual resources, developmental stage, etc.)? -How does the patient feel now? What is a priority to them? -What clinical cues did you recognize that require nurse follow-up? -What do the assessment findings mean in terms of physiological significance? -Is there any additional information you need to collect before administering medications? Why? **Analyze Cues:** -What problem is most likely? -What problem is most important to manage first? -Is there any additional clinical data needed to identify the priority problem?

• "This is what it felt like last time when they gave me that little pill." • "The pain started when I got up." • "Moving around makes it worse." If students do not use appropriate therapeutic communication to address Bjorn's concerns, he becomes increasingly anxious about his chest pressure and his agitation continues to escalate until appropriate therapeutic techniques are used.		-Is the patient at risk for developing any complications? **Prioritize Hypotheses and Generate Solutions:** -What are the priority nursing problems for this patient at this time? -Should any assessment findings be communicated to the provider? -Are any new provider orders anticipated/desired? -What are the desired SMART outcomes for this patient? -What interventions are indicated to achieve the desired outcomes? -What order should things be accomplished for safe and effective care?
State 2A: Implementation of Interventions If students administer sublingual nitroglycerin, his pain and anxiety gradually improve. VS change to: • HR – 84 normal sinus rhythm • BP – 132/82 • RR –16 • SpO2 - 97% RA Responses include: • "That tingles under my tongue." • "I feel a little better now." • "My pain is 2 out of 10." • "I can breathe better." • "I have a bit of a headache." (rates 2 out of 10)	• **Critical behavior:** Vital signs must be analyzed before administering nitroglycerin.	**Suggested Facilitator Questions:** **Taking Action/Implementing Interventions** -What intervention(s) is/are needed immediately? -What intervention(s) can be safely delegated? (CNA/LPN) -What should be taught to the patient/family to promote health? -What medication(s) need to be administered to address the most important priority? -What information should be included in an SBAR report to interprofessional team members or during the shift handoff report?
State 2B If students only place the scheduled nitroglycerin patch, his pain minimally improves and he becomes more anxious. VS change to: • HR – 106 normal sinus rhythm • BP – 158/92	• **Critical behavior:** Vital signs must be analyzed before administering nitroglycerin.	

• RR – 26 • SpO2 - 95% RA Responses include: • "The patch isn't working." • "My pain is still a 5." • "I need something to stop this pain." • "My wife knows what to do. I should be home where she can take care of me."		
State 2C If the students place the nitroglycerin patch and administer sublingual nitroglycerin at the same time: VS change to: • HR – 106 normal sinus rhythm • BP – 88/62 • RR – 22 • SpO2 - 95% RA Responses include: • "I'm feeling lightheaded."		

State 3
Evaluate patient response
(In "real time," after 25 - 40 minutes, but "sim time" may be compressed)
 	
• If only the patch was placed,
 	
• If nitroglycerin sublingual was administered, VS change to:
  ○ HR – 76 normal sinus rhythm
  ○ BP – 118/76
  ○ RR –16
  ○ SpO2 - 97% RA
• Responses include:
  ○ "I am feeling better."
  ○ "When is breakfast coming? It is my favorite meal. I hope it is good!"
  ○ "Why do you keep taking my blood pressure?
	• Reassess vital signs and chest pain
	• If nitroglycerin sublingual was previously administered, the patch should be applied.
	• Administer remaining scheduled medications.
	
	• (optional) Give SBAR Report to oncoming shift
	• (optional) Document assessments and interventions using school's EMR
		Suggested Facilitator Questions:
		Evaluate:
		-Were the desired SMART outcomes achieved? Why or why not?
		-What findings indicate the interventions were effective (or not effective)?
		-Did the patient respond as expected? If not, what happened and why?
		-What is the current nursing priority?
		-What nursing intervention is needed next?
		-How did teamwork/ interdisciplinary care help with the patient's status?
		-What were the critical decision-making points during this scenario?
		-When situations like this are encountered, you should first…then…then what next…?

Scenario Debrief

1) Encourage students to express their emotional reaction: "How do you feel this scenario went?" (Allow students to vent their emotional reactions.)
2) Apply the Nursing Process and the NCSBN Clinical Judgment Model to the scenario:
    a) What clinically significant cues did you recognize when you initially assessed Bjorn?
    b) What priority nursing problems and/or hypotheses did you develop based on your assessment findings?
    c) What decisions did you make? Why were those decisions made at that time?
    d) What SMART outcomes did you establish for this patient?
    e) What therapeutic communication techniques did you use? Were they effective?
    f) What nursing interventions were implemented to address the clinical concerns? Were they effective (or not effective)?
    g) Evaluate the interventions provided during this simulation based on the SMART outcomes. What was accomplished? What could be improved?
3) Summarize/Take away Points: "In this scenario you administered nitroglycerin to a patient with chronic angina."
    a) **Thinking-In-Action:** What were the critical decision points during this scenario?
    b) **Thinking-On-Action:** What would you do differently if you could repeat this scenario? Name 3 things you learned from this scenario that you will include in your future nursing practice.
    c) **Thinking-Beyond-Action:** How would you respond if Bjorn experienced different symptoms during this scenario, such as fine crackles in the lung bases, increased respiratory rate, decreased oxygen saturation, and a rapid heart rate? Would nitroglycerin still be appropriate? What other nursing interventions would receive priority?

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Survey

Please share this hyperlink with students or print this page and provide it to them.

Please complete a brief (2-3 minute) survey regarding your experience with this VR simulation. There are two options:

1. Copy and paste the following survey link into your browser: https://forms.gle/fM2HfhzyQ6qma2Mj8
2. Scan the QR code with your smartphone to access the survey

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Suggested Scenario Rubric & Feedback

Student Name Date

	3	2	1	0
Patient Interaction Communicate therapeutically	Successfully utilizes therapeutic communication to address patient concerns and deescalates agitated behavior.	Mostly successful in utilizing therapeutic communication although the patient's agitation is not completely resolved resulting in some barriers to communication.	There is some struggle in utilizing therapeutic communication, with a lack of understanding of how to respond appropriately to increasing agitation.	Failure to communicate therapeutically with the patient results in escalation of agitated behaviors and a failure to complete all learning objectives of the scenario.
Patient Education Information is provided to the patient	Communicates relevant information to the patient in an accurate and timely manner. Patient understanding is verified appropriately.	Information is communicated to the patient but patient understanding is not verified.	Information is provided to the patient but key pieces are missing according to expectations for this level of learner.	Information is not communicated to the patient.
Assessment Appropriate focused assessments are obtained accurately	Accurately performs appropriate focused assessments	Most of the relevant focused assessments are performed accurately.	Some relevant focused assessments are performed but not all relevant data is gathered according to expectations for this level of learner.	Relevant data is either not collected or erroneously obtained.
Analysis Assessment findings are accurately analyzed and acted upon.	Analyzes and articulates relevant data indicating clear comprehension.	Most of the relevant data is analyzed accurately. Comprehension of the data findings is mostly articulated, although there may be small oversights that do not impact patient safety.	There are noticeable gaps in analyzing relevant data or articulation of assessment findings indicates incomplete comprehension according to expectations for this level of learner.	There is clear inability to accurately analyze relevant data or accurately articulate comprehension of findings according to expectations for this level of learner.
Implementation of Interventions Procedures and interventions are performed safely	Safely plans and performs appropriate interventions, including medication administration, supported by accurate rationale.	Successfully completes the scenario objectives and administers appropriate medications safely, although some interventions may not be fully implemented or rationale for performing them cannot be fully articulated.	The learning objectives of the scenario are only partially completed or there are notable errors when implementing procedures.	Scenario objectives are not completed or there are significant lapses in patient safety.
Evaluation Patient responses are evaluated	Evaluates patient response to interventions accurately and in a timely manner.	Some patient responses to interventions may not be fully evaluated.	There are significant gaps in evaluating patient responses to interventions.	Patient responses to interventions are not evaluated.

References

1. Nursing Pharmacology by Open RN is licensed under CC BY 4.0
2. Nursing Skills by Open RN is licensed under CC BY 4.0
3. Nursing Fundamentals by Open RN is licensed under CC BY 4.0
4. Dreifuerst, K. (2015). Getting started with debriefing for meaningful learning. *Clinical Simulation in Nursing, 11*(5), 268-275. https://doi.org/10.1016/j.ecns.2015.01.005
5. National Council State Boards of Nursing (NCSBN). (n.d.).Next Generation NCLEX Project. https://www.ncsbn.org/next-generation-nclex.htm
6. Kannam, J. P., Aroesty, J.M., & Gersh, B. J. (2022). Chronic coronary syndrome: Overview of care. *UptoDate*. Retrieved April 27, 2022, from https://www.uptodate.com/
7. Kannam, J. P., & Gersh, B. J. (2022). Nitrates in the management of chronic coronary syndrome. *UptoDate*. Retrieved April 27, 2022, from https://www.uptodate.com/
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