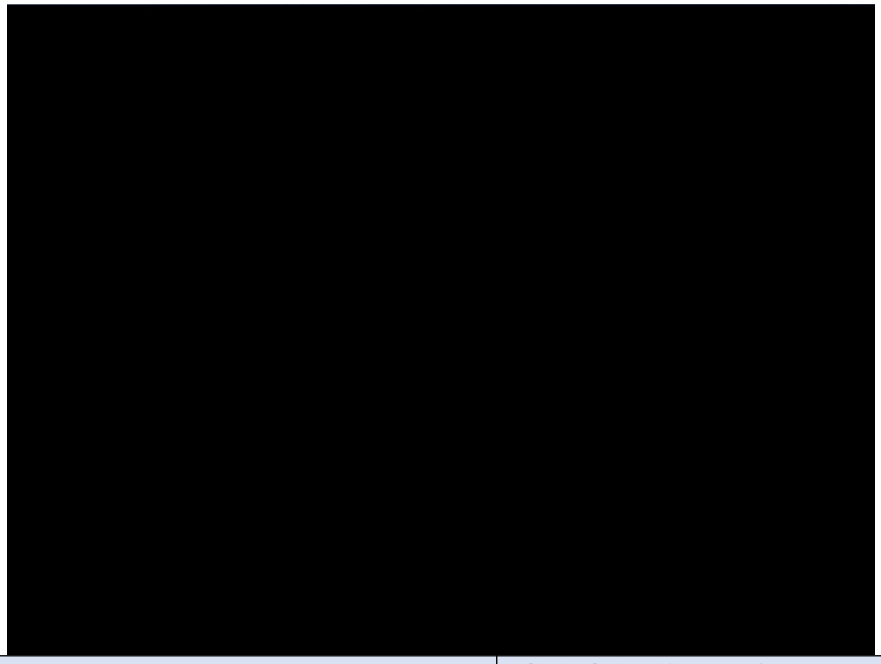

Detail	Clinical Significance/Impact
It is Saturday afternoon (Time 1400), and you are working in a busy emergency department	
History of present illness: You are caring for Michele, a 25-year-old female. She arrived from the ski resort and complained of right arm pain. She reports throbbing pain, scored at 10/10. She is afebrile and vital signs are stable. **Allergies**: Clindamycin and Ambien	More information on aggregating factors should be explored. Swelling may indicate a displaced fracture.
Social History (from Michele) Michele lives out of state and is visiting the local ski resort. She is accompanied by her boyfriend. She was skiing on a mountain when she accidentally went down an advanced hill instead of a beginner hill. She fell and braced herself with her right arm when she fell. She reports not hitting her head. This happened on Friday, but the pain is so bad she decided to come into the hospital. She is active and healthy.	Risk factors for diaphyseal forearm fractures include sports participation, postmenopausal status, osteoporosis, and frequent walking on icy surfaces. Most ulna/radial fractures (stable, simple, and isolated) are secondary to a direct blow and can be treated with a cast. Open fractures are treated with internal or external fixation.
Detail Medical History	**Clinical Significance/Impact**
Medical History: generalized anxiety disorder **Surgical history:** none	• With the given history, the nurse might spend time calming her down and treating her anxiety prior to treatment. • Pertinent negatives include postmenopausal status and osteoporosis.

Subjective History	**Clinical Significance/Impact**
Subjective History (from Michele): Michele is anxious. She tried a hot bath which helped the pain momentarily but was unable to sleep last night due to the throbbing pain. She has anxiety and reports treating it with CBT therapy and mindful exercises. She denies smoking cigarettes but admits to social drinking. She is up to date on her influenza vaccination.	Heat therapy promotes blood flow, causing greater swelling and thus, increased pain. Anxiety can be treated in with non-pharmalogical methods such as cognitive behavioral therapy and other exercises. People 6 months and older are eligible to receive the influenza vaccine.
Nursing Assessment: What assessment data is importuning?	**Clinical Significance/Impact**
	Vital Signs: Gathering a baseline vital sign data set will assist with documenting changes. VS also help assess pain. **Circulatory status:** The blood supply to the forearm arises mainly from the brachial artery, which crosses from the medial upper arm into the antecubital fossa, where it divides into multiple branches; therefore, proficient radial pulse checks are needed. **Musculoskeletal status:** Examine symmetry of the joints, muscles, and bones. Assess for swelling, redness, and ease of movement. Palpate over the joints to assess for warmth or tenderness. Also check grip strength. Physical examination begins with visual inspection, which may reveal swelling and an obvious deformity, suggesting a displaced fracture, or a wound overlying the fracture site (i.e. open fracture) requiring immediate surgical evaluation. Palpate gently on the affected extremity. Probing open fractures should be avoided to prevent further contaminating the wound. **Pain**: assess pain, duration, type and alleviating or aggravating factors associated with pain.

Detail	Clinical Significance/Impact
Objective Data **General Appearance:** Michele appears well but in pain. She is sitting up in bed at a 90° angle. She has clear speech and is coherent. Temp: 98.7°F BP: 120/80 mmHg HR: 105 bpm RR: 16 SpO2: 100% on RA **NEURO:** Alert and oriented x4. GCS 15. PERRLA. **CARDIAC:** Mucous membranes are pink. Capillary refill <3 seconds. Apical HR mild tachycardia. Peripheral pulses palpable x3 at +2. Right radial pulse +1. RUE edema. No murmur. **RESP:** Lungs auscultated on the anterior and posterior: Clear. No stridor. Respirations are symmetrical and unlabored. **GI:** Abdomen is flat, soft and non-tender in all quadrants. NABS x4. Last BM was today. Positive for nausea, negative for vomiting, or diarrhea. **GU:** Voids painlessly and without hesitation. Urine clear yellow. Non-odorous. No sediment. **Musculoskeletal:** Moves LUE, RLE, LLE, extremities without overt deficits. RUE is swollen, red, warm to touch with a slight deformity. Ambulates independently. **Integumentary:** dry and intact. RUE contusion. **Psychosocial**: Anxious affect, boyfriend at bedside.	**What data from Michele's assessment and recent clinical history is significant?** **What diagnosis do you suspect?** The following symptoms are consistent with **Ulna and/or Radius fracture:** • Pain • Possible deformity • Mechanism involved trauma • Soft tissue trauma in the affected extremity is common • Skin may include lacerations, superficial and deep muscle contusion. • Palpation reveals focal tenderness at the fracture site and possibly deformity. • Severe pain and a tense muscle compartment at the fracture site raise suspicion for an acute compartment syndrome, which is a surgical emergency and must be investigated promptly.
You receive the following orders from the provider.	**What is the clinical significance or impact of each?**
Radiograph of the right forearm	Confirms the fracture of the radius, ulna, or styloid.
Pan CT scan (full body)	A full body CT scan used in serious unknown injury cases such as trauma. Pan stands for panacea, meaning whole or entire. This scan will identify fractures, injuries, and internal bleeding.

The RN receives the following orders from the provider.	**Clinical Significance /Impact of each**
Administer pain medication	Treat arm pain with oral NSAIDs.
Prepare for closed reduction	When a fracture angulation exceeds 10 degrees or displacement exceeds 50 percent the provider may attempt reduction manually. The nurse can prepare the patient for this procedure by cleaning the arm with CHG and educating the patient on what to expect.
Apply soft cast after reduction	After satisfactory alignment is achieved, the fractured arm is placed in a long-arm posterior splint with the elbow at 90 degrees and the wrist in neutral (without supination or pronation) and slight extension.
Diagnostic Test Results	**Clinical Significance/Impact**
Radiograph of right arm	Linear transverse closed fracture of the distal radius
Pan CT scan (full body)	Negative for cranial, thoracic, pelvic or abdomen damage.
Family Education	**Clinical Significance/Impact**
1. The provider informs Michele that she has a closed radius fracture. What should the provider educate the patient on regarding the difference between open and closed fractures? **2. How long will the soft cast be on?** **3. Michele asks, "Why can't I get a hard cast now?**	1. An open fracture (compound fracture) is when the bone breaks the skin and can be seen, or a deep wound expose bone through the skin. A closed fracture (simple fracture) is when the bone is broken but the skin is intact. 2. Seven to ten days 3. Circumferential casts should generally not be placed until at least 72 hours after the injury to minimize the risk of compromised circulation. Complication can arise should additional swelling develop within the cast.
Case Study Continued	**Clinical Significance/Impact**
Michele is being transferred to the observation unit to be observed for 24 hours. She has a soft cast on and has been given acetaminophen 1,000 mg at 1700. She complains of pain at 8/10 in the right arm. You review Michele's most recent diagnostic scans and presenting symptoms. You prepare to call report to Josie, RN. Michele's vital signs are stable. She is slightly tachycardic due to pain response. She does not have an IV currently. Her boyfriend is at bedside.	• Pain management is needed. Michele may need a one-time dose of a stronger pain medication. • A peripheral IV may be started for IV fluid and other IV medications as needed.

Considering Michele's history, what information is important to include in handover? Practice using the SBAR format.
Situation: Michele is a 25-year-old female, who came to the ED after a ground level fall on the ski slopes 1 day ago. She reports right arm pain. Workup thus far confirms right, distal, closed radial fracture. No other trauma noted on Pan CT scan. **Background:** PMH includes generalized anxiety disorder, managed with cognitive behavioral therapy and anxiety exercises. She is allergic to clindamycin and Ambien. A closed reduction was completed at bedside. The patient tolerated well, but still reports pain. A soft cast has been placed on right arm. **Assessment:** Patient is alert and oriented x4. GCS 15. PERRLA Mucous membranes are pink. Capillary refill <3 seconds. Apical HR mild tachycardia. Peripheral pulses palpable x3 at +2. Right radial pulse +1. RUE edema. No murmur. Lungs auscultated on the anterior and posterior: Clear. No stridor. Respirations are symmetrical and unlabored. Abdomen is flat, soft and non-tender in all quadrants. NABS x4. Last BM was today. Positive for nausea, negative for vomiting, or diarrhea. Voids painlessly and without hesitation. Urine clear yellow. Non-odorous. No sediment. Moves LUE, RLE, LLE, extremities without overt deficits. RUE is swollen, red, warm to touch with a slight deformity. Ambulates independently. Skin is dry and intact. RUE contusion. Anxious affect, boyfriend at bedside. **Recommendation:** 24-hour observation. Orthopedics team consulted. Manage pain. *Rationale: Orthopedics consult is standard for a bone break and trauma patient. A follow up appointment is needed to review the need for surgery and to see if bone is healing properly. After the initial 7- to 10-day period of immobilization, the cast or splint is removed, and the patient is placed in a functional forearm cast for four to six more weeks.*

Medication Administration	**Clinical Significance/Impact**
What medication orders will be anticipated and why?	**NSAIDS:** a nonsteroidal anti-inflammatory drug (NSAID) is used to treat pain (ibuprofen, naproxen, and acetaminophen). **Opioids**: If NSAIDs do not control pain, opioids may be given temporarily (hydrocodone, oxycodone, and morphine).
Medication Administration	**Clinical Significance/Impact**
1. What are some potential side effects and risks of opioid pain medications? **2.** How many days are opioids prescribed for acute injuries?	**1.** What are some potential side effects and risks of opioid pain medications? - Tolerance - Constipation - Nausea and vomiting - Dry mouth - Sleepiness - Dizziness - Physical dependence (withdrawal symptoms) - Confusion - Depression - Itching **2.** For acute pain, treatment is usually for 3 days or less.
What nursing interventions will be implemented?	**Clinical Significance/Impact**
Administer medications	Assess response to medications and notify health care provider of complications. Teach about newly prescribed medications and potential side effects.
Elevate affected limb	Use pillows to raise the cast above the level of the heart. The patient may need to recline in order to achieve this.
Apply ice	Loosely wrap an ice pack covered in a thin towel around the cast at the level of the injury. It is important to keep the cast dry.

Test your knowledge!	Clinical Significance/Impact
1. **What are the two main types of hard casts?**	1. **Plaster and fiberglass** are the two types of hard casts. Plaster casts are easier to mold for some uses than fiberglass casts. Plaster casts are also generally less expensive. Fiberglass casts are typically lighter and more durable than plaster casts. Also, X-rays penetrate fiberglass casts better than plaster casts — making it easier for your doctor to examine your bones while still wearing the cast.
2. **What are signs of complications after a hard cast is placed?**	**2. Hard Cast Complications** - Increased pain and tightness in the injured limb. - Numbness or tingling in the injured limb - Feeling of burning or stinging under the cast - Unable to move fingers of injured limb or become blue and cold - Cast feels too tight or too loose - Develops red or raw skin around the cast - Develops a crack, soft spots, or a foul odor in the cast - Casts gets too wet
3. **What are complications of fractures?**	**3. Complications of Fractures** - Complications of fractures include nerve injuries, wound infection (in open fractures), acute compartment syndrome, myositis ossificans, malunion, nonunion, radioulnar synostosis and symptomatic surgical hardware.

Discharge Instructions	**Complications/Clinical Significance**
You are preparing discharge instructions for Michele. She was observed in medical observation for 24 hours with no acute changes. Pain is controlled with hydrocodone. A follow up appointment with the Orthopedics clinic is scheduled for 1 week to place her hard fiberglass cast. Her boyfriend is here to take her home. She is requesting a doctor's note for school and work. She works at Amazon, loadin0 20-50 lbs boxes. The following are prescription medications for Michele at the time of discharge: Medication | Dose | Indication Hydrocodone | 5/325 mg Q4-6 PRN | Pain What instructions will be included for her at discharge?	Pain management: Provide instructions on how to taper opioids to minimize withdrawal symptoms. Schedule physical therapy: Rehabilitation typically begins once a cast is no longer needed or immediately following surgical fixation. The major goals of rehabilitation are to help the patient regain pain-free function, full range of motion, and full strength in the injured extremity. Return to work/school note: Return to work or sport requiring heavy or repetitive upper extremity loading typically requires 12 to 16 weeks of healing and rehabilitation. Return to work that places few demands on the upper extremity typically requires 8 to 12 weeks. Orthopedics clinic follow up appointment: Follow up radiograph in 1 week to confirm proper alignment and healing should be obtained at one week and then monthly until healing is complete (roughly 8 weeks total).

NCLEX-style Bonus Question:

The nurse is caring for a client with an open fracture to the right, distal radius who just received an internal fixation. The client is post-op 12 hours. What symptom reported by the client should the nurse report to the health care provider **immediately**?

Answer Choices

A. The client reports pain 10/10
B. The client reports a deep ache
C. The client reports burning pain
D. The client reports paraesthesia in right arm

Rational:

Correct Answer D: Paraesthesia is the most concerning symptom of ACS and suggests ischemic nerve dysfunction. At this point, the other more subtle clues have passed.

Incorrect Answers:

Option A: Pain out of proportion to apparent injury is an early and common finding of ACS.
Option B: Persistent deep ache is an early sign of ACS.
Option C: Persistent burning pain is an early sign of ACS.

NCLEX category: Reduction of Risk Potential

NCLEX topic: Potential for Alterations in Body Systems

Category of client need: Identify client with increased risk for insufficient vascular perfusion
Educational Objective: Acute compartment syndrome generally appear in a stepwise fashion. Important clues to the development of ACS include rapid progression of symptoms and signs over a few hours and the presence of multiple findings consistent with ACS. The nurse will understand increased risk of insufficient vascular perfusion.
Reference: Elliott KG, Johnstone AJ. Diagnosing acute compartment syndrome. J Bone Joint Surg Br. 2003 Jul;85(5):625-32. PMID: 12892179.

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