How to Write Case Study Questions

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1

Disclosures

- CEO Hensel Nursing Education Consulting
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2

Learning Objectives

Session Description: In this session, using a case study, participants will choose an appropriate test item type for each step of a clinical judgment model. Participants will be given the opportunity to practice writing questions for the case study.

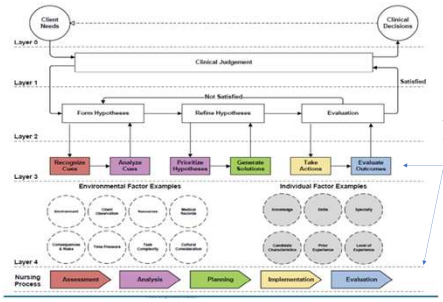
Session Learning Objectives:
After engaging in this session, the participant will be able to:

1. Write test questions for each step of a clinical judgment model.
2. Write a Case Study with test items for their course Identify, analyze and construct appropriate use of new test item/s based on the case study

3

NCSBN Clinical Judgment Assessment Model

- Designed to test clinical judgment and decision-making in a largescale, high-stakes setting
- Supports NGN item development
- Can be adapted for teaching



NGN focuses on layer 3&4

4

RN and PN NGN Test Plan

- Variable length computer adaptive exam with test length of 85-150 items
  - 15 unscored items in 1st 85 can be a mix of standalone and case study items
- First 70 graded question include:
  - 3 6-item NGN cases (18 questions)- exam does not adapt during a case
  - 52 stand alone items
- Additional 65 items (86-150) will be all standalone items
  - 10% will be NGN standalone items (trend/bow-tie) to test Clinical Judgment
    - Trends can be tested with any NGN item format except bow-tie
  - 90% will be to knowledge items to test Client Needs
    - Knowledge items can be tested with any item format except bow-tie
- Test will be 5 hours
  - Cases are not anticipated to take extra time (about 2 minutes/question)
- New test plan anticipated April 1, 2023; Beta testing will start in 2022

NCSBN 2021 NCLEX Conference

5

Planning a Case

6

General

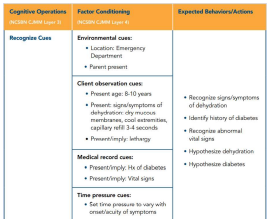
- Cases information is always presented as an electronic medical record (EMR)
  - Cases can have from 1 to 6 EMR tabs
  - Cases unfold and new information can be added at any point
- Cases have 6 questions; 1 for each clinical judgment action in order
  1. **Recognize cues**
  2. **Analyze cues**
  3. **Prioritize hypotheses**
  4. **Generate solutions**
  5. **Take action**
  6. **Evaluate outcomes**

➢ Arrows signal the question lead in statement

7

Approaches to Creating A Case

- Develop a client-care situation an entry-level nurse may encounter
  - High frequency
  - Low frequency but high risk
- May start with an existing case
  - Textbook case
  - Simulation scenario
- Or use a template to build a case

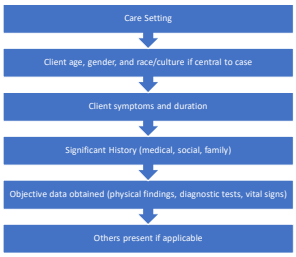


Cognitive Operations (NCSBN CJMM Layer 3)	Factor Conditioning (NCSBN CJMM Layer 4)	Expected Behaviors/Actions
Recognize Cues	**Environmental cues:** • Location: Emergency Department • Parent present	• Recognize signs/symptoms of dehydration • Identify history of diabetes • Recognize abnormal vital signs • Hypothesize dehydration • Hypothesize diabetes
	Client observation cues: • Present age: 8-10 years • Present: signs/symptoms of dehydration: dry mucous membranes, cool extremities, capillary refill 3-4 seconds • Present/imply: lethargy	
	Medical record cues: • Present/imply: Hx of diabetes • Present/imply: Vital signs	
	Time pressure cues: • Set time pressure to vary with onset/acuity of symptoms	

Sample planning sheet from NGN_Spring19_ENG_29Aug2019.pdf (ncsbn.org)

8

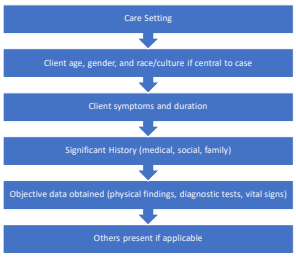
Developing Relevant Context (CJM Layer 4)



- A school
- 9- year-old male
- Sweating and confused in gym class
- History of type I diabetes, takes premix insulin 30% regular & 70& NPH twice a day, last dose was 3 hours ago
- The gym teacher brought the client to nurse

9

Add Some Additional Less Relevant Details



- The client was sick yesterday and missed school.
- He needed extra insulin yesterday when he was sick.
- Last blood glucose was 120mg/dL this morning before breakfast

10

Caution about Adding Patient Characteristics

- Characteristics of a patient such as age, sex, gender identity, disability, socioeconomic status, native language, country of origin, ancestry and/or occupation are sometimes added to cases.
- Adding client characteristics to questions does not automatically make the question about culture or diversity and may have negative consequence of contributing to negative stereotypes.

Modified from NBME (2021)

11

Add Characteristics with Focus on Clinical Judgment

- Characteristics should be clinically relevant or improve distractors.
  - Questions about childhood development need an age to determine if a finding is normal.
- Add any characteristics that are necessary to understand why the patient is being seen.
  - A client with a physical disability may be seen for changes to their assistive devices.
- Add characteristics to increase the probability that the nurse will recognize client risks especially if the condition might be rare.
  - Risk of Tach-Sachs disease may not be identified if you don't know the client has a Jewish background.
- Add characteristics that require a different approach to care.
  - Transgendered clients require gender affirming care.
  - Clients speaking a native language other than English may require an interpreter.
- Do not add characteristics that perpetuate negative stereo types.
  - Stating the homeless client without specifying a race perpetuates less stereotyping than saying the black homeless client.

Modified from NBME (2021)

12

Build the Case in to an EMR

Possible Data

- Age, gender
- Care environment
- Presenting symptoms
- Duration of symptoms
- Significant history (medical, psycho-social, family)
- Physical findings
- Diagnostic tests if applicable
- Treatments used
- Any family or support persons present if applicable
- Initial treatment and subsequent findings if applicable

Possible EMR Pages (up to 6)

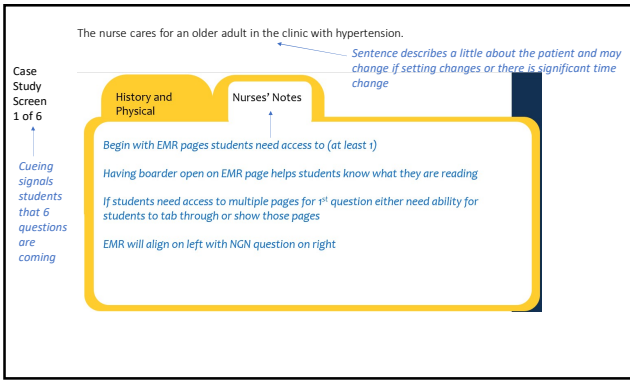
- Nurses' Notes
- History and Physical
- Laboratory Results
- Vital Signs
- Admission Notes
- Orders
- Intake and Output
- Progress Notes
- Medications
- Diagnostic Results
- Flow Sheet

13

EMR Pages

- All tabs may all be present at beginning or may be added as case unfolds.
  - EMR for 1st question should present a good overview of the patient.
  - Consider: Nurses' Notes, Admission Notes, or History and Physical
- Amount of information needs to be reasonable.
  - May not need all parts a of a traditional lab combo.
  - Do not need entire order set.
  - Narratives should be a short paragraphs.
  - Consider moving information to other EMR pages if narrative is long.
- Information may be added to pages at any point.
  - Cueing is added to right whenever new information is added.
- Care setting may change.
  - The introductory sentence may need to change with change settings or time.

14



15

The nurse cares for an older adult in the clinic with hypertension.

Case Study Screen 2 of 6

Up screen number with each new question

History and Physical | Nurses' Notes | Laboratory | Medications

May start with all pages
OR
Add pages as you need them up to 6

16

The nurse cares for an older adult in the clinic with hypertension.

Case study Screen 3 of 6

Labs must include reference ranges or normal values

Nurses' Notes | Vital Signs | Orders | Laboratory

LAB	VALUE	REFERENCE RANGE
Sodium	140	136-145
Potassium	3.2	3.5-5
Chloride	100	98-106
Blood Urea Nitrogen	20	10-20
Creatine	0.8	0.7-1.3
Glucose	85	70-110

17

The nurse cares for an older adult in the clinic with hypertension.

Case study Screen 6 of 6

Up screen number with each new question

Nurse's Notes | Vital Signs | Orders | Laboratory

Time 1 (start of case)

Use military time for cases

Time 2 (after intervention)

New information can be added at any time to existing pages.

The right side of the question layout should cue student to look for new information.

18

EMR Tabs Open New Pages

Case study Screen 3 of 6

Vital signs can appear as abbreviation

Nurses' Notes | Vital Signs | Orders | Laboratory

Post-Op Day 2	0800
T	99.9F/37.7C
P	90
RR	16
B/P	122/84
Pulse oximetry	97% on room air
Pain	2/10

19

Case Study Screen X of X

Introductory case sentence about client and setting

Nurses' Notes | Vital Signs | Orders

1615: Cast intact. Toes pink and warm to touch. Cap refill <2 seconds. Pedal pulse +1. States it hurts to wiggle toes. Rates pain 7 of 10. Leg elevated. Medicated with 1 mg morphine IV. Bowel sound present. IV of lactated Ringers at 120mL/hr in left arm.

1645: Cast intact. Swelling in Rt foot has increased. Toes are pink. Cap refill <3 seconds. Pedal pulse +1. States he can't wiggle his toes. Rates pain 8 of 10. Describes it as continuous, deep and throbbing. Leg elevated. Bowel sound present. Reports mild nausea. IV of lactated Ringers at 120mL/hr in left arm Has not yet voided.

NOTE: This is how NCSBN will set up. This layout may not work with your testing platform.

Question is on right

Right column tells student if new information should be considered

➢Arrows indicates lead in statement for question.

20

Writing 6 Questions

21

Determine What Actions You are Looking for

Focus on important entry-level knowledge and skills

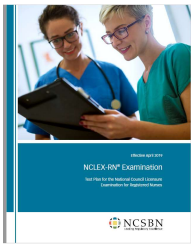
Identify specific actions nurses should take

Consider linking to activity statements and NCLEX test plan

- Recognizes S/S hypoglycemia
- Identifies history of diabetes & insulin use
- Hypothesizes an insulin reaction
- Obtains a blood glucose
- Give glucoses
- Reassess the client

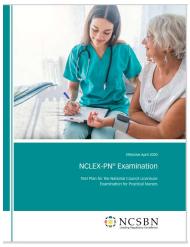
22

Question Stems can come from Detailed Test Plan Activity Statements



NGN focuses on testing clinical judgment rather than client needs.

However, using statements from the Detailed Test plan helps ensure that you are testing entry level practice.



https://www.ncsbn.org/testplans.htm

23

Sample PN: Coordinated Care Stems

Activity Statement	Possible Questions Stem
Provide information about advance directives	What information should the LPN/VN provide to the client about advanced directives?
Participate in client data collection	What additional data should the LPN/VN gather next?
Provide information to supervisor when client assignments need to be changed (e.g. change in client status)	What findings should the LPN/VN report immediately to the supervisor?
Organize and prioritize based on client needs	Which client should the LPN/VN see first?
Provide and receive report	What information should the LPN/VN include in the change of shift report?

https://www.ncsbn.org/testplans.htm

24

Sample RN: Management of Care Stems

Activity Statement	Possible Questions Stem
Perform procedures necessary to safely admit, transfer or discharge a client	What information should the nurse confirm before discharging the client?
Provide and receive hand off of care (report) on assigned clients	What information should the nurse include when handing off the client?
Assign and supervise care provided by others (e.g., LPN/VN, assistive personnel, other RNs	Which tasks should the nurse assign to an unlicensed assistive personnel?
Prioritize the delivery of client care	Which prescription should the nurse implement first?
Initiate, evaluate, and update plan of care (e.g., care map, clinical pathway)	After reassessing the client, what changes should the nurse make to the plan of care?

25

Question 1: Recognize Cues

Actions
- Observe and assess the client
- Obtain information from client's health record (history, labs, tests, prescriptions)
- Note vital signs—current and changes
- Identify signs and symptoms
- Differentiate relevant from irrelevant data
- Differentiate normal from abnormal
- Recognize what is most important and most urgent

Questions
- What matters most?
- What is abnormal, serious, or urgent?
- Which assessment findings need immediate follow-up?
- What are the top findings that require further investigation?

26

Question 2: Analyze Cues

Actions
- Cluster data
- Recognize patterns
- Recognize inconsistencies
- Link cues to client situation
- Recognize what is concerning and why
- Determine what other information is needed
- Consider possible causes
- Identify relevant pathophysiology

Questions
- What could it mean?
- Which client findings are consistent with a specific disease/problem?
- Which risk factors does the client have for specific disease/problem?
- What potential issues is the client at risk for developing?
- What are the possible problems/conditions the patient could be having?
- What additional information would be helpful in interpreting the findings?
- Why is a cue/cues concerning?

27

Question 3: Prioritize Hypotheses

Actions
- Narrow possibilities (one thing)
- Determine the most urgent priority
- Determine which hypotheses poses most risk to the client
- Provide evidence/rational to support conclusions
- Determine order of priorities

Note: Step 3 generally addresses what problem to address 1st.

Step 5 can more specifically address actions to take 1st

Questions
- Where should the nurse start?
- What is most likely happening?
- Which condition is the client's highest risk and why(what evidence)?
- What is the top complications the client is at risk for developing?
- Which problem/problems should the nurse address first?
- What will most likely happening if the nurse fails to act?
- *Note: Questions typically include phrases like "most likely," "greatest risk", or "highest risk,"*

28

Question 4: Generate Solutions

Actions
- Create a plan of care
- Determine desired outcomes
- Select multiple appropriate interventions
- Identify interventions to avoid
- Refine hypotheses if necessary
- Gather more information if needed
- Determine if others (team) need to be involved in the solution

Questions
- What can the nurse do?
- What is the best client outcome?
- What intervention/interventions will achieve the desired outcome?
- What additional information should be gathered?
- Which potential interventions are indicated or contraindicated?
- Which orders are anticipated?

29

Question 5: Take Action

Actions
- Requests a prescription
- Performs skills and procedures
- Administers medication
- Protects the client/family/staff
- Collaborates with team members
- Delegates to appropriate persons
- Communicates with team members
- Teaches client and families
- Documents care

Note: Step 5 questions will not focus on specific procedure steps that are published in text-books

Questions
- What will the nurse do?
- Which of the following actions should the nurse take?
- Which interventions/orders should the nurse implement first/ immediately?
- Which interventions should the nurse delegate?
- What steps should the nurse take to administer a medication/perform a procedure?
- What should the nurse teach the client?

30

Question 6. Evaluate Outcomes

Actions

- Compare observed outcomes to desired outcomes
- Recognizes changes in client status
- Determine effectiveness of action (meds, teaching, procedure)
- Determines which (assessments, vital signs, and labs etc.) requires follow up
- Determines if other interventions are needed

Questions

- Did the interventions help?
- Was the teaching understood?
- Which assessment findings indicate that the client's condition has improved, stayed the same, or declined?
- Which assessment findings indicate the client is not progressing as expected?
- Which assessments should the nurse make to determine if the treatments were effective?
- Which findings suggest the client is ready for discharge?
- What additional intervention should the nurse implement based on the findings?

31

Item Types

32

13 Case Study Item Types

Traditional Items	Extended Multiple response	Extended Drag-and-Drop	Drop-Down	Matrix /grid	Highlight (enhanced hot spot)
Multiple Choice	Select all that apply	Cloze	Cloze	Multiple response	Text
	Select N	Rationale	Rationale	Multiple choice	Table
	Grouping		Table		

NCSBN Publisher Summit, 2020

33

Recommendations for Using Item Types

Step	Ideal	Consider Avoiding
Recognize Cues	Highlight text or table Select all that apply or Select N	Multiple choice Rationale or Cloze Matrix
Analyze cues	Select all that apply or Select N Matrix (SATA or multiple choice) Rationale or Cloze	Highlighting
Prioritize Hypotheses	Rationale or Cloze Multiple choice	Multiple response Highlighting Matrix
Generate solutions	Grouping Select all that apply or Select N Multiple choice matrix	Multiple response matrix (SATA) Multiple choice
Take action	Highlight or drop-down table Select all that apply or Select N Rationale or Cloze Multiple choice matrix	
Evaluate outcomes	Highlight Text or table Rationale Multiple choice matrix Select all that apply or Select N	Multiple response matrix(SATA) Cloze

34

NGN Scoring Rule Summary

0/1	+/-	Rationale scoring
Multiple choice Multiple response N Drop-down table Drop down cloze Drag and drop cloze Matrix multiple choice	Highlight text Highlight table Multiple response SATA Multiple response grouping (by group) Multiple response matrix (by column)	Drop-down rationale Drag and drop rationale

This is rule NCSBN uses. Programs should use rule that makes sense for them.

35

Sample Case I

One EMR Page

No Technology Enhanced Items

36

Case Study Screen 1 of 6

The 9-year-old child with history of type I diabetes is brought to the school nurse's office.

Nurses' Notes

0900: The student was playing basketball when the teacher noted that he became sweaty and confused. He was out of school yesterday for flu like symptoms but came to school today because he was afebrile. The student has a 3-year history of type I diabetes that he manages with 2 planned injections a day of premixed 30% regular and 70% NPH which he took this morning at 0600. He takes additional regular insulin as needed. His blood glucose ran high yesterday while he was sick, and he needed 2 extra doses of regular insulin. This morning his BG was 120mg/dl before breakfast. His target morning glucose is 80-130mg/dL

➢ Which 3 client findings are **most** significant?

❑ Diaphoresis[✓]
❑ Increased insulin yesterday
❑ Morning blood glucose
❑ Regular insulin today [✓]
❑ NPH insulin today
❑ Recent illness
❑ Confusion [✓]

3 keyed answers
= 3 points possible
0/1 scoring

37

Case Study Screen 2 of 6

The 9-year-old child with history of type I diabetes is brought to the school nurse's office.

Nurses' Notes

0900: The student was playing basketball when the teacher noted that he became sweaty and confused. He was out of school yesterday for flu like symptoms but came to school today because he was afebrile. The student has a 3-year history of type I diabetes that he manages with 2 planned injections a day of premixed 30% regular and 70% NPH which he took this morning at 0600. He takes additional regular insulin as needed. His blood glucose ran high yesterday while he was sick, and he needed 2 extra doses of regular insulin. This morning his BG was 120mg/dl before breakfast. His target morning glucose is 80-130mg/dL

➢ Which factors **best** explain the client findings?

○ Increased insulin and illness.
○ Physical activity and insulin peaks. [✓]
○ Illness and physical activity.
○ Dehydration and illness.

1 keyed answer
= 1 point possible
0/1 scoring

38

Case Study Screen 3 of 6

The 9-year-old child with history of type I diabetes is brought to the school nurse's office.

Nurses' Notes

0900: The student was playing basketball when the teacher noted that he became sweaty and confused. He was out of school yesterday for flu like symptoms but came to school today because he was afebrile. The student has a 3-year history of type I diabetes that he manages with 2 planned injections a day of premixed 30% regular and 70% NPH which he took this morning at 0600. He takes additional regular insulin as needed. His blood glucose ran high yesterday while he was sick, and he needed 2 extra doses of regular insulin. This morning his BG was 120mg/dl before breakfast. His target morning glucose is 80-130mg/dL

➢ Which problems is the client **most likely** experiencing?

❑ Dehydration
❑ Hypoglycemia [✓]
❑ Ketoacidosis
❑ Shock

1 keyed answer
= 1 point possible
0/1 scoring

39

Case Study Screen 4 of 6

The 9-year-old child with history of type I diabetes is brought to the school nurse's office.

Nurses' Notes

0900: The student was playing basketball when the teacher noted that he became sweaty and confused. He was out of school yesterday for flu like symptoms but came to school today because he was afebrile. The student has a 3-year history of type I diabetes that he manages with 2 planned injections a day of premixed 30% regular and 70% NPH which he took this morning at 0600. He takes additional regular insulin as needed. His blood glucose ran high yesterday while he was sick, and he needed 2 extra doses of regular insulin. This morning his BG was 120mg/dl before breakfast. His target morning glucose is 80-130mg/dL

0910: Blood glucose 65mg/dL

The nurse obtains a blood glucose.

➢ Which interventions are indicated? **Select all that apply.**

- ❑ Activate the emergency medical response system
- ❑ Obtain an oxygen saturation
- ❑ Give 15grams quick-acting glucose [✓]
- ❑ Recheck the blood glucose in 15 minutes [✓]
- ❑ Notify the parents of the incident [✓]
- ❑ Observe student in nurse's office for 4 hours

3 keyed answers
= 3 points possible
+/- scoring

40

Case Study Screen 5 of 6

The 9-year-old child with history of type I diabetes is brought to the school nurse's office.

Nurses' Notes

0900: The student was playing basketball when the teacher noted that he became sweaty and confused. He was out of school yesterday for flu like symptoms but came to school today because he was afebrile. The student has a 3-year history of type I diabetes that he manages with 2 planned injections a day of premixed 30% regular and 70% NPH which he took this morning at 0600. He takes additional regular insulin as needed. His blood glucose ran high yesterday while he was sick, and he needed 2 extra doses of regular insulin. This morning his BG was 120mg/dl before breakfast. His target morning glucose is 80-130mg/dL

0910: Blood glucose 65mg/dL

The nurse prepares to give the client a simple fast acting carbohydrate.

➢ Which options would be appropriate to give the client? **Select all that apply.**

- ❑ 0.5 liters regular soda
- ❑ 15mL of honey [✓]
- ❑ 150 mL of fruit juice [✓]
- ❑ 240mL of lowfat milk [✓]
- ❑ 3- glucose tablets [✓]
- ❑ 125 g (full-size) chocolate candy bar

3 keyed answers
= 3 points possible
+/- scoring

41

Case Study Screen 6 of 6

The 9-year-old child with history of type I diabetes is brought to the school nurse's office.

Nurses' Notes

0900: The student was playing basketball when the teacher noted that he became sweaty and confused. He was out of school yesterday for flu like symptoms but came to school today because he was afebrile. The student has a 3-year history of type I diabetes that he manages with 2 planned injections a day of premixed 30% regular and 70% NPH which he took this morning at 0600. He takes additional regular insulin as needed. His blood glucose ran high yesterday while he was sick, and he needed 2 extra doses of regular insulin. This morning his BG was 120mg/dl before breakfast. His target morning glucose is 80-130mg/dL

0910: Blood glucose 65mg/dL

0925: Blood glucose 65 mg/dL after drinking 6 ounces of orange juice. Reports a headache, but speech is slurred. Refuses to take more fluids. Slight twitching noted in extremities.

The nurse treats the client with 15grams of glucose.

➢ Which findings would indicate that the client is developing severe hypoglycemia? **Select all that apply**

- ❑ Repeat blood glucose still 65mg/dL
- ❑ Refusal to eat or drink [✓]
- ❑ Development of a headache
- ❑ Slurred speech [✓]
- ❑ Twitching movements [✓]

3 keyed answers
= 3 points possible
+/1 scoring

42

Sample Case II

Multiple EMR Pages
Technology Enhanced Items

43

Case Study Screen 1 of 6

The nurse cares for a client admitted to the ward from surgery following long cast placement for a right upper tibial fracture.

Nurses' Notes | Vital Signs

1615: Cast intact. Toes pink and warm to touch. Cap refill <2 seconds. Pedal pulse +1. States it hurts to wiggle toes. Rates pain 7 of 10. Leg elevated. Medicated with 1 mg morphine IV. Bowel sound present. IV of lactated Ringers at 120mL/hr in left arm.

1645: Cast intact. Swelling in Rt foot has increased. Toes are pink. Cap refill <3 seconds. Pedal pulse +1. States he can't wiggle his toes. Rates pain 8 of 10. Describes it as continuous, deep and throbbing. Leg elevated. Bowel sound present. Reports mild nausea. IV of lactated Ringers at 120mL/hr in left arm Has not yet voided.

Nurses' Notes | Vital Signs

Time	1615	1645
T	99F/37.2C	99.3F/37.4C
P	88	88
RR	16	16
B/P	128/80	132/84
Pulse Oximetry	97% room air	98% room air
Pain	7/10	8/10

➢ Which assessments need **Immediate** follow-up. **Select all that apply.**

- ❑ Circulation [✓]
- ❑ Edema [✓]
- ❑ Movement [✓]
- ❑ Nausea
- ❑ Pain [✓]
- ❑ Urinary output
- ❑ Vital signs

Multiple response SATA
+/- Scoring
3pts possible

44

Case Study Screen 2 of 6

The nurse cares for a client admitted to the ward from surgery following long cast placement for a right upper tibial fracture.

Nurses' Notes | Vital Signs

1615: Cast intact. Toes pink and warm to touch. Cap refill <2 seconds. Pedal pulse +1. States it hurts to wiggle toes. Rates pain 7 of 10. Leg elevated. Medicated with 1 mg morphine IV. Bowel sound present. IV of lactated Ringers at 120mL/hr in left arm.

1645: Cast intact. Swelling in Rt foot has increased. Toes are pink. Cap refill <3 seconds. Pedal pulse +1. States he can't wiggle his toes. Rates pain 8 of 10. Describes it as continuous, deep and throbbing. Leg elevated. Bowel sound present. Reports mild nausea. IV of lactated Ringers at 120mL/hr in left arm Has not yet voided.

Nurses' Notes | Vital Signs

Time	1615	1645
T	99F/37.2C	99.3F/37.4C
P	88	88
RR	14	16
B/P	128/80	132/84
Pulse Oximetry	97% room air	98% room air
Pain	7/10	8/10

➢ For each client finding below click to specify if the finding is consistent with the complication of compartment syndrome, deep vein thrombosis (DVT), or hypovolemic shock. Each finding may support more than 1 complication.

Finding	Compartment Syndrome	Deep Vein Thrombosis	Hypovolemic Shock
Capillary refill	□ [✓]	□ [✓]	□[✓]
Throbbing pain	□ [✓]	□	□
Swelling	□ [✓]	□ [✓]	□
Impaired movement	□ [✓]	□	□

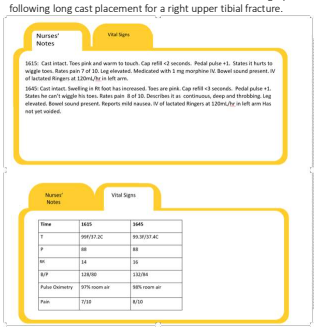
Note: Each column must have at least 1 response option selected

Matrix Multiple Response
+/- Scoring by column
7pts possible

45

Case Study Screen 3 of 6

The nurse cares for a client admitted to the ward from surgery following long cast placement for a right upper tibial fracture.



- Complete the sentences from the list of drop- down options.

The client has most likely developed

Select
compartment syndrome
a deep vein thrombosis.
hypovolemic shock.

The nurse should take immediate action to

Select
restore volume
decrease compression
administer anticoagulants

to prevent the serious complication of

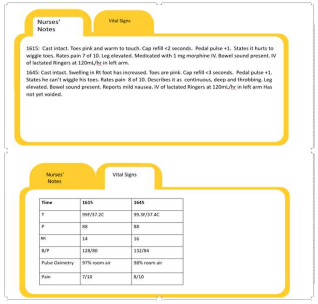
Select
cardiac arrest.
tissue necrosis.
pulmonary embolism.

Drop-down cloze
0/1 scoring by drop down
3pts possible

46

Case Study Screen 4 of 6

The nurse care for a client admitted to the ward from surgery following long cast placement for a right upper tibial fracture.



The nurse notifies the orthopedic surgeon about change in condition. The orthopedic surgeon wants to attempt conservative treatment.

- For each possible intervention click to indicate if the intervention is indicated or not indicated.

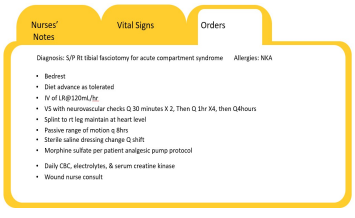
Intervention	Indicated	Not Indicated
Splint cast on each side	○	○
Cut the undercast padding	○	○
Elevate leg above heart level	○	○
Inserting a tissue-pressure monitoring device	○	○
Administer narcotic analgesia	○	○
Reassess in two hours	○	○

Matrix Multiple Choice
0/1 scoring by row
6pts possible

47

Case Study Screen 5 of 6

The nurse cares for a client on the ward with right upper tibial fracture who developed compartment syndrome.



Drop-down table
0/1 scoring by drop-down
4pts possible

The client's condition does not improve and undergoes and emergency fasciotomy. The client returns to the ward with new post-operative orders.

- Choose the most likely option for the missing information in the in the table below by choosing from the list of options.

Drug	Morphine Sulfate
Concentration	Select 10mg in 1mL 15mg in 30 mL 150mg in 100 mL
Patient controlled dose	Select 1mg 10mg 100mg
Lockout	Select 1 minute 10 minutes 60 minutes
4-hour limit	Select 30 mg 125 mg 400mg

48

Case Study Screen 6 of 6

The nurse cares for a client on the ward with right upper tibial fracture who developed compartment syndrome.

The nurse assesses the patient the day after a rt tibial fasciotomy for acute compartment syndrome.

- Drag one condition and 2 assessments to fill in each blank of the following sentence,

The patient may be developing [ ]

based on the [ ] and [ ]

Conditions
fluid overload
infection
muscle necrosis
shock
thrombosis

Assessments
heart rate
laboratory values
peripheral pulses
temperature
urine characteristics

Drag & drop rationale
rationale scoring(triad)
2pts possible

49

Sample Case III

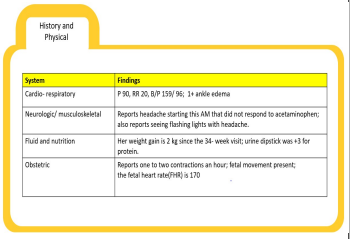
Technology Enhanced Items
Multiple Pages Added

50

Case study screen 1 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation in the prenatal clinic

- Click to highlight below the findings that need immediate follow-up



51

Case study screen 1 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation in the prenatal clinic

- Click to highlight below the findings that need immediate follow-up

History and Physical

System	Findings
Cardio- respiratory	P 80, RR 18, B/P 150/ 96[1]. 1+ ankle edema.[2]
Neurologic/ musculoskeletal	Reports headache starting this AM that did not respond to acetaminophen.[3] Reports seeing flashing lights with headache.[4]
Fluid and nutrition	Her weight gain is 2 kg since the 34- week visit[5]. Urine dipstick was +3 for protein.[6]
Obstetric	Reports one to two contractions an hour.[7] Fetal movement present.[8] The fetal heart rate(FHR) is 170.[9]

Highlight table
+/- scoring
9 items possible for selecting
5 items keyed as correct
5 points possible

52

Case study screen 2 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation in the prenatal clinic

History and Physical

System	Findings
Cardio- respiratory	P 90, RR 20, B/P 159/ 96; 1+ ankle edema
Neurologic/ musculoskeletal	Reports headache starting this AM that did not respond to acetaminophen; also reports seeing flashing lights with headache.
Fluid and nutrition	Her weight gain is 2 kg since the 34- week visit; urine dipstick was +3 for protein.
Obstetric	Reports one to two contractions an hour; fetal movement present; the fetal heart rate(FHR) is 170

- For each client finding below, click to specify if it is most consistent with the diagnosis of mild preeclampsia or severe preeclampsia.

Finding	Mild Preeclampsia	Severe Preeclampsia
Blood pressure	o	o
Headache	o	o
Urine dipstick	o	o
Fetal heart rate	o	o

Matrix multiple choice
0/1 scoring by row
4 pts possible

53

Case study screen 3 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation in the prenatal clinic

History and Physical

System	Findings
Cardio- respiratory	P 90, RR 20, B/P 159/ 96; 1+ ankle edema
Neurologic/ musculoskeletal	Reports headache starting this AM that did not respond to acetaminophen; also reports seeing flashing lights with headache.
Fluid and nutrition	Her weight gain is 2 kg since the 34- week visit; urine dipstick was +3 for protein.
Obstetric	Reports one to two contractions an hour; fetal movement present; the fetal heart rate(FHR) is 170

- Drag words from the choices below to fill in each blank of the following sentences.

The client most likely has [ ] .

The client is at greatest risk for [ ] .

Word Choices
mild preeclampsia
pulmonary edema
seizures
severe preeclampsia
stroke

Drag and drop cloze
0/1 scoring by target
2 pts possible

54

Case study screen 4 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation in the prenatal clinic

History and Physical

System	Findings
Cardio- respiratory	P 90, RR 20, B/P 159/ 96; 1+ ankle edema
Neurologic/ musculoskeletal	Reports headache starting this AM that did not respond to acetaminophen; also reports seeing flashing lights with headache.
Fluid and nutrition	Her weight gain is 2 kg since the 34- week visit; urine dipstick was +3 for protein.
Obstetric	Reports one to two contractions an hour; fetal movement present; the fetal heart rate(FHR) is 170

Multiple response grouping
1/- scoring by group
6 pts possible

The client is transferred to the labor and delivery unit with the diagnosis of severe preeclampsia.

- Select the anticipated provider orders from each of the following categories. Each category must have at least 1 response option selected

Category		Potential Orders
Activity	□	Bathroom privileges
	□	Quiet environment [✓]
	□	Seizure precautions[✓]
Medications	□	Magnesium sulfate infusion[✓]
	□	Magnesium sulfate bolus[✓]
	□	Intrapartum antibiotics
Monitoring	□	Intermittent fetal heart rate monitoring
	□	CBC and clotting studies[✓]
	□	Complete metabolic panel with magnesium levels[✓]

55

Case study screen 5 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation on the maternity unit with severe preeclampsia.

History and Physical | Orders

- Magnesium sulfate IV 4g in 100mL lactated Ringers over 15 minutes Now
- Then begin magnesium sulfate IV 10g in 500mL lactated Ringers at 100mL/hr

The nurse receives orders to administer magnesium sulfate.

Which steps should the nurse follow when administering magnesium sulfate? **Select all that apply.**

- ❑ Two clinicians double check medication[✓]
- ❑ Infuse on an IV pump[✓]
- ❑ One on one care during initial administration[✓]
- ❑ Have naloxone antidote available
- ❑ Monitor urine magnesium levels
- ❑ Monitor deep tendon reflexes[✓]
- ❑ Monitor respiratory rate[✓]

Multiple response SATA
1/- scoring
5 pts possible

56

Case study screen 6 of 6

The nurse is caring for a 25- year- old primigravid client at 37 weeks gestation in the maternity ward

History and Physical | Orders

- Magnesium sulfate IV 4g in 100mL lactated Ringers over 15 minutes Now
- Then begin magnesium sulfate IV 10g in 500mL lactated Ringers at 100mL/hr

The nurse has implemented the treatment plan and reassess the client.

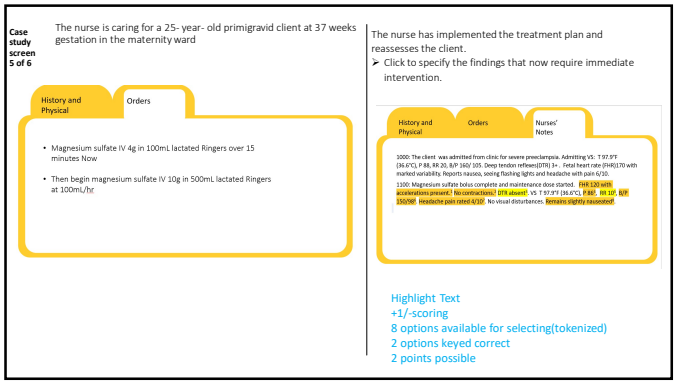
- Click to specify the findings that now require immediate intervention.

History and Physical | Orders | Nurses' Notes

1000: The client was admitted from clinic for severe preeclampsia. Admitting VS: T 97.9°F (36.6°C), P 88, RR 20, B/P 160/ 105. Deep tendon reflexes 3+ . Fetal heart rate (FHR)170 with marked variability. Reports nausea, seeing flashing lights and headache with pain 6/10.

1100: Magnesium sulfate bolus complete and maintenance dose started. FHR 120 with accelerations present. No contractions. DTR absent. VS T 97.9°F (36.6°C), P 86, RR 10, B/P 150/98. Headache pain rated 4/10. No visual disturbances. Remains slightly nauseated.

57



58

Practice

59

Critiquing Questions

- Which question (1-6) is being asked?
- Does the question address the correct CJM task?
- Are all elements present?
- Are there the right number of options?
- Does the question make sense?
- Other observations like grammar?

60

Case Study
Screen
4 of 6

Vital Signs | Nurses' Notes

The client reported in the clinic that she developed a headache this morning accompanied by seeing flashing lights today that did not respond to acetaminophen. Her weight gain is 2 kg since the 34- week visit. Urine dipstick was +3 for protein. Her Group B Beta strep screen came back positive. Fundal Height is 35cm and the FHR is 165. A cervical revealed that she is dilated 1cm.

➢ Which interventions should the nurse anticipate incorporating in the plan of care? **Select all that apply**

- ○ Bathroom privileges
- ○ Quiet environment
- ○ Seizure precautions
- ○ Deep Tendon Reflexes Q2
- ○ Magnesium sulfate IV 4 gr over 15 minutes
- ○ Magnesium sulfate IV 2gm/ hour
- ○ Betamethasone 12mg IM
- ○ Intermittent fetal monitoring
- ○ CBC and clotting studies daily
- ○ Complete metabolic panel and magnesium levels
- ○ 24 -hour urine

61

Case Study
Screen
1 of 6

The nurse cares for a college student in the emergency department with a suspected substance abuse.

Nurses' Notes | Orders

1. Admit to locked mental health unit on a 48- hour emergency detention
2. Routine unit orders
3. Obtain psychiatric consult

➢ Select the 3 findings that require **immediate** follow up.

- ❑ Heart rate
- ❑ Level of consciousness
- ❑ Respiratory rate
- ❑ Pupillary reactions

62

Case Study
Screen
6 of 6

The nurse cares for a client brought to hospital on a 48 hour- emergency detention.

Orders | Nurses' Note

A client known to have alcohol dependence is admitted to the emergency department with a temperature of 99°F (37.2°C), a pulse of 110 beats/min, respirations of 26 breaths/min, and blood pressure of 150/98 mm Hg. The blood alcohol level alcohol is .30. Now, the client is becoming belligerent and uncooperative

The nurse educates the client about their rights during the admission to the mental health unit.

➢ What rights does the nurse tell client they retain?

- ❑ To reasonable access to a telephone to make and receive confidential calls.
- ❑ To refuse medical treatment or treatment with medications except in an emergency.
- ❑ To leave the hospital against medical advice
- ❑ To have or not have other persons notified if you are hospitalized.
- ❑ To decline to take part in any research project or medical experiment

63

Group Practice

- Using the templates provided, write 6 questions for one of 2 cases:
  - Case 1: In patient, 19- year- old with ruptured spleen (Use template 1)
  - Case 2: Outpatient, 33-year-old with post-partum depression(Use template 2).
- For question 6, add a new time point at the right side of the case that shows client may be deteriorating.
- Feel free to modify case, add additional data, or change the item format if you have a great idea.
- Have fun!

64

Implementation

- Begin with a focus on teaching clinical judgment
  - Classroom cases
  - Post conference discussions
  - Simulation
  - Electronic NGN self-study products

65

Planning for Testing

- Create a unified program plan for adding case studies to course exams
  - Suggest beginning with 1 case per exam
  - Focus first on creating cases with 6 questions
- Enhanced item types must be given in electronic format.
  - Screen readers will not work with enhanced item types.
  - Need to work with disability services
- Determine a scoring system that makes sense for your program
  - NCSBN computer adaptive testing and uses scaling
  - Consider your passing standard
  - Consider how your LMS scores
- Consider starting with familiar types (Multiple choice/multiple response)
  - Add new item types consistent with your testing platform
  - Do not need to include all item types in a case

66

67

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68