Guide

Preparing For The Next-Generation NCLEX® (NGN)

A "How-To" Step-By-Step Faculty Resource Manual

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The Next Generation NCLEX (NGN)

New nursing licensure examinations for RN and LPN/LVN candidates (NCLEX-RN® and NCLEX-PN®) are expected to launch in April 2023.

Why Change the NCLEX

- Major changes in nursing and health care practice include:

  ◦ Increased complexity of client care

  ◦ New innovations that prolong human life

  ◦ Increased technologies to promote safe client care

  ◦ Move to increased care in community-based settings, such as home, rehabilitation, and long-term care

- Research shows the decreased ability of new nursing graduates to make safe clinical decisions (https://www.ncsbn.org/11447.htm).

  ◦ 50% of new graduates are involved in practice errors; 65% of these errors are related to poor clinical decision-making.

  ◦ Employers are not satisfied with new graduates' ability to make safe clinical decisions.

- Clinical judgment is critically important for nursing practice. (https://www.ncsbn.org/2017_RN_KSA_final.pdf).

- New *AACN Essentials* integrate clinical judgment across the ten new domains (https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf).

- LPNs/LVNs make clinical judgments within the scope of their practice (https://www.ncsbn.org/LPN_Practice_Analysis_FINAL.pdf).

- National League for Nursing identifies nursing judgment as an essential nursing practice competency (https://www.nln.org/education/nursing-education-competencies).

Differences Between the Current NCLEX and the NGN

- The test format remains adaptive similar to the current NCLEX but will consist of less test items.

- Candidates will have between 70 and 135 scored test items.

- All candidates will have three unfolding clinical situations with six test items each to measure the ability to critically think to make safe clinical decisions (clinical judgments) during various phases of client care.

- Some candidates will also have test items referred to as stand-alone items.

- Clinical situation information will be presented in medical record format, similar to the table below.

- Questions in unfolding cases and stand-alone items will include the new NGN item types (discussed in Part II).

- NGN test items (described in more detail starting on pg. 43) will be scored differently than the current NCLEX test items: Partial credit using three scoring rules depending on test item type, including:

  - 0/1 scoring rule

  - +/- scoring rule

  - Rationale scoring rule

Nurses' Notes	History and Physical	Laboratory Results	Flow Sheet	Orders

Laboratory Results	Result	Reference Range
Blood urea nitrogen (BUN)	35 mg/dL **H** (12.6 mmol/L)	10 – 20 mg/dL (3.6 - 7.1 mmol/L)
Creatinine (Cr)	1.8 mg/dL **H** (158.4 mcmol/L)	0.5 – 1.2 mg/dL (44 - 106 mcmol/L)

Example within Elsevier's learning and assessment products

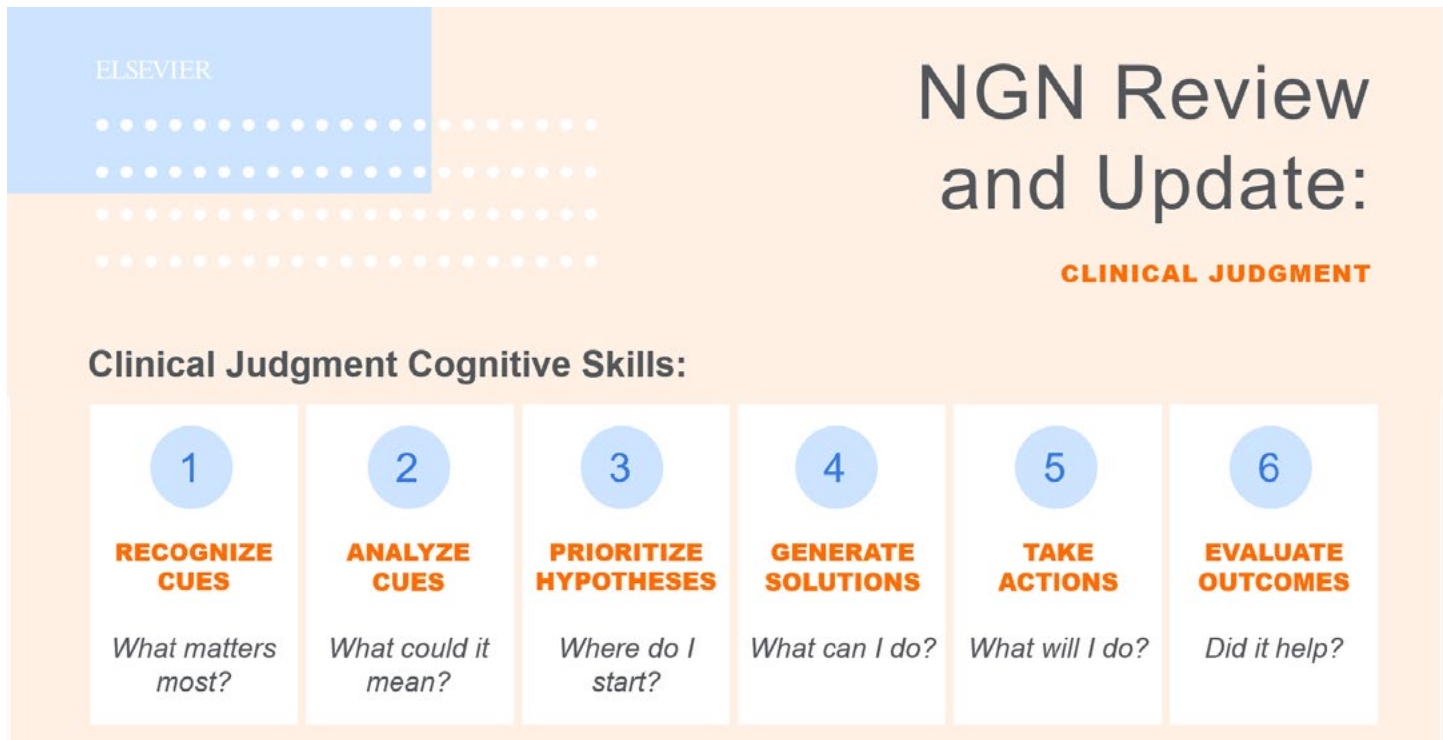## Example of Client Information Presented in Medical Record Format

History and Physical	Nurses' Notes	Orders	Laboratory Results

1915: 24-year-old client presents to the Urgent Care Center with report of abdominal discomfort and bloating since yesterday morning; no BM x 5 days. States doesn't eat much but exercises every day for at least an hour. Has not felt like exercising for two days due to fatigue, weakness, and lack of energy. Worries excessively about "getting fat" because the client is getting married next year and wants to fit into the wedding gown. Current medications include a multivitamin, lorazepam 3 mg orally twice a day, and furosemide 40 mg orally every morning to eliminate "water weight." Current weight 104 lb (47.2 kg); height 68 in (172.7 cm). Skin is very dry with light lanugo on face. T 96.2° F (35.7° C); HR 50 BPM; RR 18 bpm; BP 96/50 mmHg. SpO$_2$ 95% on RA; no dyspnea. States sometimes has shortness of breath when exercising.

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Clinical Judgment: Definition And Action Model

NCSBN Definition of Clinical Judgment

Clinical judgment is defined as the observed outcome of critical thinking and decision-making. It is an *iterative* process that uses nursing knowledge to observe and assess presenting situations, identify a prioritized client concern, and generate the best possible evidence-based solutions to deliver safe client care (Dickison, et al., 2019).

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NGN Review and Update:

CLINICAL JUDGMENT

Clinical Judgment Cognitive Skills:

1	2	3	4	5	6
RECOGNIZE CUES	**ANALYZE CUES**	**PRIORITIZE HYPOTHESES**	**GENERATE SOLUTIONS**	**TAKE ACTIONS**	**EVALUATE OUTCOMES**
What matters most?	What could it mean?	Where do I start?	What can I do?	What will I do?	Did it help?

Clinical Judgment Action Model (Layer 3 of NCSBN Clinical Judgment Measurement Model [NCJMM]) https://www.ncsbn.org/14798.htm

Action (Practice) Model represents what nurses actually do in practice when making clinical decisions to ensure client safety.

New NGN test item types are based on the Action Model's six cognitive skills:

- **Recognize Cues:** *What matters most?*
- **Analyze Cues:** *What could it mean?*
- **Prioritize Hypotheses:** *Where do I start?*
- **Generate Solutions:** *What can I do?*
- **Take Action:** *What will I do?*
- **Evaluate Outcomes:** *Did it help?*

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Semester 1: Focus On Clinical Judgment

Faculty need to prepare students for nursing practice and success on the NGN using a systematic plan. Phase I of this preparation describes how to introduce clinical judgment or continue to prepare students to use critical thinking and decision-making skills to make safe, appropriate clinical judgments for clients in a variety of health care settings.

> View the rollout plans with all the phases for RN and PN/VN programs

Introduce the Nursing Process (NP)

- Introduce the NP early in the first nursing semester as a problem-solving process used to manage *basic* client needs.

- The NCSBN currently defines the nursing process as part of the NCLEX-RN Test Plan as "a scientific, *clinical reasoning* approach to client care that includes assessment, analysis, planning, implementation, and evaluation" (NCSBN, 2018, p. 5).

- The NCSBN currently defines the nursing process as part of the NCLEX-PN Test Plan as "a scientific approach to client care that includes data collection, planning, implementation, and evaluation" (NCSBN, 2019, p.5).

- The NCLEX focuses on AAPIE, not ADPIE; NANDA-I nursing diagnosis is not tested on the current NCLEX or NGN because it is **not** a universal language used in health care or the nursing profession.

- In nursing practice and for NGN, students need to apply knowledge of pathophysiology to analyze client assessment findings (signs and symptoms) and associate them with common conditions (including diseases and disorders) seen in a variety of healthcare settings.

- Nurses need to notice subtle client changes in assessment findings and act promptly and appropriately to prevent Failure to Rescue.

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Introduce Clinical Judgment

- After students learn how to use the nursing process in the first semester, introduce clinical judgment as a problem-solving thinking process, essential to managing today's complex client needs in a dynamic healthcare environment. Clinical judgment builds on the nursing process.

- Use the table below to help students transition from the nursing process to clinical judgment (Tanner and NCSBN model included for programs already using Tanner's model).

Comparison of the Nursing Process with Tanner's Clinical Judgment (CJ) Model and the NCSBN Action Model of Clinical Judgment

Nursing Process (AAPIE): Steps	Tanner's CJ Model: Phases	NCSBN Model of CJ: Thinking Skills/Processes
Assessment	Noticing	Recognize Cues
Analysis	Interpreting	Analyze Cues
Analysis	Interpreting	Prioritize Hypotheses
Planning	Responding	Generate Solutions
Implementation	Responding	Take Action
Evaluation	Reflecting	Evaluate Outcomes

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Help students learn NCSBN Clinical Judgment Cognitive Skills and how to use each of them, as summarized below.

NCSBN Clinical Judgment Cognitive Skills and Descriptions

NCSBN Clinical Judgment Cognitive Skill	Description of NCSBN Clinical Judgment Cognitive Skill
Recognize Cues: *What matters most?*	Determining what client findings are significant, most important, and of immediate concern to the nurse (relevant cues)
Analyze Cues: *What could it mean?*	Organizing and linking the relevant cues with client conditions/problems
Prioritize Hypotheses: *Where do I start?*	Ranking client conditions/problems according to urgency, complexity, and time
Generate Solutions: *What can I do?*	Identifying interventions that meet desired outcomes for the client; can include collecting additional assessment data
Take Action: *What will I do?*	Implementing the solution(s) that are most appropriate and address the client's priority conditions/problems
Evaluate Outcomes: *Did it help?*	Comparing actual client outcomes with desired client outcomes to determine effectiveness of care

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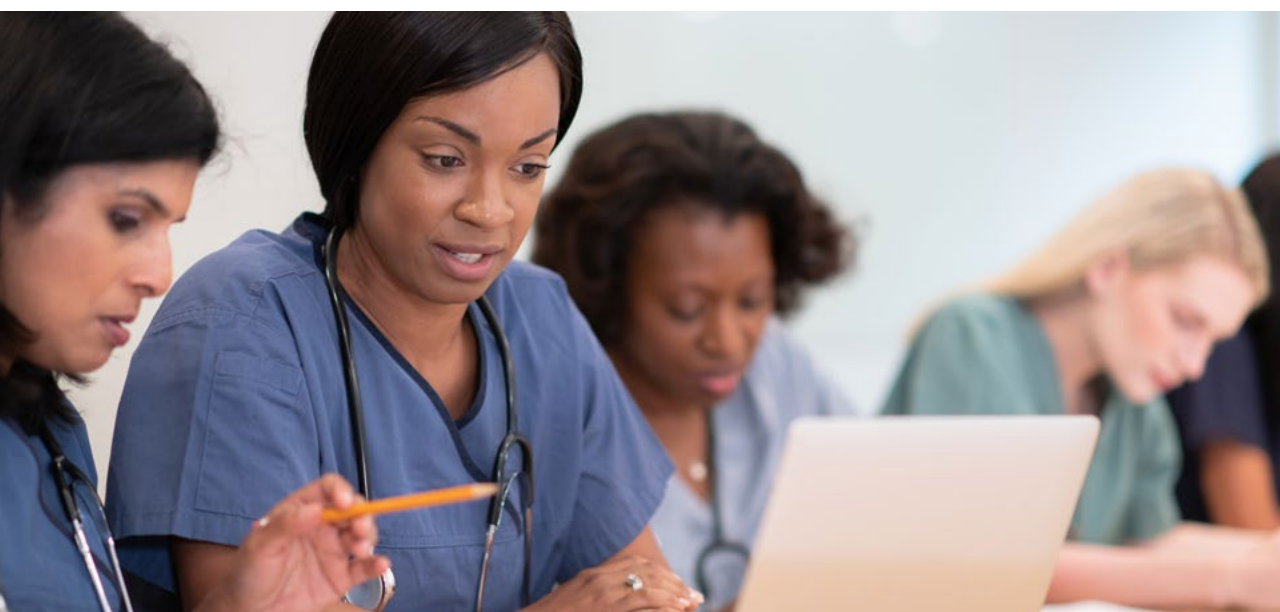
Decrease Curricular Content Saturation

- Additive, saturated curriculum has been identified as an issue in pre-licensure nursing education for over 20 years (Giddens & Brady, 2007).

- Curricular content is not always aligned with practice needs, causing a theory-practice gap (Repsha, et al., 2020); faculty often rely solely on textbooks for content to be included in the curriculum.

- Faculty feel the need to lecture in class or provide voiceover slide presentations to "cover" mass amounts of content that are often redundant and duplicative across the curriculum.

- In a content-saturated curriculum, students tend to memorize knowledge for the short-term (often to pass the test), also known as *super icial learning.*

- Students need to retrieve and use essential knowledge (*deep learning*) to make safe, appropriate clinical judgments. Retrieval of knowledge requires practice and clinical judgment requires thinking; both processes take time.

- Therefore, nurse educators need to decrease content saturation to "need to know" for entry-level generalist nursing practice.

- Here are some ways to reduce curricular content:

    ◦ Review national health data from sources such as CDC, NIH, and Healthy People 2030 to identify the most common health problems and issues.

    ◦ Review state and local data from health departments to identify the most common health problems and issues.

    ◦ Ask for input from community stakeholders to identify key health care issues and trends.

    ◦ Map the current curriculum using the NCLEX Test Plan to help make revisions that decrease content.

    ◦ Consider exploring a concept-based model for nursing curriculum to focus on nursing concepts with exemplars.

Provide Time for Student Thinking and Processing

- Recall that clinical judgment requires using "nursing knowledge to observe and assess presenting situations, identify a prioritized client concern, and generate the best possible evidence-based solutions in order to deliver safe client care (Dickison, 2019)."

- Students need to learn how to retrieve and use essential knowledge (deep learning) to make safe, appropriate clinical judgments. Remember that knowledge retrieval requires practice and clinical judgment requires thinking; both processes take time.

- Clinical judgment requires THINKING about how to use knowledge; therefore:

  ◦ Avoid hours of lecture in person or voiceover PowerPoints®. Instead of lecture/slides only, use a flipped or scrambled classroom (or online) approach to allow more time for active synchronous learning activities. Scrambled classroom provides short lecturettes or mini lectures of five to ten minutes interspersed with student thinking activities to process information.

  ◦ Provide multiple opportunities for thinking activities in all learning environments: class, online, skills lab, simulation, clinical agencies.

  ◦ Remember that nurse educators are accountable for facilitating learning; students are accountable for the learning, including reviewing information from previous courses as needed.

Avoid hours of lecture in person or voiceover PowerPoints®

Student thinking activities help to process information

Use Active Learning Activities

- Focus on learning (what the student does) rather than teaching (what the nurse educator does) to meet students' needs for entry-level professional practice.

- Use well-planned "thinking" activities to engage students in all learning environments.

- Consider the multigenerational and multicultural needs of diverse students to plan meaningful and engaging learning activities. Students prefer varying types of activities based on their primary learning styles.

- Provide opportunities for individual, pair, and group learning activities to help meet the needs of diverse students.

- Ensure purposeful planning to either help students retrieve or learn new knowledge or use knowledge to make safe, appropriate clinical judgments in all learning environments.

- Retrieving knowledge requires practice in numerous contexts. Use these suggestions for active learning activities that help students gain, reinforce, or retrieve knowledge:

  - *Gaming*, such as Jeopardy, Who Wants to be a Millionaire? (Note: Limit these activities to less than 30 minutes.)

  - *Apps*, such as Kahoot! and Socrative

  - *Admit* or *Exit Ticket*; some examples include:

    - Pre-class/end-of-class quiz (previous knowledge or reading)

    - Pre-class/end-of-class worksheet (such as anatomy and physiology, human developmental stages, and nursing content from earlier courses)

    - Pre-class/end-of-class review with things like Muddiest Points/Questions about reading or class discussion.

  - *Think-Pair-Share* activities in which each student *Thinks* about the answer to a posed question by faculty and then *Pairs* with another student to *Share* and compare answers. This activity helps students validate knowledge they know and be reminded of what knowledge they may not have retained.

  - *Directed Reading* (aka Guided Reading) requires faculty to provide a list of questions for learners to answer while reading and to help guide and focus their reading.

- Use these suggestions for active learning activities that help students use knowledge to make clinical decisions (make safe, appropriate clinical judgments):

  - *Venn Diagram* helps students compare and contrast (a critical thinking skill) using overlapping circles. Assessment findings and nursing interventions are examples of client care that can be compared and contrasted. In the example below, students identify those client assessment findings of RA and OA that are similar and write them in the gray-toned area. Those findings that are different between the two types of arthritis are written in the white spaces within the circles.

COMMON ASSESSMENT FINDINGS OF LATE-STAGE RA VS. OA
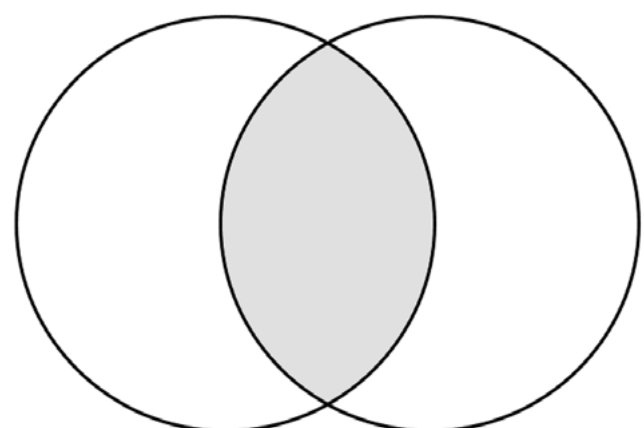
Rheumatoid Arthritis (RA)   Osteoarthritis (OA)

Use Active Learning Activities, cont.

Use these suggestions for active learning activities that help students use knowledge to make clinical decisions (make safe, appropriate clinical judgments):

- *Concept Mapping* can be used as part of class or online activities in pairs or groups to develop a plan of care or explore a concept. This activity helps students think about connections between and among aspects of the care plan or concept.

- *Structured Controversy* is a thinking activity used for ethical issues in which each student in a pair supports a "pro" and "con" side of the dilemma and should not use their partner's views. This activity stimulates critical thinking, one type of thinking needed to make safe, appropriate clinical judgments.
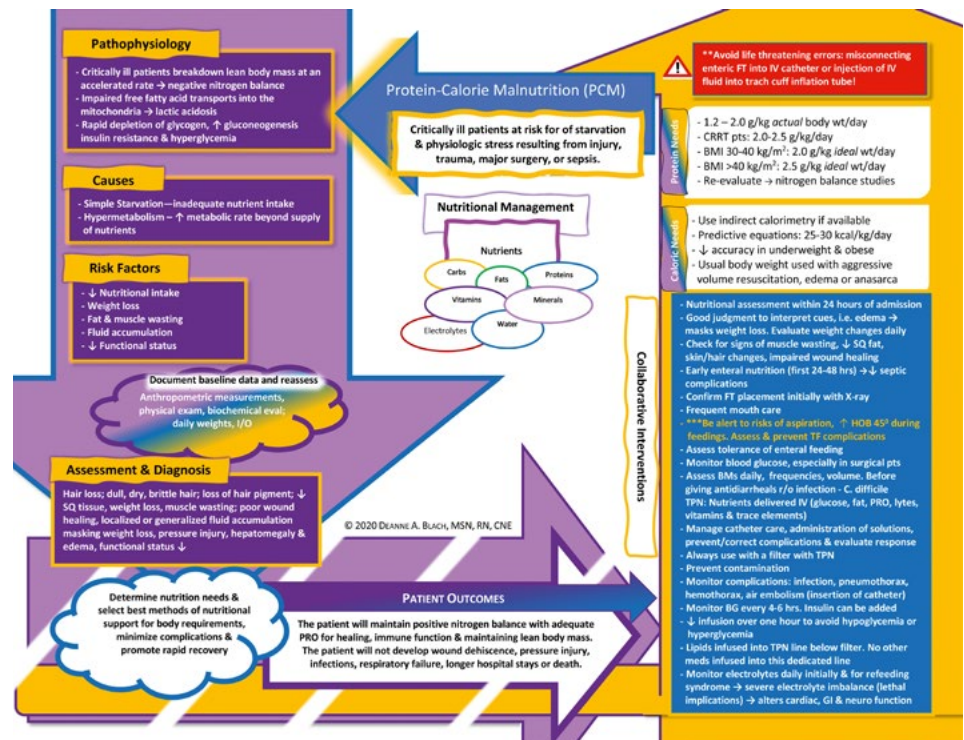
From Urden, L.D., Stacy, K.M., Lough, M.E. (2022). *Critical care nursing: Diagnosis and management (9th ed.).* St. Louis: Elsevier.

- Use *Send-a-Problem* learning activity to highlight the most important knowledge needed to make clinical judgments and have students practice NCLEX-style test writing. Students usually work in groups to develop practice test items in NCLEX-format and then "send" their developed questions to another group to answer. This process continues until the entire class has reviewed and answered all questions.

- Have students respond to *case studies* in all learning environments, including these four types:

| Case method:	Single episode (stand-alone) case:	Unfolding (continuing or evolving) case study:	Reverse case study:
Short clinical scenario (one to two sentences) that provides only the essential data; one or two related questions for beginning students to start the thinking process.	One clinical scenario (one to two paragraphs) that requires thinking to make clinical judgment, which includes one or more high-level thinking questions (open-ended or structured).	Initial comprehensive clinical scenario (one to two paragraphs) that changes over time (several phases of care) as the client's condition changes; requires analysis and clinical reasoning to answer multiple high-level thinking questions for each phase of care demonstrating safe, appropriate clinical judgments. Questions may be aligned with the NCSBN's six clinical judgment cognitive skills.	Students develop an unfolding case study with questions/answers after being given a medical diagnosis and drug profile.

Incorporate Thinking into the Skills Laboratory

- Typical "check-offs" of psychomotor skills do not ensure learner competence. Return demonstrations represent the lowest level of the psychomotor learning domain taxonomy (*imitation*).

- Nursing education is moving towards being more competency-based with a focus on learner competency assessments. For example, the American Association of Colleges of Nursing (AACN) developed new *Essentials* which delineate entry-level (nurse generalist) and advanced practice competencies within ten domains. Clinical judgment is a core concept that is integrated throughout these domains.

- Requirements for any competency assessment, such as assessing the ability to perform psychomotor skills, requires that:

  ◦ Each competency must be observable and measurable.

  ◦ Each competency must be evaluated over time and on multiple occasions.

  ◦ Each competency must be evaluated in multiple contexts.

  ◦ Each competency should integrate knowledge, skills, and attitudes with critical thinking while providing care.

- For competency assessment, initially have students practice skills in lab. Consider self-reflection and peer review as assessment options instead of nurse educator "check-offs" for a pass/fail assessment.

- Manipulate the clinical situation to require students to use critical thinking to perform one or more skills safely and effectively. Evaluate skill performance again in various clinical settings and contexts.

Increase High-Fidelity Simulation Experiences

- High-fidelity simulation experiences allow students to use cognitive (thinking) skills to make clinical judgments as part of nursing care.

- Use Lasater's Clinical Judgment Rubric or another tool to measure thinking skills during simulation to help prepare students for professional practice and the NGN.

- Increase the use of simulation for students to gain practice and confidence in clinical judgment skills because clinical experiences are often limited.

- Include reflection on learner ability to make safe, appropriate clinical judgments as part of debriefing.

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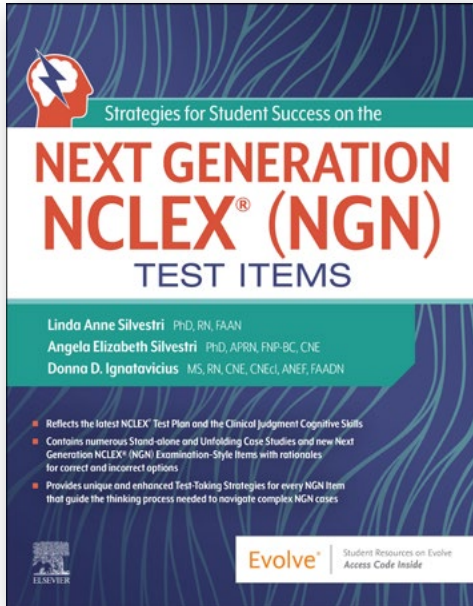
Utilize Curricular Resources that Help Prepare Students to Make Appropriate Clinical Judgments and Be Ready for the NGN

- Select and adopt textbooks that focus on clinical judgment.

- Adopt available workbooks and textbook ancillaries to help students practice and develop competence in the six cognitive skills needed to make appropriate clinical judgments (See Resources List in Part III).

- Adopt NGN student success resources such as *Strategies for Student Success on the Next Generation NCLEX® (NGN) Test Items* by Silvestri, Silvestri, and Ignatavicius.

Attend Professional Development Workshops and Conferences on Clinical Judgment and the NGN

- Recognize that the official and most reliable source of information about the NGN is the National Council of State Boards of Nursing (NCSBN).

- Attend annual NCLEX conference held in late September; most speakers are NCSBN staff members.

- Attend state conferences sponsored by boards of nursing about the NGN and how to prepare students for the NGN.

- For other workshops and webinars, be sure that speaker information is reliable and consistent with the NCSBN (see www.ncsbn.org).

Semester 2: Introduction To The New NGN Test Items

Semester 2 of the rollout plan focuses on introducing the new NGN test items to students and providing practice with answering these item types. Faculty need to help students understand what cognitive skills will be measured in a test item and promote the necessary thinking processes required.

> View the rollout plans with all the phases for RN and PN/VN programs

NGN Case Studies and Test Items Overview

- The case study is the foundation for measuring knowledge and clinical judgment using NGN item types.

- The new NGN test items will be embedded in case studies and based on the six clinical judgment cognitive skills (described in Part I). Case studies present a "real-world" clinical situation.

- There are two types of cases: unfolding cases and stand-alone items. **Unfolding cases** will be accompanied by six test items; each item will measure one of the six cognitive skills. A **stand-alone item** includes a short clinical scenario and an individual item that is not part of an unfolding case study; there are two stand-alone item types, the bow-tie and the trend.

- There are 12 NGN item types used for the unfolding case items and the trend item as shown on page 24.

Curriculum Approach

- Semester 2 is the time to begin introducing cases and NGN item types to students. This is *practice time* and not the time *yet* to be putting these NGN items on course exams for grading.

- In each course, start working with the students on *unfolding case studies* and the accompanying six items that address the six cognitive skills.

- Use cases that connect to content being taught in nursing courses. These cases should be used in all settings: class, clinical, lab, online.

- Faculty can write their own cases to use for practice, or they can use cases that have been developed by experts. See Part III, the References and Resources section for texts that provide practice cases and NGN items.

- When introducing NGN items, start with item types students are familiar with and will be more comfortable with, such as multiple choice and multiple response in a Select All that Apply format and a Select N format.

- Help students understand how each cognitive skill is being measured.

- Review the rationales for the correct and incorrect answers and engage the students in this review; use Socratic questioning — Why? and What if? — challenge their thinking processes!

- Help students design test-taking strategies that guide logical thinking processes for answering items correctly.

- Close to the end of the semester, around three to four weeks before the semester ends, introduce the *stand-alone clinical situations* both the *bow-tie and trend*.

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An Unfolding Case

- The unfolding case study starts by presenting a "real-world" clinical situation and some client data that will most likely be in a medical record format.

- The medical record format will include tabs specifying for example, Health History, Nurses Notes, Physician's Orders, Laboratory Profile (see example on page 19).

- The clinical situation in the unfolding case study will include phases over time as the client's situation changes; this could be over minutes, hours, or days.

- Six questions will accompany the case study, each representing one of the six cognitive skills.

- Every test-taker will receive three unfolding case studies, each with six items, for a total of 18 items with these three unfolding cases.

A Stand-Alone Item

- The NCSBN currently identifies two types of stand-alone test items, the bow-tie and the trend.

- Some test-takers — those who take more than the minimum number of items on the NCLEX — will receive approximately six to seven stand-alone cases, either the bow-tie type or trend, or a mix of both.

- The **bow-tie item** is unique and as it is titled, looks like a bow-tie. This item type can measure up to all six cognitive skills. It's important to remember that the clinical scenario in a bow-tie item includes client data at *one point in time*.

- The **trend item** begins with a client situation that includes assessment information. This information includes multiple data points over time in the clinical situation rather than one point in time and the test-taker needs to review the information looking for trends. The trend item measures one or more than one cognitive skill and any of the NGN item types (except bow-tie) can be used for a trend item.

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Summary Points: Unfolding Case Studies and Stand-Alone Items

Type	Clinical Situation	Phases	Items	Cognitive Skill
Unfolding	Situation and client data; likely a medical record format	Over time: minutes, hours, or days	6	Each item measures one of the six clinical skills
Stand-alone Bow-tie	Situation and client data; could be in a medical record format	One point in time	1	Can measure up to all six clinical skills
Stand-alone Trend	Situation and client data; likely a medical record format	Multiple data points over time	1	Measures one or more than one clinical skill
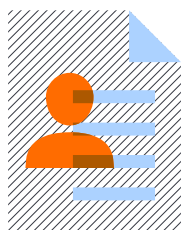
Writing a Case Study

- For either a stand-alone or unfolding case study, faculty can think about clients they have cared for in their own practice or have assigned to students, clinical situations they have read about, or common errors or problems that they know occur in health care; these sources will help create the "story."

- The clinical scenario needs to be one that a new nursing graduate would likely encounter.

Stand-alone item

- Presents a client scenario with an adequate amount of data that represents *one point in time (bow-tie item)* or *multiple data points in time (trend item)*.

- The data in this type of client situation do not need to be as comprehensive as the data in an unfolding case type.

- See **page 37** for an example bow-tie item and **page 38** for an example trend item.

Unfolding case

- Presents a client scenario that *changes over time through multiple phases of care.*

- The data are more comprehensive than in a stand-alone item as the "story" unfolds.

- *All* six cognitive skills need to be measured using any of the appropriate NGN test item formats.

- Provides initial information about a client scenario and then progresses to unfold with the addition of new information about the client's condition or status.

- The case study can unfold to present a scenario in any environment such as the emergency department, hospital unit, clinic, community setting, home.

- The client scenario can present information in which the client's condition improves, remains stable, or declines, such as with the development of a complication; some case studies may encompass all these potential situations.

- If laboratory results are included in a case, place in a table with columns that indicate the name of the test, the result, and the reference range. If the result is abnormal, indicate this by either an **H** or a **L** bolded and red (see example trend item on the next page).

- An unfolding case includes more than one phase of care for one client; up to four phases may be needed depending on the complexity of the case study.

- There may be only one test item for each phase or more than one.

How a Case May Unfold

PHASE 1

- Includes an introduction to the client and three to five sentences to describe the client's clinical situation.

- Place a time for the data if appropriate.

- Data provided is most likely presented in a medical record format.

- Includes adequate client data anticipating that following Phase 1, two NGN test questions could be created:

  ○ **NGN Item #1** will measure the cognitive skill:

    Recognize Cues

  ○ **NGN Item #2** will measure the cognitive skill:

    Analyze Cues

PHASE 2

- Describes what happened to the client after Phase 1.

- Place a time in minutes, hours, or days at the data you will present for Phase 2.

- The time-lapse between the client's introduction or Phase 1 of care and this next phase of care (Phase 2) may be minutes, hours, or days, depending on how the case is created.

- The data can be presented in the form of a nurse's note, assessment data, or medical record format.

- Include adequate data anticipating that following Phase 2, two NGN test questions could be created:

  ○ **NGN Item #3** will measure the cognitive skill:

    Prioritize Hypotheses

  ○ **NGN Item #4** will measure the cognitive skill:

    Generate Solutions

PHASE 3

- Describes what happened to the client after Phase 2.

- The time-lapse between Phase 2 of care and Phase 3 of care may be minutes, hours, or days.

- Place a time in minutes, hours, or days at the data that you will present for Phase 3.

- The data can be presented in the form of a nurse's note, assessment data, or medical record format.

- Include adequate data anticipating that following Phase 3, two NGN test questions could be created:

  ○ **NGN Item #5** will measure the cognitive skill:

    Take Action

  ○ **NGN Item #6** will measure the cognitive skill:

    Evaluate Outcomes

Example: Unfolding Case

Phase 1

1900: A 55-year-old client returns from the PACU after a left total knee arthroplasty. During surgery the client had epidural and regional anesthesia, and is currently receiving gabapentin, cyclobenzaprine, and IV acetaminophen for surgical pain. The client has a long history of osteoarthritis (OA) in both knees, ankles, and feet due to obesity, family history, and a job which requires long periods of standing. The nurse documents the following assessment findings in the Nurses' Notes.

History and Physical	Nurses' Notes	Orders	Laboratory Results

1915: VS: T 99.2° F (37.3° C); HR 109 BPM; RR 20 bpm; BP 148/92 mmHg. SpO_2 95% on RA; left knee pain of 6/10 on a 0-10 pain intensity scale

Drowsy but arouses easily; Reports "frequent waves of nausea"

Reports that legs and feet feel "very heavy and numb"

Small amount of serosanguinous drainage present on surgical dressing

Place NGN Item #1 here to measure the cognitive skill: **Recognize Cues**

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Reports that legs and feet feel "very heavy and numb"

Small amount of serosanguinous drainage present on surgical dressing

Place NGN Item #2 here to measure the cognitive skill:　**Analyze Cues**

Example: Unfolding Case

Phase 2

1300: A 55-year-old client had a left total knee arthroplasty yesterday due to uncontrolled pain from osteoarthritis (OA) caused by obesity, family history, and a job which requires long periods of standing. An hour after receiving an analgesic, the client states that the pain is 3/10 pain (on a 0-10 pain intensity scale) in the surgical knee when getting out of bed with assistance. The client also states "I would not have had this surgery if I knew I would be is so much pain."

Place NGN Item #3 here to measure the cognitive skill: **Prioritize Hypotheses**

1300: A 55-year old client had a left total knee arthroplasty yesterday due to uncontrolled pain from osteoarthritis (OA) caused by obesity, family history, and a job which requires long periods of standing. The client tells the nurse that "I would not have had this surgery if I knew I would be in so much pain," and has several questions about care.

Place NGN Item #4 here to measure the cognitive skill: **Generate Solutions**

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Example: Unfolding Case

Phase 3

1100: A 55-year-old client had a left total knee arthroplasty two days ago. The nurse assesses the client and plans health teaching for the client in preparation for discharge.

Place NGN Item #5 here to measure the cognitive skill: **Take Action**

1100: A 55-year-old client had a left total knee arthroplasty two days ago. The nurse assesses the client and plans health teaching for the client in preparation for discharge.

Place NGN Item #6 here to measure the cognitive skill: **Evaluate Outcomes**

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The NGN Item Types at a Glance

- There are 12 item types that can used in unfolding case studies and in the stand-alone trend item.

- These can be grouped into categories for organization purposes.

☀ Highlight	⤢ Drag & Drop	↓ Drop Down	∘∘∘ Matrix/Grid	☰ Extended Multiple Response
Highlight in Text	Drag & Drop Cloze	Drop Down Cloze	Matrix Multiple Response	Multiple Response Select All That Apply
Highlight in Table	Drag & Drop Rationale	Drop Down Rationale	Matrix Multiple Choice	Multiple Response Select N
		Drop Down In Table		Multiple Response Grouping

Writing the NGN Item Types

- Think about the learning outcome to be measured.

- Think about the cognitive skill to be measured and consider item types that would optimally measure the cognitive skill.

- Select an item type to create the question.

- Each item type has unique characteristics and criteria that must be met for the type to be effective in its measurement; follow these criteria in developing the item.

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NGN Item Types

Type	Criteria	Cognitive Skill(s) Optimally Measured*
☼ Highlight		
Highlight In Text	Includes a paragraph of information. Test-taker selects (highlights) parts of the text based on what the question is asking. There can be a maximum of ten options.	Recognize Cues Evaluate Outcomes
Highlight In Table	Includes a table of information. Test-taker selects (highlights) parts of the text based on what the question is asking. There can be a maximum of ten options. Includes two columns (one being a header) and up to five rows.	Recognize Cues Evaluate Outcomes
⤢ Drag & Drop		
Drag & Drop Cloze	Includes a minimum of four options (known as tokens) and a maximum of ten. There can be one or more response targets (target is where the token is dragged to). There is a minimum of one sentence with one target per sentence and a maximum of five sentences with one target per sentence.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes
Drag & Drop Rationale	Includes one sentence with one cause and one effect OR one sentence with one cause and two effects. Sentence can be a single dyad (one sentence with two targets) OR a single triad (one sentence with three targets). There can be three to five tokens for each drag & drop target.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes

NGN Item Types, cont.

Type	Criteria	Cognitive Skill(s) Optimally Measured*
↓ Drop Down		
Drop Down Cloze	Includes one or two sentences of information with one or more drop-down options from which to complete the sentence(s). There can be three to five options in each drop-down. There is a minimum of one sentence with one drop-down per sentence and a maximum of five sentences with one drop-down per sentence.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes
Drop Down Rationale	Includes one sentence with one cause and one effect OR one sentence with one cause and two effects. There can be three to five options in each drop-down.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes
Drop Down In Table	Includes a table of information with drop down options in different parts of the table. There can be a minimum of three columns and three rows and a maximum of five columns and four rows. One column is a header column. There is one drop-down per row.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes

NGN Item Types, cont.

Type	Criteria	Cognitive Skill(s) Optimally Measured*
∘∘∘ **Matrix/Grid**		
Matrix Multiple Response	Includes response columns and each response column could have multiple correct responses. There can be between two and ten columns and four to seven rows. Each column must have one response option selected but one or more responses per column can be selected.	Recognize Cues Analyze Cues Generate Solutions Take Action Evaluate Outcomes
Matrix Multiple Choice	Includes at least four rows and no more than ten rows. There can be two options/columns or three options/columns. Allows the test-taker to select one answer option per row.	Recognize Cues Analyze Cues Generate Solutions Take Action Evaluate Outcomes
☰ **Extended Multiple Response**		
Multiple Response Select All That Apply	Allows the test-taker to select one or more answer options. There can be only one correct response or multiple correct responses. There needs to be at least five options with no more than ten options, but all ten options could be correct.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes
Multiple Response Select N	The question needs to tell the test-taker the number of items (N) that can be selected. There needs to be at least five options with no more than ten options	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes

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NGN Item Types, cont.

Type	Criteria	Cognitive Skill(s) Optimally Measured*
≔ Extended Multiple Response		
Multiple Response Grouping	Options are presented in a table and the table can have a minimum of two groupings and a maximum of five groupings. Each grouping has a minimum of two options and a maximum of four options and the number of options for each grouping needs to be the same. The test-taker needs to select at least one option from each grouping.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes
🗐 Stand-Alone Items		
Bow-tie	Visually, the item looks like a bow-tie. There are five options in the left side and five options in the right side of the bow-tie (wells), and four options in the middle well. Items address up to all of the cognitive skills in the one item.	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes
Trend	Presents information over time in a medical record format or flow sheet format requiring the test-taker to review information over time. Item addresses multiple cognitive skills in the one item. Can feature any NGN item type (except the bow-tie).	Recognize Cues Analyze Cues Prioritize Hypotheses Generate Solutions Take Action Evaluate Outcomes

The cognitive skills listed for each item type are those that can be optimally measured. Access the NCSBN website at www.ncsbn.org frequently for the latest updates on item types and best measurement of cognitive skills.

Examples: Highlight NGN Items

 ☼ Highlight In Text

Example of Highlight In Text in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

 ☼ Highlight In Table

Example of Highlight In Table in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Drag & Drop NGN Items

Drag & Drop Cloze

Drag and Drop Cloze Example

Patient Data

History and Physical

0700: A 25-year-old client riding a motorcycle was struck by a speeding truck. The client was thrown into a ditch with the motorcycle landing on the right leg. The client's riding helmet remained intact during the accident. After lifting the motorcycle from the client's entrapped right leg, first responders at the scene found the client to be alert and oriented x 3, and able to move both arms and left leg. The client is unable to move the right leg. The only visible injury was severe bone and soft tissue damage of the right leg. The client states that pain is a 10/10 on a 0 to 10 pain intensity scale.

Vital signs at scene:
temperature 98.8° F (37.1° C)
pulse = 90 beats per minute
respirations = 24 breaths per minute
blood pressure = 130/78 mmHg

The client was immobilized and transported to the Emergency Department (ED).

Upon admission to the ED, the nurse reviews the client's history and physical.

Drag the assessment findings from the choices below to complete the sentence.

The assessment findings requiring immediate follow-up include: ____ , ____ , and ____ .

Assessment findings

- Alert and oriented
- 10/10 right leg pain
- Able to move both arms and left leg
- Severe right leg bone and soft tissue damage
- Unable to move right leg

KEY ● correct answer ● incorrect answer

Drag and Drop Cloze Example

Patient Data

History and Physical

0700: A 25-year-old client riding a motorcycle was struck by a speeding truck. The client was thrown into a ditch with the motorcycle landing on the right leg. The client's riding helmet remained intact during the accident. After lifting the motorcycle from the client's entrapped right leg, first responders at the scene found the client to be alert and oriented x 3, and able to move both arms and left leg. The client is unable to move the right leg. The only visible injury was severe bone and soft tissue damage of the right leg. The client states that pain is a 10/10 on a 0 to 10 pain intensity scale.

Vital signs at scene:
temperature 98.8° F (37.1° C)
pulse = 90 beats per minute
respirations = 24 breaths per minute
blood pressure = 130/78 mmHg

The client was immobilized and transported to the Emergency Department (ED).

Upon admission to the ED, the nurse reviews the client's history and physical.

Drag the assessment findings from the choices below to complete the sentence.

The assessment findings requiring immediate follow-up include: ❌ Alert and oriented , ✅ 10/10 right leg pain , and

✅ Severe right leg bone and soft tissue damage .

Assessment findings

- Able to move both arms and left leg
- ✅ Unable to move right leg

KEY ● correct answer ● incorrect answer

Examples of Drag & Drop Cloze in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

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Examples: Drag & Drop NGN Items

Drag & Drop Rationale

Drag and Drop Rationale Example

Patient Data

History and Physical

1000: A 25-year-old client riding a motorcycle was struck by a speeding truck while passing on a narrow rural road. As a result of the accident, the client's right leg was severely damaged by the motorcycle and the client was transported to the hospital by ambulance. After evaluation by the interprofessional health team in the ED and multiple x-ray examinations, the client was found to have several closed fractures of the femur, tibia, and fibula. Large portions of skin and soft tissues were damaged, but most of the skeletal muscle on the right leg remained intact. The client was sedated for fracture reduction and immobilization with a fiberglass splint. After this procedure, the client was admitted to the acute care orthopedic unit with an IV infusion and client-controlled analgesia.

The nurse reviews the client's admission history.

Drag one condition and one client assessment finding to complete the sentence.

The client is most at risk for developing [____] due to [____].

Condition	Assessment Finding
atelectasis	isolation
constipation	injury
sensory deprivation	immobility
infection	NPO status

KEY ● correct answer ● incorrect answer

Drag and Drop Rationale Example

Patient Data

History and Physical

1000: A 25-year-old client riding a motorcycle was struck by a speeding truck while passing on a narrow rural road. As a result of the accident, the client's right leg was severely damaged by the motorcycle and the client was transported to the hospital by ambulance. After evaluation by the interprofessional health team in the ED and multiple x-ray examinations, the client was found to have several closed fractures of the femur, tibia, and fibula. Large portions of skin and soft tissues were damaged, but most of the skeletal muscle on the right leg remained intact. The client was sedated for fracture reduction and immobilization with a fiberglass splint. After this procedure, the client was admitted to the acute care orthopedic unit with an IV infusion and client-controlled analgesia.

The nurse reviews the client's admission history.

Drag one condition and one client assessment finding to complete the sentence.

The client is most at risk for developing ● [atelectasis] due to ● [injury].

Condition	Assessment Finding
constipation	isolation
sensory deprivation	immobility
● infection	NPO status

KEY ● correct answer ● incorrect answer

Examples of Drag & Drop Rationale in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

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Examples: Drop Down NGN Items

↓ **Drop Down Cloze**

Examples of Drop Down Cloze in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Drop Down NGN Items

↓ **Drop Down Rationale**

Drop Down Rationale Example

Patient Data

Flow Sheet

The home care nurse visits a 79-year-old client who was discharged from the hospital one week ago for treatment of heart failure. The client tells the nurse the exercise regimen of walking three times weekly was started, but the client feels extremely fatigued the day after walking. The client has avoided walking this week due to feeling so tired. The nurse gathers additional data and documents in the flowsheets.

1100: Vital signs:
temperature 98.8^0 F (37.1^0 C)
pulse 68 beats per minute, respirations 20 breaths per minute
pulse oximetry (SpO$_2$) 92% on room air
blood pressure 112/68 mmHg

1100: Nursing assessment:
Lung sounds clear bilaterally
no peripheral edema
Sleeping well with 2 pillows for head elevation
Up to bathroom to void once during the night

Choose the most likely options for the information missing from the statement(s) by selecting from the lists of options provided.

The nurse [Select response] because [Select response]

Select response options:
- advises the client to reduce the level of exercise
- informs the client to maintain the exercise regimen
- instructs the client to check the amount of ankle edema before exercising

Select response options:
- the heart needs to contract efficiently and exercise is one treatment measure to accomplish this
- an additional dose of the prescribed diuretic needs to be taken before exercising
- tolerance to increased activity needs to be built up over time

KEY ✓ correct answer   ✗ incorrect answer

Drop Down Rationale Example

Patient Data

Flow Sheet

The home care nurse visits a 79-year-old client who was discharged from the hospital one week ago for treatment of heart failure. The client tells the nurse the exercise regimen of walking three times weekly was started, but the client feels extremely fatigued the day after walking. The client has avoided walking this week due to feeling so tired. The nurse gathers additional data and documents in the flowsheets.

1100: Vital signs:
temperature 98.8^0 F (37.1^0 C)
pulse 68 beats per minute, respirations 20 breaths per minute
pulse oximetry (SpO$_2$) 92% on room air
blood pressure 112/68 mmHg

1100: Nursing assessment:
Lung sounds clear bilaterally
no peripheral edema
Sleeping well with 2 pillows for head elevation
Up to bathroom to void once during the night

Choose the most likely options for the information missing from the statement(s) by selecting from the lists of options provided.

The nurse ✗ [informs the client to maintain the exercise regimen] ✓ [advises the client to reduce the level of exercise] because ✗ [an additional dose of the prescribed diuretic needs to be taken before exercising] ✓ [tolerance to increased activity needs to be built up over time] .

KEY ✓ correct answer   ✗ incorrect answer

Examples of Drop Down Rationale in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Drop Down NGN Items

↓ **Drop Down In Table**

Drop Down In Table Example

Patient Data

History and Physical

0900: A client who is 32-weeks pregnant visits the primary health care provider for the monthly OB visit. On assessment, the client is found to be hypertensive and has 1+ protein in the urine. The client has gained 10 pounds over the past 4 weeks and has 1+ pitting edema in both feet and ankles. The physician recommends that the client be hospitalized for expectant management.

The nurse reviews the client's history from the OB's office.

For each body system, chose the appropriate invention(s) for this client. One or more than one intervention may be appropriate.

Body System	Intervention
Cardiovascular	Select response
	Daily labs for CBC
	VS every shift
	Antihypertensive drug therapy
Neurological	Select response
	Activity restrictions
	Seizure precautions
	Ibuprofen for headaches
Renal	Select response
	Diuretic therapy
	Urinary catheter
	Routine labs for creatinine

KEY   ✓ correct answer   ✗ incorrect answer

Drop Down In Table Example

Patient Data

History and Physical

0900: A client who is 32-weeks pregnant visits the primary health care provider for the monthly OB visit. On assessment, the client is found to be hypertensive and has 1+ protein in the urine. The client has gained 10 pounds over the past 4 weeks and has 1+ pitting edema in both feet and ankles. The physician recommends that the client be hospitalized for expectant management.

The nurse reviews the client's history from the OB's office.

For each body system, chose the appropriate invention(s) for this client. One or more than one intervention may be appropriate.

Body System	Intervention
Cardiovascular	✗ Daily labs for CBC
	✓ Antihypertensive drug therapy
Neurological	✗ Ibuprofen for headaches
	✓ Activity restrictions
	✓ Seizure precautions
Renal	✗ Urinary catheter
	✓ Diuretic therapy
	✓ Urinary catheter

KEY   ✓ correct answer   ✗ incorrect answer

Examples of Drop Down In Table in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

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Examples: Matrix/Grid NGN Items

°°° **Matrix Multiple Response**

Examples of Matrix Multiple Response in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

°°° **Matrix Multiple Choice**

Examples of Matrix Multiple Choice in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Extended Multiple Response NGN Items

≡ Multiple Response Select All That Apply

Multiple Response Select All that Apply Example

Patient Data

History and Physical

0700: A 25-year-old client riding a motorcycle was struck by a speeding truck. The client was thrown into a ditch with the motorcycle landing on the right leg. The client's riding helmet remained intact during the accident. After lifting the motorcycle from the client's entrapped right leg, first responders at the scene found the client to be alert and oriented x 3, and able to move both arms and left leg. The client is unable to move the right leg. The only visible injury was severe bone and soft tissue damage of the right leg. The client states that pain is a 10/10 on a 0 to 10 pain intensity scale.

Vital signs at scene:
temperature 98.8° F (37.1° C)
pulse = 90 beats per minute
respirations = 24 breaths per minute
blood pressure = 130/78 mmHg

The client was immobilized and transported to the Emergency Department (ED).

Upon admission to the ED, the nurse reviews the pre-hospital documentation.

Which of the following client findings require immediate follow-up? Select all that apply.

- ☐ BP 130/78 mmHg
- ❌ ■ Respirations = 24 breaths per minute
- ☐ Alert and oriented x 3
- ✅ ■ 10/10 pain in right leg
- ❌ ■ Able to move both arms
- ✅ ☐ Unable to move right leg
- ☐ T 98.8° F (37.1° C)
- ✅ ■ Severe bone and soft tissue damage of right leg

KEY   ✅ correct answer
      ❌ incorrect answer

Examples of Multiple Response Select All That Apply in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

≡ Multiple Response Select N

Multiple Response Select N Example

Patient Data

History and Physical

0700: A 25-year-old client riding a motorcycle was struck by a speeding truck. The client was thrown into a ditch with the motorcycle landing on the right leg. The client's riding helmet remained intact during the accident. After lifting the motorcycle from the client's entrapped right leg, first responders at the scene found the client to be alert and oriented x 3, and able to move both arms and left leg. The client is unable to move the right leg. The only visible injury was severe bone and soft tissue damage of the right leg. The client states that pain is a 10/10 on a 0 to 10 pain intensity scale.

Vital signs at scene:
temperature 98.8° degrees F (37.1° C)
pulse = 90 beats per minute
respirations = 24 breaths per minute
blood pressure = 130/78 mmHg

The client was immobilized and transported to the Emergency Department (ED).

Upon admission to the ED, the nurse reviews the pre-hospital documentation.

Which 3 client assessment findings require immediate follow-up?

- ☐ BP 130/78 mmHg
- ☐ Respirations = 24 breaths per minute
- ❌ ■ Alert and oriented x 3
- ✅ ☐ 10/10 pain in right leg
- ❌ ■ Able to move both arms
- ✅ ☐ Unable to move right leg
- ❌ ■ T 98.8° F (37.1° C)
- ✅ ☐ Severe bone and soft tissue damage of right leg

KEY   ✅ correct answer
      ❌ incorrect answer

Examples of Multiple Response Select N in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Extended Multiple Response NGN Items

≡ **Multiple Response Grouping**

Examples of Multiple Response Grouping in Elsevier's learning and assessment products

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Stand-Alone Items

Bow-tie Item

Bow-tie Example

Patient Data

Nurses' Notes

The nurse in the birthing room performs an initial assessment on a newborn and documents the assessment data in the nurses' notes.

0800: A newborn of 43 weeks gestation born via vaginal delivery. Apgar score at 1 minute = 3. Newborn limp, skin color bluish, respiratory rate 80 bpm, grunting during breathing with nasal flaring. Lacks cry with minimal response to gentle slap on soles. Nails and umbilical cord stained a yellow-green color. Blood glucose 40 mg/dL (2.2 mmol/L). Profuse scalp hair. Length 23 in (58.42 cm), weight 5.5 lbs (approximately 2500 g).
SpO_2 – 90% on RA

Complete the diagram by dragging from the choices area to specify which potential condition the newborn is most likely experiencing, two most likely assessment findings that support that condition, and two potential interventions to treat that condition.

Assessment Findings — Potential Conditions — Potential Interventions

Assessment Findings	Potential Conditions	Potential Interventions
Skin color bluish	Acrocyanosis	Suctioning
Profuse scalp hair	Meconium aspiration syndrome	Oxygen therapy
Skin dry and cracked without lanugo	Large for gestational age	Early feedings with dextrose
Length 23 in (58.42 cm), weight 5.5 lbs (2500 g)	Transient tachypnea	Phototherapy with a bili-blanket
Nails and umbilical cord stained a yellow-green color		Abdominal decompression with a nasogastric tube

KEY ✅ correct answer ❌ incorrect answer

Bow-tie Example

Patient Data

Nurses' Notes

The nurse in the birthing room performs an initial assessment on a newborn and documents the assessment data in the nurses' notes.

0800: A newborn of 43 weeks gestation born via vaginal delivery. Apgar score at 1 minute = 3. Newborn limp, skin color bluish, respiratory rate 80 bpm, grunting during breathing with nasal flaring. Lacks cry with minimal response to gentle slap on soles. Nails and umbilical cord stained a yellow-green color. Blood glucose 40 mg/dL (2.2 mmol/L). Profuse scalp hair. Length 23 in (58.42 cm), weight 5.5 lbs (approximately 2500 g).
SpO_2 – 90% on RA

Complete the diagram by dragging from the choices area to specify which potential condition the newborn is most likely experiencing, two most likely assessment findings that support that condition, and two potential interventions to treat that condition.

❌ Profuse scalp hair — ❌ Large for gestational age — ❌ Phototherapy with a bili-blanket
❌ Skin dry and cracked without lanugo — — ✅ Oxygen therapy

Assessment Findings	Potential Conditions	Potential Interventions
✅ Skin color bluish	Acrocyanosis	✅ Suctioning
Length 23 in (58.42 cm), weight 5.5 lbs (2500 g)	✅ Meconium aspiration syndrome	Early feedings with dextrose
✅ Nails and umbilical cord stained a yellow-green color	Transient tachypnea	Abdominal decompression with a nasogastric tube

KEY ✅ correct answer ❌ incorrect answer

Examples of Bow-tie Item in Elsevier's learning and assessment products.

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Examples: Stand-Alone Items
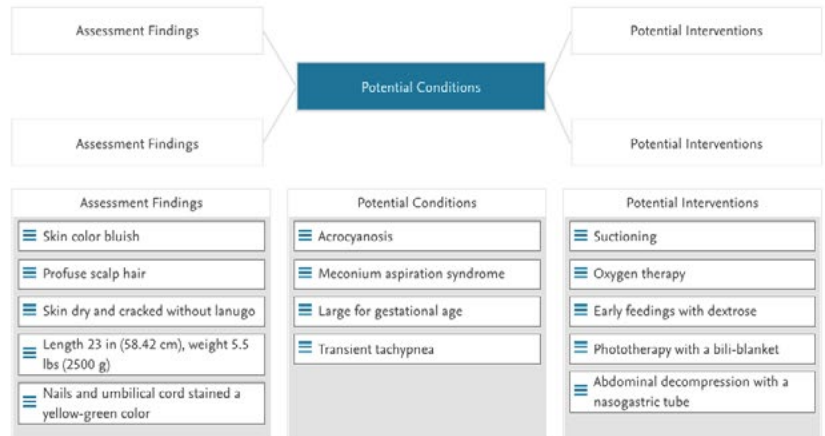
Trend Item

Trend Example

Patient Data

Laboratory Results   Flow Sheet

Laboratory Results	Result	Reference Range
Blood urea nitrogen (BUN)	35 mg/dL H (12.6 mmol/L)	10 – 20 mg/dL (3.6 - 7.1 mmol/L)
Creatinine (Cr)	1.8 mg/dL H (158.4 mcmol/L)	0.5 – 1.2 mg/dL (44 - 106 mcmol/L)

Laboratory Results   Flow Sheet

Vital Signs	0800	1200	1600
T	99.8° F (37.6°C)	99.6°F (37.5°C)	99.2°F (37.3°C)
HR	72 BPM	80 BPM	88 BPM
RR	14 bpm	16 bpm	18 bpm
BP	106/58 mmHg	126/78 mmHg	140/80 mmHg
SpO₂ (RA)	95%	93%	92%

Intake & Output	0800	1200	1600
Intake oral	120 mL	150 mL	90 mL
Intake IV	125 mL	125 mL	125 mL
Output	90 mL	50 mL	26 mL

The evening shift nurse reviews the flow sheets and morning laboratory results of a 54-year-old client who had an abdominal aneurysm repair 24 hours ago. The client has an IV infusion at a rate of 125 mL/hr, unchanged for the last 12 hours.

Choose the most likely options for the information missing from the statement(s) by selecting from the lists of options provided.

The client is most likely experiencing [Select response] as evidenced by changes in [Select response]

Hypoxia	Heart rate
Bleeding	Urine output
Wound infection	Temperature
Acute kidney injury	Respiratory rate

KEY   ✓ correct answer   ✗ incorrect answer

Examples of Trend Item in Elsevier's learning and assessment products.

Question delivery options may appear differently for this item working within Elsevier digital offerings with NGN item types. Contact your Elsevier Education consultant to learn more.

Trend Example

Patient Data

Laboratory Results   Flow Sheet

Laboratory Results	Result	Reference Range
Blood urea nitrogen (BUN)	35 mg/dL H (12.6 mmol/L)	10 – 20 mg/dL (3.6 - 7.1 mmol/L)
Creatinine (Cr)	1.8 mg/dL H (158.4 mcmol/L)	0.5 – 1.2 mg/dL (44 - 106 mcmol/L)

Laboratory Results   Flow Sheet

Vital Signs	0800	1200	1600
T	99.8° F (37.6°C)	99.6°F (37.5°C)	99.2°F (37.3°C)
HR	72 BPM	80 BPM	88 BPM
RR	14 bpm	16 bpm	18 bpm
BP	106/58 mmHg	126/78 mmHg	140/80 mmHg
SpO₂ (RA)	95%	93%	92%

Intake & Output	0800	1200	1600
Intake oral	120 mL	150 mL	90 mL
Intake IV	125 mL	125 mL	125 mL
Output	90 mL	50 mL	26 mL

The evening shift nurse reviews the flow sheets and morning laboratory results of a 54-year-old client who had an abdominal aneurysm repair 24 hours ago. The client has an IV infusion at a rate of 125 mL/hr, unchanged for the last 12 hours.

Choose the most likely options for the information missing from the statement(s) by selecting from the lists of options provided.

The client is most likely experiencing ✓ [Acute kidney injury] as evidenced by changes in ✗ [Temperature] ✓ [Urine output] .

KEY   ✓ correct answer   ✗ incorrect answer

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Test-Taking Strategies for Student Success

- The complexity of client care in healthcare practice has increased, requiring critical thinking and reasoning in the decision-making process to make clinical judgments.

- The new test items on the NCLEX are embedded in case studies and represent real-world scenarios that measure clinical judgment, which requires deeper thinking.

- Current NCLEX test items are viewed as knowledge items; students have been guided to use knowledge and certain test-taking strategies to answer these current test items.

- For current items, students focus only on the information in a test question so that they do not "read into the question"; this strategy is not one that promotes the thinking process necessary to answer NGN items.

- With NGN items, students need to think about the complex clinical scenario presented and focus on more than what is presented to make clinical judgments.

- Refer to the **Test-Taking Strategies for Knowledge and NGN Items** table below that differentiates between current items and NGN items.

Test-Taking Strategies for Current Stand-alone (Knowledge) and CJ NGN Items

Test-Taking Strategy	Current "Stand-alone" Items	CJ Test Items
Knowledge	Requires knowledge but superficial learning may be sufficient	Requires knowledge and deep learning
Clinical Judgment	Requires some clinical judgment skills but for a single focus of content	Requires clinical judgment and thinking about how to use knowledge in complex situations
Prioritizing Client Needs	Requires the skill of prioritizing but for a single situation; use of strategies such as airway, breathing and circulation (ABCs), Maslow's Hierarchy of Needs, and the nursing process with assessment being the first step are usually helpful	Requires the skill of prioritizing but for multiple thinking situations occurring at one time; strategies used for knowledge questions are not helpful in these complex situations because of the multiple situations occurring with the client
Evidence-Based Solutions	Requires using knowledge about evidence-based practice but for a single focus of content	Requires using knowledge about evidence-based practice but also connections need to be made between many concurrent situations that are occurring with the client

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Test-Taking Strategies for NGN Test Items

- Both unfolding cases and stand-alone items present complex client scenarios that require thinking and making connections about multiple situations occurring at one time.

- Students need a structured method to link knowledge and logical thinking to make connections and clinical judgments.

- Although multiple situations may be occurring at one time requiring thinking and making connections, concepts in the test item can be examined with a structured approach that guide logical thinking processes for answering items correctly.

- Helping students create and use a structured and logical thinking process as a test-taking strategy is essential to answer NGN items correctly.

- Constructing tables that examine the concepts of an item are a helpful test-taking strategy for NGN items.

- See the box below for an example of a test-taking strategy for an NGN item

Example NGN Item and Test-Taking Strategy

1200: A 68-year-old client presents to the emergency department (ED) reporting numbness and tingling of the left side of the face and the left arm that started 2 hours ago. The ED nurse performs a focused assessment and notes focal neurological deficits on the left side of the body. The ED physician orders a stat computed tomography (CT) scan of the brain, which confirms ischemic stroke affecting the middle cerebral artery. The ED nurse assesses vital signs. The client has no known past medical history and does not take any medications on a routine basis.

History and Physical	Nurses' Notes	Flow Sheet

T 97.5° F (36.4° C), HR 98 BPM, RR 20 bpm, BP 152/84mmHg, SpO$_2$ 96% RA

Which of the following actions would the ED nurse plan for the client? Select all that apply.

- ● Complete a swallow screen
- ○ Allow thickened liquids only
- ● Administer fibrinolytic therapy
- ● Obtain an electronic infusion pump
- ● Perform a cardiovascular assessment
- ○ Insert an indwelling urinary catheter
- ○ Administer IV antihypertensive medication
- ● Perform frequent neurological assessments

Example NGN Item and Test-Taking Strategy, cont.

Rationale:

An ischemic stroke is caused by a blockage of a cerebral or carotid artery. Multiple interventions are needed for the client experiencing a stroke in order to ensure safety. The client with an ischemic stroke may experience impaired swallowing as a complication of the stroke. The nurse needs to complete a swallow screen per facility protocol, to determine any impairments with swallowing. This action will prevent complications such as pneumonia from aspiration. The nurse needs to keep the client NPO (nothing by mouth) until the appropriate diagnostic testing is completed, such as video fluoroscopic swallow study usually performed by a speech-language pathologist; therefore, thickened liquids would not be given at this time until this work-up has been done. The nurse would anticipate a prescription to administer fibrinolytic therapy. This is the standard of practice for clients experiencing ischemic strokes that meet specified criteria. Exclusionary criteria include greater than 4.5 hours from onset of symptoms, older than 80 years, anticoagulant use, ischemic injury greater than one-third of the brain, significant neurological impairment, and history of both stroke and diabetes mellitus. This client does not meet any of these exclusionary criteria and therefore would be considered a candidate for fibrinolytic therapy. To safely administer this therapy, the nurse needs to use an electronic infusion pump and double check the dose with another licensed nurse. A cardiovascular assessment is important to assess for heart murmurs, dysrhythmias such as atrial fibrillation, and hypertension. With an ischemic stroke, a blood pressure of approximately 150/100mmHg is needed to maintain cerebral perfusion. With a blood pressure of 152/84mmHg, an IV antihypertensive medication would not be indicated. For a client receiving fibrinolytic therapy, invasive tubes such as indwelling urinary catheters should not be placed for at least 24 hours or until the client is stable to prevent bleeding. Frequent neurological assessments per facility protocol are important for a client with ischemic stroke, and for clients receiving fibrinolytic therapy, to detect further clinical deterioration early on.

Test-Taking Strategy: Note the question is asking about nursing actions to plan care for the client experiencing an ischemic stroke. Think about the scenario and the potential effects of these interventions on the health problem presented. Look at each option provided and make an association with the information presented in the medical record, as illustrated in the table below.

Intervention	Potential Effects on Ischemic Stroke
Complete a swallow screen	Ensure safety in the event of dysphagia as a complication of the stroke
Allow thickened liquids only	Is unsafe and could result in aspiration; need to wait until further work-up and consultation is done
Administer fibrinolytic therapy	Would promote a better outcome for a client with ischemic stroke meeting criteria
Obtain an electronic infusion pump	Needed to safely administer fibrinolytic therapy
Perform a cardiovascular assessment	Important information such as heart sounds and blood pressure are needed to monitor for complications for a client with ischemic stroke
Insert an indwelling urinary catheter	No indication that this is necessary and could pose a risk for urinary tract infection
Administer IV antihypertensive medication	A BP of 150/100mmHg is needed to maintain cerebral perfusion; BP is not high enough for an IV antihypertensive medication
Perform frequent neurological assessments	Assists in detecting clinical deterioration early

> The correct options are those that ensure safety, monitor for complications or clinical deterioration, or promote a better outcome of care. The options that are unsafe and could result in additional complications or that do not have the data to support the interventions are the incorrect options.

Explore Options for Electronic Testing of the NGN Test Item Types

- Begin to discuss the plan for which NGN Test Items will be incorporated into course exams.

- Plan a meeting with the informational technology (IT) department to identify current platforms being used in the college or university and if these platforms will support the use of NGN item types and their scoring. Involve IT department as a resource in making decisions.

- Seek administrative support to explore electronic platform options for NGN item type testing.

Scoring the NGN Item Types

Scoring Rules:

There are three scoring rules identified by the NCSBN that will be used to score some current NCLEX and new NGN items.

1.

0/1 Scoring Rule

- Applied when the test-taker is instructed to choose a specific number of responses
- Earn 1 point for a correct response
- Earn 0 points for incorrect responses
- Total score = sum of all correct responses

2.

+/- Scoring Rule

- Applied when the test-taker is instructed to choose an unspecified number of responses
- Allows the test-taker to over- or under-respond
- Earn points (+1) for selecting correct information
- Lose points (-1) for selecting incorrect information
- Maximum points = number of correct options
- Minimum points = 0
- There are no negative scores

3.

Rationale Scoring Rule

- Test-taker must have a full understanding of paired information
- Concepts require justification through a rationale
- Both X and Y must be correct to earn a point

Max points: dyad is 1pt

- Dyad examples:
  - ✓ A nurse must do X because of Y
  - ✓ A client has X as evidenced by Y

Max points: triad is 2pts

- Triad examples:
  - ✓ A nurse must do X because of Y and Z
  - ✓ A client has X as evidenced by Y and Z

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NGN Types, Scoring Rule, Points

Type	Scoring Rule	Points
☀ **Highlight**		
Highlight In Text	+/- Scoring Rule	Earn points (+1) for selecting correct information Lose points (-1) for selecting incorrect information Maximum points = N keys Minimum points = 0 No negative scores
Highlight In Table	+/- Scoring Rule	Earn points (+1) for selecting correct information Lose points (-1) for selecting incorrect information Maximum points = N keys Minimum points = 0 No negative scores
⤢ **Drag & Drop**		
Drag & Drop Cloze	0/1 Scoring Rule	Earn 1 point for a correct response Earn 0 points for incorrect responses Sum is across all targets Maximum score = Number of targets
Drag & Drop Rationale	Rationale Scoring Rule	Both X and Y must be correct to earn a point Maximum points: dyad 1pt; triad 2pts
↓ **Drop Down**		
Drop Down Cloze	0/1 Scoring Rule	Sum is across all drop downs Max score = Number of drop downs
Drop Down Rationale	Rationale Scoring Rule	Both X and Y must be correct to earn a point Maximum points: dyad 1pt; triad 2pts
Drop Down In Table	0/1 Scoring Rule	Sum is across all drop downs Maximum score = Number of drop downs

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NGN Types, Scoring Rule, Points, cont.

Type	Scoring Rule	Points
ooo **Matrix/Grid**		
Matrix Multiple Response	+/- Scoring Rule	No negative score per column Sum of the points per column is the item's total score Maximum score = N keys
Matrix Multiple Choice	0/1 Scoring Rule	Earn 1 point for the correct response Earn 0 points for the incorrect response The score over the rows is added to get the total score of the item Maximum score = Number of rows
☰ **Extended Multiple Response**		
Multiple Response Select All That Apply	+/- Scoring Rule	Earn points (+1) for selecting correct information Lose points (-1) for selecting incorrect information Maximum points = number of correct options Minimum points = 0 No negative scores
Multiple Response Select N	0/1 Scoring Rule	Earn 1 point for each correct response Earn 0 points for any incorrect response
Multiple Response Grouping	+/- Scoring Rule	No negative score per grouping Sum of the grouping points is the item's total score Max score = N keys
🖥 **Stand-Alone Items**		
Bow-Tie	0/1 Scoring Rule	There will be 2 answer options for the left well, 2 answer options for the right well, and one option for the middle well making the max possible points 5. Earn1 point for each correct response Earn 0 points for any incorrect response
Trend	Scoring rule depends on the item type used	

Semester 3/4: Readiness for the NGN

Semester 3/4 of the rollout plan focuses on assessment and determining readiness for the NGN

> View the rollout plans with all the phases for RN and PN/VN programs

Curriculum Approach

- Continue with activities outlined in Semester 2 using more complex clinical scenarios.

- Begin to gradually include new NGN test item formats on course exams *but* as graded items.

- In course exams, start by including item types which students will find the most familiar and most comfortable.

- Gradually increase the inclusion of NGN items over the last two semesters of the nursing program. In the final semester course exams, include three unfolding cases, each with six cognitive skill NGN questions, and two to three bow-tie and two to three trend items. Again, these **should** be graded items.

- Standardized testing course to course and end-of-program testing is important for assessment and determining readiness for NCLEX.

Final Preparation

- Encourage students to self-assess and identify their specific strengths and weaknesses with regard to content areas and test plan areas.

- From the start of the program, students should be using the NCLEX test plan to identify activities that will be tested; encourage students to continue to use the test plan blueprint as a study guide for final NCLEX preparation.

- Guide students to access resources such as the Candidate Bulletin on the NCSBN website at www.ncsbn.org to familiarize themselves with the exam.

- Encourage students to practice test questions in preparation for NCLEX, both current items since they are still going to be on the exam, and case studies and NGN items.

- Encourage students to attend an NCLEX review course prior to taking the NCLEX.

References

Dickison, P., Haerling, K.A., & Lasater, K. (2019). Integrating the National Council of State Boards of Nursing Clinical Judgment Model into nursing educational frameworks. *Journal of Nursing Education, 58*(2), 72-78.

Giddens, J.F. & Brady, D.P. (2007). Rescuing nursing education from content saturation: The case for concept-based curriculum. *Journal of Nursing Education, 46*(3), 65-69.

Ignatavicius, D.D. (2020). *Developing clinical judgment for professional nursing practice and the Next-Generation NCLEX-RN®.* St. Louis, MO: Elsevier.

Muntean, W. (2021). *Next Generation NCLEX® (NGN): Item Types and Scoring Testing.* 2021 Virtual NCLEX Conference. Chicago, IL: NCSBN.

National Council of State Boards of Nursing (NCSBN) (2018). *NCLEX-RN® Examination: Test plan for the National Council Licensure Examination for Registered Nurses.* Chicago, IL: Author.

National Council of State Boards of Nursing (NCSBN) (2019). *NCLEX-PN® Examination: Test plan for the National Council Licensure Examination for Practical/Vocational Nurses.* Chicago, IL: Author.

National Council of State Boards of Nursing (NCSBN) (Winter 2021). *Next Generation NCLEX®: Test Design.* Next Generation NCLEX News Chicago, IL: Author.

Petersen, E., Betts, J. & Muntean, W. (December 2020). *Next Generation NCLEX® (NGN) Webinar.* Chicago,IL: NCSBN.

Repsha, C.L., Quinn, B.L. & Peters, A.B. (2020). Implementing a concept-based curriculum: A review of the literature. *Teaching and Learning in Nursing, 15*(1), 66-71.

Silvestri, L., Silvestri, A. & Ignatavicius, D. (2023). *Strategies for student success on the Next Generation NCLEX® (NGN) Test Items.* St. Louis: MO: Elsevier. In press.

Silvestri, L., Silvestri, A. (2022–2023). *Clinical judgment and test-taking strategies: Passing nursing school and the NCLEX® Exam*, 7th ed, St. Louis: MO: Elsevier.

Tanner, C.A. (2006). Thinking like a nurse: A research-based model of clinical judgment in nursing. Nurse Educator, 45(6), 204-211.

Resources

> You can find all of Elsevier's NGN articles, recordings, and resources at
> https://evolve.elsevier.com/education/expertise/next-generation-nclex/

- Preparing for the Next Generation NCLEX® (NGN): A Systematic Approach for RN Programs

- Preparing for the Next Generation NCLEX® (NGN): A Systematic Approach for PN/VN Programs

- Next Generation NCLEX®: Preparing Practice-Ready Nurses

- Writing Effective Next Generation NCLEX® (NGN) Items

- Getting Ready for the Next-Generation NCLEX® (NGN): How to Shift from the Nursing Process to Clinical Judgment in Nursing

- Getting Ready for the Next Generation NCLEX® (NGN): Frequently Asked Questions

- Thinking Not Doing: How Changes Give Opportunity to Focus on Clinical Judgment

- Preparing for Next Generation NCLEX® (NGN) Test Items: A Best-Practice Approach Across the Curriculum

- Using Graphic Organizers to Develop Clinical Judgment in Prelicensure Nursing Students

- Using the Send-a-Problem Activity for Didactic Learning

- Using Case Studies to Develop Clinical Judgment and Ensure Next Generation NCLEX® (NGN) Success

- Higher-Cognitive-Level Test Questions: A Starting Point for Creating Next Generation NCLEX® (NGN) Test Items
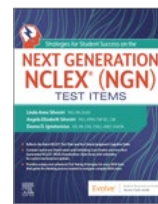
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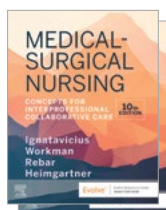
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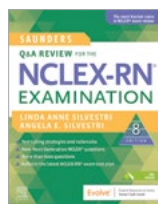2021
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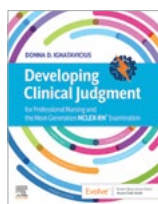
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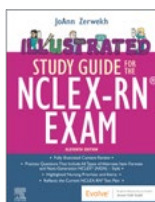2023
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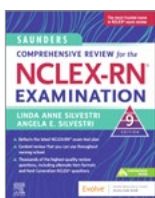
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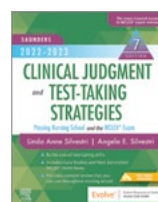2023
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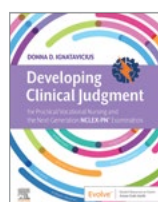2021
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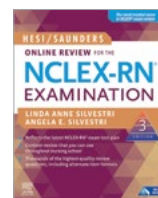
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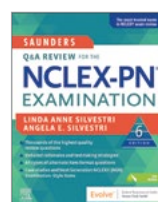2023
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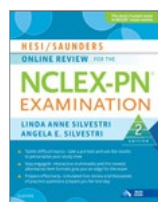**ISBN: 978-0-323-76388-2**
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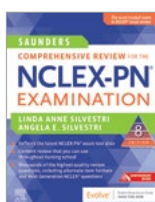
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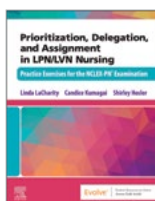
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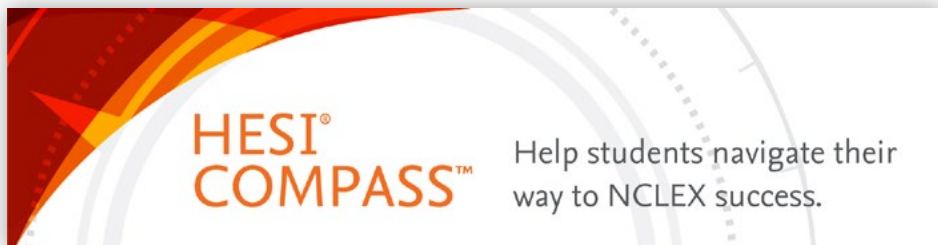
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