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White Paper

Higher-Cognitive-Level Test Questions:

A Starting Point for Creating Next Generation NCLEX® (NGN) Test Items

HIGHER-COGNITIVE-LEVEL TEST QUESTIONS:
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Linda Anne Silvestri, PhD, RN, FAAN

Introduction

The decisions being made about the Next Generation NCLEX® and the types of questions that will be included on the exam are based on rigorous and detailed research being conducted by the National Council of State Boards of Nursing (NCSBN). This research is still in progress and evolving as more is learned about the Clinical Judgment Measurement Model (CJMM) and the item types that will effectively test clinical judgment. The CJMM is described as a flexible model that presents the complex entities associated with decision-making in a simplified manner (Dickison, et al., 2019). It is a model that can guide nurse educators to measure the application of specific cognitive processes necessary for decision-making and rendering clinical judgments. This model is also considered to be an Action Model and according to the NCSBN (2019), the model closes the gap between what is taught in clinical nursing education and what is measured on the exam.

Research on the CJMM, the Action Model, and on specific item types will continue for some time: first, to ensure that the model is sound and will provide a guide for applying processes and measuring clinical judgment; and second, to verify that the psychometrics related to each question type demonstrate reliability and validity and measure clinical judgment. The NCSBN's plan is to launch the new licensure examination using NGN item types in 2023 on both the RN and PN exams. Even after this time, the NCSBN will continue to research and determine outcomes of this initiative and the testing measures implemented. This robust initiative by the NCSBN is not a static process — there is no end-point yet — and there may not ever be an end-point because research will continue as an evolving process even after the new test is implemented.

Some questions one may be asking about the Next Generation NCLEX could be:

- What impact does this initiative, research, and change have on nurse educators preparing students to be thinkers and to make sound clinical decisions and judgments?
- What is the impact in terms of NCLEX success for students graduating from our programs?
- How can nurse educators get ready for this NCLEX change?
- And specifically, what should nurse educators be doing now?

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The Impact

Sound clinical judgment skills in graduate nurses have been a point of concern for the past several years and there is a plethora of research in the area of critical thinking, decision-making, and clinical judgment. More than three decades ago, Benner (1984) noted that novice nurses are not equipped with the necessary skills to make sound and competent nursing judgments. This remains a concern in nursing. This finding was validated from Benner's research on the state of nursing education some 25 years later (Benner, et al., 2010).

Clinical judgment is described as a necessary component to providing competent and safe care and is the foundation of quality nursing care (Dickison, et al., 2019; Manetti, 2019). Tanner (2006) notes that clinical judgment is viewed as an essential skill for virtually every health professional (p. 204). It is critical that nurse educators prepare students to become *thinkers* in order for them to be successful on the NCLEX and competent in practice. The need to make sound clinical judgments in nursing is not a new idea — this ability has always been crucial. With findings that show only 23% of new nursing graduates are competent in basic clinical reasoning and judgment skills (Kavanaugh & Szweda, 2017), that 50% of patient errors involve novice nurses (NCSBN, 2018), and that 80% of employers are not satisfied with nursing graduate clinical judgment ability (NCSBN, 2018), it is imperative that the gap between what is taught and how it is taught in nursing education, and what is measured on the exam be addressed.

Readiness for the NGN

There are many ways nurse educators can prepare their students for the new NCLEX, including staying informed on the progress and decisions being made about NGN by the NCSBN. Educators can do this by making frequent visits to the NCSBN website at www.ncsbn.org. In addition, educators can subscribe to the NCSBN mailing list at https://www.ncsbn.org/subscribe.htm to receive all of the updates about the NGN project.

Another way is to become familiar with the NCSBN's CJMM and Action Model. This model will help educators develop tools and create activities for use in the classroom and clinical that will foster clinical judgment. According to Dickison, et al. (2019), the CJMM was developed based on teaching-learning frameworks for presenting decision-making concepts to students (p. 73). It may be helpful for faculty to consider using a teaching-learning framework, if not already doing so, to guide their efforts in curriculum development and revision.

A Starting Point

Eventually, nursing faculty will need to create NGN items for testing and should be thinking about this process. Remember, though, at this point *just think* about NGN item types. Creating NGN items is not an easy task — it is a learning process and they will take time and a great deal of thought to create. Do not be burdened and feel as though these items must be created now for tests. Rather, take it a step at a time to get to the point of readiness for creating NGN items.

Nursing courses likely have existing tests, and possibly even test banks of teacher-made test questions. There is no need to discard these questions and start all over from scratch with new questions. This is absolutely *not* necessary. The first step in moving toward creating higher-cognitive-level questions is to examine what already exists and determine where to go with each specific test question.

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Currently, the types of NGN test items that will be part of the new exam include enhanced hot spot/highlight, enhanced select all that apply (SATA), enhanced drag and drop, matrix/grid, and cloze (drop down). Educators should keep these in mind as they begin the journey toward creating higher-cognitive-level test questions. However, at this point it is not necessary to change or incorporate all of these new types into current banks of test questions. Additionally, it is important to remember that the new NCLEX exam will be a combination of current NCLEX item types and NGN items.

Step 1:

Review the six cognitive processes/skills that will be measured and their descriptions (Dickison, et al., 2019). These include:

Recognize cues — identifying significant data from many sources (assessment)

Analyze cues — connecting the data to the client's presentation — is this data expected? Unexpected? What are the concerns? (analysis)

Prioritize hypotheses — rank the hypotheses; concerns, client needs (analysis, diagnosis)

Generate solutions — use hypotheses to determine interventions for an expected outcome (planning)

Take actions — implement the generated solutions addressing the highest priorities or hypotheses (implementation)

Evaluate outcomes — compare observed outcomes with expected ones (evaluation)

Step 2:

Create a test plan blueprint for test questions. A test plan blueprint is an important tool to help increase content validity of test assessment (Patil, et al., 2015). Some test plan blueprints are designed to evaluate achievement of outcomes and identify program objectives, course objectives, nursing content, and other associated information in the plan. The blueprint that faculty develop for creating higher-cognitive-level questions will be a tool specific to examining current test questions, measuring their ability for applying the six cognitive skills, revising the questions as needed, and thinking about future NGN item types. An example of a blueprint design follows. This is only an example and columns can be designed in tools that are most helpful to each individual instructor.

TEST PLAN BLUEPRINT EXAMPLE

Current Test Question	Current Question Type	Current Cognitive Skill	Potential Cognitive Skill(s) that Can Be Measured	Additional Content Needed to Revise to NGN	Revised Question	Potential Future NGN Item Type

(continued)

Step 3:

Begin the test blueprint. Review each exam and assess each test question.

- Place each test question in the *Current Test Question* column.
- Note the current question type, such as multiple choice (MC), select all that apply (SATA), drag and drop, and so on. This notation will be helpful when thinking about the potential future NGN item types that one may want to consider using in each exam.
- Look at each test question and determine *what you have* and *what you need*. Code each question based on the six cognitive skills of the CJMM. This will provide the educator with the *what you have* information. The current question could address one, more than one, or all six cognitive skills. Or, the current test question may not address any of the skills. This is the information that one wants to know. Once information is gathered, the determination can be made about *what you need*: the cognitive skill(s) that should be included to best assess, as a starting point, clinical judgment. Note that not all current questions need to address all six cognitive skills at this point. Eventually, when unfolding case studies are created, they will include questions that address all six cognitive skills, but for now the goal is to determine *what you have, what you need*, and to begin making revisions.

Some questions that can be asked in review of current test questions are:

- Does the test question provide cues that the student needs to recognize?
- Could this question become the basis for a single episode patient scenario or an unfolding case study?
- What NGN item type(s) could be created to test clinical judgment?

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The Test Plan Blueprint in Action

Below is an illustration of a test question and test plan blueprint to determine *what you have, what you need*, and the revised question. This is followed by a brief description of the process. This test plan blueprint provides you with one method to map your questions and determine the path for elevating your test questions to a higher cognitive level.

TEST PLAN BLUEPRINT

Current Test Question	Current Question Type	Current Cognitive Skill	Potential Cognitive Skill(s) that Can Be Measured	Additional Content Needed to Revise to NGN	Revised Question	Potential Future NGN Item Type
The nurse is monitoring a client receiving a blood transfusion. The nurse would watch for which specific sign of a blood transfusion reaction? 1. Chills 2. Fatigue 3. Lack of appetite 4. Elevation in blood pressure	Multiple Choice	Recognize Cues	• Recognize cues • Analyze cues • Prioritize hypotheses • Generate solutions • Take actions	Add data to the question that indicates a transfusion reaction; data should not tell the student that the client is having a reaction. Add data to the question that would require differentiating between significant and insignificant data.	The nurse is administering a unit of blood and checks vital signs. The vital signs are: T 39.8°C, P 110 bpm, RR 20 bpm, BP 100/58 mmHg, SpO2 95% RA. The client complains of "feeling funny," lower back pain, chills, and feels flushed. Which prescribed measures would the nurse take to safely manage the care of this client? **Select all that apply.** 1. Stop the transfusion 2. Administer antibiotics 3. Administer furosemide 4. Administer acetaminophen 5. Administer diphenhydramine 6. Administer intravenous fluids	Enhanced hot spot/highlight Enhanced SATA Enhanced drag and drop Cloze Matrix/grid

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Current Test Question

When reviewing the current test question, the student is provided the information that the client is receiving blood and the question asks about the signs of a transfusion reaction. This is a good question, but what it does not do is assess clinical judgment to the extent that is needed to measure clinical judgment. In fact, it is a low-cognitive-level question at the understanding level because all that is required to answer the question is knowledge of a list of the signs and symptoms of a transfusion reaction.

So, one would want to consider revising this question to become one that is, to some extent, a single-episode patient scenario, and also consider creating more than one question associated with the situation.

Revised Question

In the revised question, you are providing data about the client, but you are not telling the student that the client is having a transfusion reaction or even asking about the signs and symptoms of a reaction. In this revised question, the student needs to:

Recognize cues:
Client observation cues: "feeling funny," lower back pain, chills, and flushing; febrile, tachycardic, borderline hypotensive
Environmental: In the hospital, receiving blood

Analyze cues:
- Consider blood transfusion reaction

Prioritize hypotheses:
- Prevent further reaction
- Monitor the client; treat signs/symptoms

Generate solutions:
- Prevent adverse effects of the reaction
- Monitor the client
- Treat the client's signs and symptoms
- Administer medications as prescribed

Take actions:
- Stop the transfusion
- Notify the primary healthcare provider
- Administer furosemide
- Administer acetaminophen
- Administer intravenous fluids

Although this revised question does not address the cognitive skill of Evaluate Outcomes, one could consider creating an additional question that addresses this skill, particularly when you begin creating NGN unfolding case studies. Below are some outcomes that could be tested.

Evaluate outcomes:
- Symptoms subside
- No adverse effects occur
- Urine output is adequate, vital signs are stable, laboratory results are normal

Conclusion

The need to make sound clinical judgments in nursing is not a new idea. Nurses must have the ability to recognize and sort out often vague details of the client's illness experience and recognize relevant issues in clinical situations. Thus, nurse educators have a critical role in grooming students to become thinkers, to be proficient in practice, and to be successful on the NCLEX. It seems clear that the Clinical Judgment Measurement Model and Action Model are here to stay and that the future of the NCLEX exam is to include NGN item types. Creating NGN item types can be an overwhelming idea, but educators can move toward this outcome by taking it a step at a time, revising current assessment measures, and then moving toward crafting new innovative techniques that will measure clinical judgment.

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**Denotes classic reference.*

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