Building Student Clinical Judgment Skills for the Next Generation NCLEX

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The National Council Licensure Examination (NCLEX) was established in the United States and Canada for the licensing of nurses. The overarching purpose of the NCLEX is to test a candidate’s ability to provide safe, effective, and competent care upon entry into nursing practice.

Recent research by the National Council of State Boards of Nursing (NCSBN) reveals that novice nurses are involved in 50% of medical errors; 65% of which are attributed to poor clinical decision making (2016). Similarly, Saintsing and colleagues report only 20% of employers are satisfied with the clinical decision making skills of novice nurses (2011).

According to the NCSBN's Next Generation NCLEX (NGN) project, nearly half of what nurses do in the clinical setting involves making clinical judgments. To prepare nursing students to make better judgments in the clinical setting, educators need to realign how learning is facilitated for students. The NCSBN's NGN focuses on incorporating higher cognitive-level test questions that are able to measure a candidate’s ability to make clinical judgments.

It is necessary for educators to enhance nursing students’ clinical judgment skills in preparation for the NGN. The purpose of this document is to define and distinguish critical thinking, clinical reasoning and clinical judgment, and explore strategies of applying these skills in nursing practice and on the NGN. The relationship of these skills and their integration in nursing education will be
Critical Thinking, Clinical Reasoning, and Clinical Judgment: An Introduction

Critical thinking, clinical reasoning, and clinical judgment work harmoniously with one another. The relationship among these crucial skills can aid in the development of clinical judgment decision making thus allowing nurses to provide safe, competent patient-centered care.

Tumapang (2018) suggests that nurses who are adept at using critical thinking and clinical judgment skills are in a good position to assume a leadership role and create further changes that will achieve positive outcomes in healthcare organizations. Integrating strategies throughout nursing curricula to improve the ability to make clinical judgments places student nurses in a better position to achieve desired patient outcomes.

Sound clinical judgment is a critical skill for success in a constantly evolving medical landscape (Sanders & Goble, 2020). With an aging population, regulatory changes, and an increase in intensity of care for patients, clinical judgment is essential to maintain and improve the standards of care for patients. Given the inherent importance of these skills in nursing, it is imperative for educators to fully understand the relationship between them, how they apply to the Next Generation NCLEX, and their application in nursing practice.

What is Critical Thinking?

Critical thinking can be defined as “a cognitive process used for analyzing knowledge” (Victor-Chmil, 2015). Bensinger added that critical thinking is “the ability to analyze information, draw conclusions, and implement a plan of action.” (2015, p. 57). There are a number of similarities in these definitions of clinical thinking—critical thinking involves the cognitive operations of interpretation.
and/or analysis, which is often followed by an evaluation (Nilson, 2016). Critical thinking is the foundation of nursing practice and is essential in today's fast-paced, complex, evolving healthcare system. Critical thinking is directly associated with decision making that leads to positive patient outcomes.

**Critical Thinking**

**Five Core Components of Critical Thinking**

- Problem Recognition
- Clinical Decision Making
- Prioritization
- Clinical Implementation
- Reflection

According to the Nursing Executive Center (2019) there are five core components of critical thinking. The first four components are problem recognition, clinical decision making, prioritization of care and clinical implementation (i.e., the development of patient-specific interventions). The fifth component is the reflective stage, wherein nurses reflect on how the process evolved, the outcome of the clinical situation, and the patient care. This process is usually ongoing and often leads to recognition of other problems and decisions that need to be made and acted upon.

**What is Clinical Reasoning?**

Clinical reasoning derives from “the cognitive and metacognitive processes used for analyzing knowledge relative to a clinical situation or specific patient.” (Victor-Chmil, 2013). Lapkin provides a more in depth definition of clinical reasoning in nursing as the process by which nurses collect cues, process information, come to an understanding of the patient problem/situation [through
processing of that information], plan and implement interventions, evaluate outcomes, and reflect on and learn from the process (2010, p. e209). The clinical reasoning process is dependent on critical thinking. Like critical thinking, clinical reasoning is an ongoing process depending on patient outcomes and reassessing the patient situations.

Hoffman’s circular model represents clinical reasoning. Elements of the cycle include considering the patient situation, collecting cues/information from the patient, processing information (by adding new information collected to prior information they may have of a disease or patient), identifying problems/issues, independently or collaboratively establishing goals appropriate to the patient, taking actions as per the goals, evaluating the outcomes to ensure it aligns with desired goals, and reflecting on the entire process—unless more information gathering is required, in which case, the nurse goes through the full cycle again.

What is Clinical Judgment?

The NCSBN defines clinical judgment as, “the skill of recognizing cues about a clinical situation, generating and weighing hypotheses, taking action, and evaluating outcomes for the purpose of arriving at a satisfactory clinical outcome. Clinical judgment is the observed outcome of two unobserved underlying mental
processes, critical thinking and decision making [also known as clinical reasoning.])” (2018). Critical thinking and clinical reasoning are the building blocks of clinical judgment.

The NCSBN’s Clinical Judgment Measurement Model (CJMM) is one that evaluates the process of making clinical judgments. The CJMM has four layers encompassing various phases/cycles throughout. The focus of this paper will remain on the key phases within the CJMM layers 1, 2, and 3 that include recognizing cues, analyzing cues, prioritizing hypotheses, generating solutions, taking actions, and evaluating outcomes.

* This image is a modified version of the NCSBN CJMM. The latest version of NCSBN’s CJMM: [https://www.ncsbn.org/14798.htm](https://www.ncsbn.org/14798.htm)

The process of making clinical judgments begins in the first phase of Layer 3 with cue recognition. This phase can include collecting information from the patient, patient’s health record, or other healthcare professionals. This information helps
determine the patient's needs, concerns, and problems. Still within this first phase, students begin to analyze the cues.

The process of recognizing and analyzing cues guide students into Layer 2 of the CJMM as they begin to formulate hypotheses, determine an order of importance, communicate with patients and healthcare professionals, anticipate consequences or risks, and understand the complexity and time needed in order to prioritize hypothesis and generate solutions which occurs in the second phase of Layer 3.

In the third phase of Layer 3, students implement their developed responses or actions and evaluate outcomes of the patient encounter. Students may move in and out of Layer 2 and Layer 3 of the CJMM as they refine their hypotheses and make necessary modifications to their actions or solutions based on their evaluation of the patient outcomes.

In Layer 1, the student can determine if actions have led to desired outcomes, further evaluate outcomes, and determine whether to continue forward with the process or go back, gather more information, recognize more clues, redefine hypothesis, and revise plan of action according to the patient’s needs.

In summary, problem/cue recognition, processing and hypothesizing information, developing, implementing, and evaluating actions are all essential steps in making safe and effective clinical judgments within the healthcare profession.

Based on the definitions and models of critical thinking (cue recognition and analysis), clinical reasoning (applying what is known to develop and refine hypotheses), and clinical judgment (developing, implementing, and evaluating actions), it is clear that although distinct from one another, they are all interconnected. These skills are designed to work simultaneously with one another to derive desired goals of improving patient outcomes and engaging in safe clinical practice.

**Building Critical Thinking Skills**

Educators are tasked with providing students with plenty of opportunities to
practice and reflect on developing critical thinking skills. Creating learning environments where questions, reflection, and discussions are encouraged allows students to remain engaged in learning. This will facilitate critical thinking and students will begin to recognize cues and analyze relevant information presented in clinical scenarios.

In the classroom, educators can guide the development of students’ critical thinking skills by engaging students in active learning. Some active learning strategies include the following:

**Concept Mapping**
Concept mapping is a way to visualize ideas or clinical concepts as they relate to each other. The practice applies medical diagnoses or nursing concepts to a clinical situation. As a classroom activity, concept mapping works because it allows students to understand how a medical condition (diabetes) relates to various concepts (tissue perfusion, nutrition, etc).

**Case Studies**
Case studies improve critical thinking skills by presenting a patient's clinical information. Students use their knowledge and understanding to recognize cues and analyze those cues to formulate hypotheses or develop a plan of care. Students can work in groups and present their case study to the rest of the students. Allow time for questions and further discussion to expand the level of understanding of presented concepts.

**Applying the Nursing Process**
Students walk through the nursing process in a hypothetical patient situation. The aim is for students to sort through information, recognize cues, and develop a plan of action for the patient based on the pertinent information. This can also be done in groups. One group of students identifies pertinent information, the next group analyzes the information, followed by another group developing a plan of action and so on.

**Open-Ended Questioning**
Asking open-ended questions encourages critical thinking. It enables students to verbalize their thought processes which provides educators the chance to evaluate
the thinking and guide further questioning. This activity can be used to identify trends, develop priority actions and explanations to support their choices.

**Faculty Role Modeling and Communicating**
This activity allows the student to observe the faculty work through a patient scenario, listening to various communication techniques and observing the flow of patient care delivery. When educators are actively role modeling, students are more likely to engage in the learning process. During role modeling activities, students view faculty as part of the healthcare team rather than as an instructor evaluating the student. This activity builds a trusting relationship between the student and the educator, and is essential to creating a safe learning environment where students feel confident to ask questions and are not fearful of giving wrong answers.

**Gamification**
Gamification is an effective way to engage students in active learning. Many virtual games are available that enhance critical thinking skills in a fun way. Educators can also create their own games. Students often enjoy the competitiveness that accompanies gaming. Students remain active in learning through discussions, questioning, reasoning, and reflecting with their peers during gaming.

**Guided Journaling**
Through guided journaling, students are encouraged to reflect on their learning via prompts related to a concept/topic. This process can be used after completing an in-class activity or it can be used prior to class as a way to anticipate what might happen next with a patient scenario.

Any of these activities can involve single concepts taught during the week. Educators can integrate more topics each week, building on prior knowledge of the students.

Students can learn to communicate with patients and also familiarize themselves with real-life clinical scenarios. The following activities can be used in a live environment where patient interactions are real:
Chart/Electronic Health Record (EHR) Scavenger Hunt

An Electronic Health Record (EHR) Scavenger Hunt provides students with the opportunity to explore a patient’s EHR, discover what type of information is found within the EHR. This practice will guide students to develop ways to quickly gather information from the EHR. Expanding on this activity, the student can also begin to recognize cues and interpret cues to determine what is going on with their patient.

60-Second Assessment

Students are given 60 seconds in a patient environment to gather and process cues, evaluate actions and hypotheses to implement into patient care. After their assessment, students discuss findings with instructors or peers, reflecting on the activity.

In a clinical environment, there are patients at any given time presenting with varying degrees of complicated scenarios. Students can use these strategies to develop critical thinking skills in high pressure clinical situations involving multiple patients.

Evaluating Critical Thinking Skills

Evaluations can be subjective or objective and include rubrics used to evaluate the student’s critical thinking. Educators can evaluate critical thinking through the use of exercise worksheets, debriefing, role playing, debates, guided journaling, gaming, one minute papers, and quizzes.

Regardless of the specific activities used for evaluation, educators must focus on the student’s ability to recognize and identify pertinent cues relating to the patient. Identifying important patient cues encourages students to synthesize information and develop an understanding of clinical challenges. Collectively, the cues can be applied to judge clinical situations.

Building Clinical Reasoning Skills

Clinical reasoning skills are essential for nursing students. Before students can use
their clinical reasoning skills, they must recognize cues and gather information. Students need to critically think about the scenario. Next, students process new information and apply it to what is already known to begin developing hypotheses and plans of actions in the healthcare setting.

Here are several ways in which educators can develop and improve clinical reasoning skills in the classroom environment:

**Teaching Peers and Leading Discussions**
Teaching to peers is an effective way to enhance clinical reasoning. This is because to teach another, the student must understand a concept thoroughly. The student must also be able to guide discussions relating to the topic. This method relies heavily on verbalization, which is directly related to clinical reasoning.

**Reflective Writing**
In reflective writing, students write about and reflect on what they have learned, thereby enhancing clinical reasoning skills by relating concepts to one another through writing.

**Debates**
Debates generate discussion and examine complex, multifaceted topics in healthcare. Students engaging in debates must thoroughly understand their topic and then create speech points and rebuttals for and against their team, improving clinical judgment and reasoning skills.

**Case Studies/Problem Solving**
Through case studies and problem-solving questions, students test their critical thinking skills to recognize cues in a given case. They address these cues, anticipate case study results, and respond to hurdles they may encounter. These activities guide students to process the information at hand, anticipate what comes next, develop interventions, and prioritize tasks.

**Flipped Classroom**
In a flipped classroom, students are encouraged to complete the majority of the learning at home (where they will be introduced to certain topics) and practice working through the material at school, through case studies and problems. This
strategy creates an active learning environment in the classroom where students are more likely to engage in applying what they have learned.

Students can also engage in the following activities in the laboratory and/or clinical setting:

**Socratic Clinical Questioning**
The Socratic Method is a well-known type of learning in which students learn by questioning. Talking through examples and hypothetical situations, students think beyond the current moment, explore complex ideas, and anticipate potential actions and outcomes as they relate to the clinical situations. This is done in an individual or group setting. This type of questioning stimulates deeper thinking and processing in students.

**Reflective Thinking**
Asking students questions and allowing them to think out loud helps them make better judgments in clinical situations. This can also be done in a written format. Students deliberately pause to think to understand what is happening around them in the healthcare setting, developing actions and evaluations to move forward.

**Faculty Role Modeling**
Students learn from seeing faculty members interact with patients and engage in clinical outcomes. Students benefit from faculty members verbalizing the process involved in dealing with a clinical situation. Faculty role modeling enables students to engage and learn more about the patient and clinical situation. It guides students into thinking about the situation critically and coming up with treatment options available to particular patients.

**EHR-Based Exercises**
EHR-based exercises require students to peruse patient records with the goal of gaining insights used to improve patient care. This exercise is more than learning where information is located within the EHR. For example, to interpret a patient’s laboratory results, students are assigned to look at different patient’s lab values and then compare and contrast different treatment options. This helps nursing students identify trends, anticipate outcomes and medications prescribed to

Asking students questions and allowing them to think out loud helps them make better judgments in clinical situations.
patients, and explore why patients are prescribed particular treatments.

**Simulation**
To enhance a student's clinical reasoning, short- or long role-plays are used, in which students think about various possibilities and anticipate outcomes, then act based on what they know and integrate their knowledge into the simulated encounter. Simulations can be virtual or in-person.

**Evaluating Clinical Reasoning Skills**
Similar to the activities undertaken to evaluate critical thinking, educators use questioning, examinations, quizzing, and reflections to evaluate the student's clinical reasoning skills. The evaluation focuses on the student's ability to analyze the cues. Students must be able to integrate their critical thinking skills to develop hypotheses, to prioritize further care, and develop and implement actions in the client setting. This is essential for delivering safe and effective patient care. The student's reasoning has to be critically examined to ensure correct interpretation of the information, compare the situation to past experiences they encountered, make deductions, predict outcomes, and establish goals for further treatment of the patient.

The evaluation depends highly on the analysis of the information, which will be used to make sound clinical judgments in clinical situations.

**Building Nursing Clinical Judgment Skills**
According to NCSBN's CJMM, students start from critically thinking about a situation (collecting clues), move to clinically reasoning (analyzing cues and applying new and prior knowledge) to developing a plan of action. Clinical judgment encourages taking actions that are directly relevant to the clinical situation. The end result is a positive clinical outcome in patient care.

Clinical judgment skills are acquired by learning via experience and reflecting on the types of decisions one might make in the healthcare setting. Active learning
strategies enhance critical thinking, clinical reasoning, and clinical judgment skills. These strategies exist in contrast to passive learning such as sitting in a class lecture or reading a textbook.

Educators can use active learning in their teaching: “think-pair-share,” case studies/problem solving, and the flipped classroom method are three active learning methods. The think-pair-share method is effective as students can assess clinical and patient scenarios and think about the information that is pertinent in the case. Using these, students can develop a plan of care for the patient, develop hypotheses, and apply it to what is already known. They pair up with a peer and talk about the patient scenario/case study and discuss why certain cues are more pertinent than others.

Case studies and flipped classroom strategies can be inculcated into think-pair-share techniques to further learning, making sure students understand the scenario, recognize cues, integrate them with information they already know, apply it to the clinical situation, prioritize care, develop hypotheses, develop actions for solving the problem, and eventually, carry out those anticipated actions. Lastly, they can evaluate those actions and reflect on how the process unfolded and on their learning from that clinical experience.

A few other active learning strategies in the classroom to boost nursing clinical judgment skills include:

**Prioritizing Items**
Educators may give students case studies and ask them to name the top three priorities in the client scenario or case study presented. Educators can then help students rationalize these priorities and talk them through with students.

**Data Interpretation Exercise**
This exercise involves presenting students with data in the forms of tables or graphs. The goal of the exercise is to identify areas that support or oppose clinical decisions and clinical judgments. This allows students to identify trends, anticipate actions, and prepare and improvise care based on the situation. This activity will be especially helpful in preparation for the “trend” item type, one of the newest NGN item types.
Unfolding/Progressive Case Studies
Students begin with a case study and educators progressively change the facts of the case, such as vital signs or lab values. Students must realign their hypotheses and prioritize care based on new information presented.
In a clinical setting, the following additional activities can be used to improve clinical judgment:

Delegation Notecard Exercise
In the notecard exercise, students identify three items/tasks related to their patient that they may or may not delegate to other healthcare professionals. Students gain an understanding of the various roles and scopes of practice of other healthcare professionals in the context of their own role as a nurse. Additionally, with the notecard exercise, students are able to optimize their time management and available resources to complete various tasks.

Laboratory Values Exercise
Students examine laboratory results to determine if a patient's condition is improving or worsening. Students verbalize their rationale and identify specific cues that led to their decision. Students explain what actions can be done to improve the status of the patient's condition identified as worsening. This exercise helps students understand how laboratory values can direct patient care and outcomes decisions.

Compare and Share
Students look at different patients admitted with the same diagnosis, or may have similar underlying conditions, examine the charts, treatment modality depending on the disease presentation, and study outcomes for the different patients. Students compare and contrast the findings and reflect on their analysis. The compare and share method is highly effective when students are presented with multiple patients with similar diagnoses.

Simulations
Simulations seek to recreate real-life clinical scenarios which can be used as a practice test for strengthening clinical judgment skills. Simulations can include virtual or live sessions. In any case, simulations are an engaging way for students
to practice their skills in a controlled environment.

**Enhancing Nursing Clinical Judgment Skills via Kaplan’s i-Human Patients Virtual Simulation**

Kaplan has designed an i-Human Patients virtual simulation that is dedicated to active e-learning in the healthcare industry. This simulation promotes the delivery of high quality, cost-effective care education, to ensure nursing students are fully trained in their clinical judgment skills which help them undertake better patient assessments and care.

The i-Human Patients provide nursing students with simulated clinical opportunities to demonstrate their clinical judgment and care taking abilities. i-Human Patients virtual simulation provides advantages over a live simulation. In live sessions, the direction of the simulation is dependent on student responses. If faculty believe the student is going down an incorrect path, they may attempt to guide the student and the simulation in the right path by using cues from the patient. In some cases, however, students may go too far astray in the live simulation, which means that faculty may not always be able to provide expert feedback until the simulation has been completed.

A virtual simulation, on the other hand, can be paused as required, and feedback from the simulation or the educator is ongoing. This encourages students to redirect to the right path before moving to the next phase of the simulation. The ability to pause the simulation also allows students more time to assess the clinical situation and respond to it if the need arises. It is also suggested that virtual clinical simulation engages students on a higher cognitive level, increasing knowledge retention and self-confidence in these students.

As the student progresses through the virtual simulation, they are provided with additional cues and expert feedback after each simulation. The virtual simulation involves students into a “hands-on” “real” environment that allows them to practice their clinical judgment skills. The i-Human Patients simulation also motivates students to learn and thoroughly engage to deepen their interest in learning more about the subject matter.
So far, the i-Human Patients program features 55 cases specifically designed for nursing students. These cases feature diverse patient avatars designed to engage with and test students’ critical thinking and clinical judgement skills, and are intentionally aligned with NCSBN’s clinical judgment measurement model to prepare students for the NGN. The i-Human Patients simulation is able to track and document every click the student makes, and provides the student with instant, expert feedback along the way. It is also advantageous to educators, as they reduce the amount of time spent grading student examinations. Additionally, i-Human Patients analyzes student information to pinpoint gaps in knowledge and identify at-risk students with more ease.

**Evaluating Clinical Judgment**

Educators can evaluate the clinical judgment skills of their students in many ways. Concept mapping can be taken to the next level, where students are exposed to a number of patients at one time. Students gather information of various patients at once and prioritize care based on the information gathered. Essay writing in exams, or course assignments, is an effective and commonly-used strategy to evaluate a student’s clinical judgment skills. Through case study scenarios educators are able to determine if students can identify pertinent information, process and develop a plan of care, anticipate outcomes, implement appropriate actions, and evaluate the outcomes. Students can verbalize or write out their responses to a case study scenario. EHR documentation is used for the evaluation of clinical judgment skills. Students familiarize themselves with EHR documentation and review them with educators. In some cases, EHR documentation can also be included in test questions. Simulations can be used to evaluate clinical judgment through direct observation of a student in a simulated session or by reviewing a performance report within a virtual simulation experience.
Effective Rubrics for Testing Clinical Judgment: The Kaplan Decision Tree

There are various rubrics available that can be used to evaluate clinical judgment. These rubrics allow educators to objectively measure whether students are making sound clinical judgments. They often include key check points students must identify within a patient encounter that entail positive patient-centered care.

Kaplan provides one such rubric, called the Kaplan Decision Tree, which helps students demonstrate sound clinical judgment on the day of their test and beyond. The rubric can be modified to be used at a critical thinking level as well as a clinical reasoning level. The Decision Tree encourages students to recognize/identify cues from the patient/clinical scenario and analyze them. Based on the analysis, they are encouraged to prioritize care, develop hypotheses, generate solutions, and apply their knowledge of treatments and interventions directly to the patient. They then formulate a plan and along with sound judgment, act on the clinical situation thereby providing safe and effective care to the patient.

The Decision Tree is closely related to the NCSBN's CJMM, which is the basis of the critical thinking questions included in the Next Generation NCLEX licensure examination. Using the Decision Tree, students learn strategies to select proper exam answers using prioritization strategies such as deductive reasoning. The Decision Tree mirrors closely the requirements of the NCSBN's CJMM and the NGN licensure examination. Kaplan's i-Human Patients virtual simulation tool is intentionally aligned with NCSBN's CJMM to prepare students for the NGN.

Conclusion

Research suggests strengthening clinical judgment skills can remedy a majority of mistakes made by novice nurses. The NCSBN seeks to inculcate clinical judgment skills via research and the development of new types of test items to be included on the Next Generation NCLEX. Through the NGN licensure examination, candidates will be tested on their nursing knowledge and their ability to make appropriate clinical judgments based on the presenting clinical/client situation. Educators must recalibrate teaching methods and curricula to include ways to
enhance clinical judgment skills in their students. Critical thinking, clinical reasoning, and making sound clinical judgments are essential in achieving success on NGN and providing safe, competent care to patients.

References


