Clinical Judgment Development: Using Simulation to Create an Assessment Rubric

Kathie Lasater, EdD, RN

ABSTRACT
Clinical judgment is a skill every nurse needs, but nurse educators sometimes struggle with how to present it to students and assess it. This article describes an exploratory study that originated and pilot tested a rubric in the simulation laboratory to describe the development of clinical judgment, based on Tanner’s Clinical Judgment Model.

Clinical judgment is viewed as an essential skill for every nurse and distinguishes professional nurses from those in a purely technical role (Coles, 2002). Nurses care for patients with multifaceted issues; in the best interests of these patients, nurses often must consider a variety of conflicting and complex factors in choosing the best course of action. These choices or judgments must be made specific to the situation, as well as to the patient (Coles, 2002; Tanner, 2006).

Educators identify the development of clinical judgment in their students as “learning to think like a nurse” (Tanner, 2006). Most research on clinical judgment has relied on participants’ responses to cases, portrayed either in text or videotaped form, or on participants’ recall of particular situations in practice. Their responses have been analyzed, using either verbal protocol analysis (e.g., Simmons, Lanuza, Fonteyn, Hicks, & Holm, 2003) or observation and interviews, with descriptive qualitative or interpretive methods (e.g., Benner, Tanner, & Chesla, 1996). With few exceptions (White, 2003), most descriptive research on processes of clinical judgment has centered on its use in nurses’ practice rather than on its development in students.

A review of the literature identified only one instrument that purports to measure or evaluate clinical judgment. That instrument, developed by Jenkins (1985), is a self-report measure in which respondents are asked to identify processes or strategies used in deriving clinical decisions. Because clinical judgment is particularistic (i.e., beyond specific) and dependent on the situation, the validity of a general self-report measure, especially one used for judging the quality and development of clinical judgment, would be questionable.

Recent advances in high-fidelity simulation present an ideal arena for developing skill in clinical judgment. Current technology makes the use of high-fidelity (meaning, as close as possible to real) simulation an excellent facsimile to human patient care, offering extra value to clinical practice learning (Seropian, Brown, Gavilanes, & Driggers, 2004). To date, no studies have demonstrated the effect of simulation on clinical judgment, but evidence in the medical literature suggests that practice with feedback, integrated into the overall curriculum, facilitates clinical learning with understanding (Issenberg, McGaghie, Petrusa, Gordon, & Scalese, 2005).

The purposes of this study were to:
- Describe students’ responses to simulated scenarios, within the framework of Tanner’s (2006) Clinical Judgment Model.
- Develop a rubric that describes levels of performance in clinical judgment.
- Pilot test the rubric in scoring students’ performance.

The development of a rubric, providing a measure of clinical judgment skill, was part of a larger study designed...
to explore the effects of simulation on student aptitude, experience, confidence, and skill in clinical judgment (Lasater, 2005).

**LITERATURE REVIEW**

**Why a Rubric?**

A rubric, by its most basic definition, is an assessment tool that delineates the expectations for a task or assignment (Stevens & Levi, 2005). By clearly describing the concept and evidence of its understanding, students and faculty are more likely to recognize it when students perform it. In addition, rubrics facilitate communication among students and provide students, preceptors, and faculty with language to foster both feedback and discussion.

In addition, communication cultivates critical thinking. By having expectations or stages of development described and known by nursing students, preceptors, and faculty, the depth of discussion, based on individual perspectives about clinical judgment, increases. Stevens and Levi (2005) pointed out that with the language provided by rubrics and the improved communication that results, faculty may also have additional evidence with which to enhance their teaching.

Lastly, rubrics can provide a more level playing field for increasingly diverse groups of students. It is no secret that higher education, including nursing, is enjoying and is challenged by greater diversity of students related to characteristics such as ethnicity, gender, and experience (Abrums & Leppa, 1996; Brady & Sherrod, 2003; Domrose, 2003; Kuh, 2001). Although this diversity enriches the education experience of all involved, the possibility of misunderstanding or lack of clarity about expectations may increase. Rubrics can serve as “translation devices in this new environment” (Stevens & Levi, 2005, p. 27).

**Clinical Judgment**

This study used a definition of clinical judgment described by Benner et al. (1996): “Clinical judgment refers to the ways in which nurses come to understand the problems, issues, or concerns of clients/patients, to attend to salient information and to respond in concerned and involved ways” (p. 2). Tanner (1998, 2006) conducted a comprehensive review of the research literature and developed a Clinical Judgment Model, derived from a synthesis of that literature. The model (Tanner, 2006) was the conceptual framework used to develop a rubric that breaks down and defines stages or levels in the development of clinical judgment. The Figure illustrates Tanner’s model.

The four phases of the model—Noticing, Interpreting,Responding, and Reflecting—describe the major components of clinical judgment in complex patient care situations that involve changes in status and uncertainty about the appropriate course of action. The overall concepts or actions may be summarized as the thinking-in-action skills of three steps: noticing, interpreting, and responding (during the situation that requires clinical judgment), followed by the fourth step, the thinking-on-action skills of reflection after responding to the situation (Cotton, 2001; Schön, 1987).

In other words, the nurse must be cognizant of the patient’s need through data or evidence, prioritize and make sense of the data surrounding the event, and come to some conclusion about the best course of action and respond to the event. The outcomes of the action selected provide the basis for the nurse’s reflection afterward on the appropriateness of the response and clinical learning for future practice.

According to Tanner’s model, the nurse’s perception of any situation is influenced by the context and strongly shaped by the nurse’s practical experience; it is also rooted in the nurse’s theoretical knowledge, ethical perspectives, and relationship with the patient. This frame allows for some unique differences in the ways nurses may notice patient situations to set the cycle in motion. The model also proffers that clinical judgment is demonstrated through a variety of reasoning processes, including analytic, which is predominant with students; intuitive, which is based in practical experience (Coles, 2002; Tanner, 2006) and which students generally lack; and narrative, or the learning that occurs from nurses and students telling their stories (Tanner, 2006).
It should be noted that reflection is the catalyst for clinical learning (Tanner, 2006). Early in educational research and theory development, Dewey (1933) made the profound observation that “reflective thought alone is educative” (p. 2). Others later concurred (Boud, 1999; Boud & Walker, 1998), allowing that reflection gives learners the opportunity to sort out their learning through an exploratory process. Tanner’s (2006) Clinical Judgment Model strongly links one of the outcomes of clinical judgment—clinical learning—to the nurse’s background, implying that the nurse is continually learning and developing with each patient encounter. In this way, reflecting on clinical judgments fosters development and expertise.

**METHOD**

**Design**

This part of the larger study used a qualitative-quantitative design, typical for exploratory research (Cresswell, 2003). A cycle of theory-driven description-observation-revision-review was the design method used for this study. Initially, the descriptive statements, using the anchors of best and worst performance descriptors were written for each of the four phases—notice, interpreting, responding, and reflecting. This was followed by 3 weeks of observations, during which the descriptions of the four phases were crafted into dimensions that further explained the four phases. Also, the four stages of development or levels—beginning, developing, accomplished, and exemplary—were defined. Ongoing observations throughout the study provided opportunities for revisions of the descriptions of both the dimensions and levels. In addition, the revisions and data were reviewed weekly by week with an expert in rubric development and an expert in clinical judgment. Comments returned from these experts were added and tested.

The description-observation-revision-review cycle was repeated weekly for 3 weeks until the rubric was developed enough to pilot test the scoring of student performances during Weeks 4 and 5. Weeks 6 and 7 allowed for continued observation and further refinement of the rubric. **Table 1** shows the week-by-week study time frame and purpose.

**Sample**

Students enrolled as third-term juniors in an adult medical-surgical clinical course were the study participants; consent was obtained during the first week of the term. Qualitative observations (n = 53) of 39 third-year students in the simulation laboratory during a 7-week study time frame were used to develop and refine a quantitative instrument, the Lasater Clinical Judgment Rubric (LCJR). At the end of the study time frame, a focus group of 8 of the observed students was convened to further test the findings.

**Procedure**

A 4-year baccalaureate nursing program, with students taking clinical courses in the last 2 years of the program, initiated simulation as an integral part of the curriculum. Two groups of 12 students each came to the laboratory, a hospital-like room containing a computerized human patient simulator, on one of two mornings per week, in lieu of their clinical practicum. Each group of 12 students engaged in the activity for 2½ hours, for a total of 48 students during the 2 days. Within each group of 12, four patient care teams of 3 students each participated in a scenario at each session. While each patient care team engaged in the scenario, 9 students were able to watch the simultaneous action from the debriefing room. In each patient care team, 1 student served as primary nurse with ultimate responsibility for the patient care interventions, including delegation to team members.

The goal of the activity was for each student to have equal opportunity to be the primary nurse for the complex patient care scenarios. Throughout the term, each team’s position during the sessions rotated, as did the primary nurse role, so all groups had equal opportunity to be the first group and the last and so each student was able to be the primary nurse. Therefore, each patient care team engaged in a scenario weekly; every third week, a student was the primary nurse. Verbal feedback and discussion were provided, but the simulation experiences were not graded.

Each simulation experience included two phases and three opportunities for learning, as described by Seropian et al. (2004). In the first phase, the actual simulation, the students directly involved benefited from interacting with a contextual patient scenario. At the same time, the other students could observe the live action. During the second phase, or debriefing, both groups learned by critically thinking about and discussing the experience. Both phases were videotaped for this study.
Observations (Qualitative)

Before the observations began, the simulation facilitator and the researcher, both experienced clinical faculty, wrote descriptions of the best and worst student behaviors for each of the model’s four phases, which helped form the initial dimensions of each phase and the descriptions of each dimension at the highest and lowest levels.

The observations began with the specific focus on students’ reasoning and knowledge abilities in the primary nurse role, looking for evidence of the student’s noticing, interpreting, responding, and reflecting. The initial LCJR scoring sheet contained space for the observer’s field notes in each of the four phases of the model. At the end of each week’s observations, the researcher wrote and refined the descriptors, then submitted them for review by the rubric and clinical judgment experts. Each week for the first 3 weeks, the rubric was completed and improved to more accurately reflect the intent of the model and the students’ performances.

Initially, it was hoped that the rubric would be completed before Weeks 4 and 5, when the scoring occurred (Table 1). However, further honing of the rubric continued through these weeks because the students’ development during the term was very visible and continued to influence some of the rubric’s descriptive language and the standardization of the language continued.

It must be noted that the continuing evolution of the rubric during the scoring might well have affected the validity of the findings; in other words, the scores might be inconsistent. However, the ongoing refinement was essential to development of the rubric, which was the primary goal of observing and scoring. The final 2 weeks of instrument refinement (Table 1) offered the opportunity for further fine-tuning of the language and leveling. In addition, communications and discussions between the researcher and the rubric and clinical judgment experts helped clarify some of the descriptors and leveling, as well as validate the content.

An example of this refinement process occurred early. Based on the anchors of best and worst descriptors of noticing, the first dimension of noticing was initially identified as regular observation. The researcher noted that the students were regularly observing, but their observations were sometimes chaotic and not focused on the important changes or data germane to the patient’s condition. Because noticing is linked to the nurse’s expectations (Tanner, 2006), the researcher and clinical judgment expert determined that focused observation was a better description of this dimension.

Indeed, with experience, the students began to anticipate what could go wrong with the simulation patient and began to verbalize what patient changes would indicate a problem and how they would respond. For example, if the patient had acute congestive heart failure, the students began to talk about the patient’s potential lung sounds or heart rate before the scenario began. These conversations gave rise to selecting focused observations and affirmed the language describing another dimension of noticing, recognizing deviations from expected patterns.

Scoring (Quantitative)

During Weeks 4 and 5 of the study time frame (Table 1), the observed students (n = 26) were scored using the rubric. Descriptives and ANOVA were the statistical methods used to analyze the data and examine five independent variables for any significant influence:

- The day of the week, hypothesizing that students would do better the second clinical day of the week because of the additional clinical time the day before.
- The time of day, hypothesizing that the later students would be more alert than the very early morning students.
- Scenario order, hypothesizing that students in the last scenario would have higher scores because they had learned from the earlier scenario.
- Small team composition, hypothesizing that some teams would have bonded more effectively than others.
- Size of the small groups, hypothesizing that the occasional two-student groups, resulting from a student’s absence, would perform better.

Focus Group (Qualitative)

At the end of the 7 weeks, a focus group of 8 observed student volunteers was convened for 90 minutes to test the concepts of clinical judgment embedded in the rubric. All of the 39 observed students were sent a letter of invitation; 15 responded, and 8 who were able to meet at the same time were selected. In addition to signing a consent form, the participants were given a small honorarium and gift card to a local coffee shop.

Morgan’s (1997) principles of focus group moderation were used, and the session was videotaped. Traditional retrospective qualitative analysis methods of organizing the data, delineating themes, hand coding the data, testing the emerging information, and looking for different explanations were used (Marshall & Rossman, 1999).

FINDINGS

Observations

The four phases of Tanner’s (2006) Clinical Judgment Model—noticing, interpreting, responding, and reflecting—provided the basis for the development of the LCJR. Each of these four phases were further described by two or three dimensions that elucidate what is meant by each phase. The LCJR is depicted in Table 2, with the 11 total dimensions of the four phases delineated with developmental descriptors at each of four levels.

Although the LCJR shows a developmental process, it was designed to evaluate a single episode requiring clinical judgment. It does, however, present a bigger picture view of clinical judgment development, allowing students to grasp what clinical judgment involves, evaluate their growth, and identify goals toward its achievement. Furthermore, the model and rubric offer latitude for a variety of clinical contexts and recognize that a student’s individual background can affect the clinical judgment process.
### TABLE 2
Lasater Clinical Judgment Rubric

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Exemplary</th>
<th>Accomplished</th>
<th>Developing</th>
<th>Beginning</th>
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<tbody>
<tr>
<td><strong>Effective noticing involves:</strong></td>
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<tr>
<td>Focused observation</td>
<td>Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any useful information</td>
<td>Regularly observes and monitors a variety of data, including both subjective and objective; most useful information is noticed; may miss the most subtle signs</td>
<td>Attempts to monitor a variety of subjective and objective data but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information</td>
<td>Confused by the clinical situation and the amount and kind of data; observation is not organized and important data are missed, and/or assessment errors are made</td>
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<tr>
<td>Recognizing deviations from expected patterns</td>
<td>Recognizes subtle patterns and deviations from expected patterns in data and uses these to guide the assessment</td>
<td>Recognizes most obvious patterns and deviations in data and uses these to continually assess</td>
<td>Identifies obvious patterns and deviations, missing some important information</td>
<td>Focuses on one thing at a time and misses most patterns and deviations from expectations; misses opportunities to refine the assessment</td>
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<tr>
<td>Information seeking</td>
<td>Assertively seeks information to plan intervention: carefully collects useful subjective data from observing and interacting with the patient and family</td>
<td>Actively seeks subjective information about the patient’s situation from the patient and family to support planning interventions; occasionally does not pursue important leads</td>
<td>Makes limited efforts to seek additional information from the patient and family; often seems not to know what information to seek and/or pursues unrelated information</td>
<td>Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the patient and family and fails to collect important subjective data</td>
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<td><strong>Effective interpreting involves:</strong></td>
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<td>Prioritizing data</td>
<td>Focuses on the most relevant and important data useful for explaining the patient’s condition</td>
<td>Generally focuses on the most important data and seeks further relevant information but also may try to attend to less pertinent data</td>
<td>Makes an effort to prioritize data and focus on the most important, but also attends to less relevant or useful data</td>
<td>Has difficulty focusing and appears not to know which data are most important to the diagnosis; attempts to attend to all available data</td>
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<td>Making sense of data</td>
<td>Even when facing complex, conflicting, or confusing data, is able to (a) note and make sense of patterns in the patient’s data, (b) compare these with known patterns (from the nursing knowledge base, research, personal experience, and intuition), and (c) develop plans for interventions that can be justified in terms of their likelihood of success</td>
<td>In most situations, interprets the patient’s data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or in complicated cases where it is appropriate to seek the guidance of a specialist or a more experienced nurse</td>
<td>In simple, common, or familiar situations, is able to compare the patient’s data patterns with those known and to develop or explain intervention plans; has difficulty, however, with even moderately difficult data or situations that are within the expectations of students; inappropriately requires advice or assistance</td>
<td>Even in simple, common, or familiar situations, has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and developing an intervention</td>
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<td>Effective responding involves:</td>
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<td>Calm, confident manner</td>
<td>Assumes responsibility; delegates team assignments; assesses patients and reassures them and their families</td>
<td>Generally displays leadership and confidence and is able to control or calm most situations; may show stress in particularly difficult or complex situations</td>
<td>Is tentative in the leader role; reassures patients and families in routine and relatively simple situations, but becomes stressed and disorganized easily</td>
<td>Except in simple and routine situations, is stressed and disorganized, lacks control, makes patients and families anxious or less able to cooperate</td>
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Scoring
During development of the rubric, 2 weeks at mid term (Weeks 4 and 5), were selected for scoring students’ performance (Table 1). The mean clinical judgment skill score for those engaged in the primary nurse role (n = 26) was 22.98 points (SD = 6.07). The observed range was 5 to 33, with a maximum of 44 possible points. Descriptions and ANOVA were performed for the five independent statistical variables described above. However, for this small sample, none resulted in statistically significant findings.

Focus Group
Five themes emerged from the focus group discussion:
- The strengths and limitations of high-fidelity simulation.
- The paradoxical nature of simulation (i.e., provoking anxious and stupid feelings, yet increasing awareness).

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<tr>
<th>Dimension</th>
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</tr>
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<tr>
<td>Clear communication</td>
<td>Communicates effectively; explains interventions; calms and reassures patients and families; directs and involves team members, explaining and giving directions; checks for understanding</td>
<td>Generally communicates well; explains carefully to patients; gives clear directions to team; could be more effective in establishing rapport</td>
<td>Shows some communication ability (e.g., giving directions); communication with patients, families, and team members is only partly successful; displays caring but not competence</td>
<td>Has difficulty communicating; explanations are confusing; directions are unclear or contradictory; patients and families are made confused or anxious and are not reassured</td>
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<td>Well-planned intervention/flexibility</td>
<td>Interventions are tailored for the individual patient; monitors patient progress closely and is able to adjust treatment as indicated by patient response</td>
<td>Develops interventions on the basis of relevant patient data; monitors progress regularly but does not expect to have to change treatments</td>
<td>Develops interventions on the basis of the most obvious data; monitors progress but is unable to make adjustments as indicated by the patient's response</td>
<td>Focuses on developing a single intervention, addressing a likely solution, but it may be vague, confusing, and/or incomplete; some monitoring may occur</td>
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<tr>
<td>Being skillful</td>
<td>Shows mastery of necessary nursing skills</td>
<td>Displays proficiency in the use of most nursing skills; could improve speed or accuracy</td>
<td>Is hesitant or ineffective in using nursing skills</td>
<td>Is unable to select and/or perform nursing skills</td>
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<td>Effective reflecting involves:</td>
<td>Independently evaluates and analyzes personal clinical performance, noting decision points, elaborating alternatives, and accurately evaluating choices against alternatives</td>
<td>Evaluates and analyzes personal clinical performance with minimal prompting, primarily about major events or decisions; key decision points are identified, and alternatives are considered</td>
<td>Even when prompted, briefly verbalizes the most obvious evaluations; has difficulty imagining alternative choices; is self-protective in evaluating personal choices</td>
<td>Even prompted evaluations are brief, cursory, and not used to improve performance; justifies personal decisions and choices without evaluating them</td>
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<td>Evaluation/self-analysis</td>
<td>Demonstrates commitment to ongoing improvement; reflects on and critically evaluates nursing experiences; accurately identifies strengths and weaknesses and develops specific plans to eliminate weaknesses</td>
<td>Demonstrates a desire to improve nursing performance; reflects on and evaluates experiences; identifies strengths and weaknesses; could be more systematic in evaluating weaknesses</td>
<td>Demonstrates awareness of the need for ongoing improvement and makes some effort to learn from experience and improve performance but tends to state the obvious and needs external evaluation</td>
<td>Appears uninterested in improving performance or is unable to do so; rarely reflects; is uncritical of himself or herself or overly critical (given level of development); is unable to see flaws or need for improvement</td>
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DISCUSSION

The LCJR defines what is meant by noticing, interpreting, responding, and reflecting with 11 dimensions. The dimensions are described in four developmental levels. Through the rubric development process, the rubric also elucidated multiple gaps in student understanding, as well as some surprising outcomes that informed the ongoing simulation facilitation.

Understanding Gaps

The four phases of the Clinical Judgment Model (Tanner, 2006) provided the basis for identifying students’ gaps in understanding, a kind of formative assessment, and offered important feedback for simulation facilitation. For example, after observing students in the primary nurse role repeatedly assign assessment to one of their peers and finding scarce evidence of reassessment during the scenarios, it became clear in the second week that students were viewing assessment as a task to be checked off rather than as a continuing source of essential data for evaluation. Evidence of this included students’ frequently administering a potent narcotic medication, such as morphine, for a patient’s pain and then neglecting to assess the medication’s effect on the patient’s cardiovascular functioning or on the patient’s perceived level of pain.

In the traditional clinical practicum setting, such a gap might go unnoticed for a longer time or might not be noticed at all. When a gap in understanding was uncovered, such as the need for reassessment, the simulation facilitator addressed the issue with the entire group during a short teaching session and in the follow-up discussion. Scenarios that called for action as evidence of understanding were presented in the following weeks. In this example, the outcome was that the students became experts at ongoing focused assessments.

Other understanding gaps uncovered by using the rubric became teaching points, such as the role of the primary nurse in assessing the patient and coordinating his or her care. Furthermore, noting these kinds of gaps helped the researcher refine the wording and differentiation between levels in the rubric.

Simulation Facilitation Process

Another outcome of the observations, which formed the basis of the LCJR, was the enhancement of simulation facilitation. Because high-fidelity simulation is an emerging learning strategy, best practices in facilitation are still being defined. For example, during the early debriefings, some students were unable to respond with depth to the open-ended question, “How did the scenario go for you?” The debriefing was then restructured with questions that were still open ended but were more focused, such as, “What priorities drove your responses?” and “What would you do differently if you had the opportunity?” With the focused questions and adequate time allowed for answers, the students were able to more completely reflect on their simulation experiences and learning.

Rubric Use

In the interim between its development and the current time, nursing faculty have used the rubric in a variety of ways. Many report that it has been valuable in communicating with students about the concept of clinical judgment. In other words, the rubric offers language that is understood by both faculty and students and sets standards that students can comprehend and work toward. In
doing so, students are able to more accurately track their progress toward its development.

One group of nurse educators created a reflective journaling guide, using the Clinical Judgment Model and LCJR, which gives students cues to focus their clinical journaling (Nielsen, Stragnell, & Jester, 2007). The simulation faculty use the rubric to allow students to honestly reflect and self-assess their performance in the simulation laboratory, using examples to support their evaluation. Others have found it a helpful tool for preceptors to assess students' clinical judgment skill.

**CONCLUSION**

Although clinical judgment is clearly related to practical experience, which high-fidelity simulation provides for students in addition to their clinical practica, students can better learn when they are clear about expectations and receive direct feedback about their performance. The LCJR offers performance expectations, as well as language for feedback and assessment of students' clinical judgment development. The rubric has relevance for all clinical contexts, including acute care, long-term care, and community health.

It might be assumed that if a rubric, such as the LCJR, is effective in the simulation laboratory, it will have an equally valid place in the clinical practicum setting. Although predictive validity studies formalizing the correlation between the simulation laboratory and clinical setting and studies of interrater reliability are underway, the LCJR offers a means by which the concept of clinical judgment can be described for students, preceptors, and faculty. As such, it provides a much desired student feedback mechanism and serves as a guide for students' development of clinical judgment.

**REFERENCES**


