# Thinking Like a Nurse: A Research-Based Model of Clinical Judgment in Nursing

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## ABSTRACT

This article reviews the growing body of research on clinical judgment in nursing and presents an alternative model of clinical judgment based on these studies. Based on a review of nearly 200 studies, five conclusions can be drawn: (1) Clinical judgments are more influenced by what nurses bring to the situation than the objective data about the situation at hand; (2) Sound clinical judgment rests to some degree on knowing the patient and his or her typical pattern of responses, as well as an engagement with the patient and his or her concerns; (3) Clinical judgments are influenced by the context in which the situation occurs and the culture of the nursing care unit; (4) Nurses use a variety of reasoning patterns alone or in combination; and (5) Reflection on practice is often triggered by a breakdown in clinical judgment and is critical for the development of clinical knowledge and improvement in clinical reasoning. A model based on these general conclusions emphasizes the role of nurses' background, the context of the situation, and nurses' relationship with their patients as central to what nurses notice and how they interpret findings, respond, and reflect on their response.


Clinical judgment is viewed as an essential skill for virtually every health professional. Florence Nightingale (1860/1992) firmly established that observations and their interpretation were the hallmarks of trained nursing practice. In recent years, clinical judgment in nursing has become synonymous with the widely adopted nursing process model of practice. In this model, clinical judgment is viewed as a problem-solving activity, beginning with assessment and nursing diagnosis, proceeding with planning and implementing nursing interventions directed toward the resolution of the diagnosed problems, and culminating in the evaluation of the effectiveness of the interventions. While this model may be useful in teaching beginning nursing students one type of systematic problem solving, studies have shown that it fails to adequately describe the processes of nursing judgment used by either beginning or experienced nurses (Fonteyn, 1991; Tanner, 1998). In addition, because this model fails to account for the complexity of clinical judgment and the many factors that influence it, complete reliance on this single model to guide instruction may do a significant disservice to nursing students. The purposes of this article are to broadly review the growing body of research on clinical judgment in nursing, summarizing the conclusions that can be drawn from this literature, and to present an alternative model of clinical judgment that captures much of the published descriptive research and that may be a useful framework for instruction.

## DEFINITION OF TERMS

In the nursing literature, the terms "clinical judgment," "problem solving," "decision making," and "critical thinking" tend to be used interchangeably. In this article, I will use the term "clinical judgment" to mean an interpretation or conclusion about a patient's needs, concerns, or health problems, and/or the decision to take action (or not), use or modify standard approaches, or improvise new ones as deemed appropriate by the patient's response. "Clinical reasoning" is the term I will use to refer to the processes by which nurses and other clinicians make their judgments, and includes both the deliberate process of

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generating alternatives, weighing them against the evidence, and choosing the most appropriate, and those patterns that might be characterized as engaged, practical reasoning (e.g., recognition of a pattern, an intuitive clinical grasp, a response without evident forethought).

Clinical judgment is tremendously complex. It is required in clinical situations that are, by definition, underdetermined, ambiguous, and often fraught with value conflicts among individuals with competing interests. Good clinical judgment requires a flexible and nuanced ability to recognize salient aspects of an undefined clinical situation, interpret their meanings, and respond appropriately. Good clinical judgments in nursing require an understanding of not only the pathophysiological and diagnostic aspects of a patient's clinical presentation and disease, but also the illness experience for both the patient and family and their physical, social, and emotional strengths and coping resources.

Adding to this complexity in providing individualized patient care are many other complicating factors. On a typical acute care unit, nurses often are responsible for five or more patients and must make judgments about priorities among competing patient and family needs (Ebright, Patterson, Chalko, & Render, 2003). In addition, they must manage highly complicated processes, such as resolving conflicting family and care provider information, managing patient placement to appropriate levels of care, and coordinating complex discharges or admissions, amid interruptions that distract them from a focus on their clinical reasoning (Ebright et al., 2003). Contemporary models of clinical judgment must account for these complexities if they are to inform nurse educators' approaches to teaching.

## RESEARCH ON CLINICAL JUDGMENT

The literature review completed for this article updates a prior review (Tanner, 1998), which covered 120 articles retrieved through a CINAHL database search using the terms "clinical judgment" and "clinical decision making," limited to English language research and nursing journals. Since 1998, an additional 71 studies on these topics have been published in the nursing literature. These studies are largely descriptive and seek to address questions such as:

- What are the processes (or reasoning patterns) used by nurses as they assess patients, selectively attend to clinical data, interpret these data, and respond or intervene?
- What is the role of knowledge and experience in these processes?
- What factors affect clinical reasoning patterns?

The description of processes in these studies is strongly related to the theoretical perspective driving the research. For example, studies using statistical decision theory describe the use of heuristics, or rules of thumb, in decision making, demonstrating that human judges are typically poor informal statisticians (Brannon & Carson, 2003; O'Neill, 1994a, 1994b, 1995). Studies using information processing theory focus on the cognitive processes of problem solving or diagnostic reasoning, accounting for limitations in human memory (Grobe, Drew, & Fonteyn, 1991; Simmons, Lanuza, Fonteyn, Hicks, & Holm, 2003). Studies drawing on phenomenological theory describe judgment as an situated, particularistic, and integrative activity (Benner, Stannard, & Hooper, 1995; Benner, Tanner, & Chesla, 1996; Kosowski & Roberts, 2003; Ritter, 2003; White, 2003).

Another body of literature that examines the processes of clinical judgment is not derived from one of these traditional theoretical perspectives, but rather seeks to describe nurses' clinical judgments in relation to particular clinical issues, such as diagnosis and intervention in elder abuse (Phillips & Rempusheski, 1985), assessment and management of pain (Abu-Saad & Hamers, 1997; Ferrell, Eberts, McCaffery, & Grant, 1993; Lander, 1990; McCaffery, Ferrell, & Pasero, 2000), and recognition and interpretation of confusion in older adults (McCarthy, 2003b).

In addition to differences in theoretical perspectives and study foci, there are also wide variations in research methods. Much of the early work relied on written case scenarios, presented to participants with the requirement that they work through the clinical problem, thinking aloud in the process, producing "verbal protocols for analysis" (Corcoran, 1986; Redden & Wotton, 2001; Simmons et al., 2003; Tanner, Padrick, Westfall, & Putzier, 1987) or respond to the vignette with probability estimates (McDonald et al, 2003; O'Neill, 1994a). More recently, research has attempted to capture clinical judgment in actual practice through interpretation of narrative accounts (Benner et al., 1996, 1998; Kosowski & Roberts, 2003; Parker, Minick, & Kee, 1999; Ritter, 2003; White, 2003), observations of and interviews with nurses in practice (McCarthy, 2003b), focused "human performance interviews" (Ebright et al., 2003; Ebright, Urden, Patterson, & Chalko, 2004), chart audit (Higuchi & Donald, 2002), self-report of decision-making processes (Lauri et al., 2001), or some combination of these. Despite the variations in theoretical perspectives, study foci, research methods, and resulting descriptions, some general conclusions can be drawn from this growing body of literature.

### Clinical Judgments Are More Influenced by What the Nurse Brings to the Situation than the Objective Data About the Situation at Hand

Clinical judgments require various types of knowledge: that which is abstract, generalizable, and applicable in many situations and is derived from science and theory; that which grows with experience where scientific abstractions are filled out in practice, is often tacit, and aids instant recognition of clinical states; and that which is highly localized and individualized, drawn from knowing the individual patient and shared human understanding (Benner, 1983, 1984, 2004; Benner et al., 1996, Peden-McAlpine & Clark, 2002).

For the experienced nurse encountering a familiar situation, the needed knowledge is readily solicited; the

nurse is able to respond intuitively, based on an immediate clinical grasp and just "knowing what to do" (Cioffi, 2000). However, the beginning nurse must reason things through analytically; he or she must learn how to recognize a situation in which a particular aspect of theoretical knowledge applies and begin to develop a practical knowledge that allows refinement, extensions, and adjustment of textbook knowledge.

The profound influence of nurses' knowledge and philosophical or value perspectives was demonstrated in a study by McCarthy (2003b). She showed that the wide variation in nurses' ability to identify acute confusion in hospitalized older adults could be attributed to differences in nurses' philosophical perspectives on aging. Nurses "unwittingly" adopt one of three perspectives on health in aging: the decline perspective, the vulnerable perspective, or the healthful perspective. These perspectives influence the decisions the nurses made and the care they provided. Similarly, a study conducted in Norway showed the influence of nurses' frameworks on assessments completed and decisions made (Ellefsen, 2004).

Research by Benner et al. (1996) showed that nurses come to clinical situations with a fundamental disposition toward what is good and right. Often, these values remain unspoken, and perhaps unrecognized, but nevertheless profoundly influence what they attend to in a particular situation, the options they consider in taking action, and ultimately, what they decide. Benner et al. (1996) found common "goods" that show up across exemplars in nursing, for example, the intention to humanize and personalize care, the ethic for disclosure to patients and families, the importance of comfort in the face of extreme suffering or impending death—all of which set up what will be noticed in a particular clinical situation and shape nurses' particular responses.

Therefore, undertreatment of pain might be understood as a moral issue, where action is determined more by clinicians' attitudes toward pain, value for providing comfort, and institutional and political impediments to moral agency than by a good understanding of the patient's experience of pain (Greipp, 1992). For example, a study by McCaffery et al. (2000) showed that nurses' personal opinions about a patient, rather than recorded assessments, influence their decisions about pain treatment. In addition, Slomka et al. (2000) showed that clinicians' values influenced their use of clinical practice guidelines for administration of sedation.

### Sound Clinical Judgment Rests to Some Degree on Knowing the Patient and His or Her Typical Pattern of Responses, as well as Engagement with the Patient and His or Her Concerns

Central to nurses' clinical judgment is what they describe in their daily discourse as "knowing the patient." In several studies (Jenks, 1993; Jenny & Logan, 1992; MacLeod, 1993; Minick, 1995; Peden-McAlpine & Clark, 2002; Tanner, Benner, Chesla, & Gordon, 1993), investigators have described nurses' taken-for-granted understanding of their patients, which derives from working with them, hearing accounts of their experiences with illness, watching them, and coming to understand how they typically respond. This type of knowing is often tacit, that is, nurses do not make it explicit, in formal language, and in fact, may be unable to do so.

Tanner et al. (1993) found that nurses use the language of "knowing the patient" to refer to at least two different ways of knowing them: knowing the patient's pattern of responses and knowing the patient as a person. Knowing the patient, as described in the studies above, involves more than what can be obtained in formal assessments. First, when nurses know a patient's typical patterns of responses, certain aspects of the situation stand out as salient, while others recede in importance. Second, qualitative distinctions, in which the current picture is compared to this patient's typical picture, are made possible by knowing the patient. Third, knowing the patient allows for individualizing responses and interventions.

### Clinical Judgments Are Influenced by the Context in Which the Situation Occurs and the Culture of the Nursing Unit

Research on nursing work in acute care environments has shown how contextual factors profoundly influence nursing judgment. Ebright et al. (2003) found that nursing judgments made during actual work are driven by more than textbook knowledge; they are influenced by knowledge of the unit and routine workflow, as well as by specific patient details that help nurses prioritize tasks.

Benner, Tanner, and Chesla (1997) described the social embeddedness of nursing knowledge, derived from observations of nursing practice and interpretation of narrative accounts, drawn from multiple units and hospitals. Benner's and Ebright's work provides evidence for the significance of the social groups style, habits and culture in shaping what situations require nursing judgment, what knowledge is valued, and what perceptual skills are taught.

A number of studies clearly demonstrate the effects of the political and social context on nursing judgment. Interdisciplinary relationships, notably status inequities and power differentials between nurses and physicians, contribute to nursing judgments in the degree to which the nurse both pursues understanding a problem and is able to intervene effectively (Benner et al., 1996; Bucknall & Thomas, 1997). The literature on pain management confirms the enormous influence of these factors in adequate pain control (Abu-Saad & Hamers, 1997).

Studies have indicated that decisions to test and treat are associated with patient factors, such as socioeconomic status (Scott, Schiell, & King, 1996). However, others have suggested that social judgment or moral evaluation of patients is socially embedded, independent of patient characteristics, and as much a function of the pervasive norms and attitudes of particular nursing units (Grieff & Elliot, 1994; Johnson & Webb, 1995; Lauri et al., 2001; McCarthy, 2003a; McDonald et al., 2003).

**Nurses Use a Variety of Reasoning Patterns Alone or in Combination**

The pattern evoked depends on nurses' initial grasp of the situation, the demands of the situation, and the goals of the practice. Research has shown at least three interrelated patterns of reasoning used by experienced nurses in their decision making: analytic processes (e.g., hypothetico-deductive processes inherent in diagnostic reasoning), intuition, and narrative thinking. Within each of these broad classes are several distinct patterns, which are evoked in particular situations and may be used alone or in combination with other patterns. Rarely will clinicians use only one pattern in any particular interaction with a client.

*Analytic Processes.* Analytic processes are those clinicians use to break down a situation into its elements. Its primary characteristics are the generation of alternatives and the systematic and rational weighing of those alternatives against the clinical data or the likelihood of achieving outcomes. Analytic processes typically are used when:

- One lacks essential knowledge, for example, beginning nurses, who might perform a comprehensive assessment and then sit down with the textbook and compare the assessment data to all of the individual signs and symptoms described in the book.
- There is a mismatch between what is expected and what actually happens.
- One is consciously attending to a decision because multiple options are available. For example, when there are multiple possible diagnoses or multiple appropriate interventions from which to choose, a rational analytic process will be applied, in which the evidence in favor of each diagnosis or the pros and cons of each intervention are weighed against one another.

Diagnostic reasoning is one analytic approach that has been extensively studied (Crow, Chase, & Lamond, 1995; Crow & Spicer, 1995; Gordon, Murphy, Candee, & Hiltunen, 1994; Itano, 1989; Lindgren, Hallberg, & Norberg, 1992; McFadden & Gunnett, 1992; O'Neill, 1994a, 1994b, 1995; Tanner et al., 1987; Westfall, Tanner, Putzier, & Padrick, 1986; Timpka & Arborelius, 1990).

*Intuition.* Intuition has also been described in a number of studies. In nearly all of them, intuition is characterized by immediate apprehension of a clinical situation and is a function of experience with similar situations (Benner, 1984; Benner & Tanner, 1987; Pyles & Stern, 1983; Rew, 1988). In most studies, this apprehension is often recognition of a pattern (Benner et al., 1996; Leners, 1993; Schraeder & Fischer, 1987).

*Narrative Thinking.* Some evidence also exists that there is a narrative component to clinical reasoning. Twenty years ago, Jerome Bruner (1986), a psychologist noted for his studies of cognitive development, argued that humans think in two fundamentally different ways. He labeled the first type of thinking paradigmatic (i.e., thinking through propositional argument) and the second, narrative (i.e., thinking through telling and interpreting stories). The difference between these two types of thinking involves how human beings make sense of and explain what they see.

Paradigmatic thinking involves making sense of something by seeing it as an instance of a general type. Conversely, narrative thinking involves trying to understand the particular case and is viewed as human beings' primary way of making sense of experience, through an interpretation of human concerns, intents, and motives. Narrative is rooted in the particular. Robert Coles (1989) and medical anthropologist Arthur Kleinman (1988) have also drawn attention to the narrative component, the storied aspects of the illness experience, suggesting that only by understanding the meaning people attribute to the illness, their ways of coping, and their sense of future possibility can sensitive and appropriate care be provided (Barkwell, 1991). Studies of occupational therapists (Kautzmann, 1993; Mattingly, 1991; Mattingly & Fleming, 1994; McKay & Ryan, 1995), physicians (Borges & Waitzkin, 1995; Hunter, 1991), and nurses (Benner et al., 1996; Zerwekh, 1992) suggest that narrative reasoning creates a deep background understanding of the patient as a person and that the clinicians' actions can only be understood against that background. Studies also suggest that narrative is an important tool of reflection, that having and telling stories of one's experience as clinicians helps turn experience into practical knowledge and understanding (Astrom, Norberg, Hallberg, & Jansson, 1993; Benner et al., 1996).

Other reasoning patterns have been described in the literature under a variety of names. For example, Benner et al. (1998) explored the use of modus-operandi thinking, or detective work. Brannon and Carson (2003) described the use of several heuristics, as did Simmons et al. (2003). It is clear from the research to date, no single reasoning pattern, such as nursing process, works for all situations and all nurses, regardless of level of experience. The reasoning pattern elicited in any particular situation is largely dependent on nurses' initial clinical grasp, which in turn, is influenced by their background, the context for decision making, and their relationship with the patient.

**Reflection on Practice Is Often Triggered by Breakdown in Clinical Judgment and Is Critical for the Development of Clinical Knowledge and Improvement in Clinical Reasoning**

Dewey first introduced the idea of reflection and its importance to critical thinking in 1933, defining it as "the turning over of a subject in the mind and giving it serious and consecutive consideration" (p. 3). Recent interest in reflective practice in nursing was fueled, in part, by Schön's (1983) studies of professional practice and his challenges of the "technical-rationality model" of knowledge in practice disciplines. The past 2 decades have produced a large body of nursing literature on reflection, and two recent reviews provide an excellent synthesis of this literature (Kuiper & Pesut, 2004; Ruth-Sahd, 2003).

Literature linking reflection and clinical judgment is somewhat more sparse. However, some evidence exists that there is typically a trigger event for a reflection, often

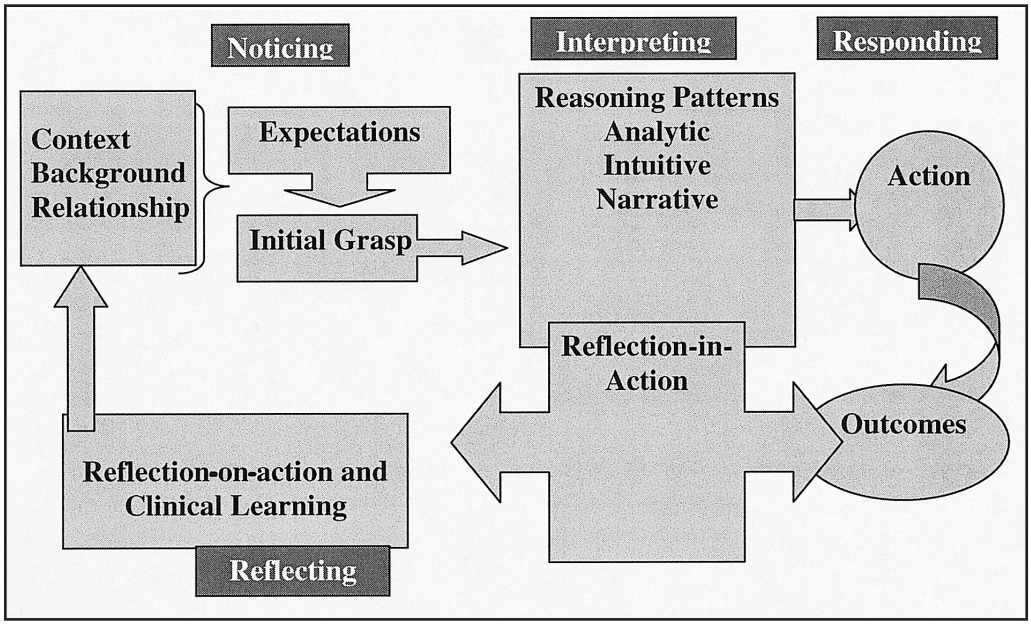


Figure. Clinical Judgment Model.

a breakdown or perceived breakdown in practice (Benner, 1991; Benner et al., 1996, Boud & Walker, 1998; Wong, Kember, Chung, & Yan, 1995). In her research using narratives from practice, Benner described "narratives of learning," stories from nurses' practice that triggered continued and in-depth review of a clinical situation, the nurses' responses to it, and their intent to learn from mistakes made.

Studies have also demonstrated that engaging in reflection enhances learning from experience (Atkins & Murphy, 1993), helps students expand and develop their clinical knowledge (Brown & Gillis, 1999; Glaze, 2001, Hyrkas, Tarkka, & Paunonen-Ilmonen, 2001; Paget, 2001), and improves judgment in complex situations (Smith, 1998), as well as clinical reasoning (Murphy, 2004).

## A RESEARCH-BASED MODEL OF CLINICAL JUDGMENT

The model of clinical judgment proposed in this article is a synthesis of the robust body of literature on clinical judgment, accounting for the major conclusions derived from that literature. It is relevant for the type of clinical situations that may be rapidly changing and require reasoning in transitions and continuous reappraisal and response as the situation unfolds. While the model describes the clinical judgment of experienced nurses, it also provides guidance for faculty members to help students diagnose breakdowns, identify areas for needed growth, and consider learning experiences that focus attention on those areas.

The overall process includes four aspects (**Figure**):

- A perceptual grasp of the situation at hand, termed "noticing."
- Developing a sufficient understanding of the situation to respond, termed "interpreting."
- Deciding on a course of action deemed appropriate for the situation, which may include "no immediate action," termed "responding."
- Attending to patients' responses to the nursing action while in the process of acting, termed "reflecting."
- Reviewing the outcomes of the action, focusing on the appropriateness of all of the preceding aspects (i.e., what was noticed, how it was interpreted, and how the nurse responded).

### Noticing

In this model, noticing is not a necessary outgrowth of the first step of the nursing process: assessment. Instead, it is a function of nurses' expectations of the situation, whether or not they are made explicit. These expectations stem from nurses' knowledge of the particular patient and his or her patterns of responses; their clinical or practical knowledge of similar patients, drawn from experience; and their textbook knowledge. For example, a nurse caring for a postoperative patient whom she has cared for over time will know the patient's typical pain levels and responses. Nurses experienced in postoperative care will also know the typical pain response for this population of patients and will understand the physiological and pathophysiological mechanisms for pain in surgeries like this. These understandings will collectively shape the nurse's expectations for this patient and his pain levels, setting up the possibility of noticing whether those expectations are met.

Other factors will also influence nurses' noticing of a change in the clinical situation that demands attention, including nurses' vision of excellent practice, their values related to the particular patient situation, the culture on the unit and typical patterns of care on that unit, and the complexity of the work environment. The factors that shape nurses' noticing, and, hence, initial grasp, are shown on the left side of the **Figure.**

### Interpreting and Responding

Nurses' noticing and initial grasp of the clinical situation trigger one or more reasoning patterns, all of which support nurses' interpreting the meaning of the data and determining an appropriate course of action. For example, when a nurse is unable to immediately make sense of what he or she has noticed, a hypothetico-deductive reasoning pattern might be triggered, through which interpretive or diagnostic hypotheses are generated. Additional

assessment is performed to help rule out hypotheses until the nurse reaches an interpretation that supports most of the data collected and suggests an appropriate response. In other situations, a nurse may immediately recognize a pattern, interpret and respond intuitively and tacitly, confirming his or her pattern recognition by evaluating the patient's response to the intervention. In this model, the acts of assessing and intervening both support clinical reasoning (e.g., assessment data helps guide diagnostic reasoning) and are the result of clinical reasoning. The elements of interpreting and responding to a clinical situation are presented in the middle and right side of the **Figure.**

**Reflection**

Reflection-in-action and reflection-on-action together comprise a significant component of the model. Reflection-in-action refers to nurses' ability to "read" the patient—how he or she is responding to the nursing intervention—and adjust the interventions based on that assessment. Much of this reflection-in-action is tacit and not obvious, unless there is a breakdown in which the expected outcomes of nurses' responses are not achieved.

Reflection-on-action and subsequent clinical learning completes the cycle; showing what nurses gain from their experience contributes to their ongoing clinical knowledge development and their capacity for clinical judgment in future situations. As in any situation of uncertainty requiring judgment, there will be judgment calls that are insightful and astute and those that result in horrendous errors. Each situation is an opportunity for clinical learning, given a supportive context and nurses who have developed the habit and skill of reflection-on-practice. To engage in reflection requires a sense of responsibility, connecting one's actions with outcomes. Reflection also requires knowledge outcomes: knowing what occurred as a result of nursing actions.

## EDUCATIONAL IMPLICATIONS OF THE MODEL

This model provides language to describe how nurses think when they are engaged in complex, underdetermined clinical situations that require judgment. It also identifies areas in which there may be breakdowns where educators can provide feedback and coaching to help students develop insight into their own clinical thinking. The model also points to areas where specific clinical learning activities might help promote skill in clinical judgment. Some specific examples of its use are provided below.

Faculty in the simulation center at my university have used the Clinical Judgment Model as a guide for debriefing after simulation activities. Students readily understand the language. During the debriefing, they are able to recognize failures to notice and factors in the situation that may have contributed to that failure (e.g., lack of clinical knowledge related to a particular course of recovery, lack of knowledge about a drug side effect, too many interruptions during the simulation that caused them to lose focus on clinical reasoning). The recognition of reasoning patterns (e.g., hypothetico-deductive patterns) helps students identify where they may have reached premature conclusions without sufficient data or where they may have leaned toward a favored hypothesis.

Feedback can also be provided to students in debriefing after either real or simulated clinical experiences. A rubric has been developed based on this model that provides specific feedback to students about their judgments and ways in which they can improve (Lasater, in press).

There is substantial evidence that guidance in reflection helps students develop the habit and skill of reflection and improves their clinical reasoning, provided that such guidance occurs in a climate of colleagueship and support (Kuiper & Pesut, 2004; Ruth-Sahd, 2003). Faculty have used the Clinical Judgment Model as a guide for reflection on clinical practice and report that its use improves students' reflective abilities (Nielsen, Stragnell, & Jester, in press).

> Educational practices must help students engage with patients and act on a responsible vision for excellent care of those patients and with a deep concern for the patients' and families' well-being.

Specific clinical learning activities can also be developed to help students gain clinical knowledge related to a specific patient population. Students need help recognizing the practical manifestations of textbook signs and symptoms, seeing and recognizing qualitative changes in particular patient conditions, and learning qualitative distinctions among a range of possible manifestations, common meanings, and experiences. Opportunities to see many patients from a particular group, with the skilled guidance of a clinical coach, could also be provided. Heims and Boyd (1990) developed a clinical teaching approach, concept-based learning activities, that provides for this type of learning.

## CONCLUSIONS

Thinking like a nurse, as described by this model, is a form of engaged moral reasoning. Expert nurses enter the care of particular patients with a fundamental sense of what is good and right and a vision for what makes exquisite care. Educational practices must, therefore, help students engage with patients and act on a responsible vision for excellent care of those patients and with a deep

concern for the patients' and families' well-being. Clinical reasoning must arise from this engaged, concerned stance, always in relation to a particular patient and situation and informed by generalized knowledge and rational processes, but never as an objective, detached exercise with the patient's concerns as a sidebar. If we, as nurse educators, help our students understand and develop as moral agents, advance their clinical knowledge through expert guidance and coaching, and become habitual in reflection-on-practice, they will have learned to think like a nurse.

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