Critical Thinking

Critical thinking is an essential element for those who function in today's fast paced, complex healthcare environment, where they must deal with issues such as advanced technology, increased patient acuity, an aging population and complex disease processes. Nurses are a valued member of today's healthcare team and critical thinking can and should be a skill they utilize as part of their daily practice.

This course will explore the multiple definitions of critical thinking; describe some of the attributes of critical thinkers and some of the related skills. This course will discuss some ways to improve or teach critical thinking as well as some ways to assess critical thinking.

Purpose:
Nurses will gain knowledge and skills related to critical thinking.

Intended Audience: Nurses and other healthcare personnel interested in this subject matter.

Objectives:
Upon completion of this course, the participant will be able to…
- Define critical thinking.
- Discuss the importance of critical thinking in the nurses' practice.
- Describe some of the tools used to measure critical thinking.
- Describe some of the strategies to develop critical thinking skills.

Introduction

Critical thinking is an essential element for those who function in today's fast paced, complex healthcare environment, where they must deal with issues such as advanced technology, increased patient acuity, an aging population and complex disease processes. Nurses are a valued member of today's healthcare team and critical thinking can and should be a skill they utilize as part of their daily practice.

This course will explore the multiple definitions of critical thinking; describe some of the attributes of critical thinkers and some of the related skills. This course will discuss some ways to improve or teach critical thinking as well as some ways to assess critical thinking.

Critical thinking is viewed as important for decision making and positive patient outcomes. There is a lack of agreement, however, on its definition, how to teach it, and how to evaluate it in the clinical setting. This course will focus on how critical thinking applies to nursing and explore the multiple definitions and issues related to teaching and evaluation of critical thinking.
What is Critical Thinking?

Today’s complex world requires that members of the healthcare team be able to critically evaluate situations to respond appropriately. This process, “critical thinking” allows people to focus on the issues at hand to make decisions that provide the desired outcomes. In the mid-1990s, critical thinking was recognized as the driving force behind the development of knowledge and professional judgment in all practice based professions. Experts Facione and Facione, in collaboration with the American Philosophical Association, proposed a consensus definition in 1997 that critical thinking is a “purposeful self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. Critical thinking is essential as a tool of inquiry. Critical thinking is a pervasive and self-rectifying human phenomenon.” Facione went on to describe that critical thinking is both a skill and a habit of mind and one must be disposed to think critically as well as have the skills to do so. At the core of critical thinking are the cognitive skills of analysis, interpretation, inference, evaluation, explanation and self-regulation. The dispositions toward crucial thinking can be understood in terms of open-mindedness, inquisitiveness, cognitive maturity, truth-seeking, analyticity, systematicity, and self-confidence.

Facione describes the ideal critical thinker as one who is “habitually inquisitive, well-informed, trustful of reason, open-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit.”

Brookfield (1987) described the key components of the concept of critical thinking as “identifying and challenging assumptions, exploring and imagining alternatives, understanding the importance of context, and engaging in reflective skepticism.” Identifying and challenging assumptions involves probing, reflecting on and questioning one’s usual ways of thinking, as well as one’s morals, beliefs, values, and stereotypical notions. He goes on to discuss that critical thinking entails more than cognitive skills, such as logical reasoning or scrutinizing arguments, but that emotions are paramount to the critical thinking process, because as one attempts to think critically and assist others to do so, one cannot help but become conscious of the importance of one’s emotions to this activity. Brookfield suggests that critical thinkers are typically individuals who engage in productive and positive activity, in that they are actively involved with life and perceive themselves as being creative and re-creative in aspects of their personal, workplace and political lives. Furthermore, critical thinkers view their thinking as a process, rather than as outcome and frame questions in a manner such as “What is the nature of this?” “What does this mean?” or “Why is this happening?”

The experts at the Center for Critical Thinking defined critical thinking in 2005 as “That mode of thinking – about any subject, content, or problem – in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. This results in a thinker who:
• raises vital questions and problems, formulating them clearly and precisely
• gathers and assesses relevant information, using abstract ideas to interpret it effectively, comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards
• thinks open-mindedly within alternative systems of thought, recognizing and assessing as need be, their assumptions, implications, and practical consequences
• Communicates effectively with others in figuring out solutions to complex problems."

The Center for Critical Thinking was not created for the healthcare field, but was developed for supporting education reform across a variety of professions.

One of the most frequently quoted definitions of critical thinking, however, dating back to 1964, comes from Watson and Glaser and states that critical thinking is "a composite of attitudes that enables a person to recognize problems, search for evidence to support truths, and accurately weigh logically determined evidence."

Watson and Glaser expanded on this is in 1980 to say that critical thinking is "a composite of attitudes, knowledge and skills that includes: Attitudes of inquiry that involve the ability to recognize the existence of problems and an acceptance of the general needs for evidence in support of what is asserted to be true; knowledge of the nature of valid inferences, abstractions and generalizations in which the weight or accuracy of different kinds of evidence are logically determined, and skills in employing and applying the above attitudes and knowledge."

Another view of critical thinking comes from Thurmond (2001) who states critical thinking is an ability to see events from a holistic point of view. The critical thinker employs skills, abilities, beliefs, attitudes, goals, emotions and experiences to evaluate a situation. Thurmond goes on to state that the critical thinker remains unbiased and adaptable and is able to change focus when new facts are presented. The critical thinker is able to provide excellent care and benefits the patient. Table I summarizes some of the defining characteristics of critical thinking.

Other definitions of critical thinking include:
• thinking about your thinking while you are thinking to make it clearer, more accurate, and
defensible in an intellectually disciplined manner (Loving & Wilson, 2000; Paul, 2005; Turner, 2005)
• a unique cognitive thought processes or reflective and reasonable thinking focused on deciding
what to believe or do (Adams, 1999; Daly, 1998; Turner, 2005)
• a person's ability to manipulate thinking skills including defining the problem, judging the credibility
of information, making accurate inferences and making reasonable value judgments (Shen, 2002)
• a process habit, assessing, exploring alternatives, applying interventions, and then re-evaluating
used to form judgments about what to do in particular clinical events (Cirocco, 2007)
• a way of thinking that always asks “Why?” and “What am I missing?” A systematic, disciplined, and
based on predetermined standards that can be distinct for different people, different patient care
units and different specialties (Heffner & Rudy, 2008)
• a complex cognitive process requiring higher order thinking and application to decision-making in
practice (Girot, 1995)

Although a precise definition may be lacking, there are, however commonalities in the many definitions and
attributes associated with the concept of critical thinking. For the most part, definitions indicate that critical
thinking is about the way information is processed. Nearly all definitions include logic, reasoning,
knowledge, and cognitive skills. Critical thinking is sometimes described as an upgraded version of decision
making or problem solving and is described as a non-linear process. Critical thinking is usually not
considered a “one size fits all” concept, but is believed to be applied and operationalized differently in
different specialty areas and disciplines. Additionally, it is often described as something that takes
experience and time to develop. Learning to think critically is not an intuitive process, but develops over
time, as a person systematically assesses his or her own thinking processes.

One could argue that critical thinking requires an explanation rather than a definition. It is probably more
appropriate to describe it in terms of components and central features, phases and characteristics by which
it might be recognized. Commonalities among the varying process descriptions of critical thinking include
the following, all of which result in a change in belief or course of action:

• Reflection
• Identification and appraisal of assumptions
• Inquiry, interpretation and analysis, and reasoning and judgment
• Considerations of context

Key phrases associated with critical thinking include the willingness to ask questions, the ability to
recognize new answers, and a foundation of knowledge, both formal and informal. Critical thinking is not
the same as problem solving; it is not a means to an end. Rather, critical thinking is a continuous process
characterized by open-mindedness, continual inquiry, and perseverance, combined with a willingness to
look at each unique situation and ascertain which identified assumptions are true and relevant. This sort of
situational awareness, looking at and seeing the big picture from all its different possible perspectives, can
provide caregivers the best knowledge and skilled judgments in any given context to provide optimal care.
Other critical thinking traits that help to create a mind-set conducive to situational awareness include being reflective, creative, flexible, and honest about personal biases, as well have having a continually skepticism and never-ending inquisitiveness. Critical thinking continues even after a problem is addressed to allow for ongoing reflection. This review and analysis assists in evaluating the effectiveness of thoughts, actions, and decisions that were used in producing the outcomes, thereby enabling identification of areas where future modifications are needed.

Critical thinking is purposeful thinking that requires a “time out” even for the best and most experienced nurse. Although a nurse might feel too busy to do so, stopping for a time out for a few minutes will save time in the long run.

In their review of the literature in 2002, Simpson and Courtneay identified the characteristics that a critical thinker may possess, these include:

- Open mindedness, having the ability to appreciate the alternative prospectives and different opinions.
- Being inquisitive, having a desire to investigate new things to gain knowledge and understanding.
- Truth seeking, sufficiently inquiring to gain new insights.
- Analytical in one’s own approach to critiquing evidence and the inferences that can be drawn from the evidence.
- Uses an organized and meticulous approach to problem solving.
- Self-confident with self-awareness of own individual ability to utilize and critique available scientific evidence to inform decisions.

**Why is Critical Thinking Important?**

Healthcare is a dynamic environment that experience constantly changing and evolving knowledge, skills, technology and innovations. Critical thinking skills are essential for nurses to adapt and function in this ever-changing environment. Critical thinking enables nurses to understand and apply an array of standards and guidelines to a variety of situations and specialty areas. Critical thinking skills have long been considered essential to the provision of safe and effective care throughout the literature:

- Healthcare professionals need “finely honed critical thinking skills in order to be safe, competent, and skillful practitioners of their profession.”
- Critical thinking skills can aid in the “delivery of safe, comprehensive, individualized, effective and innovative care which stems from the competent clinical judgment of thinking professionals.”
- Critical thinking behavior has been “associated with positive patient safety outcomes.”
• Critical thinking “results in safe, competent practice and improved decision making, clinical judgments, and problem solving.”
• Critical thinking “enables expertise in practice; it is critical for safe, effective, and efficient care.”

Clinical competence is the desired outcome for a nurse who practices the cognitive skills of critical thinking such as:
• analyzing.
• applying standards.
• seeking information.
• reasoning logically.
• predicting.
• transforming knowledge.

Although research has not clearly established a link between critical thinking and clinical competence, it is likely that this deficiency can be attributed to the various ambiguities that surround critical thinking. Intuitively, the better and more flexible one's thinking, the more effectively one can function in clinical environments. Nurses can use critical thinking skills to investigate and reflect on all aspects of clinical observation or problems in order to decide on an appropriate course of action. The ability of critical thinking enhances one's skills in solving problems and making decisions. Developing skills to think critically promotes a broader menu of options with which to analyze problems and make decisions.

Critical thinking requires reasoning skills and sound judgment to appropriately match unique client problems or needs. Presence of these qualities can benefit society, but deficiencies may be linked with increased client risks, safety concerns and poor clinical outcomes. As the nurse observes changes, critical thinking helps him or her to accurately define new problems and communicate important findings accurately to the physician.

The nurse who frequently thinks critically reflects on complex cases and discusses them with other members of the healthcare team. By doing so, the critical thinker builds and validates knowledge, and examines his or her practice. The nurse also builds rapport with the other members of the healthcare team. Table 2 summarizes why critical thinking is important in complex clinical environments.

### Table 2 – Why critical thinking is important in complex clinical environments.

<table>
<thead>
<tr>
<th>Interpreting new data</th>
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<tbody>
<tr>
<td>Accurately defining new problems</td>
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<tr>
<td>Communicating important points about the new problem accurately</td>
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<tr>
<td>Anticipating needed nursing and medical interventions</td>
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<tr>
<td>Analyzing of outcomes to determine progress toward healing</td>
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<tr>
<td>Building knowledge of nursing practice</td>
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<tr>
<td>Building rapport within the healthcare team</td>
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How Does One Measure Critical Thinking?
The measurement of critical thinking dates back to 1952 when Watson and Glaser introduced a standardized instrument to measure critical thinking and conceptualized critical thinking as an organization.
of attitudes, knowledge, and skills which allow us to recognize problems, know that evidence is needed to confirm truth, and know how to make inferences, abstractions, and generalizations. This is referred to as the Watson and Glaser Critical Thinking Appraisal (WGCTA). Watson and Glaser made subsequent revisions of the instrument to increase clarity, add more modern ideas, and remove stereotypes. Researchers have done extensive testing on all versions of the instrument for validity and reliability. The WGCTA is the tool most used in nursing although it is not specific to nursing. It consists of 80 questions divided into five subscales: inference, recognition of assumptions, deduction, interpretation and evaluation of arguments. The WGCTA is reported to assess general reasoning skills.

Since then, several more assessment tools have been developed to measure critical thinking in nursing as well as other fields, which include models such as the California Critical Thinking Skills Test, and the California Critical Thinking Dispositions Inventory (CCTDI) from 1992. The CCTDI is designed to measure seven aspects of critical thinking: truth-seeking, open-mindedness, analyticity, systematics, self-confidence, inquisitiveness, and maturity. These tools attempt to measure critical thinking judgments and logical reasoning, drawing inferences, interpreting, deductive reasoning, recognizing assumptions, evaluating conclusions, and assessing reasoning strengths. Other tools include the Performance-Based Development System (PBDS), clinical narratives, Adult Medical Nursing Critical Thinking Test, Assessment of Critical Thinking in Perioperative Nurses, Enis-Weir Critical Thinking Test, Cornell Critical-Thinking Test and the HESI Exam.

In 2009, the Nursing Executive Center developed 25 core competencies related to critical thinking. They consulted more than 100 industry leaders – including hospital-based nurse executives, directors, managers, nursing school deans, faculty members, and nursing education association representatives. These 25 nursing competencies are not meant to comprise a comprehensive list of attributes potentially supporting critical thinking in nursing practice; instead they are intended to reflect the core skills found at the heart of critical thinking, as identified by nursing industry experts. The 25 competencies are grouped into five broader skill categories: problem recognition, clinical decision making, prioritization, clinical implementation, and reflection. For the complete list of competencies, see table 5 at the end of this course.

**How do we Develop Critical Thinking?**

There is a great deal of literature detailing strategies and techniques to develop and improve critical thinking skills. Using a variety of these strategies enhances the learning experience and helps to keep those involved more engaged in the process. A crucial first step to developing critical thinking skills is to create an environment that encourages a spirit of critical thinking and is supportive of learning critical thinking. This should be a safe environment where questions, reflection, and discussion are encouraged. It is the responsibility of the leader or manager to provide an environment in which it is safe for staff members to ask questions, and to present ideas. Some strategies that can be useful in developing critical thinking can be found in table 3 and barriers and promoters to critical thinking are included in table 4.
Many of these strategies are designed to develop the habits of the mind and the attitudes and dispositions of a thinker such as confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open mindedness, perseverance and reflection. Successful strategies should support the development of a mind that is engaged in the process of critical thought; therefore, it is important to choose strategies that are flexible, active learning strategies that encourage as much interactive participation as possible.

Many of the interventions feature clinical scenarios in which the nurse reflects upon and analyzes decisions made or interventions chosen during patient care. These situations can be either real or fictional.

One very effective method of improving critical thinking skills is questioning. This not only causes learners to reflect on situations and the way in which information was processed, but it also helps them realize the limits of their own knowledge. As learners progress to increased levels of critical thinking, higher-level questions should be used to develop higher-level problem solving abilities and critical thinking. This type of reflection and analysis allows the nurse to examine the relationship between his or her actions and the outcomes of the situation. Reflection is a major step in the development of critical thinking. Not only is it important to think about the decisions made, but it also is important to reflect on how that decision was made. Some authors suggest that open-ended questions are best because they help the nurse to identify the reasons behind why a decision was made, what data led to forming the decision, and possible assumptions that are made in the case.

Some useful questions include:

- What would happen if….?
- What are the strengths and weaknesses of….?
- What is the difference between..... and .......?
- Why is ...... important?
- What is another way to look at......?
- What is the nature of this?

Table 3 – Strategies to Develop Critical Thinking

<table>
<thead>
<tr>
<th>Algorithms</th>
<th>Reflective Journaling</th>
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<tbody>
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<td>Debate</td>
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<td>Learning Contracts</td>
<td>Questioning</td>
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<td>Concept Mapping</td>
<td>Journal Clubs</td>
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Table 4 – Barriers & Promoters of Critical Thinking

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<th>Barriers</th>
<th>Promoters</th>
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<tr>
<td>Limited time</td>
<td>Fostering collaboration</td>
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<tr>
<td>Understaffing</td>
<td>Openness to critical thinking</td>
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<tr>
<td>Fear of job loss</td>
<td>Organizational culture</td>
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<tr>
<td>Stress</td>
<td>Organizational structure</td>
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<tr>
<td>Technically focused care</td>
<td>Openness to varying points of view</td>
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<tr>
<td>Automated charting/delayed documentation</td>
<td></td>
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<tr>
<td>Activities increasing demands on time and energy</td>
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</tbody>
</table>
• What does this mean?
• Why is this happening?

Another popular and effective strategy to develop critical thinking is concept mapping. Concept mapping was developed by Novak in 1972 to promote critical thinking. This can be used to create a visual impression of the current knowledge a learner may possess on a particular subject and be used as a tool to show the complexity of a given topic. Concept mapping includes assimilating new concepts into circles or boxes, creating hierarchical arrangements between concepts and sub-concepts that can be connected with lines or linking words.

Reflective journaling is another method to enhance critical thinking skills. Reflection is an activity involving thinking about an event, analyzing what occurred, and trying to get meaning from the experience. This involves a nurse being encouraged to write about or verbalize a situation around a patient he or she cared for. The nurse includes all pertinent history and current data about the patient. The nurse can compare planned with actual outcomes, and those actions that did or did not contribute to the desired goals. The nurse might also identify thoughts or feelings experienced while caring for the patient. In reflective journaling, emotions during care of the patient can be addressed in a less threatening environment.

Case studies can also be useful in developing critical thinking skills. Case studies encourage learners to work through problem situations, generate hypothesis, and test these hypothesis against relevant literature and personal experiences within the context of a caring framework. It offers learners opportunities to discuss real-life situations and challenges in a safe environment and stimulates learners to think critically since cases offer no concrete answers. Another advantage of case studies is that it promotes reflection, teacher-student dialogue, and group discussions. Hearing how others synthesize information and interpret data is invaluable and contributes to the development of critical thinking. The importance of role modeling should not be underestimated; inexperienced nurses can benefit greatly from observing experienced nurses.

Rowles and Brigham (2005) offer the following guidelines for effective use of case studies:

1. The case study needs to focus on the most important concepts to be learned.
2. Because case studies may not have one right answer, the teacher must consider alternative responses and be able to say, "I had not considered that action, let's discuss further."
3. The learning environment needs to be open, safe, and non-threatening to facilitate students' participation.
4. All students should be engaged in the learning activity if class size allows.
5. Summarization of key points is essential to ensure that the students take away the most important concepts.
A sample case study might look like this:

Mr. Smith is admitted for evaluation of recurrent headaches. A 58-year old retired Army officer he currently works as a tax advisor. On admission, he is alert and oriented x 3. His gait is slow, but steady.

1. **What additional assessment data would the nurse like to collect at this point?**

Mr. Smith is scheduled for a head CT with contrast.

2. **What are the nursing implications for this procedure?**

The CT reveals a 5 x 8 cm irregular mass in the left frontotemporal area.

3. **Based on the location of this tumor, what clinical manifestations should the nurse monitor?**

Mr. Smith is scheduled for a craniotomy.

4. **Describe the preoperative teaching required for this patient and his family.**

Mr. Smith undergoes a craniotomy for debulking of his tumor. Initial tissue analysis indicates a high-grade glioma.

5. **Describe the pathophysiology of this tumor and chances of recurrence.**

Mr. Smith is transported to the Neuro Intensive Care Unit.

6. **In reviewing Mr. Smith’s postoperative orders, the following are noted:**

   Assess LOC and GCS every 1 hour for 4 hours, then every 2 hours for 4 hours, then every 4 hours if stable
   IV 0.9% normal saline at 80cc/hr
   Bedrest with head of bed elevated 30 degrees
   Maintain head and neck in good alignment
   Decadron (Dexamethasone) 10mg IV every 6 hours times 4 doses, then 4mg IV every 6 hours for 48 hours and then initiate Decadron (Dexamethasone) taper protocol
   Pepcid (Famotidine) 20 mg IV every 12 hours
   Dilantin (Phenytoin) 300mg IV BID
   Colace (Docusate) 100mg prn for constipation
   Codeine 30 mg every 6 hours prn for pain

7. **What are the rationales for each of the ordered therapies?**

Mr. Smith is scheduled for radiation therapy.

8. **Describe teaching related to this therapy.**
Another type of case study might look like this:

A 46-year-old woman experienced intermittent right upper quadrant pain for four months. An abdominal ultrasound revealed stones in her gallbladder. Conservative treatment with symptomatic support was successful; however, symptomatic episodes continued and resulted in the patient opting for surgical intervention. The patient underwent a laparoscopic cholecystectomy with general anesthesia and endotracheal intubation. The surgeon used standard four-trocar technique with carbon dioxide insufflation. The patient is Caucasian, 5 feet 6 inches tall, and weighs 125 pounds. Orders on her admission to the post-anesthesia care unit are as follows:

1. Vitals: according to routine
2. Intake and output: according to routine
3. Diet: ice chips, advance to clear liquids as tolerated
4. Activity: out of bed as tolerated when awake
5. Dressings: maintain dressings, reinforce as needed
6. Indwelling catheter: discontinue on arrival
7. Oxygen: discontinue when awake to maintain O2 sats > 92%
8. Medications:
   a. Droperidol 1.25 mg IV every 1 hour prn for nausea
   b. Morphine 2 mg IV every 30 minutes prn for pain
   c. Oxycodone 5mg every 4 hours prn for pain
9. IV: discontinue when po intake > 500 ml
10. DC to home when discharge criteria are met

Open ended questions:

What are the most likely potential complications that you would need to watch for during the postoperative period?

What nursing interventions should you expect to perform?

What complications of the anesthetic would you watch for during the postoperative period?

What discharge education would you anticipate giving this patient?

Contextual change:

Consider how your care and responses would differ if your patient had the following attributes or comorbidities:

Type I diabetes
Morbid obesity

78 years of age

Nicotine dependence

Alcohol abuse

Case studies like these are valuable in guiding the learner to apply content to analyze specific clinical issues; it also provides a framework for approaching new and unknown situations in actual clinical situations. The focus is on correlation of clinical manifestations, treatment modalities, and patient outcomes to the presenting clinical condition to better understand the big picture of the patient.

**Summary**

In summary, critical thinking is an essential element for those who function in today's fast paced, complex healthcare environment, where they must deal with issues such as advanced technology, increased patient acuity, an aging population and complex disease processes. Nurses are a valued member of today's healthcare team and critical thinking can and should be a skill they utilize as part of their daily practice. This course has explored the multiple definitions of critical thinking; described some of the attributes of critical thinkers and some of the related skills. This course discussed some ways to improve or teach critical thinking as well as some ways to assess critical thinking.
Table 5 – Nursing Executive Center’s 25 Core Critical Thinking Competencies

**Problem recognition**

1. Accurately anticipates changes in patient status
2. Accurately recognizes changes in patient status
3. Consistently recognizes unsafe practices by self and others
4. Proactively voices concerns about unsafe practices by self and others
5. Proactively identifies unit or hospital based improvement opportunities

**Clinical decision making**

1. Effectively explores multiple solutions to a given problem
2. Consistently demonstrates understanding of rationale for following (or departing from) established protocols and policies
3. Consistently demonstrates understanding of potential clinical implications of interventions
4. Proactively asks peers and experts for assistance when needed
5. Proactively consults further resources (eg. Literature, evidence-based tools, etc.) to improve patient care

**Prioritization**

1. Appropriately prioritizes the most urgent patients
2. Appropriately sequences care for an individual patient
3. Appropriately sequences indirect care responsibilities across the shift
4. Appropriately delegates responsibilities
5. Consistently demonstrates accountability for delegated responsibilities

**Clinical implementations**

1. Consistently develops plan of care that reflects current evidence-based practice and protocols
2. Consistently develops plan of care that reflects patient, family and community needs
3. Effectively implements nursing interventions included in plan of care
4. Proactively adjusts plan of care according to patient needs, preferences, and cultural considerations
5. Clearly communicates plan of care to other care team members

**Refection**

1. Appropriately applies knowledge of past experiences to present situations
2. Consistently reevaluates assumptions to draw conclusions based on nursing evidence
3. Proactively initiates professional dialogue around nursing practice
4. Proactively debriefs following errors or near-misses
5. Appropriately adjusts own practice based on others’ feedback
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Rochmawati, E. & Wiechula, R. (2010.) Education strategies to foster health professional students' clinical reasoning skills. Nursing and Heath Sciences, 12, 244-250.


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