Focus on Thinking

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Types of Critical Thinking Skills and Strategies


Basic-Level Thinking Skills

Students need a solid knowledge base from which to draw information for answering questions requiring higher-level thinking. Knowledge refers to information committed to memory as well as knowing how to find needed information. Students also must be aware of all the resources available that can be used to find the information needed to solve problems and make decisions related to patient care. The skills in this category provide this foundation.

Basic-level thinking skills include:
- Identifying signs and symptoms,
- Recalling knowledge about diagnostic tests, and
- Understanding the physiology of body systems.

**Identifying Signs and Symptoms**
An ability to identify signs and symptoms of disease, side effects of drugs, and a host of other causes is based on knowledge of normal functioning. Higher-order thinking skills, such as comparing and contrasting, are used to differentiate normal from abnormal.

**Recalling Knowledge About Diagnostic Tests**
Laboratory and diagnostic tests provide a window into the patient's internal environment. These studies provide critical information necessary for an accurate assessment, the basis for the subsequent steps of the nursing process. Nurses must be aware of all aspects of diagnostic testing. This knowledge is necessary for properly scheduling tests, ensuring the most accurate results, and carrying out post-procedure care so no harm comes to the patient as a result of the testing.

**Understanding the Physiology of Body Systems**
Understanding the physiology of body systems serves as a foundation for performing an accurate and complete physical assessment. Knowing what is normal is key to detecting abnormalities. This knowledge is necessary for recognizing signs and symptoms of disease, diagnosing actual and potential problems, and evaluating the effect of nursing interventions.
Gathering Data

Each of the thinking skills listed in this category is commonly used when a nurse gathers data. These skills include:

- Assessing systematically and comprehensively,
- Checking accuracy and reliability,
- Clustering related information,
- Collaborating with co-workers,
- Determining the importance of information,
- Distinguishing relevant from irrelevant information,
- Gathering complete and accurate data and then acting on that data,
- Judging how much ambiguity is acceptable,
- Recognizing inconsistencies, and
- Using diagnostic reasoning.

**Assessing Systematically and Comprehensively**

Assessing systematically and comprehensively is a critical-thinking strategy applied to all areas of nursing practice. Nurses use a systematic method such as a body-systems or a head-to-toe approach so no areas are forgotten.

A systematic and comprehensive approach is also used when collecting data during a shift report. Most nurses use a specific format for gathering patient data to ensure that all important areas of information are noted.

**Checking Accuracy and Reliability**

Nurses must make judgments about the accuracy and reliability of information. Decisions about what nursing actions to take are based on this information. Problems can develop or even harm can come to a patient if care is based on information that is not accurate and reliable.

**Clustering Related Information**

Clustering related information refers to grouping together information with a common theme. This is the process used when formulating nursing diagnoses. Related signs and symptoms are clustered together to form the basis for a nursing diagnosis.

**Teamwork and Collaboration**

The critical thinking needed to solve problems seldom happens when working alone; many people can be involved. In soliciting information and suggestions from others, new perspectives on a problem are realized. Various approaches and solutions may be suggested.

Present-day health care is a complex environment requiring the input and cooperation of many members working as a team. Team members engage in a critical-thinking process when they examine delivery of care, noting compliance with standard of care and adherence to accepted protocols. This team approach, with all members collaborating and working together, strengthens patient care and fosters positive outcomes.

**Determining the Importance of Information**

Nurses have a myriad of information to sort through for every patient. This information may change often throughout the course of a day. Therefore, nurses must be able to determine
the importance of information, act on that which is important, and disregard that which is not.

**Distinguishing Relevant from Irrelevant Information**

The thinking skill of distinguishing relevant from irrelevant information refers to the nurse deciding which information is pertinent or connects with the matter at hand. All information about a patient may be important for the patient's overall care, but the nurse must sort out which information is relevant to a particular problem or situation currently under consideration.

**Gathering Complete and Accurate Data then Acting on That Data**

Gathering complete and accurate data is fundamental to critical thinking. Data is collected from all sources available to the nurse. The data is then used as the basis for solving problems and making decisions, so it is important that data collection is complete and accurate.

**Judging How Much Ambiguity is Acceptable**

“Ambiguous” refers to a situation that is unclear, uncertain, or vague. Ambiguity occurs when factors relating to a situation make it somewhat unclear or gray rather than “black and white.” Many situations appear similar on the surface, but actually differ when all factors are carefully considered. Each individual patient situation must be considered before making a decision about that particular patient. That is, all information is considered within the context of THAT particular patient situation.

**Recognizing Inconsistencies**

The beginning point of the nursing process is assessment. Throughout the assessment, both subjective and objective data are collected. In reviewing all this data, nurses are cognizant of any inconsistencies that may indicate additional problems that may not be readily apparent.

**Using Diagnostic Reasoning**

The word “reasoning” refers to using critical thinking to solve problems and make decisions. Generally speaking, reasoning can be used as a synonym for critical thinking. Diagnostic reasoning applies this type of thinking to clinical practice. Specifically, it refers to the formulation of nursing diagnoses about a patient’s health status.

Diagnostic reasoning is a complex process that takes into account many factors about the patient, such as current health status, family history, prior illnesses, and a host of other factors. When using diagnostic reasoning, it is always important to consider how the patient is coping with the situation or problem. Although helpful with the diagnostic process, assessing the patient’s coping is often an overlooked aspect of data collection.
Providing Nursing Care

Each one of the thinking skills listed below is commonly used when nurses provide care to patients. These skills include:

- Applying the nursing process to develop a treatment plan,
- Communicating effectively,
- Predicting and managing potential complications,
- Resolving conflicts,
- Resolving ethical dilemmas,
- Setting priorities
- Delegating
- Teaching others.

Applying the Nursing Process to Develop a Treatment Plan

The nursing process is the framework for providing safe, effective, and humanistic nursing care. This process is applied systematically by all nurses and serves as the basis for all the nurses’ actions.

Students may think of the nursing process as labor intensive, based on their experience writing student care plans. It is helpful for them to learn that the nursing process is used continuously throughout the day as a way of thinking. Consider the nurse’s response to a patient’s report of pain. The nurse immediately:

- assesses all characteristics of the pain,
- formulates a goal and outcome criteria,
- develops a plan for controlling the pain,
- implements the plan, and
- follows up with the patient to evaluate the effectiveness of the interventions.

All this happens within a matter of minutes. It is automatic and second nature to expert nurses.

Communicating Effectively

Communicating effectively is a highly complex process. Many factors influence communication. Examples of these factors include environment, territoriality, values, personal space, attitudes, and time. The nurse must be aware of these and other factors and not let them block effective communication. It is difficult to carry out effective critical thinking when communication is breaking down.

Predicting and Managing Potential Complications

Predicting and managing potential complications requires critical thinking. Nurses must look at the big picture to predict potential complications that may exist for individual patients. The starting point is to know common complications related to a patient’s condition, then consider individual differences that may point to additional concerns specific for that patient.

For example, all surgical patients are at risk for atelectasis and pneumonia. Interventions such as deep breathing and coughing exercises, early ambulation, and the use of an incentive spirometer are planned. However, an 18-year-old athlete in excellent physical condition who has undergone a laparoscopic appendectomy is at much less risk for these complications than a 60-year-old obese patient with a history of cigarette smoking who has undergone a colon resection.
Resolving Conflicts
Conflict cannot be avoided. Conflict happens on a daily basis. Nurses are often in a rapidly paced climate, full of urgency and serious consequences if errors are made. In this kind of environment, conflict is inevitable.

Nurses in all areas of patient care must be able to maintain calm, avoid conflict, and if conflict should occur, handle it in a constructive manner. These characteristics serve to promote an atmosphere that is optimal for critical thinking to take place.

Resolving Ethical Dilemmas
Because ethical dilemmas are typically extremely complex issues, they require professionals to use critical-thinking skills. A code of ethics provides a point of reference for nurses to use when faced with ethical dilemmas. The American Nurses’ Association, the International Council of Nurses, and the Canadian Nurses’ Association have all adopted a code of ethics. Nurses can use these to help guide their thinking processes when faced with an ethical dilemma.

Setting Priorities
Setting priorities or prioritizing is a thinking skill constantly used by nurses in all patient care environments. Prioritizing can be a simple task or a complex task that involves comparing and contrasting data and sorting relevant from irrelevant information.

Nurses prioritize:
- when caring for a group of patients and deciding which patients to see first and which patients can wait, and
- when caring for a specific patient to determine which assessments and interventions are most important and must be carried out first.

In some settings, protocols are in place to help with prioritizing. For example, triage nurses in the emergency department typically follow a procedure in which patients with chest pain or eye injuries take priority. For other patient problems, these nurses use their established knowledge base and experience to determine which patients must be seen first.

Delegating
When delegating care, nurses engage in many critical-thinking skills and strategies. According to the National Council of State Boards of Nursing (https://www.ncsbn.org/887.htm?search-text=delegation, n.d.), delegating refers to “process for a nurse to direct another person to perform nursing tasks and activities. NCSBN describes this as the nurse transferring authority while ANA calls this a transfer of responsibility” transferring to a competent individual the authority to perform a selected nursing task in a selected situation” Delegating requires nurses to engage in assessing, planning, assigning, supervising, and evaluating. Each of these roles requires a high degree of critical thinking and decision making. When engaged in delegation activities, nurses are accountable that the delegation process is accurately and responsibility carried out in all patient care situations.

Teaching Others
In all aspects of life, teaching is empowering. Nurses empower patients through teaching. Teaching can occur informally any time a nurse interacts with a patient. Teaching is also
formalized through the written plan of care. One example is discharge teaching, which typically addresses specific areas such as medications, diet, activity restrictions, and follow-up visits. Another example of formalized teaching is diabetic teaching, which often involves written guidelines with a checklist to ensure all areas are covered.

Critical-thinking skills are used in teaching. Nurses consider all factors, looking at the big picture, in order to individualize the teaching plan. For example, discharge teaching has a different focus if the patient is going home alone, discharged home with a caregiver, or transferred to an extended-care facility.
Evaluating Responses

The thinking skills in this category include:
- Evaluating and correcting thinking,
- Evaluating data, and
- Supporting conclusions with evidence.

**Evaluating and Correcting Thinking**

After using critical thinking to resolve a problem, make a decision, or plan patient care, it is important to evaluate the thinking that occurred. Evaluating thinking means reflecting on what just happened, how the situation was handled, and what lessons can be learned for use in similar situations in the future.

This type of self-evaluation promotes professional development, enhances self-esteem, and fosters insight into one’s own thinking. Thinking about one’s thinking is part of the total critical-thinking process. The following questions may be used to evaluate thinking:
- What thinking skills were used? Were they effective?
- Were the outcomes what was expected? If not, were the outcomes acceptable or perhaps better than expected? If the outcomes were not acceptable, what might be done differently in the future?
- How did the thinking impact all the people affected, such as the patient, significant others, and other healthcare providers? Was the impact positive or negative?

It is helpful to discuss with co-workers the thinking skills used in a situation. Ask how they might have handled the situation and be ready to change if change is needed.

**Evaluating Data**

Evaluating data is the basis for several steps of the nursing process. Data collection is part of the assessment step. Accurate and complete data collection provides a database on which to formulate diagnoses and interventions. Data collection is carried out again during the evaluation step to determine if the interventions were effective.

Because data collection is such an important part of the nursing process, it is necessary for nurses to evaluate the data for accuracy. Many times, nurses must question the data collected, collect additional data, or take further steps to verify accuracy. Inadequate data collection can have a detrimental effect on patient outcomes.

**Supporting Conclusions with Evidence**

Nurses often have intuitive feelings about what is happening with patients. Intuition can be quite helpful as a starting point but should not be the sole means for identifying problems. It is important for nurses to collect data that support suspected problems and formulate nursing diagnoses based on evidence rather than jumping to conclusions and focusing in the wrong direction. Applying the steps of the nursing process helps ensure a systematic, scientific approach to data collection and analysis.
Judging How Much Ambiguity Can be Tolerated
Vital Signs Activity

Two Students Engage in this Activity:

For each of 3 patients, complete the following.

Age        Gender

**Current:**
Blood Pressure
Pulse
Temperature
Respirations

Last 24 hour of vital signs:

Normal vital signs for this patient:

Activity level:

Medical diagnosis:
Pre-existing conditions:

Medications (complete the following for all medications this patient is currently taking):

   Name:
   Classification:
   Effect on any of the vital signs:

Procedures/treatments performed:

   Effect of procedures/treatments on any of the vital signs:

Process the Information in Postconference

   • Help students compare the 3 patients.
   • Determine why vital signs acceptable for one patient may not be acceptable for one of the other patients.
   • Help them establish parameters and discuss what to do if the patient's vital signs go outside the parameters -- establishing clinical forethought.
Tools for Implementing Clinical Reasoning

Classroom and/or Clinical Settings

Teaching Students to Think Like a Nurse

Using Tanner's (Benner, Tanner, & Chesla, 2009) clinical reasoning model that includes 4 important components:

1. Noticing
2. Interpreting
3. Responding
4. Reflecting

which can be put into a question format for students to use repeatedly throughout the day. These questions are:

1. What did I notice?
2. What does it mean?
3. What will I do?
4. What was the effect of what I did?

This very basic tool is then applied using many critical thinking skills and strategies.
Continued Application of the Process in Ongoing Patient Care

Here is an example of a student implementing this tool with a very simple patient situation.

Critical Thinking Skill: Predicting and Managing Potential Complications
Applying the 4 questions:

Question #1: What did I notice:
- The patient is 4 days postop following abdominal surgery
- On IV antibiotics due to preoperative leakage of infection into the peritoneal cavity
- Currently reports "gas" pains and requests Mylicon

Question #2: What does it mean?
Trapped gas in a sluggish colon OR possible complication developing: paralytic ileus

Question #3: What will I do?
Based on my answers to "What does it mean?", I will consider both when determining actions to take.
1. I can give the requested Mylicon
   or I can first:
2. Investigate further:
   a. Is the patient taking narcotics? How much; how often?
   b. Did the patient have anything else done today for this concern?
   c. Is the patient taking in enough fluids to prevent constipation?
   d. Is the patient ambulating?
   e. Does the patient have bowel sounds in all four quadrants?
3. Based on the answers to these questions:
   a. Give the Mylicon
   b. Monitor the IV fluids the patient is receiving to ensure the patient is hydrated
c. Ambulate the patient more often

d. Continue to auscultate bowel sounds every 8 hours

Question #4: What was the effect of what I did?
To be determined with follow-up assessments.

Data that indicate a paralytic ileus has developed:

- Nausea/vomiting
- Increasing abdominal pain
- Anxiety
- Actions to take and anticipate happening: Notify healthcare provider immediately; be prepared to insert NG tube; closely monitor fluids and electrolytes; provide oral care

NOTE: An extremely important part of applying this model is for students to have had practice using a number of critical thinking skills and strategies as they are caring for their individual patients.

Safety and Medication Administration

Critical thinking skills & strategies used:
- Gathering complete and accurate data
- Identifying signs and symptoms
- Understanding and applying the physiology of body systems
- Analyzing data
- Distinguishing relevant from irrelevant data
- Determining the importance of information
- Clustering related information

1. Gather information about the client.

Medication to be administered _______________ Classification____________________
Client Diagnosis _________________________________________________________
Allergies _______________________________________________________________
Surgical Procedure _______________________________________________________
Chronic Conditions _______________________________________________________

2. Consider information about the medication and how it relates to the client.

Reason why the medication is prescribed for this client __________________________
How does this medication relate to the client’s H&P ____________________________
Other prescribed medications that relate to this medication and affect the administration of this medication __________________________
Expected therapeutic effects ________________________________________________
Side effects to consider ____________________________________________________
When the last time this medication was given _____________________________
What were the effects of the medication the last time it was given __________________

3. Determine on how to safely administer the medication.

Any pertinent assessments to make ____________________________________________
Any parameters to consider _________________________________________________
Any contraindications to giving this medication _______________________________
Any reason to hold this medication __________________________________________
What dosage will be given ___________________________________________________
What route will be used ____________________________________________________
IV?__ Compatible with IV solution? __Compatible with other meds in the line? _____
Flush needed? ________________
Oral?____ Can it be crushed? ___________ Given with food? ______________________
Can it be given with other medications ________________________
Evaluation data to collect _________________________________________________
Collect evaluation data how long after administering the med?____________________
Pertinent information to document ___________________________________________
Predict and Manage Potential Complications

For each patient answer these questions:

1. What are you on alert for today with this patient?
2. What are the important assessments to make?
3. What complications may occur? What could go wrong?
4. What interventions will prevent complications?
5. How will you prioritize implementation of nursing interventions? Explain.
6. What actions will you take for each complication should it occur?

Grading Rubric for Predict and Manage Potential Complications

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>S</th>
<th>NI</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to identify the potential complications.</td>
<td>Clearly identifies potential complications.</td>
<td>Description of potential complications for this patient is scant.</td>
<td>Unable to identify potential complications.</td>
</tr>
<tr>
<td>Able to identify the important assessment data to monitor for this patient.</td>
<td>Clearly identifies the important assessment data to monitor for this patient.</td>
<td>Description of the important assessment data to monitor for this patient is scant.</td>
<td>Unable to identify the important assessment data to monitor for this patient.</td>
</tr>
<tr>
<td>Able to identify all factors influencing the most important data to monitor.</td>
<td>Clearly identifies all factors influencing the most important data to monitor.</td>
<td>Description of all factors influencing the most important data to monitor is scant.</td>
<td>Unable to identify the most important data to monitor.</td>
</tr>
<tr>
<td>Able to prioritize planned interventions.</td>
<td>Clearly identifies ways to prioritize planned interventions.</td>
<td>Superficially discusses ways to prioritize planned interventions.</td>
<td>Unable to prioritize planned interventions.</td>
</tr>
<tr>
<td>Able to plan actions to take if complications occur.</td>
<td>Clearly identifies actions to take if complications occur.</td>
<td>Superficially discusses actions to take if complications occur.</td>
<td>Unable to discuss actions to take if complications occur.</td>
</tr>
</tbody>
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Prioritizing Patient Needs

Refer to your concept map for patient care. Categorize the identified patient needs using the following criteria (NCSBN, n.d.). Explain your rationale.

1. First order priority need – immediate threat to health, safety, or survival.
2. Second order priority need – actual problem for which immediate help has been requested by the patient or family.
3. Third order priority need – actual or potential issue that the patient or family is not aware of.
4. Fourth order priority need – actual or potential issue that is anticipated in the future and for which help will be needed.

First Priority Needs with Rationale

______________________________________________________________________________
______________________________________________________________________________

Second Priority Needs with Rationale

______________________________________________________________________________
______________________________________________________________________________

Third Priority Needs with Rationale

______________________________________________________________________________
______________________________________________________________________________

Fourth Priority Needs with Rationale

______________________________________________________________________________
______________________________________________________________________________
## Grading Rubric for Prioritizing Patient Needs

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>S</th>
<th>NI</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritizes patient needs</td>
<td>Prioritization of needs is correct.</td>
<td>Prioritization is correct in some but not all identified patient needs.</td>
<td>Unable to accurately prioritize patient needs.</td>
</tr>
<tr>
<td>Provides rationales</td>
<td>Rationales are clear and accurate.</td>
<td>Rationales are superficial and do not clearly explain rationales.</td>
<td>Unable to provide any correct rationales.</td>
</tr>
</tbody>
</table>
Delegating and Prioritizing Exercise
Medical/Surgical Patient

Today you have the following team members working with you: an LPN/LVN and a CNA.

Step 1:
Obtain the following information on three patients. You might use information from the shift report, cardex, and medication administration record.

Name:
Medical Diagnosis:
Nursing care for today:
  Activity:   Assistance needed with activity:
  Diet:   Assistance or special needs related to diet:
  Pain rating:
    Medications ordered for pain:
    Side effects of analgesics:
  Safety issues:
  IV fluids:
  Medications: Fill out the information on the attached sheet for each medication.
  State of fluid balance:
  Labs scheduled for today:
    How the labs relate to nursing care:
  Diagnostics studies scheduled for today:
    How the studies relate to nursing care:
  Dressing changes:
  Suctioning:    Enema:     Other treatments:

On another sheet of paper, fill in the following information for each medication to be administered while you are caring for this patient.

Name of medication:
  1. Classification of the medication.
  2. Reason why the medication was ordered.
  3. When it will be administered.
  4. Teaching that needs to be done relative to the medication.
  5. Any special instructions regarding administration of this medication.

Which medication for each patient is most important to give on time?
Which medication can be given toward the end of the window of time and still be given “at the right time” without adverse effects?

Medications administered at other times:
What other medications are prescribed for the patient that were administered on the previous shift or will be administered on the next shift?
How will those medications affect the patient assessments and the care you will be giving this shift?

Step 2:
Visit each patient and perform a quick, two-minute assessment of both the patient and the patient’s environment.

Step 3:
  1. Prioritize which patient you should care for first, second, and third. Why?
  2. What are the primary assessments/data collection that should be completed first for each patient? Why?
  3. What nursing interventions need to be carried out for each patient?
  4. What interventions will you do first?
  5. Which of the above interventions can be delegated and to whom? Why?
6. What information will be given to the person to whom the task is delegated and what information will be collected after the task is finished?