Bloom's Taxonomy: A Helpful Guide for Students

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Student nurses—especially those just entering the collegiate arena from high school—often complain that they have always done well on tests, ***that is, until now***. They report they are studying but ***not*** achieving the results they are used to. As faculty, we recognize that this can be frustrating for students, and a bit of education about Bloom's taxonomy might help!

First of all, who is Bloom? In the 1950's Benjamin Bloom and a group of educational psychologists developed a classification of levels of intellectual behavior important in learning.

Bloom found that the great majority of test questions students encounter require them to think only at the lowest possible level. Bloom identified six levels within the cognitive domain, from simple recall or recognition of facts, as the lowest level, through increasingly more complex and abstract mental levels, to the highest order which is classified as evaluation.

So, if you have previously done well on tests it is possible that you were only asked to recall certain facts or pieces of information and now you are being tested at a different—and higher—level. In fact, study methods that you once used successfully, such as making flash cards to help you remember facts, may now be failing you. It is important to understand—**you** are not the failure—your **study method** may be failing you.

Understanding Bloom's taxonomy can help students understand why nursing tests ***really are harder*** than many other tests they have ever taken before! Take advantage of the practice quizzes and ATI tests that are available in many of the courses. Remember…you must practice your skills of blood pressure monitoring and IV starts. You must also practice your skill of test-taking!

Bloom's Taxonomy - Part I

Let's look at the six levels of Bloom's taxonomy.

Level 1 is: KNOWLEDGE.
This is the basic level of recalling certain knowledge. This level is important and certain information ***must*** be memorized and always available for recall (yes…not only for the test at hand). Important **KNOWLEDGE** that must be committed into our memory banks includes: normal vital signs, normal assessment values, important lab values and basic medication facts.

The following are Level I questions:

1. Which of the following blood levels represents a therapeutic range for lithium?
    a. 0.1-0.5 mEq/L
    b. 0.4-0.8 mEq/L
    c. 0.5-1.5 mEq/L
    d. 1.0-2.5 mEq/L

2. Which medication below is classified as a beta-blocker?
    a. propanolol
    b. furosemide
    c. acetylsalicylic acid
    d. acetaminophen

Both questions are asking for *factual information*—simple recall. 0.5-1.5mEq/L is a therapeutic range for lithium. Beta blockers are cardiac medications and propanolol is a common beta-blocker.

Frequently, students may try to recall and memorize everything. That feat is impossible in nursing. There is too much information and information is always changing. You are likely to find more **KNOWLEDGE** level questions during your first semester when you are learning the important *building blocks* of your nursing foundation—vital signs, assessment information, medication administration, body systems, etc. This is the information you need to be able to recall.

Level 2 involves: COMPREHENSION.
This is a higher level of thinking because now we must *understand* the information and *interpret* some data. Note how the above questions can be taken to this "higher level."

3. Which sign or symptom is the nurse likely to assess if the client's lithium level is 0.2mEq/L?
    a. flight of ideas
    b. C/O severe constipation
    c. ataxia
    d. C/O extreme lethargy
4. The nurse must obtain an apical pulse prior to administering which medication below?
    a. meperidine
    b. metoprolol
    c. milk of magnesia
    d. methylphenidate

Notice that we are now selecting facts to help us answer the questions. In question 3, we know that 0.2 mEq/L is a sub-therapeutic level. Lithium is used to treat mania. Flight of ideas is a symptom of mania. If the blood level is not therapeutic, symptoms of mania have probably not yet abated.

In question 4, we are looking at the rule of when an apical pulse needs to be assessed. Apical pulses are checked prior to administering beta blockers, a class of cardiac medications; metoprolol is a beta-blocker.

Bloom's level 3 is: APPLICATION.
This is where we, as nurses, *use* or *demonstrate* the information. We have *rationale* for our actions. There is a reason why we do what we do. Let's take a look at some level 3 questions.

5. The patient is ordered lithium carbonate 450mg b.i.d. PO. The nurse should hold the lithium carbonate if which of the following levels is present?
   a. lithium blood level – 0.3 mEq/L
   b. sodium level – 135 mEq/L
   c. lithium blood level – 1.8 mEq/L
   d. sodium level –145 mEq/L

6. The patient is ordered metoprolol 50mg daily PO. Which assessment data below requires the nurse to hold the medication?
   a. BP—96/54, Apical—48, R—14, T—98.4
   b. BP--100/66, Apical—66, R—26, shallow, T—98.8
   c. BP—158/98, Apical—114, R—20, T—101.1
   d. BP—98/72, Apical-82, irregular, R—16, T—99.1

Nurses should hold lithium when blood levels are too high or toxic. None of the sodium levels are abnormal. The 0.3 mEq/L lithium level is sub-therapeutic which would not require a nurse to hold the dose.

Metoprolol is a beta blocker and these medications are held if bradycardia is present. An apical of 48 demonstrates bradycardia. Though some of the other data above is outside of normal limits, only bradycardia would require holding this medication.

In the following pages, we will discuss the remaining three levels of Bloom's taxonomy. In the meantime begin to challenge yourself while studying for tests and quizzes. **Ask yourself:**

- *"What facts are important to memorize?"* Nurses must know normal assessment data in order to differentiate abnormal data. Star data that your instructor is emphasizing as important and commit this to memory.
- *"Do I know all of the terminology?"* Students must learn to define terminology when they are reading. If a term is not familiar to you—look it up then and there. Try to make sense out of terms by identifying prefixes, suffixes and root words.
- Once you know the facts, ask yourself: *"What is the nurse likely to observe with this condition?"*
- Finally ask yourself, *"How will knowing this affect my nursing care?"* The nurse needs to be aware of rationale—*why we do what we do*. When there are Nursing Care Plans in your textbook, cover up the rationale. Read the Nursing Diagnosis, Outcome(s) and Interventions. Then ask yourself why that intervention is appropriate. Check your answers by then reading the rationale.

As nurses our patients will come to us verbalizing and displaying different signs and symptoms. Some of the signs and symptoms will be relevant to the current condition and others will not. A good nurse will make sense of the data and intervene safely and appropriately. Asking you higher level questions *now* will make you all better nurses in the future.

Bloom's Taxonomy -- Part II

Let's now look at the remaining 3 levels of Bloom's taxonomy. These are the remaining "higher-order" levels of thinking. Questions aimed at these levels will employ more critical thinking skills and judgment to answer correctly. Like anything, however, practice and repetition helps!

Bloom's level 4 is: ANALYSIS. When nurses analyze, they break information down into parts and look for relationships. To analyze well one must compare and contrast. Let's look at some samples of questions that involve analysis.

7. You are assigned to care for a group of clients. Which client should you assess first?
    a. A 19-year-old with an infection whose first dose of IV antibiotics is infusing and is complaining of throat tightness.
    b. A 25-year-old who had an appendectomy 2 hours ago and is complaining of pain.
    c. A 66-year-old with anemia who just received a unit of packed red blood cells an hour ago and is complaining of fatigue.
    d. A 78-year-old with emphysema who has a pulse ox reading of 92% and respirations are last recorded at 22 per minute and shallow.

8. A client is admitted to the inpatient unit following an accidental overdose of medications. Several of the medications are classified as serotonin-selective-reuptake-inhibitors (SSRI's). Which assessment data must be communicated to the physician immediately?
    a. skin pale, cool and dry
    b. temperature 97.8, pulse 96, respirations 18
    c. agitation, diaphoresis, muscle rigidity
    d. C/O nervousness, tremors of hands bilaterally, tearfulness

In both questions you are asked to look at a lot of data and make inferences related to that data. In question #7 you must compare the ages of the patients, the medical situation and the current complaint *(symptom)* or objective assessment *(sign)*. In this case, the youngest client is the highest priority because his symptom is relating to our **A-B-C's** of care—airway, breathing, circulation. He is likely experiencing a reaction to the antibiotic which is resulting in anaphylaxis and airway collapse. The antibiotic must be stopped immediately and respirations supported.

Serotonin syndrome is a concern when medications altering serotonin are ingested. This syndrome is described in the literature as a potentially serious drug-related condition characterized by a number of mental, autonomic and neuromuscular changes. It has been referred to as the "serotonin behavioral" or "hyperactivity syndrome." Agitation, diaphoresis and rigidity best describe this potentially fatal condition.

Bloom's level 5 is: SYNTHESIS.
To synthesize data means to put it together in a way that involves problem solving or predicting. Below are examples of level 5 questions.

9. A 77-year-old, newly admitted inpatient is prescribed Ativan (lorazepam) 0.5 mg q.h.s. po. The nurse recognizes that this medication places the patient at risk for
    a. deficient fluid volume.
    b. impaired gas exchange.
    c. injury.
    d. constipation.

10. A 50-year-old is admitted to the inpatient unit with depression. She has lost 20 pounds in two months and reports loss of energy and difficulties with sleeping. She is placed on a medication that has anticholinergic side effects. The nurse should observe for
    a. diarrhea.
    b. weight loss.
    c. dry mouth.
    d. fatigue.

Both questions above ask the nurse to look at assessment data and draw a reasonable prediction. The nurse should know that lorazepam is a medication that affects the central nervous system and can cause loss of coordination. This fact, combined with advanced age and new surroundings, places the patient at risk for falls (injury).

Anticholinergic effects are common with many medications. These are the "drying" side effects--they reduce secretions throughout the body. Dry mouth is a common anticholinergic side effect. Constipation and weight gain are more likely to occur, and fatigue is often associated with depression.

Bloom's level 6 is: EVALUATION.
Nurses evaluate every day as part of the nursing process. Evaluation is making judgments and noting the value in the information at hand. Questions 11 and 12 involve the skill of evaluation.

11. The nurse has just completed teaching a client about dietary restrictions necessary for Coumadin (warfarin) therapy. The nurse recognizes that the teaching has been successful when the client states
    a. "I will take the Coumadin in the morning with water."
    b. "I will limit my intake of red meats and eggs."
    c. "I will try to drink more fresh juices with pulp."
    d. "I will give up my nightly spinach salad."

12. The nurse judges that the client's pre-op teaching has been successful when the first-day post-op client
    a. performs foot circles.
    b. breathes quickly and shallowly.
    c. avoids coughing.
    d. avoids use of analgesics.

Nurses must listen, observe and make judgments from clients' comments and behaviors. There is meaning in every encounter we have with every client. Warfarin teaching should

include instructions relating to avoiding foods high in Vitamin K (yellow and dark green vegetables). Limiting foods that are high in cholesterol is a good dietary habit but does not relate to warfarin restrictions. Be careful that you answer only what the question is asking!

Patients undergoing surgery should be taught to cough and deep breathe. Appropriate administration of analgesics at the onset of pain is considered prudent care.