



FIGURE 1-10 Observing carefully, asking questions, and thinking about what you are doing are essential in health care work.

and stimulate the mind. They help ensure that actions are not based on false assumptions or insufficient information.

Questions may be asked mentally (to oneself) or of others. Think of the five *Ws* plus the one *H*: What, When, Where, Why, Who, and How. The following examples show how questions can be used to promote thinking:

- When learning new information, ask *why* it is important and to *whom*? *How* does it relate to what is already known?
- When working with patients, ask *what* might work best for them and *when* it should be done.
- When sharing important information with a coworker, ask yourself *what* you know about this person that will help you communicate most effectively.

- When working in a health care facility, consider *how* your work habits might be changed to improve overall efficiency.

Learners commonly believe that the role of their instructors is to *tell* them rather than *ask* them. In reality, instructors who continually ask questions that require learners to explain their answers and actions are encouraging them to think like health care professionals. Some instructors even respond to a learner's question with another question. Their intention is to teach learners to begin to think for themselves and trust that they are capable of finding the answer. Instructors also use questioning to guide learners in pulling known facts together, making connections, and applying what they know to new situations. For example, a respiratory therapy learner is working with a hospitalized patient. He has studied the illness presented by the patient and knows how to perform the prescribed breathing treatments. Through questioning, the instructor guides this learner to explain why these particular treatments have been prescribed. The learner is encouraged to consider the nature of the illness and the properties of the treatments and medications, and draw conclusions about the relationships among these factors.

Problem-Solving Process

Important applications of thinking skills are problem solving and decision making, two very important competencies for health care professionals. There are a variety of problem-solving and decision-making models. This book presents a five-step problem-solving process to help learners and health care professionals approach problem solving in an organized manner.

Step One—Identify the Problem

Identifying problems is not always as simple as it sounds. Factors that are described as *the problem* are often only *symptoms* of the problem. For example, Jamie, a radiologic technologist, does not receive the high scores she had hoped for on her performance review at work. When she receives the rating "poor" in the dependability category, she feels upset and believes that her problem is "receiving a poor evaluation because her supervisor dislikes her."

Identifying the real nature of problems requires a willingness to observe, pay attention, and confront difficult issues. Problem solvers must look beyond

what seems obvious and use questions effectively to identify the real situation. Denying problems does not make them go away. Problems that are not addressed tend to get worse, because no action is being taken to resolve them. In Jamie's case, she must be willing to speak frankly with her supervisor about her low rating. It turns out that the real problem is actually what *caused* the poor evaluation, not the evaluation itself. In Jamie's case, it is her frequent tardiness.

Jamie's first reaction is, "I can't help it. My car is old and breaks down a lot." When her car won't start, she must rely on family and friends to drop her off at work. Their schedules are not the same as Jamie's, so she often arrives late.

Taking the time to think about what she has said ("I can't help it"), Jamie realizes that being at work on time is her responsibility. She is now able to identify the real problem: lack of reliable transportation. This enables her to start seeking effective solutions. Accepting responsibility for a problem makes it possible to start doing something about it.

Step Two—Gather Information

Good problem solving is based on having accurate and reliable information. Acting on assumptions (untested ideas), opinions (beliefs not based on facts or knowledge), and emotions is likely to result in poor decisions. In health care, gathering information is also known as assessment. There are many methods for gathering information:

- Review what is already known: What knowledge do I have about the problems or situation? About the causes? About possible solutions?
- Collect objective data: What can be observed? Measured? Tested? What are the facts? When working with patients, objective data are called signs.
- Collect subjective data: How do I feel about a situation? What do I want? What do others want? When working with patients, subjective data refer to what is reported by the patient, such as pain and feeling nauseated. Also known as symptoms, they cannot be directly observed or measured by the health care professional, but nevertheless must be taken into account.
- Conduct research: What are the facts? Are they from a reliable (trustworthy) source? How do I know? Are they scientifically based? (Can they be tested?)

- Ask for help: Who has useful knowledge? Are there experts available who can give me reliable information and help me find a solution?

When she starts out, Jamie finds the idea of solving her transportation problem overwhelming. The only solution that makes sense to her is buying a new car, but she knows that she probably cannot afford one at this time. When she puts her fear aside and commits herself to gathering information, she discovers the following:

- Carpools have been organized at the facility where she works.
- The most economical new car for sale in her area costs \$15,595.
- *Consumer Reports* magazine has a recent article about purchasing used cars and publishes annual reports on the performance of most auto models manufactured over the past 10 years.
- Her credit union sponsors car sales to help buyers who have limited funds to spend. They also offer low-interest loans to buyers who qualify.
- A cousin has an older car that he wants to sell.
- There is a bus route within half a mile of her apartment.
- A local college offers a workshop that teaches people how to buy a car.
- The local high school has an auto-mechanic training program. For a small fee, students will check over used cars before they are purchased.

Step Three—Create Alternatives

The third step in problem solving is to create a list of alternatives. Ideas for solutions and actions are generated based on the information collected. All possibilities should be considered before one is selected. Some alternatives may prove, on further investigation, to be impractical or unworkable. It is essential to think through each one and consider the likely consequences, both positive and negative.

Based on her research, Jamie creates the following list:

1. Take the bus to work. When the weather is nice, walking to the bus stop will be a good form of exercise. In rainy weather, common about five months of the year where she lives, getting to the bus stop without getting soaked is not likely.

Thinking It Through

Linda Stevens, LPN, works on a medical floor at the local hospital. One of the patients she has been assigned to take care of is Frank Gibbons, a 72-year-old newly diagnosed with diabetes (a condition in which the body does not produce enough insulin to control blood sugar levels). Part of Linda's process of preparing to care for her patients is to review the patients' charts for any new physician orders. She notes that Dr. Romero was in the previous evening and ordered the patient's blood sugar to be checked at 8 a.m. According to the results, insulin is to be given. (The higher the level of blood sugar, the greater the amount of insulin that is given, based on a formula defined by the physician.) Linda is a "thinking nurse" and starts to question if this is an appropriate order. She realizes that breakfast trays arrive at 7:30 a.m. on her floor and that Mr. Gibbons will already have eaten when she checks his insulin level at 8 a.m. She knows that after eating, a person's blood sugar normally increases for a few hours. This is why blood sugar tests are usually ordered when the patient has not eaten for a number of hours. Linda reasons that if she calculates the amount of insulin based on the temporarily elevated blood sugar levels, Mr. Gibbons will receive too much insulin and may have a negative reaction. Linda calls Dr. Romero to clarify the order. Dr. Romero states that he believed the breakfast trays did not arrive until 8:30 a.m. He thanks Linda for catching the error and changes the order.

- What might have happened if Linda had simply performed the blood sugar test exactly as ordered?
- Do you think Linda should have been considered responsible for the error if she had followed the orders exactly?
- Review the five *Ws* and *How* question in relation to this situation. Give examples of questions that Linda may have asked herself.

Also, the bus ride takes about 30 minutes longer, each way, than driving to work.

2. Take the workshop on how to buy a car, then purchase a used one through the credit union. The monthly car payments and higher insurance rates will mean having to budget carefully to meet all expenses. Chances of buying

a "lemon" can be reduced by using the service

offered at the high school.

3. Continue to rely on others for rides to work. (Nonaction is also an alternative.)

4. Ask her father for a loan to buy a new car. While Jamie would like to have a shiny new car, she has been financially independent for several years and prefers to remain that way.

Some potential alternatives do not appear on the above list because of information acquired during step two:

1. Carpool participants must have a reliable vehicle of their own. This might be an alternative later, if she purchases a dependable car.
2. Her cousin's car has more than 175,000 miles and is not one of the more reliable models, according to the reports she studied.

Step Four—Choose an Alternative and Take Action

Step four is critical. A common difficulty in problem solving and decision making is failure to act. Opportunities are missed and accomplishments not realized when there is no follow-through.

Jamie decides to combine two alternatives. There are five months of dry weather ahead, so she decides to take the bus to work. She will use the extra riding time to read and keep up with advances in radiology. In October, she plans to buy a used car. In the meantime, she will create a personal budget to control expenses, save money, and learn more about how to buy a car and which model is likely to give her the best value.

Step Five—Evaluate and Revise as Needed

Evaluation means reviewing the results of the actions taken. Even well-thought-out plans can prove to be ineffective or have unexpected, negative consequences. And circumstances can change. It is sometimes necessary to make adjustments or choose another alternative. It may even require going back to step two to gather additional information and go through the process again.

When applying the process to health care work, it is important to remember that the needs of patients and facilities may change and/or additional information may become available. This can affect the process and force revisions to be made before the entire process has been completed. Problem solving is a continual process.