Critical Thinking in Nursing: Decision-making and Problem-solving

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Purpose

The purpose of this course is to explain processes of decision-making and problem-solving in relation to critical thinking.

Goals

Upon completion of this course, the healthcare provider should be able to:

- Define critical thinking.
- Discuss decision-making.
- Explain brainstorming techniques.
- Discuss different types of mapping.
- Discuss prioritizing.
- Explain multivoting and the prioritization matrix.
- Discuss 7 steps to problem-solving.

Introduction

As medicine becomes more and more complex and nursing responsibilities increase, critical thinking—the ability to question and make rational decisions—becomes even more important. Too often, healthcare providers simply follow routines and accept the word of "authorities," such as administrators and physicians, without question, but critical thinking requires that all thoughts and actions be examined objectively. Additionally, in patient care, almost all actions require decision-making and problem-solving.

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Critical thinkers must consistently apply intellectual standards **[See CE course Critical Thinking: Introduction]**: clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness. Critical thinking is an essential element in decision-making, which involves choices, and problem-solving, which requires analysis.

Decision-making

A free flow of ideas is essential to problem-solving and decision-making because it helps prevent preconceived ideas from controlling the process. Many decisions in healthcare are arrived at by group or teams rather than by the individual, and this type of decision-making requires special skills. General steps to all decision making include:

- Identifying a goal: What is the purpose of the decision?
- Establishing needs: Who will be affected?
- Identifying options: What choices are possible?
- Making a plan: Which action should be taken?
- Taking action: Do it.
- Evaluating results: How did it work out?

Brainstorming

Effective group and individual problem-solving begins with brainstorming, which can take many forms. Brainstorming should focus more on quantity of ideas than quality in the beginning. What are all the possibilities? People who are brainstorming individually may just think about possibilities, but writing the ideas down is sometimes more effective because it can be very difficult to remember all ideas.

The simplest group approach is for people to just sit together and discuss ideas, but this can often lead to one or two people monopolizing the group or to circular or unfocussed discussions, so a more formal approach has benefits. During brainstorming, one person should serve as a facilitator, guiding the process.

Brainstorming may be done in a structured manner or unstructured. In a structured approach, for example, each person may present an idea in turn while in an unstructured approach, people may speak at will. Regardless of the method, some basic steps to brainstorming include:

- Establish and explain the purpose of the session.
- Establish a time frame.
- Decide whether to use a structured or unstructured approach.
- Decide on a format (lists, diagrams, etc.).
- List ideas in the chosen format.
- Discuss, clarify, and combine ideas.

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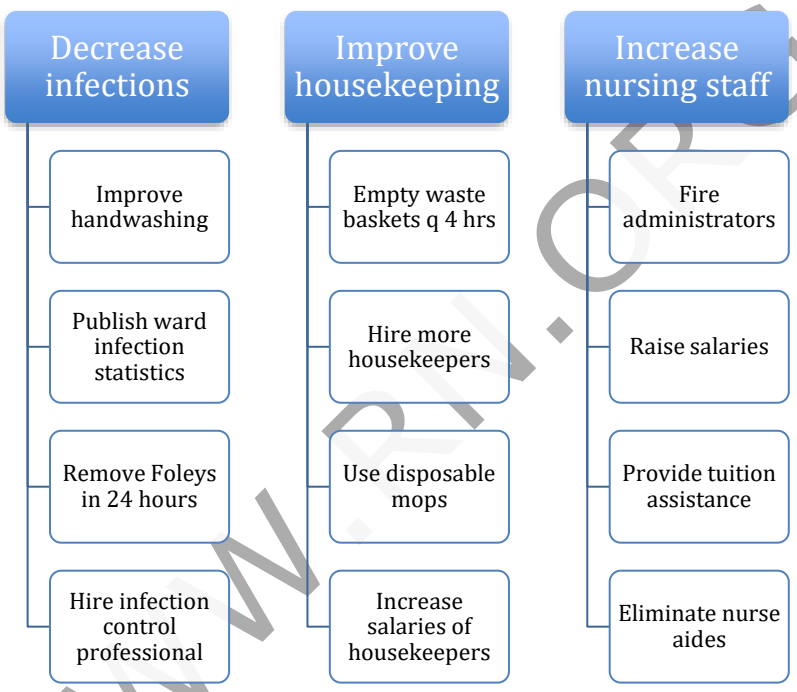
Mapping One popular method of brainstorming is the "stickie" approach in which group members individually write ideas on Post-its® and then stick them on a bulletin board. (Alternately cards are used and placed on a table.) After this exercise, a facilitator or group members cluster those with similar topics. This method—the creation of an **affinity diagram**—helps to take many ideas and group them into headings and subheadings for discussion.



This may work all right with a small group, but in a large group, the exercise often becomes chaotic and time-consuming. The group members have to go the bulletin board or table and try to read all the ideas, or someone has to read them out loud. There is often much repetition and conflicting ideas—or ideas (such as "fire administrators" or "eliminate nurse aides") that can lead to conflict or arguments. The basic anonymity of this format can lead people to make negative suggestions that they might not otherwise make. While this may be helpful at time, often it is not. The primary benefit of this approach is to the company that produces Post-its® as those who have suffered through these sessions can generally attest.

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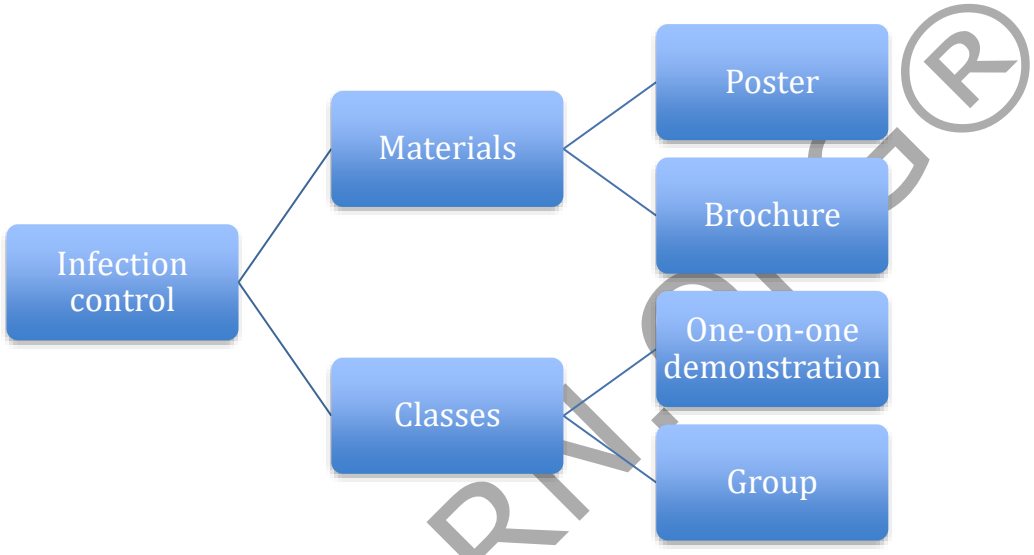
Mapping often begins with a central problem or issue, such as infection control, placed at the beginning point of a diagram. As ideas for dealing with the problem are suggested, they are added to the diagram. Any number of different types of diagrams can be used for mapping, such as the one below. For example, if one suggestion is to provide materials, then this suggestion would be further explored with suggestions, such as making posters to demonstrate correct infection control methods and providing informational brochures.



During the brainstorming and mapping process, judgments about the value of the suggestions should be withheld until all ideas have been explored. If the discussion turns from exploring ideas to judging them, the facilitator needs to keep the group focused: "Let's get all the ideas out first and then talk about them one by one."

One useful method of brainstorming is to start with a desired outcome and work backward from that point, brainstorming what would lead to that outcome.

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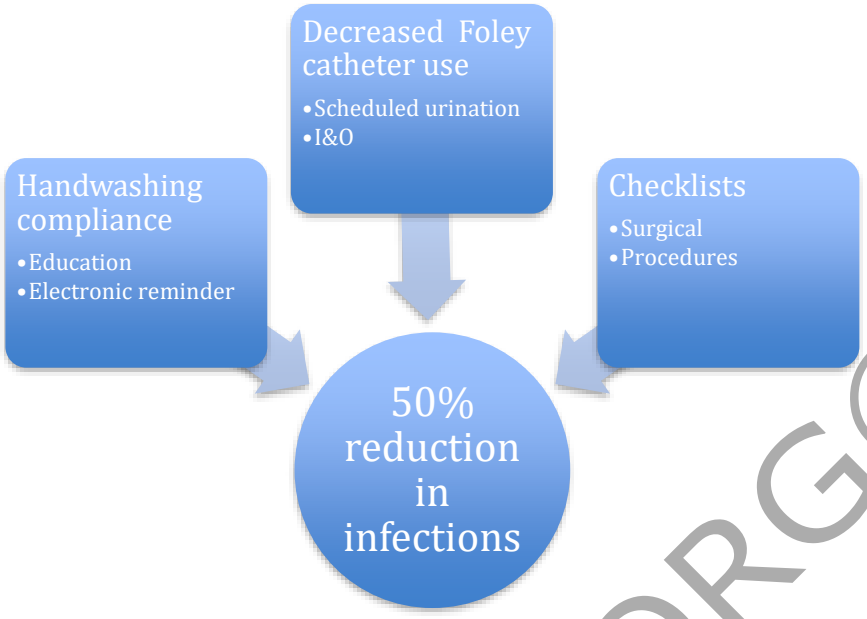

Outcomes should be measurable and possible. Starting with an unrealistic outcome like "Eliminate all infections" ensures failure as infections may result from endogenous as well as exogenous factors, and not every factor can be eliminated. A 50% reduction is more realistic for a first outcome.

The **Ishikawa "fishbone" diagram** is used to brainstorm cause and effect, with the effect, in this case "High overall infection rate" the head of the "fish" and the causes, the bones. Each "bone" or category is then questioned to determine what issues or problems are affecting that category.

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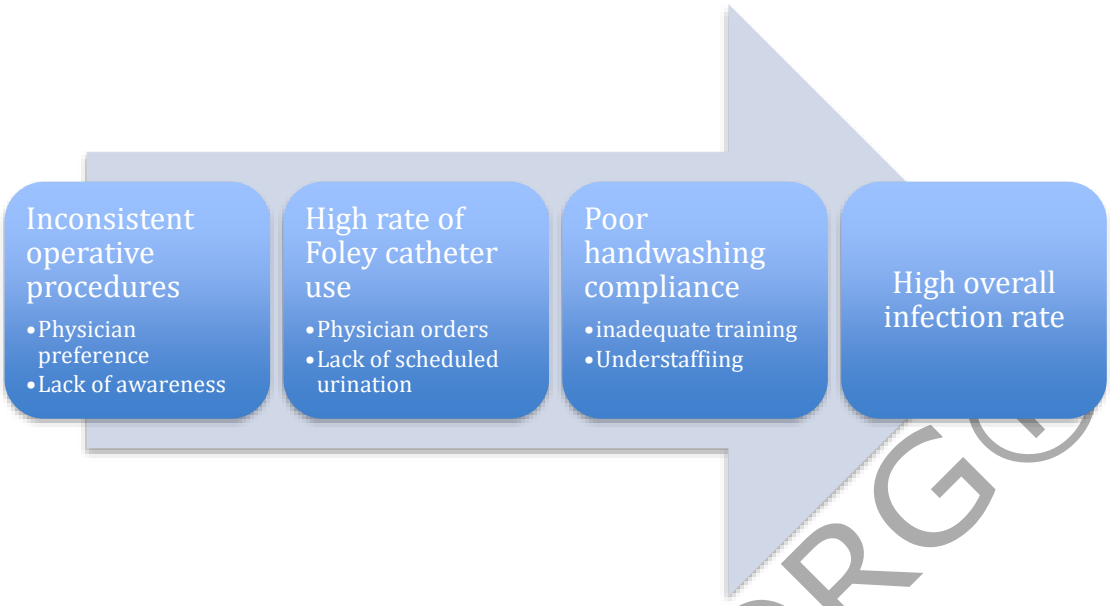

The basic elements of brainstorming are the same regardless of the type of mapping used to help participants visualize relationships and remain focused.

Open discussions that attempt to cover all and every topic, such as "What does the institution need to do to improve quality of care?" are much more difficult to manage than focused discussions and are often less effective, as suggestions may range far and wide with such disparate suggestions as increasing staff, emptying the waste baskets more frequently, providing better menu selections, painting the rooms a different color, and getting newer computer screens. These what-do-you-want-from-Santa Claus discussions can end up wasting a lot of time with little to show for it.

Prioritizing The reality is that regardless of the value of multiple ideas, some prioritization is generally needed to determine the first action or the best alternative from a number of suggestions. This is an exercise in decision-making.

Numerous different methods can be used to prioritize. The simplist method for groups is just to vote, but if there are a number of different choices and a number of people voting, one-time voting may not always arrive at the best solution. For example, if there are three choices: A, B. and C. and 15 people voting, the votes may be evenly split with 5 each. However, if A gets 6 votes, B gets 4, and C gets 5, A would win while in reality 9 people don't think that's the best choice.

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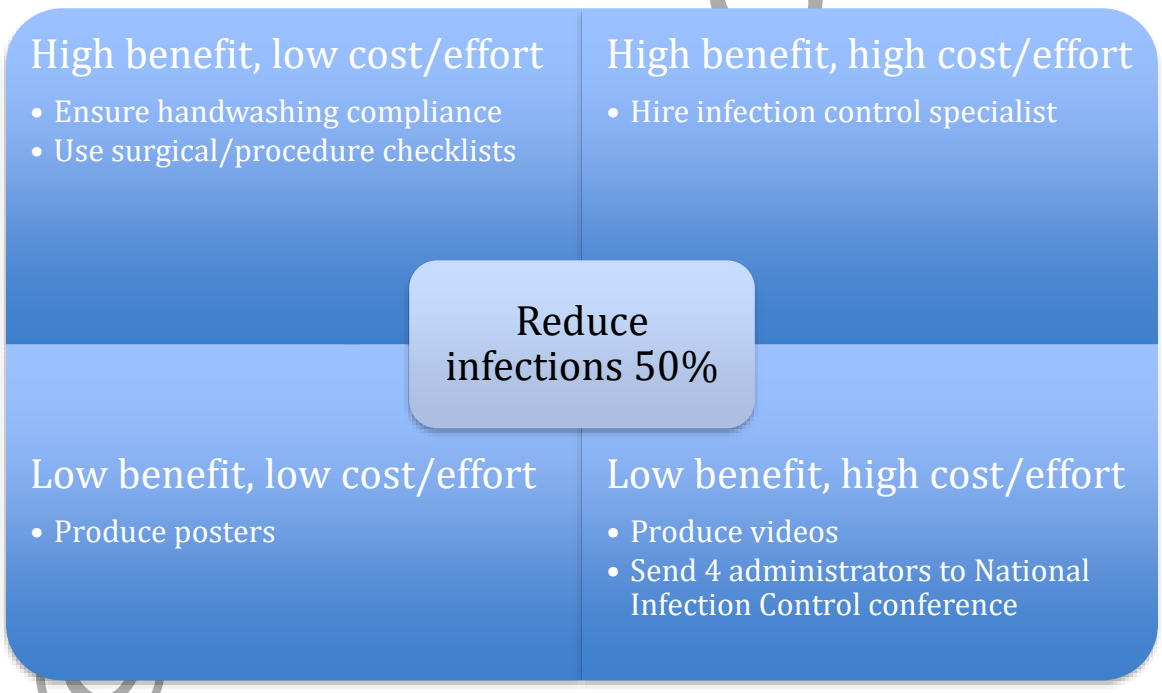
Multivoting is one method to try to make voting more meaningful. In this case a voting method (check marks, red dots) is selected but with fewer votes available than items. For example, if there are 6 items to choose from, people may get 4 votes (one more than half the total number of items)—and people can place all votes on one item or scatter the votes.

The votes are tallied to determine which has the most votes. Then, a discussion is held, and usually those items that received no or few votes are eliminated, and then voting is done again, and so on until the top priority is selected, and a prioritized list is generated. In some cases, after the initial vote, people may reconsider how they've spread their votes and want to redo the initial vote.

Another method is to create a **prioritization matrix**, usually with 4 categories as in the matrix below. Through discussion, each item is placed appropriately in the matrix.



In general, those items that result in high benefit and low cost/effort are most desirable and head the list of priorities and those with low benefit and high cost/effort are least desirable.

Problem-solving

The same basic processes of decision-making are used—or should be—by the individual healthcare provider on a daily basis when solving clinical problems even though the processes are less formal.

Assessment Recognizing a problem is of primary importance because if the problem goes unrecognized, there is no attempt to find a solution. The healthcare provider must be continually alert for possible problems with patients (complaints of pain, changes in behavior, changes in wound condition, confusion) or others (tardiness, inefficiency, carelessness, anxiety, inappropriate behavior). Once a problem is recognized, such as a patient who repeatedly complains of severe postoperative pain on the second day after surgery, the healthcare provider can begin to gather data and make observations.

Analysis The healthcare provider should consider the problem from a number of perspectives and then pose options to obtain the best outcome.

Choices	Actions
Solution-focused	• Give pain medication. • Withhold pain medication. • Ask physician to order more effective medication. • Instruct in visualization and relaxation.
Cause-focused	• Examine wound for signs of infection or complications, such as a constrictive dressing. • Check vital signs. • Check laboratory findings. • Talk to patient to determine level of anxiety or other problems. • Observe patient.

When healthcare providers are rushed or impatient, it's easy to become solution-focused—and solutions are important—but part of thinking critically is to remain cause-focused as well:

- **WHY** does the patient have continuing post-operative pain?
- **Which** is the best solution?
- **How** should I proceed?
- **What** should I do first?

In this case, the healthcare provider is a nurse and reviews the possible solutions and possible causes to arrive at a priority list that combines both.

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Outcomes When considering problems and solutions, the healthcare provider should always identify the outcome. In this case, one outcome may be: "Patient will have pain level of 1-2 with first-tier pain medications within 24 hours."

Plan The plan evolves from analysis:

Priority 1	•Give pain medication.
Priority 2	•Examine wound. •Take vital signs.
Priority 3	•Talk to patient. •Observe patient.
Priority 4	•Check laboratory findings. •Instruct in visualization and relaxation.

Implementation After administering the pain medication (the immediate solution to the problem), the nurse then examines the wound (looking for causes) and finds that it is erythematous and swollen with purulent discharge, and the patient's blood pressure, pulse, respirations, and temperature are elevated.

Evaluation and refinement At this point, the priority list must be refined because there is clear evidence of wound infection, so the next step is to check laboratory findings and call the doctor. It's always easiest to focus on one problem at a time, but the reality is that one problem often leads to another problem, and intervening problems (the patient vomits) may occur. The result is that the plan and priorities often change.

In response to the nurse's telephone report, the physician ordered a wound culture, CBC and differential, dressing changes, and a broad-spectrum antibiotic. Five minutes after the nurse treated the patient

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for one problem—pain—a whole different set of problems emerged. In an ideal medical world, all problems would be anticipated and identified readily, but medical care is not that simple.

There is no one-model-fits-all solution. Because this patient's pain was severe, relieving pain was a priority, but if the pain had been milder or if there had been previous indications of infection, then the priority listing may have changed and the patient examined prior to administration of pain medication. Healthcare providers must make these kinds of decisions every day.

The original priority list was not in error because the search for a cause was begun immediately after administration of the pain medication. If however, the nurse had been too busy to examine the patient, assumed the patient was just hypersensitive to pain, or had returned in 2 or 3 hours to examine the patient, then the nurse would have exercised poor problem-solving ability by focusing only on the immediate solution to the problem and ignoring the underlying cause.

In all cases, evaluation is more than a one-time thing but must be ongoing. Not only is this true regarding direct patient care but procedures as well. For example, if guidelines regarding handwashing techniques are issued and posted, demonstrations given, and individuals observed, it's not safe to assume that without ongoing evaluation compliance will remain high. People—both professionals and non-professionals—tend to return to their level of comfort.

Communication Communicating with others is essential in healthcare and all problem-solving activities. The nurse must communicate clearly to those to whom he or she delegates tasks, must communicate with other nurses in reports, must communicate with physicians and other healthcare professionals as well as with patients and families.

One should use care when communicating to express ideas clearly, providing examples, because people may infer meaning that was not intended. For example, if during the report about the patient's pain, the nurse stated, "The patient asked for pain medication every 2 hours and complained all day," the listener may assume this is simply a difficult and complaining patient. A more accurate communication would be: "The patient complained of severe pain every 2 hours because her wound is red, swollen, and draining purulent discharge."

Because communication goes in both directions, the listener must take an active role to ensure proper understanding:

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- Ask for clarification: I'm not sure I understood that. Could you explain it to me again?
- Rephrase: I understood you to say that the wound culture was taken. Is that correct?
- Ask for more information: How much drainage is there?

Conclusion

Problem-solving can be difficult at times, and a number of problems can arise. Sometimes, an error is made in identifying a problem. For example, if the nurse had assumed only that the patient above had poor pain tolerance, then the real problem—a wound infection—may have been overlooked. This type of error most often occurs when the healthcare provider does not search for the cause.

Sometimes brainstorming is inadequate, and a good solution to problems is not found. This may result from lack of creative solutions or fear of trying new solutions. Sometimes healthcare providers are stymied by preconceived ideas of how things should be and are blind to new possibilities. People may also fail to use appropriate resources to gather information.

Even the best problem-solving efforts can be undone by a failure to adequately communicate or follow-up to ensure that the correct actions have been taken. Problem-solving should be approached systematically, step by step, until the procedure becomes second nature.

Problem-solving, prioritizing, and planning are ongoing fluid processes that alter to fit the situation at hand. The ability to solve problems well and prioritize wisely comes with knowledge, experience, and practice. Nurses and other healthcare providers are part of a team, and not every decision needs to be made in isolation. An important element of critical thinking is recognizing when input from others is needed.

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