

*The Thinker's Guide to*  
**CLINICAL  
REASONING**

Based on Critical Thinking  
Concepts & Tool

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## Introduction

# Why a Thinker's Guide to Clinical Reasoning?

Clinical reasoning can be defined as thinking through the various aspects of patient care to arrive at a reasonable decision regarding the prevention, diagnosis, or treatment of a clinical problem in a specific patient. Patient care includes history taking, conducting a physical exam, ordering laboratory tests and diagnostic procedures, designing safe and effective treatment regimens or preventive strategies, and providing patient education and counseling.

Obviously, the clinician should be well grounded in biomedical and clinical sciences and skillful at gathering clinical data from a patient before engaging in the process of clinical reasoning. This guide does not address the knowledge and skills required to competently gather and interpret clinical data. Rather, the guide is intended to help clinicians take the next step, which is determining the best course of action to take based on what is known or what can reasonably be hypothesized from clinical data. So, it isn't enough to have a strong background in the biomedical sciences or to possess excellent clinical knowledge, nor to know how to conduct a history and physical exam on a patient, or even to know how to formulate a differential diagnosis given the signs, symptoms, and test results of a patient. In addition to all of this, there is still a need to think critically about all the important information pertaining to a particular case and to formulate or synthesize a rational plan of action. In short, clinical reasoning requires critical thinking skills, abilities and traits which are often not taught in schools and colleges for the health professions.

Skilled clinicians systematically analyze their thinking by targeting the elements of clinical reasoning and evaluate their thinking through application of intellectual standards to those elements. These clinicians also develop and routinely exhibit

intellectual traits or dispositions of mind. When these foundations of critical thinking – the elements of reasoning, intellectual standards, and intellectual traits – are made explicit and deeply understood, the clinician has explicit intellectual tools useful for examining, assessing and improving thought. This guide introduces the clinician to these foundations and offers examples of



their application to the field.

It is important to note that there are numerous problems in clinical practice that go beyond the scope of this guide, including:

1. the mistakes in medical reasoning which lead to death or other adverse consequences.
2. the overspecialization within medical fields that often leads to fragmented care and lack of integration across specialities.
3. the overreliance of traditional medicine on prescription medications in dealing with medical problems rather than alternative potential therapies.
4. the general failure within traditional medicine to acknowledge and appropriately use effective alternative medical approaches (which is connected with the failure to integrate the best ideas within traditional medicine with the best ideas within alternative medicine).
5. the failure to emphasize prevention over “cure.”
6. the medical decisions being determined primarily by the vested interests of clinicians.
7. the influence pharmaceutical companies have on prescribing habits.

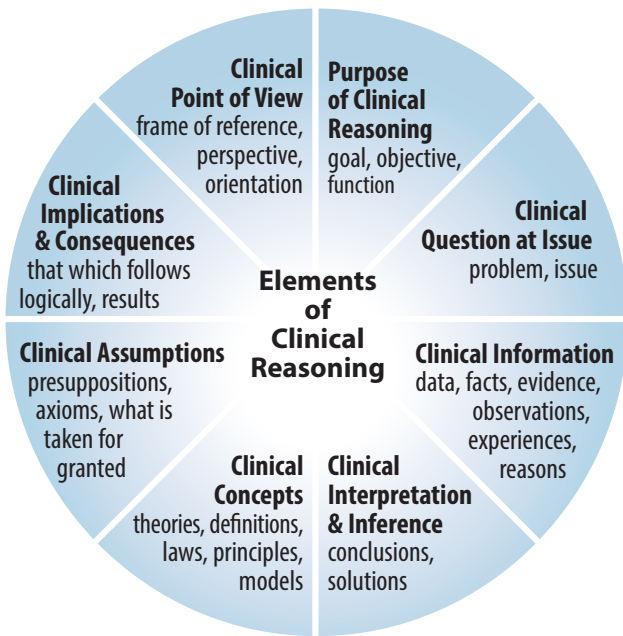
This guide focuses on a framework for critical thinking relevant to all domains of human thought and is specifically focused on clinical reasoning. The suggestions and conclusions herein are consistent with the suggestions and conclusions found in the works of prominent thinkers in the clinical fields, including Joy Higgs, Mark Jones, Jerome Kassirer, John Wong, Richard Kopelman, Daniel Pesut, Joann Herman, Kathryn Montgo, Eileen Gambrill, Jerome Groopman and Milos Jenicek.

Though this guide includes some significant examples within the field of medicine, given its limited nature, it does not include the many field-specific contributions to clinical reasoning from medicine, nursing, pharmacy, dentistry, veterinary medicine, and other health related fields. Moreover, we are not attempting to provide specific procedures for clinical reasoning, but only broad principles that must be contextualized by the user. For exemplification purposes, we have focused primarily on diagnosis and treatment. The guide is intended to detail and exemplify clinical reasoning as a mode of thought. Thus the principles illuminated in it should be integrated within the context of clinical reasoning – for the purpose of both teaching and practice at all levels. Finally, due to its nature, we have not attempted to link the principles in this guide to current or classical philosophical orientations within general argumentation, reasoning and decision making.

## The Elements of Clinical Reasoning

The elements of clinical reasoning that appear in the diagram below provide the basis for analyzing the structures present in all thinking. *Whenever we think, we think for a purpose within a point of view based on assumptions leading to implications and consequences. We use concepts, ideas, and theories to interpret data, facts, and experiences in order to answer questions, solve problems, and resolve issues.*

Each of these structures has implications for the others. If you change your purpose, for example, you change your questions and problems. You are then forced to seek new information and data. And this changes the implications and consequences of your conclusions and decisions.



### Used With Sensitivity to Universal Intellectual Standards

Clarity → Accuracy → Depth → Breadth → Significance  
 Precision  
 Relevance

↓  
Fairness

## Reasoning Through a Clinical Case

A 51 year old man complains of coughing up blood, shortness of breath, and difficulty in breathing. He first noticed these symptoms about 2 months ago. He smokes one pack of cigarettes per day and was told that his blood pressure was a “little high.” He is otherwise well and takes no medications, but he is worried about his health. His father had a heart attack and died at the age of 52. A complete physical examination is normal except for a blood pressure of 150/96. His pre-clinic blood work was also normal including a serum cholesterol of 180mg/dL and a fasting blood glucose of 100mg/dL.

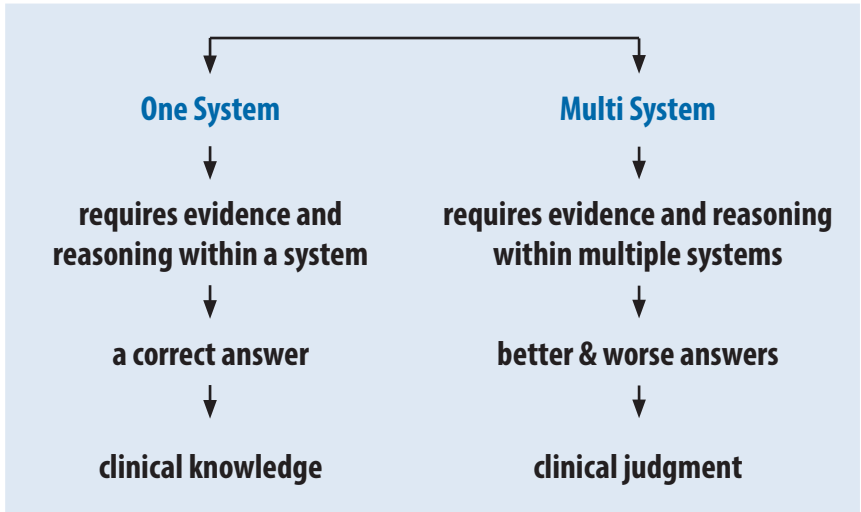
As you think about this patient, what questions come to your mind that, when effectively answered, enable you to better understand the patient's condition and how to approach the treatment of this patient?

### Consider these possible questions:

1. What is the probability that this patient has lung cancer?
2. What diagnostic tests would provide the greatest utility in ruling in or ruling out cancer?
3. How likely is it that this patient's condition will worsen?
4. What are this patient's risk factors for lung cancer?
5. How long can this patient expect to live if he in fact has lung cancer?
6. What would be the best course of action to take in treating this patient?
7. Will risk factor reduction and treatment of his disease improve the quality and quantity of his life?
8. What caused this patient to develop his condition?

Important questions such as these enable the clinician to think through relevant issues like the diagnosis, risk factors, prognosis, treatment, prevention, and causation of disease and what can be done to treat or prevent disease or reduce the likelihood of disease complications.

In approaching a question, it is helpful to determine the kind of system to which it belongs. Is it a question with one definitive answer? Alternatively, does the question require us to consider competing answers or even competing approaches to either solution or conceptualization?



**Questions of Procedure** (established system)—These include questions with an established procedure or method for finding the answer. These questions are settled by facts, by definition, or both. These kinds of questions might be answered from a handbook or experimental results from a clinical trial.

Examples include:

- What evidence-based guidelines can be used to decide how to specifically treat this patient?
- What diagnostic test has been shown to provide the best sensitivity and specificity for making an accurate diagnosis?
- What is the most accurate instrument I can use to measure blood pressure?
- What steps can be taken to reduce the risk of heart disease in a 60 year old man who is obese and smokes cigarettes?



**Questions of Judgment** (conflicting systems)—These are questions requiring

## The Problem of Egocentric Thinking (cont.)

*I don't need to concern myself with keeping up with new trends in my specialty because the old ways will always be the best ways.*

*I know that this procedure didn't go wrong because of any faulty of mine.*

*It is best not to tell the patient everything about their condition or the procedures we use, or to let them have too much control over their own care.*

### **"IT'S TRUE BECAUSE I HAVE ALWAYS BELIEVED IT."** Innate self-validation:

I have a strong desire to maintain beliefs that I have long held, even though I have not seriously considered the extent to which those beliefs are justified by the evidence.

*I believe X because this is the way I was taught when I was in school and in postgraduate training.*

*I have been doing it this way for a long time and I have never had anyone to question whether or not alternative treatments might be more effective.*

*Tylenol is the best pain medicine because it doesn't cause any serious health problems (compared to other pain medications like aspirin and ibuprofen).*

*Patients with little education are more likely to not take their medicines as prescribed than highly educated patients.*

### **"IT'S TRUE BECAUSE IT IS IN MY SELFISH INTEREST TO BELIEVE IT."**

Innate selfishness: I believe whatever justifies my getting more power, money, or personal advantage even though these beliefs are not grounded in sound reasoning or evidence.

*I am going to order this procedure because I know the insurance company will pay for it and I need to pay for this equipment (which is used in this procedure).*

*Alternative approaches to medicine have no place in the treatment of patients.*

*Drug X is a good drug; therefore I am willing to say that I have written this article for publication in a medical journal supporting its use, even though the article was in fact written by the drug company that is paying me to put my name on the article.*

Clinicians, like all humans, are apt to think egocentrically at least some of the time. The extent to which they do is a matter of degree. And when they do, there are important implications for the quality of patient care.

Each of us must determine, in any given situation, whether and to what extent we are operating from irrational thinking and behavior. The closer we examine our behavior, the more likely we are to find irrationality at work. But because the human mind is naturally self-deception, this can be challenging and takes a life-long commitment to living an examined life.