Diagnostic Decision Making: Time to Take Two Steps Back
The UPMC Clinical Center for Medical Decision Making
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The key to making accurate and efficient diagnostic decisions is to systematically ask yourself, and your patient, good questions.

The most accurate and cost efficient diagnostic test is a careful history, personally obtained, with a focused physical examination.

**Medications:** In every patient encounter, always know the medications. Always ask yourself:

- “What medications is the patient on?”
- “What medications are they actually taking/getting?”
- “What indicated medications are they not on?”**
- “What medications are they on that they should not be on?”

Then in making diagnostic decisions that are not automatic:

**STOP, TAKE TWO STEPS BACK, AND BRIEFLY ASK YOURSELF FIVE SPECIFIC QUESTIONS:**

1: **What am I observing?** Describe it. Name it, if possible.

- **Use of semantic qualifiers.** (Facilitates pattern recognition)
- **Summary statement:** One or no more than two sentences. (Problem representation.)

2: **Physiology / Pathophysiology:** Causal reasoning

2A: How do I explain the findings in terms of physiology?
2B: How do I explain the physiology in terms of pathophysiology? (Avoid context errors.)

**Observation:** BUN 75 / Creatinine 2.2
**Physiology:** Pre-renal, intrinsic renal, or post-renal azotemia
**Pathophysiology:** Volume depletion, decreased colloid oncotic forces, myocardial dysfunction, valvular heart disease, pericardial disease, GI or retroperitoneal bleeding, acute tubular necrosis, bladder outlet obstruction.
3: What is my diagnosis? Use of illness scripts.

- Is all the information concordant, or is there discordant information? (Diagnostic verification; diagnostic coherence and adequacy, avoid search satisficing.)
- What is the estimated prevalence of the disease? (Probabilistic reasoning; avoid base rate neglect.)

4: What is my differential diagnosis? What else could it be?

- Always consider the alternatives. (Cognitive forcing function to avoid premature closure, representativeness restraint, anchoring, availability, confirmation, framing or overconfidence biases. Consider use of decision support tools.)

5: Diagnostic Testing: (Hypothesis refinement, diagnostic verification.)

5A: What tests do I need to order, if any?

- What specific question am I asking with the test?
- Do I need to know the answer? Will it affect my diagnosis? (post-test hypothesis refinement) Will it affect patient management or patient outcome?
- Do I already know the answer?
- Is this the right time to ask the question?

5B: Will the test answer the question?

- What is the sensitivity and specificity of the test?
- What is the pretest probability of the disease? (Pretest and conditional probabilities, likelihood ratios.)
- What is the error rate of the test? (Post-test probability) **

5C: Are any alternative tests more appropriate?

- What are the risks of the test in general and in this specific patient in particular? Can anything be done to reduce the risks? Do the benefits justify the risks?
- What is the cost of the test?