3.4 DIAGNOSTIC DECISION-MAKING

Diagnostic decision-making refers to the process of evaluating a patient complaint to develop a differential diagnosis, design a diagnostic evaluation, and arrive at a final diagnosis. Hospitalists frequently care for acutely ill patients with undifferentiated symptoms such as shortness of breath or chest pain. Establishing a correct diagnosis in these situations allows for timely therapeutic interventions and eliminates unnecessary diagnostic evaluation. Diagnostic errors account for more than 15% of all adverse events, and cognitive errors—resulting from faulty data gathering, flawed reasoning, or faulty verification—have a large role in most of these cases.[1-3] Hospitalists assess disease prevalence, pretest probability, and posttest probability to make a diagnostic decision while avoiding cognitive bias. By engaging in efficient and timely diagnostic decision-making, hospitalists can positively influence the quality and cost of medical care.

KNOWLEDGE

Hospitalists should be able to:

- Describe the prevalence of common disease states in the local patient population.
- Define and differentiate problem-solving strategies, including hypothesis testing and pattern recognition.
- Define and differentiate prevalence, pretest probability, test characteristics (including sensitivity, specificity, negative predictive value, positive predictive value, likelihood ratios), and posttest probability.
- Describe the relevance of sensitivity and specificity in interpreting diagnostic findings.
- Describe the sensitivity and specificity of key clinical features and diagnostic findings for common clinical syndromes.
- Describe the concepts that underlie Bayes' theorem and explain how it is used in diagnostic decision-making.
- Describe the factors that account for excessive or indiscriminate testing.
- Describe types of cognitive biases that can influence decision-making.

SKILLS

Hospitalists should be able to:

- Elicit a targeted medical history and perform a physical examination to detect symptoms and data that help refine the diagnostic hypothesis.
- Access resources that contain relevant information such as prevalence and incidence rates of disease states.
- Analyze the value of each diagnostic test, especially testing procedures that carry clinically significant patient discomfort or risk.
- Formulate a pretest probability using initial history, physical examination, and preliminary diagnostic information when available.
- Calculate posttest probabilities of disease using pretest probabilities and likelihood ratios.
- Communicate with patients and families to explain the differential diagnosis and evaluation of the patient's presenting symptoms.
- Communicate with patients and families to explain how testing will change the scope of diagnostic possibilities.
- Communicate with other physicians, trainees, and healthcare providers to explain the rationale for use of diagnostic tests.
- Anticipate, identify, and avoid cognitive biases when making diagnostic decisions.
- Incorporate the principles of evidence-based medicine, healthcare costs, and individual patient characteristics and preferences into each patient's diagnostic evaluation.
- Determine when sufficient evaluation has occurred in the absence of diagnostic certainty.
- Lead, coordinate, and/or participate in the development of clinical care pathways designed to simplify and/or improve the diagnostic process for a particular clinical condition.

ATTITUDES

Hospitalists should be able to:

- Recognize that each test should be preceded by a conscious decision to change or maintain the clinical care or initiate further diagnostic evaluation as indicated on the basis of test results.
- Appreciate that all tests have false-positive and false-negative results and rigorously scrutinize or repeat the test when the result is in question.

References

1. Croskerry P. From mindless to mindful practice—cognitive bias and clinical decision making. *N Engl J Med.* 2013;268(26):2445-2448.
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3. Shojania KG, Burton EC, McDonald KM, Goldman L. Changes in rates of autopsy-detected diagnostic errors over time: a systematic review. *JAMA.* 2003;289(21):2849-2856.