Situated Cognition: Clinical Reasoning and Error are Context Dependent

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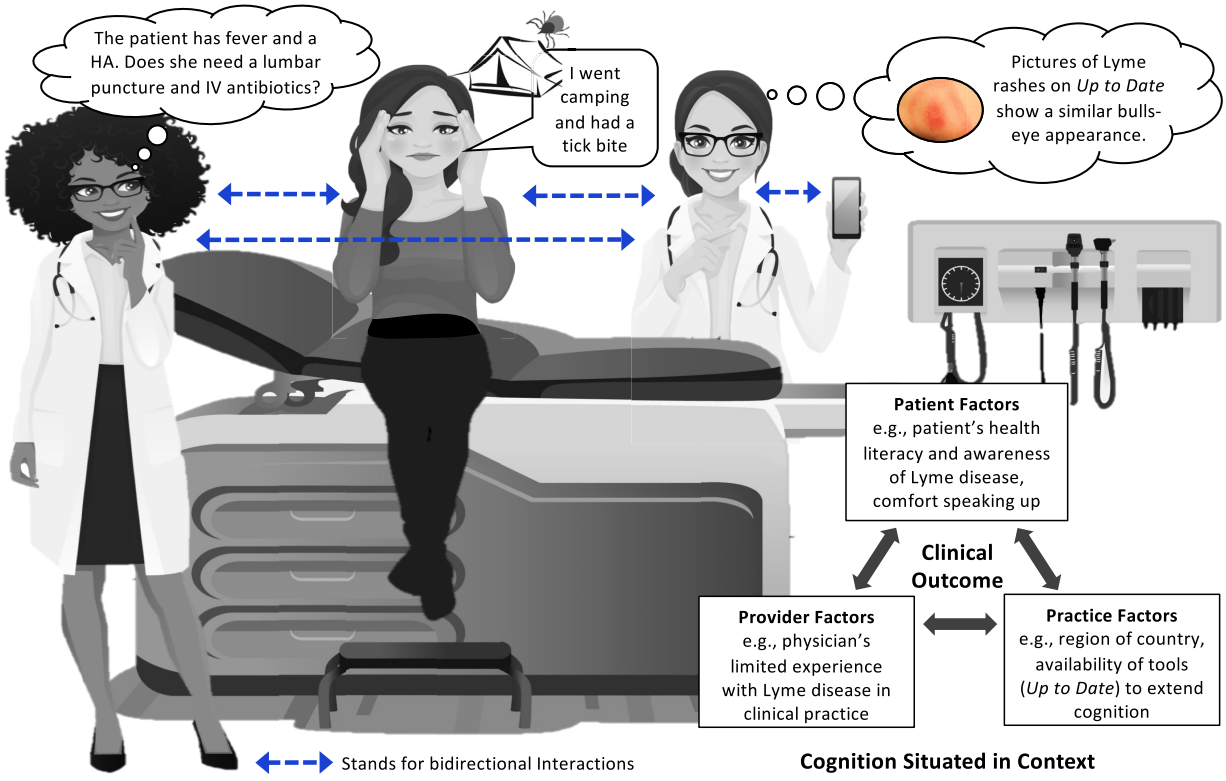
Situated cognition posits that clinical reasoning and error are the result of a multitude of a dynamic, context-specific, bidirectional interactions between individual(s) and the environment.[1] Cognition is thought to unfold through a complex and evolving interplay of participants (i.e., patients and providers) within a specific physical, sociocultural and conceptual environment. Patient factors, practice factors and provider factors thus all influence clinical reasoning outcomes (e.g., diagnosis or management).

Consider the following: A 28-year-old woman presents to her family physician in California (CA) complaining of headache (HA), fever and a rash. She recently went camping in Connecticut (CT) and reports a tick bite. She knows Lyme disease is prevalent on the East Coast and felt this was important to mention. The medical student performs an initial evaluation and sees a bullseye rash on the patient's back. She consults *Up to Date* for images of Lyme rashes and notes the similarities. She discusses the case with the attending who wonders if the patient's fever and HA need further evaluation for Lyme meningitis, since she read the treatment for meningitis is intravenous (IV) instead of oral. The attending has only seen one prior case of Lyme disease as it isn't prevalent in CA.



In this example, the physician interacts with the patient who mentions a tick bite and the student who finds a typical image of a Lyme rash on her smart phone. This interplay among agents is fully embedded in the environment, and the cognitive processes of patient, student and physician cannot be understood in isolation (i.e., cognition is situated). The patient's health literacy influences the history she communicates, prompting the clinicians to investigate Lyme disease, which may not have been considered based on low prevalence in CA. The student's use of an on-line resource exemplifies how tools can extend clinical reasoning, aiding in identification of the patient's rash. The attending physician's limited experience with Lyme disease is a direct result of her training and practice in a region where Lyme disease is less common, accounts of situated cognition related to Lyme disease are lacking. This impacts her diagnostic and therapeutic reasoning, leading her to consider a lumbar puncture (LP) and a course of IV antibiotics. If she had more experience with patients with early localized (Stage 1) Lyme disease, she might realize that HA and fever are common, and an LP is unnecessary. This illustrates how situated reasoning results from a complex interplay between individuals and a specific situation or context, influencing cognition and leading to diagnostic accuracy or error.

References: 1) Durning SJ, Artino AR. Situativity theory: a perspective on how participants and the environment can interact: AMEE Guide no. 52. Med Teach. 2011;33(3):188-99.
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