

Appendix A

Codebook Categories, Codes and Definitions

Category	Code	Definition
Acting	Anticipating	Participant describes an action taken or considered in anticipation of patient's future condition.
	Execution evaluation	Participant describes checking for effective implementation of an action.
	Information seeking	Provider takes an action with the intent of learning more about the patient's condition.
	Innovation	Participant reports that protocol is not sufficient; they innovate.
	Rule in/Rule out	Participant describes strategy for ruling in/ruling out hypotheses.
	Rule-based behavior	If this, then that; participant describes an action taken that is tied to a rule, protocol based; includes use of procedures in decision aids.
	Serial vs. concurrent implementation	Participant reports that they must prioritize, choose which thing(s) to do first; or participant describes a series of actions to achieve a certain goal.
	Temporizing	Participant describes actions meant to forestall, buy time, watchful waiting, hedging, etc.
Assessing/ Recognizing	Analogical reasoning	Participant indicates that they have seen something analogous before and made judgments based on the similar case.
	Goals	Participant describes goals at a particular point in time, or participant describes global goals such as "I wanted to bring BP down."
	Mechanistic thinking	Physiologic thinking, while doing routine things tagging back to the physiology.
	Pattern matching	Participant describes a global assessment that integrates several sets of data points. E.g., describes a pattern of cues and an assessment (A+B+C = D)
	Recognition	Participant describes recognizing the situation or condition as familiar -- knew exactly what to do.
	Refining the differential	Participant describes multiple diagnostic hypotheses and how he/she is ordering and re-ordering the hypotheses in terms of likelihood.
	Sensemaking	Participant describes specific cues and how they fit together; this could include multiple possible interpretations.

Correcting	Frame shift	Participant describes updating a cognitive frame; choosing a different course of action or plan.
Critiquing	Confirming/disconfirming	Description of how test results or change(s) in patient condition provided confirming or disconfirming evidence to a potential diagnosis.
	Expectancies	Participant describes expectancies, especially violated or confirmed expectancies.
	Mental simulation	Participant describes playing the situation forward, imagining potential courses of action and/or potential outcomes. This includes weighing pros and cons of different actions/frames.
Environmental factors	Interpersonal dynamics	Participant mentions any interpersonal dynamics that influenced decision-making and/or actions.
	Power dynamics	Disagreement about hierarchy or establishing hierarchical relationships.
	Resource constraints	Participant describes not having enough/proper resources (not enough help, lacking the right equipment, drugs, etc.).
	Time pressure and stress	Participant describes time pressure and/or stress.
	Uncertainty	Participant describes sources of uncertainty, e.g., unsure of what tools they have in the ICU, unsure of what to do, unsure of correct dose and/or treatment, unsure of particular diagnosis.
Hindsight/Self-identified errors	Errors of omission	Code for things we expected to see, but didn't or participant describes something they missed in hindsight
	Fail to detect an error	Participant describes an error they recognize in hindsight but did not detect during the simulation.
	Faulty re-evaluation	Participant describes re-evaluating the situation incorrectly.
	Faulty understanding of the differential; insufficient medical knowledge	Participant reports that, in hindsight, they realize they did not understand the differential or experienced a knowledge gap
	Fixation	Participant exhibits the mindset that "it has to be this;" they report that during the scenario they were too focused on one thing
	Misinterpretation of data/information	Participant reports that they misinterpreted or misunderstood some aspect of the simulated incident
	No recognition of the problem	Participant reports that they recognize the problem in hindsight but did not during the simulation.
	Select inappropriate action	Participant reports that in hindsight the action(s) they took during the scenario were inappropriate.

**Problem
detection and
framing**

Problem detection and
framing

Participant articulates a problem, an anomaly,
something unexpected that requires scrutiny. Participant
articulates a frame for the problem.
