

# 'Thinking about Thinking:' Heuristics and the Emergency Physician

By Angela Munasque

Emergency physicians are expected to be good at everything, dealing with everything from airway problems to cardiac conditions. But more than that, they have to be good at handling multiple urgent medical issues simultaneously.

The ED is a "room full of risk and uncertainty," but to deliver high-quality medical care, EPs must make good clinical decisions, even in the face of this risk and uncertainty, said Daniel J. Sullivan, MD, JD, during the James. D. Mills, Jr., Memorial Lecture at ACEP's Scientific Assembly yesterday. Dr. Sullivan is the president of the Sullivan Group and an assistant professor of emergency medicine at Rush Medical College.

Retrospective analyses of adverse events and medical malpractice cases indicate that the main cause of these is failure to diagnose, failure to treat. In other words, he said, a problem with decision-making.

## Metacognition and Heuristics

To improve decision-making, EPs must not just think about patient care; they must think about thinking about patient care, Dr. Sullivan said. Using a process called metacognition, something probably less familiar to more seasoned physicians than their neophyte counterparts, physicians should consider how they arrive at decisions.

While years of education and practice generally guide physicians in decision-making, heuristics are also at play. Heuristics are simple, efficient rules hardwired by evolutionary processes or experience used to make judgments when faced with complex problems or incomplete information. Simply, they are the "educated guesses or common sense" on which EPs may frequently rely, Dr. Sullivan said.

In most situations, heuristics are beneficial, as in a case when an EP goes "with his gut feeling," and is right.



## Heuristics Gone Haywire

The danger is when failed heuristics — biases — interfere with judgment and lead to medical error. There are some basic types of biases to watch for in the ED, Dr. Sullivan said:

**Anchoring** occurs when an EP clings to one piece of information when making decisions and ignores other pertinent information.

**Premature closure** is what happens when a diagnosis is accepted before fully verified, but other potential diagnoses are not considered.

**Confirmation bias** results when incoming data is not used objectively, leading to the tendency to be influenced by confirming evidence that supports the hypothesis.

**Diagnostic momentum** is the medical equivalent of following the crowd. Everyone — nurses, consultants, patients themselves — all suggest a particular diagnosis, and the EP goes along with it.

**Zebra retreat** occurs when an EP retreats from a serious consideration of an unusual diagnosis, perhaps because he is unfamiliar with the condition or does not want to overutilize resources.

More than one failed heuristic may be at work. An EP may anchor to a suspected diagnosis, and is pleased when tests "confirm" that diagnosis, leading him to prematurely close the medical case. The concern isn't about the name game, but the probability of biases snowballing, Dr. Sullivan said, which creates a diagnostic mess.

## De-Biasing the ED

The good news is there are practical fixes for these biases, according to Dr. Sullivan.

Some are direct responses: To counter anchoring, make adjustments as data come in; to avoid premature closure,

conduct a differential diagnosis. Also, “consider the obvious,” Dr. Sullivan said. If a patient comes in with a laceration on his leg after a motor vehicle crash, for example, don’t focus on the laceration but forget the trauma.

There are general, systematic approaches, too. For starters, implement metacognition education. Peer review cases with bad outcomes and identify the biases. Utilize clinical decision support tools, not as a replacement for the physician, but to allow the physician to focus on higher-order thinking. Promote good thinking in the ED by looking at shift length and how the staff collectively handles patient load.

“When you’re on your fifteenth hour of your shift, you aren’t making good decisions. Things change. Circadian rhythms kick in, telling you, ‘You shouldn’t be here,’” Dr. Sullivan said. And though EPs can’t control when they have to make clinical decisions or at what pace they must make them, he added, they can optimize good thinking by “thinking about thinking.” 



**Dr. Daniel Sullivan**