by Jerome Groopman, MD

Doctors, like business leaders, make mistakes. Some errors are purely operational. A pint of blood is mistakenly transfused into Joan Smith rather than Jane Smith, and Joan goes into shock. A young doctor writes an incorrect dose of chemotherapy on an order sheet, and a woman with breast cancer dies from the toxic effects of overtreatment. A neurosurgeon operates on the wrong side of the brain because an X-ray was mislabeled as "right" rather than "left." These kinds of errors make headlines, trigger lawsuits, and terrify patients and their families; in the academic world, such mistakes prompted the Institute of Medicine to publish the landmark article "To Err Is Human" in 1999. Leaders in health care took the IOM recommendations to the business world for solutions. Lessons learned in high-risk industries such as air travel and nuclear energy were applied to hospitals. Anyone who has recently had a medical procedure or treatment has benefited from the checks and double checks that have become routine. To ensure that the right patient receives the intended care, health care professionals, like airline pilots, now follow strict protocols.

However, operational mistakes account for only a small percentage of medical errors. The overwhelming majority reflect poor thinking. In fact, 15% to 20% of all medical conditions are misdiagnosed. A middle-aged man's indigestion, treated with antacids, turns out to be a heart attack; a child's chronic headache is due not to "family stress" but to a brain tumor; a grandmother's fading memory is not early Alzheimer's disease but vitamin B_{12} deficiency. Such diagnostic errors reflect shortcomings in physicians' thinking rather than technical mistakes. In 2007, a national conversation began in the medical field about how best to address these errors of judgment. Business practices were not the solution this time; in fact, CEOs and other senior managers would do well to adopt the strategies that physicians are pursuing.

Senior doctors, like CEOs, traditionally have cast themselves as confident, autonomous decision makers; they take pride in their rapid analyses and sure-footed recommendations. Their judgments filter through the hierarchy in much the same way that decisions in a company are disseminated from the corner office. However, in sharp contrast with most businesses, hospitals convene regular meetings where all faculty and trainees—from the chief to the beginning medical student—revisit cases that had poor outcomes. At these forums, participants are beginning to dissect doctors' misguided thought processes, not just discuss bodily organs. This shift has required that even the most esteemed physicians acknowledge their fallibility in an effort to teach others and to improve themselves.

Medicine is drawing on the work of cognitive scientists—particularly Amos Tversky and Daniel Kahneman, who three decades ago explored the benefits and risks of heuristics, or shortcuts in thinking. Heuristics help to explain the 15% to 20% of cases where we get it wrong. My extensive research on misdiagnoses shows that even the most seasoned physicians are highly susceptible to anchoring error, or seizing on the first bit of clinical information that makes an impression. Similarly, all doctors recall dramatic past cases of theirs and mistakenly apply them to the case at hand, a so-called availability error. Another cognitive trap is attribution error, whereby a physician relies on a stereotype to which he attributes all of his patient's complaints. Menopause, old age, and stress are common categories that physicians glibly invoke as explanations for vague symptoms without digging more deeply for other causes. Contrary to the image of the doctor as authoritarian, dismissive of criticism, and resistant to self-analysis, physician leaders are starting to welcome the insights of cognitive science to help them avoid errors of judgment, in part because they have recently seen the benefits of rectifying operational errors. By making themselves vulnerable, physician leaders have now begun to encourage those lower down in the hierarchy to question decisions more freely and think more broadly.

I recently asked business leaders in manufacturing, real estate, and banking how misdiagnoses in their industries are handled. I learned that formal decision-making reviews are rare. CEOs are seldom challenged by employees. Moreover, executives are still lauded for being rapid decision makers who rely on their own minds; they know little about innate susceptibility to cognitive biases. The format of clinical conferences, where the tools of cognitive science are used to air and dissect errors in physicians' judgment, can become a part of every business enterprise. All managers, including the CEO, should be open to the kind of self-analysis that doctors now employ. Thinking errors in medicine can mean the death of a patient. Similar cognitive errors in a company can have profound implications for the future of the organization, its employees, and the CEO.

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