Leveraging Psychological Science

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Despite substantial advances in medical science, patients often do not get the full benefit of health care: They fail to seek medical attention when they need it, neglect to finish prescriptions, seek unnecessary (and expensive) second opinions, or are persuaded to use services that are not supported by good evidence. Researchers have long studied patient cognition and behavior with an eye to improving health-care outcomes. However, clinicians are susceptible to the same kinds of psychological forces that influence patients: They do not act solely based on rationality, and their vast medical knowledge is influenced by cognitive and emotional factors. Psychological scientists gathered at the 2015 APS Annual Convention in New York City to discuss how these psychological components impact patient care and how they can inform clinical training and practice.

Chair Robert Kaplan, the Chief Science Officer of the Agency for Healthcare Research and Quality (AHRQ), led the symposium by outlining the goals of AHRQ, a division of the US Department of Health and Human Services. AHRQ works to produce evidence that can be used to improve health-care quality, safety, accessibility, and cost efficiency. The organization strives toward these goals in a variety of ways, from funding evidence-based practice centers that conduct systematic meta-analyses of various clinical services to assisting the United States Preventive Services Task Force in making recommendations regarding preventive-care practices. The genesis of the symposium, Kaplan said, came about when discussant Denise Dougherty, Senior Advisor for Child Health and Quality Improvement at AHRQ, approached him with her belief that “psychological science has a tremendous amount to contribute to [this area], and we have to find a way to bring more psychologists into this field.”

Disease screening and diagnosis are areas ripe for psychological analysis. Despite the ubiquity of computerized medical technology, these processes often still rely on the sensory perceptions of doctors — what they hear in their stethoscopes, feel on a lymph node, or, see on an X-ray photograph. APS Fellow Todd Horowitz, who is currently a Program Director of the Behavioral Research Program at the National Cancer Institute, has a background in vision science and cognitive psychology, which has made him acutely aware of the vital role that visual search plays in real-life detection scenarios, such as searching for tumors on an MRI scan or locating bombs in an airport X-ray image.

Horowitz noted the stark contrast between searching visual images in the lab and searching visual images in a clinical setting: In most experimental conditions, targets are much more prevalent, which tends to lead to more false positives and fewer missed targets, whereas in the real world, the prevalence of dangers such as gliomas or grenades is (thankfully!) much lower. This lower rate of incidence, however, leads to a greater number of missed targets, as people tend to be much more conservative in identifying a target in these low-prevalence conditions.

Horowitz reviewed several methods to correct for this tendency — which could potentially result in a late or missed diagnosis — and found a few promising ways to reduce the number of missed targets. One way is by giving false feedback — essentially telling subjects they have missed a target in an image when

there actually has been no target present. Another method involves altering the reward structure specifically to incentivize making correct diagnoses while massively penalizing missed targets, with a less severe penalty for a false positive. A third way to prevent missed targets is by using so-called "booster shots" — a series of high-prevalence images thrown into the middle of a typical, low-prevalence batch. Horowitz believes that understanding how false negatives can be reduced could inform future instruction or practice for those who rely on visual search methods to keep others safe and healthy.

Of course, psychological factors come into play not only when doctors are diagnosing illnesses, but also when they are treating them. For example, there is currently a growing concern over the number of antibiotics prescribed by doctors, especially those that are deemed medically inappropriate for a patient's specific symptoms or diagnosis. In most cases, the doctors know that the drugs may be unnecessary, but they either bend to patient pressure or write a prescription before knowing the definite cause of an illness. It is estimated that a staggering 11.4 million antibiotics are prescribed inappropriately every year in the United States (Kronman et al., 2014). The potential impact of this oversupply is huge, promoting antibiotic resistance and leading to the emergence of dangerous new "superbugs," not to mention placing a financial burden on the health-care system.

Jason Doctor a psychological scientists at the University of Southern California, wants to reduce these inappropriate antibiotic prescriptions, but he said that simply trying to educate physicians has proven to be an ineffective remedy. He and his colleagues ran a multisite randomized controlled trial testing three different interventions, and they found that requiring clinicians to justify every guideline-discordant antibiotic prescription and comparing physicians' rates of unnecessary prescriptions with those of so-called "top performers" (clinicians with the lowest number of inappropriate antibiotic prescriptions) were much more effective techniques than simply alerting a physician that antibiotics were not indicated in a given circumstance — even when that alert provided alternative treatment suggestions (Persell et al., 2013). Doctor concluded that the most effective methods were those that appealed to the clinicians' social and professional sensibilities rather than to their rational sides. He hopes that these psychosocial factors can be incorporated into programs and guidelines for best medical practices.

Patient–doctor communication also is a key factor in health-care quality and efficacy. In her research, APS Fellow Judith Hall of Northeastern University examines how physicians' ability to read patients' affect can influence the efficacy and quality of the care they administer. Hall explained how good communication between clinician and patient is vital for trust, for achieving a correct diagnosis, for getting the patient to adhere to a treatment plan, and for positive health outcomes. Of course, good communication relies on the ability of each party to understand the other. In fact, accurate interpersonal perception — the ability to read the thoughts and feelings of others — has been linked to a host of positive outcomes in general, such as increases in prosocial behavior and leadership and reduced physical and emotional distress.

With funding from AHRQ and the American Board of Medical Examiners, Hall and colleagues developed a new assessment tool, the Test of Accurate Perception of Patients' Affect (TAPPA; Hall et al., 2014), which measures clinicians' accuracy in reading their patients' thoughts and feelings. This paradigm uses video-recorded interactions between real-world doctor–patient pairs and compares patient descriptions of how they were thinking and feeling at a given moment in the video against the viewer's perceptions. The TAPPA is thus a test of accuracy in judging patients' inner experience and can be a valuable tool for research, assessment, remediation, and even selection in a wide range of clinical

professionals.

Initial studies of this tool have shown that higher TAPPA scores correlated with higher patient ratings of medical students' engagement, warmth, and interactivity. In another study, medical students scoring higher on the test were rated by standardized patients as having better interpersonal skills in a clinical encounter. In an experiment where half the test was used for training (with subjects receiving feedback and engaging in discussion about the correct answers) and the other half for assessment, Hall found that performance increased. "We think our test could be used for training, research, assessment, even medical-school selection," she said.

Despite the increasingly sophisticated technology being used in health care, the profession still ultimately relies on people — those complex, emotional, and sometimes irrational creatures. By acknowledging and better understanding psychology impacts the behavior of clinicians and patients alike, policymakers can design procedures and guidelines to improve health-care delivery. As Doctor noted, "These behavioral science interventions can provide partial solutions to health-policy problems, and if we have enough of them, we can dam up the flood and hopefully make a difference."

References

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