

Physician-economist on the 'black box' of rising costs, inconsistent care

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Few people understand the high costs of medical services in the United States better than David Chan, MD, PhD, a practicing physician and economist specializing in health care. But even Chan isn't immune from sticker shock at the doctor's office.

During a visit last year to his doctor, Chan, a Stanford assistant professor of medicine, underwent a routine test for seasonal allergies. He figured it would cost about \$500. The actual charge was closer to \$5,000.

"I should be one of health care's most informed customers," said Chan. "But like most people, I didn't think to ask the price for the test, and my doctor probably didn't know it, anyway."

To Chan, who is also a faculty fellow at the Stanford Institute for Economic Policy Research, the experience illustrates what's hobbling U.S. health care. Although much research into health economics has focused on issues related to insurance, the delivery of patient care—specifically, how to lower costs and manage quality at the ground level—"is really where health care becomes a black box," he said. Economists haven't figured out why costs and patient outcomes vary widely, even from one hospital to the next in the same city.

The key to opening that box, Chan said, is to better understand human behavior in health care. This includes factors that make it easier or harder for doctors, nurses and other [health care workers](#) to do their jobs cost-effectively day in and day out.

Through his research into health worker productivity, Chan is revealing groundbreaking insights. Several of his studies, for example, have examined how emergency rooms are staffed. In one, published last summer in the *Journal of Political Economy*, Chan showed that the typical practice of relying on triage nurses to assign patients to emergency room doctors is far less effective than doctor-managed assignments.

In a 2015 National Bureau of Economic Research working paper, Chan found that ER doctors are far more likely to order tests, which can be done quickly but often at a high price, at the end of their shifts. They do this because, like most workers, they want to clock out on time.

Beyond the ER, Chan recently completed a study that suggests obstetricians are more likely to perform C-sections when caring for patients they know, particularly when their own patients have had complications. In another study, he's analyzing whether physicians or machines make better treatment decisions.

He's also midway through a five-year, \$1.25 million National Institutes of Health study that looks at whether doctors eventually tune out electronic reminders that alert them, say, to write a prescription refill or schedule a test for a patient.

Labor and organizational economics factor heavily in Chan's research. "There are parallels across cement or airline-catering companies," Chan said. "Health care is just an example of a broader phenomenon of big differences in productivity in our economy."

Changing direction

When Chan entered UCLA's School of Medicine—in 1999, shortly after earning a bachelor's degree in mathematics and economics from the

University of California-Riverside—he expected to follow in his father's footsteps and practice medicine full time. But a course he took on health policy in his second year changed everything.

"I realized I was much more interested in the big economic and policy questions surrounding health care than I was in studying psychology or anatomy," said Chan, who is also a core faculty member at Stanford Health Policy.

It wasn't such a surprising shift. He had planned to practice internal medicine, which is a specialty that attracts an economist-like mindset. "Internists want to understand processes and what ties everything together," he said.

Chan took a hiatus from medical school and went to England, where he earned a master's degree in health policy, with distinction, from the London School of Economics. A year later, in 2003, Chan graduated with a master's degree in economics for development from the University of Oxford.

By then, Chan was sold on a career in academia as a [health policy](#) expert. He returned to UCLA to finish his medical degree in 2005 and then completed his residency at Brigham and Women's Hospital in Boston, where he had a front-row seat in Massachusetts' rollout of universal health care. Chan went on to earn a PhD in economics from the Massachusetts Institute of Technology in 2013.

While at Brigham and Women's, Chan received a three-year Harvard Medical School Faculty Development Fellowship and taught at Harvard Medical School. He also received fellowships with the Food and Drug Administration and, in 2011, spent a year as the entrepreneur in residence at the White House Office of Science and Technology Policy.

Chan joined Stanford's faculty shortly after graduating from MIT. That same year he signed on as an investigator with the Veteran Affairs Palo Alto Health Care System, where he now treats military veterans for four weeks every year.

Drawing a distinction

Chan's firsthand experiences as a practicing physician inform his views of the challenges facing U.S. health care. "As a doctor, you realize that a lot of what drives what you do is not related to the patient in front of you," he said. At Brigham and Women's, for instance, he learned that surgeons and internists could have conflicting motives—similar to how different teams of workers in other businesses sometimes clash.

But the analogy, Chan said, between behavior and productivity in health care versus other workplaces isn't perfect. The problems facing health care are compounded by the acute lack of information sharing. His visit to his primary care doctor for allergy treatment was a stark reminder of that.

"There are all of these barriers to information sharing in health care," he said, "and that explains a lot in terms of the lack of productivity, efficiency and standards."

By peering into [health care](#)'s granular workings, Chan aims to help open the black box of rising costs and inconsistent care.

Provided by Stanford University Medical Center

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