



# BETTER HEALTH CARE WITH LESS HEALTH SPENDING

The Stanford Clinical Excellence Research Center (CERC) is discovering new care delivery methods to solve our nation's persisting crisis in the affordability of excellent care.

### **CERC TECH ENABLES LOW-COST MEDICAL STAFF TO IDENTIFY DEPRESSED PATIENTS**

Depression and anxiety are the most commonly undetected yet correctable mental health disorders worldwide. Most primary care physicians are too busy to routinely screen patients for each disorder. Over the last two years, a CERC research team used video and audio recordings of responses to standard questions posed by a medical assistant preparing a patient for a primary care visit to train a computer algorithm to help physicians identify hidden depression and anxiety.

CERC's research team spanned Stanford's engineering and medical schools. The team began with human-centered design discussions with clinicians and staff at Amazon's One Medical subsidiary. Led by Samira Daswani, a master's student at Stanford's d.School, undiagnosed depression and anxiety emerged as the most unmet need deeply felt by One Medical clinicians. Using results from interviews Daswani and her team conducted with 110 patients at Stanford's Family Medicine Clinic, Stanford Department of Psychiatry faculty developed patient interview questions likely to elicit depressed or anxious speech and demeanor.

Stanford computer scientists led by assistant professor Ehsan Adeli, PhD, applied deep learning models to the video and audio data to create an algorithm estimating the presence and severity of depression and anxiety. In addition to undergoing scientific peer review, the algorithm will be deployed and refined in primary care settings.

CERC's research also generated a thesis topic for Stanford undergraduate Neha Srivathsa, earning her the university's prestigious 2022 Firestone Medal for Excellence in Undergraduate Research in computer science.



## WHAT UPSETS PATIENTS MOST ABOUT THEIR CARE DEPENDS ON WHOM YOU ASK

A new CERC study of diverse U.S. hospital-based clinics reveals that health-care teams misunderstand what upsets patients most about their care experience. In the first multi-site study of its kind, CERC researchers asked both patients and care-team members in ambulatory surgery clinics and medical oncology clinics to identify patients' most "memorably upsetting care" (MUC) experiences. Nearly four out of five care team members named system "inefficiencies" as a source of their patients' MUCs, compared to only a third of patients. Yet significantly more patients than team members mentioned "coldness" of care staff—48.5 percent vs. 38.6 percent. Nearly a third of patients named overt care team "incompetence," compared to only 7.2 percent of care team members.



CERC-affiliated scholar Alana Conner, PhD, CERC fellows Mary Carol Mazza, PhD, and Beatrice Podtschaske, PhD, and Professor Sara Singer led the research. The study was grounded in management science, demonstrating that identifying service users' most upsetting service experiences is essential to informing the design of higher-value services. Standard health industry patient surveys do not fully capture the frequency or nature of deeply upsetting service experiences. In addition, they query patients after they've returned home rather than during their clinic visit.

The research team interviewed 373 patients and 360 patient-facing care team members from medical oncology and ambulatory surgery departments at 11 diverse hospital-based health-care organizations across the United States. All 11 organizations had received high ratings in national performance rating systems.

CERC's research findings and options for national improvement in patients' perception of the value of their care were released online in the clinical journal, *Healthcare*.

## LESSONS FOR POLITICIANS FROM CERC COMPARISON OF STATES' HEALTH-CARE SYSTEM VALUE

In the first national study of its kind, a CERC–University of Washington research team investigated the link between health-care system characteristics and policies of each U.S. state and the cost-effectiveness of their health-care systems in caring for patients with severe illnesses. The study identifies states with the highest and lowest levels of health-care system "value" by comparing the annual percentage of people dying from a severe illness compared to dollars spent on health care between 1991 and 2019.

Interim published findings resonated with political conservatives and progressives: Value improved the most in states with greater market competition among hospitals and among health insurers and in states offering more generous Medicaid benefits for pregnant women and young children.

To co-lead the study, CERC recruited Joe Dieleman, PhD, an associate professor at the University of Washington. Professor Dieleman and his team assembled and analyzed the required data set. Initial findings using data through 2011 were published in 2020. The team's subsequent addition of data through 2019 reflects the impact of the Affordable Care Act. Once the study examining the entire 28-year span is published, CERC and the University of Washington will explain findings and implications at public forums such as the National Conference of State Legislatures.

