Until recently, medical education had changed little for over a century. But then a seminal change started to come over U.S. medical schools. They began teaching health systems science (HSS)—the understanding of how care is delivered, how health professionals work together to deliver that care, and how the health system can improve patient care and health care delivery—as the third pillar of medical education, along with the basic and clinical sciences.

And now, students at dozens of medical schools are putting what they’ve learned about health systems science into use.

The authors of a recent article in *Academic Medicine* reviewed more than 40 abstracts about projects using one or more HSS domains that were submitted to the AMA Accelerating Change in Medical Education 2018 Health Systems Science Student Impact Competition. They identified three persistent deficits in medicine and medical education that were frequently addressed: care for patients with mental illness, diversity in medicine, and teamwork and interprofessional education.

**Why medical students can be leaders**

The AMA Accelerating Change in Medical Education Consortium, which began in 2013, has been one of the most prominent voices in support of integrating health systems science into medical education.

The consortium launched the Health Systems Science Student Impact Competition—now known as the Health Systems Science Student, Resident and Fellow Impact Challenge—in 2018 to identify medical students who have used their knowledge of health systems science to improve the lives of patients, physicians and other health professionals.

“These projects and their subsequent analysis demonstrate that not only do medical students make significant impacts on the health system, patients and other health professionals when equipped with
HSS skills, working in health care teams, and advised by mentors, but they also may be able to address some of medicine’s and medical education’s long-standing challenges,” wrote the authors, who include physicians and other staff from the AMA, Boston Children’s Hospital, Boston Medical Center, University of Michigan Medical School and Virginia Commonwealth University School of Medicine.

Better care for mental illness

Three teams at University of California, San Francisco (UCSF) School of Medicine and two at University of North Carolina (UNC) School of Medicine piloted projects to tackle the reduced life expectancy, stigma and disparities in care that accompany mental illness. Drawing on the HSS domains of population health, public health and quality improvement, they sought to better link patients with preventive care, outpatient mental health services and primary care physicians.

To smooth the connection between pediatricians and counselors, a team at UNC School of Medicine developed a one-page summary report to be faxed to counselors following each referral so pediatricians could find out from counselors whether their patients’ initial appointments were kept, if any diagnoses were made, dates for follow-up appointments, any concerns they had and recommendations for treatment.

After the one-page summary reports were implemented, referrals jumped from 18% to 66%.

Greater diversity

Teams from Harvard Medical School, University of California, Davis School of Medicine, University of Michigan Medical School and Warren Alpert Medical School of Brown University wanted to help create a more diverse physician workforce to help address health disparities between demographic groups. Using what they learned about the HSS domain of leadership, the students sought to strengthen the pipeline to medical school for students underrepresented in medicine.

For example, the team at Brown created Health Career Opportunities Reimagined (HealthCORE), a longitudinal advising and mentorship program for high school students from racial and ethnic groups that are underrepresented in medicine. They recruited 23 students to attend a two-week summer intensive program focused on topics not usually included in pipeline programs, including global health, medical design and narrative medicine. The students then spent a year volunteering in the community, shadowing physicians and participating in research internships.
At conclusion, the high school students reported an increased interest in pursuing a health career, from 4.36 to 4.59 on a five-point Likert scale, and a greater capability to pursue one, from 4 to 4.23.

**Stronger teamwork**

Medical students from Emory University School of Medicine, Harvard Medical School, Rutgers Robert Wood Johnson Medical School and UCSF School of Medicine wanted to improve interprofessional education. Drawing on the HSS domain of “teaming,” or focusing on how individuals work together on specified tasks to achieve shared goals, they sought to overcome problems with information sharing, occupational silos and organizational factors.

The team from UCSF worked on how physicians and other health professionals communicate to cut decision-to-incision (DTI) times for unplanned cesarean deliveries at a county teaching hospital. They created a grading system to standardize the urgency of unplanned cesareans and implemented a unit team huddle involving the obstetrics & gynecology chief resident, bedside registered nurse, charge registered nurse and anesthesia resident.

The initial intervention reduced the DTI time from 97 to 93 minutes; later interventions brought it down to 82 minutes.

In 2020, the AMA Health Systems Science Student, Resident and Fellow Impact Challenge focused on projects addressing the COVID-19 pandemic. The challenge will resume this month.