Innovative EHR platform brings 11,000 true-life cases to med ed

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Using electronic health record (EHR) systems as teaching tools has long been viewed as vital to medical education, but the notion has been fraught with legal and logistical issues. A new, adapted EHR—thought to be the first of its kind—is enabling educators to present real cases to facilitate deeper understanding of population health, quality improvement, patient safety and social determinants of health.

The Regenstrief EHR Clinical Learning Platform features more than 11,000 records with misidentified data—real patient information that has been altered so privacy is preserved—providing educators with realistic case presentations and giving medical students insights into true-to-life clinical scenarios. The records are longitudinal, with some featuring up to 40 years of patient data, and constantly updated.

The web-based platform also features evaluation tools and visual dashboards to measure students' practical and critical thinking skills within the EHR and computerized physician order entry system. In addition, search functions enable users to pull population health data in a manner similar to how students will access it in a hospital setting.

Adapted from a Meaningful Use Stage 2-certified EHR, the platform was developed by the Regenstrief Institute, an informatics and health care research organization supporting the Indiana University School of Medicine. It is now in use at several allopathic and osteopathic medical schools, including Indiana University, the University of Connecticut School of Medicine (UConn), the Sydney Kimmel Medical College at Thomas Jefferson University, the Ohio University Heritage College of Osteopathic Medicine and the University of Idaho Medical School, as well as the University of Southern Indiana College of Nursing and Health Professions.

How it's working at UConn

UConn is incorporating the Regenstrief EHR Clinical Learning Platform into two courses. One focuses on basic science principles and pathophysiological mechanisms through a case-oriented approach and combines the medical, social and behavioral sciences. The cases in this course will be introduced through patients in the EHR who are members of diverse families.

“Our goal is to help students understand at a very early stage how important social, cultural and mental health issues are in the way patients experience disease,” said Zita Lazzarini, JD, MPH, associate professor of community medicine and health care and director of the Division of Public Health Law and Bioethics at the University of Connecticut Health Center.

The other course covers evidence-based decision-making, health policy and public health, focusing on social determinants of health and disparities. Students will work through exercises in which they mine the EHR to learn about differences between populations by age, ethnicity and socioeconomics.

“The purpose of this is to present basic science information in the context of the patient, to put a patient face and a patient story on everything we present to students so they become introduced to metabolic pathways in the context of the full complexity of how patients present,” said David D. Henderson, MD, associate professor of family medicine and associate dean for medical student affairs at UConn.

One reason for this is the need to make what students learn relevant to patient care, “because they came here to be doctors,” Dr. Henderson said. “They came here to learn to take care of patients, and the idea is to get them introduced to the science part of medicine vis-à-vis patients, albeit virtual patients and virtual families.

“They’re not just learning about physiologic mechanisms and the mechanisms of disease. Because we don’t treat the disease; we treat the patient. We think that’s a really important lesson to drive home as early as possible.”

For example, one recent case involved a man in his mid-50s who presented with chest pain. At the end of his last visit, he was referred to cardiology but never followed up.

So they’re learning about chest pain and the causes of chest pain, but they also get to contemplate and discuss what factors contributed to his lack of adherence, what the consequences of that may be, and how to address it,” Dr. Henderson said. “It creates a much richer and more detailed learning environment.”

Unexpected benefits

The adoption of the Regenstrief EHR Clinical Learning Platform is part of a curriculum redesign that began four years ago at UConn. As part of this new direction, UConn has eliminated all lectures and has transitioned to team-based and other small-group learning formats.

UConn had been using a homemade teaching EHR for ten years before adopting the Regenstrief EHR Clinical Learning Platform. The system's rollout in the medical school has come at a time when UConn's clinical operations are transitioning to the Epic EHR, which has been serendipitous.

"Our experience with it has informed conversations we've had with the folks in the hospital around the architecture of Epic and has given us insights into how to more effectively use that EHR as a teaching tool in clinical settings," Dr. Henderson said. "I don't know that any of us anticipated that when we started this. We're now more knowledgeable of the ways that EHRs can be used as teaching tools."

Indiana University received a 2013 grant from the AMA's Accelerating Change in Medical Education initiative to develop the Regenstrief EHR Clinical Learning Platform. Indiana was one of the original 11 members of the Accelerating Change in Medical Education Consortium. UConn was one of 21 consortium member schools that received grants in 2015 to pilot additional innovative ideas in medical education.

An estimated 19,000 medical students—18 percent of all U.S. allopathic and osteopathic medical students—study at schools that are consortium members.

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