'The age of electronic medicine'

August 13 2010

(PhysOrg.com) -- As part of its new iMedEd Initiative, the medical school has developed a comprehensive, iPad-based curriculum, reinventing how medicine is taught in the 21st century and becoming the first in the nation to offer entering students a completely digital, interactive learning environment.

At an annual ceremony Aug. 6, UC Irvine's incoming medical students were presented with their first white coats - the traditional garb of physicians everywhere. They then received something untraditional: Apple iPad tablet computers loaded with everything necessary for the initial year of course work.

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"We are committed to using evolving technology to benefit the education of our medical students," says Dr. Ralph V. Clayman, dean of the School of Medicine. "It is our firm belief that a digitally based curriculum will be the wave of the future, and UCI seeks to be a leader in the innovative presentation of information to students."

According to Dr. Warren Wiechmann, the school's director of instructional technologies, the iMedEd Initiative calls for eliminating the usual lecturer-passive listener model and putting everything students need to succeed in class at their fingertips.

The wireless, 16-gigabyte, 3G iPad features hundreds of medical applications; note-taking and recording capabilities; and many other tools to complement various learning styles. Students will be able to view short, topical lectures via podcast prior to meeting for small-group discussion. Not only do archived lectures make better use of faculty members' time, they also facilitate interactive and self-directed learning.

Additional content includes course outlines and handouts, slide presentations and essential first-year textbooks in a digital format that allows highlighting and notation. Students will have access to audio and video libraries as well as podcasts. And technological advances such as digital stethoscopes and handheld ultrasound units are currently being configured to interface with the iPads.

"Our goal is to foster highly individualized and small-group learning for a richer medical school experience," Wiechmann says. "The timing is right. Students are coming to us from top-tier schools where podcast and small-group learning is the norm for undergraduates, but most medical schools still teach in the traditional way."

By saving paper, printing services and administrative time spent producing reams of handouts, he adds, the iMedEd Initiative dovetails with UCI's efforts to be a "green" campus and could save money.
One example of the technology's myriad interactive, educational uses: An on-call neurosurgeon - regardless of location - could craft a 30-minute lecture via a webcam for students to watch online. They could review it as often as necessary and consult supplemental materials, including step-by-step videos, to clarify the lesson. Then, when students meet with the neurosurgeon in an office, classroom or hospital setting, they could focus on specific cases to further augment the learning experience.

A second technological advance being incorporated into the medical

curriculum on a pilot basis is the digital stethoscope, about a dozen of which are available for the incoming class. With applications on the iPad, students will be able to listen to a patient's heart while simultaneously recording its tones and then compare them to a library of more than 3,000 heart sounds characteristic of specific conditions to gain a better understanding of cardiac physiology and pathology.

UCI also aims to be a national leader in training medical students to use handheld diagnostic ultrasound devices, which could become a standard tool in the "black bag" of future physicians. To do this, the School of Medicine is working with diagnostic ultrasound maker SonoSite Inc., which is committed to integrating the technology into the medical school curriculum.

These highly sensitive ultrasound units offer an effective, noninvasive way to peer inside the body, says Clayman, a pioneer in developing minimally invasive, laparoscopic and robotic techniques for urological surgery.

Eventually, students will be able to use their iPads to peruse a video tutorial while performing bedside ultrasounds and preserve them for later review and consultation with supervising faculty members.
Such innovation is merely the tip of the iceberg, Clayman says: "In the future, physicians will literally carry a library's worth of information on a tablet computer in the pocket of their white coat or suit jacket. The age of electronic medicine is upon us, and both patient and practitioner will benefit. UCI's iMedEd curriculum is a step in that direction."

Provided by UC Irvine

Citation: 'The age of electronic medicine' (2010, August 13) retrieved 23 April 2024 from https://medicalxpress.com/news/2010-08-age-electronic-medicine.html

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