

## IT Innovations for Clinical Skills Tests

### Speaker

*Carol Terregino, MD*

*Associate Dean for Admissions, UMDNJ Robert Wood Johnson School of Medicine*

Like many medical schools, Robert Wood Johnson uses a clinical skills center and standardized patients rather intensively during all four years. In addition, all of its clerkships use the Objective Structured Clinical Examination (OSCE), which takes a lot of time and effort. There have been some problems with the clinical skills program that need fixing. The school lost its clinical skills testing center about five years ago, and the center had to be retrofitted to accommodate new uses. The old system was cumbersome. Cameras filmed encounters on an analog system. The tapes were passed out, the faculty had to fill out checklists on paper, and then send materials back to the office to go onto an Excel spreadsheet.

Further, the faculty assessors weren't always the same, and it wasn't clear who was evaluating which student. There was no faculty development. A community physician might be brought in to assess students for high-stakes exams. The school was missing trends in the performance of each medical student. There wasn't a durable and easily accessible record for each student. It was noted that there were high failure rates in the summative clinical skills assessment, and people were asking, "Who had been watching this student?"

Clearly, the system had to be improved, so the administration discussed how to proceed. It was decided that the new system should be convenient for faculty, with flexible viewing times for the standardized patient-student interaction. There should be flexible viewing sites and access for multiple viewers. The school wanted students to get their grades and get feedback quickly. Recordings of the encounter should be durable, easily recoverable, and provide a longitudinal assessment of clinical competencies. The medical students should have access to the encounters and be able to perform self-evaluation and practice-based improvement.

It was decided to make the system digital. The analog cameras were attached to a digitizer and the videos were fed into a MacBook computer, where they were clipped and exported to a Podcast. Metadata about the clerkship as well as the information on each student were added. This digitized information was uploaded to the RWJMS iTunes U Web site. Apple provides any medical school an iTunes U Web site for free. Information is stored on the site, which has 500 gigabytes of space. RWJMS iTunes U includes a password-protected site that students aren't allowed to access without a faculty member. (The school doesn't want its clinical stations to end up on YouTube.) Work flow with the new system is as follows: the video is captured using a MacBook laptop computer, segments are clipped, and faculty can view the individual student on the private side of the iTunes site and then fill out a checklist. All reports are then auto-generated. Faculty sign into the system. They click on a particular OSCE, decide which student they want to review, and they are ready to go. The faculty member can bring up the encounter and review a particular student's performance over time.

There are still some problems with the system. Since there are not that many IT systems in the country, there is no network speed. The school tried to have faculty and students use RWJ iTunes U, but the bandwidth would not support it, so the school uploaded the videos, burned DVDs, and distributed them to the faculty. This system takes more time. Now the school is asking that only well-trained faculty assess the OSCE videos to assess medical students in a clerkship. Grading took more time and it actually afforded an opportunity to provide feedback. Faculty advocacy of the iTunes site is not very strong. The students have been hungry for feedback and want to watch themselves. Only half of the clerkship directors like the system—many don't want to have to watch the student encounters. Now some of the clerkships are providing feedback on clinical skills, which

amounts to a significant decrease in the time for the clerkship directors. They are not chasing down faculty to come to the clinical skills center to train the students. The faculty do not have to take time out of their busy day.

Records of encounters are supposed to be available soon. Meanwhile, all the encounters are on DVD. There is an ongoing initiative to achieve central oversight of student performance. The hope is to identify high-risk students a little bit earlier.

How much does this program cost? The price of the hardware is \$55,000, which is reasonable compared with some other systems, and the free iTunes U site helps make the system economically feasible. With adequate institutional bandwidth support, a durable student standardized-patient encounter can be created and stored longitudinally. Faculty time considerations continue to be a challenge for taking full advantage of the digital system. The hope is that the accessibility of digital snapshots over time will improve clinical skills training.

Digital interactions have a very useful future. When faculty started podcasting lectures, many students stopped coming and then e-mailed the professor with questions. Students learn in many different ways. If lectures can be recorded and put up on the Web site, what is so wrong with that? However, faculty should not have any time scheduled with students unless there is added value.