

The University Clinical Skills and Simulation Center: A Jefferson Gem

Part II: Interview with Dale Berg, MD and Katherine Berg, MD

Co-Directors of the University Clinical Skills and Simulation Center (UCSSC)

Now that the Clinical Skills Center has been in the Hamilton Building for well over a year, what type of an impact do you feel that this facility has had on the students and their experiences?

KB: The students are very excited; and it's also been nice for GME. It allows us to expand our pre-existing curriculum and evaluation tools, to develop in new areas and serve the needs of many others. The building provides a venue for educators of all disciplines and professions to get together and teach and develop. Members of different departments are crossing paths and working together in an exciting learning environment.

DB: One of the fundamental advantages of a simulation center is that it provides a great venue for getting faculty to markedly increase the time spent directly teaching students the skills they used to teach at the bedside.

KB: The Skills Center team works closely with faculty and provides educational consultation as ideas and programs are developed. For example, we work with the clerkship or program director to assess and discuss their needs; develop a set of teaching objectives; and create a plan for product development needed to teach the program. Most of the time, the faculty will run their individual program and we support and provide the mechanism to produce it.

DB: This building is a catalyst for creating a collegial, team approach to curriculum development and implementation. It allows for cross-pollination from various fields and professions. It is a place to learn that is safe for the learner, and for the simulated patient whether it be a mechanical simulator, a human (standardized patient) simulation or a hybrid of the two. Teaching core skills across professions creates a rich, dynamic learning environment. That's why

we are so excited that Jefferson Center for InterProfessional Education (JCIPE) is the cornerstone of this movement, led by Christine Arenson, MD and Molly A. Rose, PhD, CRNP.

As faculty, you have the opportunity to observe students going through this unique educational process. What is that like?

KB: We teach all 4 years so we do get to see how students develop over time. First year students come in wide-eyed and nervous; by 4th year they are more relaxed. The amount of knowledge they acquire in those four years is breathtaking. They go from being a student to becoming a colleague, and get to a point where they are actually teaching one other. This is particularly true with Jefferson's unique Advanced Physical Diagnosis (APD) course, an elective that is immensely popular in the 4th year. Approximately 75 students devote one month to immersion in the clinical skills set of physical examination. The course consists of not only learning the skills, but interpreting them, applying them to clinical situations and then, translating the simulation and skills directly to bedside learning and teaching through faculty rounds with real patients.

DB: The APD course helps learners refine their skills so they can make clinical decisions in the absence of imaging or lab support. In those situations, a Jefferson-trained clinician will be able to call upon the skills set that requires only a history and physical at minimum to provide care to their patients and develop a reasonable diagnostic and therapeutic paradigm. Our view is that because a primary care provider encounters undifferentiated problems, he or she must master history and physical examination with great acumen.

Describe the feedback, assessment, and evaluation process. How is it standardized? Is there a variation depending on the program?

KB: We do both formative and summative assessment, at every level. Most of our summative assessment is done via standardized patients and checklists. At the end of the year all 3rd year students take an Objective Structured Clinical Exam (OSCE), which includes 11 stations of standardized patients. The exam consists of different scenarios where students must exhibit their communication skills, physical exam skills, counseling skills, and data recording/documentation skills. Students who don't pass must spend a month in a remedial course (directed by Dr. Joseph Majdan) to get their clinical skills up to our standards. The OSCE also provides a venue for the students to prepare themselves for the Competitive Exams (CX).

At the end of the 3rd year clerkship, in addition to the Standardized Patient (SP) assessment, we also conduct a hybrid of the SP and the mechanical simulation. The scenarios include an acute process that requires the student to put in an IV or NG tube, for example. Rather than doing the procedure on the SP, the student performs the procedure on the model. For instance, in OB/GYN, for an SP who is "in labor," the student would have to deliver a baby on Noelle™ (a simulation mannequin that delivers babies). The student would also have to communicate with the SP during the procedure. It's very difficult to both have the skills, the hand-eye coordination, and also communicate to a patient what you need them to do.

DB: Jefferson is really in the forefront with this innovative hybrid – or, as we like to call it, a *chimera* – model of simulation that combines plastic with a human example. For example, the cardiopulmonary patient simulator,

Harvey® gives you *in vitro* sounds of a murmur along with a real patient who exhibits that same murmur.

KB: Although it has been shown that SPs are fairly good at assessing history taking, communication skills, and the physical exam, we are also studying the effectiveness of having the SP grade the students on their technique of a procedure.

Would the SPs need more training in order to achieve that?

KB: Yes. We record all the sessions. We also have another standardized patient simultaneously evaluating the SP's performance. In other words, there is somebody behind the mirror or behind the curtain, and we have somebody who is watching the scenario on tape in real time. They both complete the same checklist. We compare responses to determine how closely they coordinate. Observation in real time is preferred over the SP who is with the student and completes the checklist after the student leaves the room.

DB: Using checklists, faculty leaders supervise and set exacting standards for training these SPs. There are specific steps and nuances in physical examination and history taking that we expect our second year students to be able to perform. After their training at the Center, the SPs know these steps and become an extraordinary resource for teaching. We like to think of them as teacher extenders in that they assist the faculty in teaching the skills set in a humanistic yet controlled way.

Are the scenarios used constantly evolving?

DB: The Center allows us to effectively democratize the process of developing simulation support and curriculum for various programs across the University and in the region. Faculty with ideas for projects, programs, and research

come in from any department, source or site on campus and we work with them to implement a program based on their ideas. We will sit down together to create a template, come up with ideas and then write a screenplay; or, if they want to write a script, we help to edit it so that we can produce it. With the assistance and expertise of Rob Hargraves, managing producer of Jeff Players, and a cinematographer from the Jefferson Medical Media Department, we write a screenplay, cast actors, set up a credible stage, rehearse, and then produce and edit. A prime example is the series on teaching conflict resolution in the ER, which we developed in collaboration with Alan Forstater, MD, of Emergency Medicine. Of the 11 different scenarios shared by Dr. Forstater, we have 5 available as professional quality video clips for teaching and role modeling purposes. Using our Jeff Players acting and production group, we have created a library of over 45 competency-based professional quality teaching video trigger clips.

How do we know if the use of simulation and SPs make a difference in outcome?

KB: That is the big question nationwide and many studies are being proposed. Most of the research done has been qualitative: "yes, I feel better; yes, I feel more prepared; yes, I think this is a good curriculum." While the jury is still out, I think that it does make a difference, especially in terms of confidence.

DB: The policy of the University Simulation and Clinical Skills Center (UCSSC) is that educational research should be conducted on new programs with an eye toward publishing the results. This will thus increase the credibility of our teaching and of our Center. We are currently working with Ed Jasper, MD, Clinical Assistant Professor and Director of Emergency Medical Services, to develop a scientific assembly for the fall of this year.

KB: We try to perform qualitative and quantitative research. We have had many abstracts and presentations accepted to national, international and regional meetings over the past year. More research projects are planned for the future.

DB: We are lucky to have resources like the Center for Research in Medical Education (CRIME) and, in particular, J. Jon Veloski, MS, who is the Director of Medical Education Research at the Center and a distinguished researcher in this field. Together, we work with faculty at our UCSSC research meeting to develop research protocols, and foster collaborative writing and scientific thinking of methods for teaching and uses of specific clinical skills sets.

What else would you like our readers to know?

KB: I would modify the old model of *see one, do one, teach one* – it's *see one, practice one and simulation, do one, teach one*. We are not trying to supplant the whole idea of patient-centered medical education, we are just trying to add that little practice step.

DB: This is the 21st century iteration of providing training and practice to a new generation of health care providers. Simulation allows a teacher to develop metaphors in innovative ways and provides the opportunity to collaborate with others on campus with a zest for teaching and learning. This is a place where educational research is going to take off. Jefferson is in the forefront of this new paradigm for teaching. ■

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