



Features

Nursing students at Columbia receive an evolving blend of old and new, of hands-on and online, and of nursing art and nursing science – all in the name of preparing critical thinkers who are able to bring the best evidence to bear on patient care.

The Making of a COLUMBIA NURSE, 2008

For the umpteenth time, a patient is in trouble over at the School of Nursing's anesthesia training lab. Every sign points to danger: falling blood-oxygen levels, shallow respirations, faint pulse, laryngeal spasms. Assorted alarms are beeping, raising tension levels. The nurse anesthetist-in-training hurriedly adjusts dosages and settings, all to no avail. The patient flat lines. No worry. No worry? It was all a simulation, conducted on a programmable, dynamically changing mannequin with realistic airways and physiologic responses. After the "patient" succumbs, the lab tech simply restarts the simulator, giving the student another try at managing an anesthesia-related emergency.



by GARY
GOLDENBERG

photos by
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unless
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It's just one example of how education is changing at the Columbia University School of Nursing. The nuts and bolts of courses are managed online via CourseWorks, the University's course management system, which allows instructors to develop and maintain course Web sites, distribute class materials, and communicate with students. Students in the baccalaureate phase of the Combined BS/MS Program can access an online tool to help them assess whether they are up-to-date with class content and prep them for state licensing exams. Patient simulators are also used to teach basic nursing skills. Earlier this decade, the School pioneered the use of personal digital assistants (PDAs) in nursing education, giving students immediate access to clinical guidelines and other medical information right at the point of care.

It would appear that technology is taking over nursing education.

"In theory, you could probably teach most of nursing using computer-based learning tools and simulated patients," says Sarah Sheets Cook, DNP, Vice Dean for Nursing at Columbia. "That raises interesting philosophical questions."

And it probably raises the hackles of alumni, young and old. But a closer look inside the School of Nursing reveals that the computers haven't taken over quite yet. If anything, the most significant changes at the School in recent years have more to

do with philosophy than with technology, with the latter serving the former.

Today's nursing students receive an evolving blend of old and new, of hands-on and online, and of nursing art and nursing science – with the aim of preparing advanced practitioners who are critical thinkers, capable of bringing the best evidence to bear on the care of individuals or distinct populations.

A LITTLE HISTORY

One of the most significant changes at the School in recent years has been the shift toward an all graduate program. “In the mid-eighties, enrollment in the free-standing baccalaureate program bottomed out and we thought deeply about what the School should be,” explains Dr. Cook. “We developed a Combined BS/MS Program, with a destination point of at least master’s education, tapping into a new stream of students – those who already had a degree in another discipline and who were interested in advanced-practice nursing.”

With an eye toward preparing these leading edge clinicians, the School accelerated its decades long shift away from teaching process and procedure and toward teaching case management, clinical judgment, and critical thinking. Accordingly, the curriculum began to concentrate on outcomes and on the evidence that would produce those outcomes – an approach that has come to be known as evidence-based practice.

Content and courses on health policy and nursing informatics (the management and processing of nursing data, information, and knowledge to support the practice of nursing and the delivery of nursing care) also came to the fore, particularly in the graduate level curriculum.

Today, the School of Nursing’s expanded range of

interest is reflected in its research, which includes funded studies of HIV/AIDS, clinical outcomes, health policy and health services research, antimicrobial resistance, informatics, health economics, and more.

Looking ahead, the faculty is contemplating an all-doctoral program, which would further raise the ante in research and clinical care. The rationale is that with increasing patient acuity and complexity, advanced-practice nurses should be prepared at the highest levels, like their counterparts in medicine. In this scenario, incoming nursing students at Columbia would be required to have a degree in another discipline and, after four or five years of study, would graduate with a doctorate, a DNP or DNSc, depending on their area of interest. The groundwork has already been laid, with the addition of two doctoral programs – the Doctor of Nursing Science (DNSc) and the Doctor of Nursing Practice (DNP) – earlier this decade. The DNSc will transition to a PhD in fall 2008.

CARING FOR PATIENTS AS INDIVIDUALS

Despite the increasingly scientific nature of nursing, the faculty continues to stress patient-centered care with a focus squarely on the patient, not the disease. But even this aspect of nursing is evolving.

“Early on in this school, we prided ourselves in caring for patients as individuals, but I think we tended to care for them the way we thought they should be cared for,” Dr. Cook says. “Now, we teach that nursing is a matter of perspective. The idea is that you use basic science to understand the physiology or pathophysiology of what’s wrong with a particular person, but you also need an expanded view of who that person is – where they are developmentally, how they communicate, what their goals in life are, shaped by their culture and heritage, and so on. And you merge those two very different perspectives, the scientific and the personal, in order to develop a plan of care and to measure outcomes of that care.”

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“This can be a difficult concept to get across to students. But this understanding — that nurses have a different kind of relationship with patients than physicians do — is the major reason our students choose nursing over medicine, and most of them have the academic credentials to choose either path.”

ROLE OF TECHNOLOGY

So, how does technology fit into this paradigm of nursing? Rita Marie John, DNP, Assistant Professor of Clinical Nursing and Director of the Pediatric and Neonatal Nurse Practitioner Programs, would argue that there is no separating the two.

“Evidence-based practice has come into its own, and there is no way of not teaching according to guidelines,” she says. “Certainly, in practice, one’s experience enters into it, and in some cases, the evidence is not clear. But there is an abundance of clinical guide-

*ETP students.
left to right:
(first row)
Rachel Geyer,
Christina Steurer,
Jennifer Kratzer,
Heather Johnson,
Nasreen Abbas

(second row)
Brian Pongracz,
Jon Holderman
(Instructor),
Michelle Martin,
Andrea David,
Simone Urbach*



lines and many ways to access them — PDAs being one example. You can access *PubMed* [the National Library of Medicine’s database of scientific papers] with a smartphone from the patient’s bedside or from your car sitting in traffic on the George Washington Bridge. You can almost always reach a specialist for consultation with a cell phone, email, or text messaging.”

An early technology adopter, Dr. John has started “wiki spaces” – collaborative online forums – for her students, where they can ask questions, share information, and participate in discussions. She is also experimenting with a student-only wiki space, a forum that students can use to share, vent, or what have you without fear that a faculty member might be eavesdropping. Eventually, she would like to create a wiki space for the School’s many clinical preceptors, who are separated by specialty and geography and rarely, if ever, have opportunities to interact.

THE VANISHING CLINICAL EXPERIENCE

The School is also relying on technology to teach basic bedside nursing skills.

“In the past, all our students gained experience at Presbyterian Hospital,” says Dr. Cook. “That’s not possible these days for a whole bunch of reasons. There is less staffing available in the hospital to assist with precepting and teaching. There are more patient care regulations to which the nursing staff have to attend, and there are more nursing schools competing for a limited number of clinical spots.”

The simple fact is that in many hospital settings, the addition of instructors and students has become a burden rather than a benefit, which is why the faculty in the baccalaureate phase of the program has turned to surrogate patients like Nurse Anne. Nurse Anne is less sophisticated than her cousin in anesthesia, yet she’s an effective patient impersonator. “She has breath sounds and heart sounds,” says Karen

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*ETP Students
(left to right)
Michelle Martin,
Kelly Neale,
Danielle Foti,
Jennifer Kratzer,
Pallavi Parthasarathy*

Katherine Schott '06, '07 (left) and Alexis Kihn '06 with Instructor Mary Moran and a patient.





We do have to be better equipped, better educated, and more knowledgeable about disease processes than we did 30 years ago, but our fundamental approach to the patient is not any different.

Desjardins, MPH, DNP, Assistant Professor of Clinical Nursing and Director of Combined BS/MS Program. "You can measure blood pressure, put in Foley catheters, and insert IVs. You can insert a feeding tube and the mannequin will actually cough and gag, mimicking a patient and surprising a student. This kind of simulation is improving by leaps and bounds."

Learning on patient simulators can lower students' anxiety levels a few notches. "I can remember the first time I went to feel somebody's pulse," says Dr. Desjardins. "I was so nervous. My heart was beating so fast that I was feeling my own pulse, not the patient's. When you take out the anxiety of learning a skill, the fear that you might hurt somebody, you can concentrate more fully on the education at hand. If you make a mistake, if you break sterile field, for instance, you are not going to harm anyone. You just start again. It builds confidence for the real thing."

The airline industry and the military would agree. For years, both have successfully used flight simulators to train pilots, as an adjunct to hands-on experience.

VIRTUAL PATIENTS

"Some nursing schools have gone big into simulation as their solution to finding clinical experiences for students," adds Dr. Cook. "They potentially could graduate a student who has never really taken care of a live patient."

It's hard to imagine Columbia reaching that dubious milestone, but more virtual learning is a certainty. Dr. John, for instance, dreams of being able to offer students an online database of virtual patients with whom they could interact and practice counseling skills. "It will occur," she insists. "It would be another way of teaching, of building confidence in students," she says.

Virtual learning could help address another looming shortage – that of nursing faculty. "The bulk of people who teach nurses of any kind is approaching retirement age," says Dr. Cook. "This is a problem nationwide. Part of the problem is that service positions pay a lot more than academic positions, so few nurses are drawn to teaching."

Meanwhile, with the nationwide shortage of nurses and the corresponding appropriate positions for nurses to do what they do best, nursing schools are under pressure to accept as many students as possible, further exacerbating the gap between the supply and demand of faculty.

In recent years, private philanthropies and the National Institutes of Health have begun to address this issue, underwriting the tuition of nurses who agree to teach for a certain period once they graduate. Several doctoral students at the School have taken advantage of these grants. Time will tell whether this solution will suffice, or whether technology will be needed to fill this gap.

A CREATIVE MIXTURE

While technology is transforming the teaching of nurse anesthesia, it has yet to make significant inroads in some other graduate specialties, including the skill-intensive field of nurse midwifery.

“The basic hand skills in midwifery haven’t changed that much, and the way we teach them has always been a very creative mixture of methods,” explains Laura Zeidenstein, DNP, Assistant Professor of Clinical Nursing and Director of the Nurse Midwifery Program. “We still use baby dolls and pelvic models. To learn suturing, we practice on mattress foam. We use clay to teach cervical dilatation and water balloons to teach how to rupture amniotic membranes. It’s old fashioned, but it works.”

Once students demonstrate proficiency in the skills lab, they are given a wealth of hands-on experiences. By graduation day, the typical student attends 40 births, assuming more and more responsibility with each delivery, and conducts numerous newborn exams and hundreds of prenatal and gynecology visits.

Dr. Zeidenstein is not adverse to technology, and spends ample time teaching the use of fetal monitors, ultrasounds, and the like. It’s just that, in her view, simulators don’t offer any advantages for teaching basic hand skills and probably never will.

“I do see a place for simulators in learning emergency skills, such as shoulder dystocia, postpartum hemorrhage, and newborn resuscitation,” she notes. “These situations are hard to simulate using ordinary models.” Computerized mannequins, on the other hand, might be able to provide a more realistic, interactive experience in which the trainee’s actions have immediate and tangible consequences. However, such simulators are still prohibitively expensive, and the jury is still out on whether they are worth the investment, she says.

More technology in nursing education is inevitable, of course. On a reassuring note, Dr. Desjardins says, “The basis of nursing is still holistic caring. We are still very involved with teaching, with families. In the hospital, we are right there with the patient 24/7. We do have to be better equipped, better educated, and more knowledgeable about disease processes than we did 30 years ago. But our fundamental approach to the patient is not any different.”

