Nursing—is in the midst of revolutionary changes. How are these changes affecting the profession today—and how are they likely to affect it in the future? For the premier issue of American Nurse Today, we decided to examine current trends in nursing and healthcare, and predict future developments that could influence nursing in years to come.

For help with our analysis and predictions, we turned to several nursing experts and leaders, as well as pharmacy and future studies experts. (See Our panel.) We also tuned into the “buzz” in the nursing profession and explored several innovative national programs.

We found that nursing remains a vibrant profession. Yes—we have controversy and divisiveness. But we also see a wealth of positive energy that’s driving change and improving the lives of nurses and patients.

Driving forces
Many forces are driving changes in nursing and healthcare. Healthcare associations continue to issue new guidelines that influence nursing practice. Let’s look at a few other driving forces.

Portability and mobility
Talk to Tim Porter-O’Grady, RN, EdD, for any length of time and you’re likely to hear the words mobility and portability again and again. He sees these features as the basis for any healthcare delivery model. “Portability and mobility are the cornerstones of technotherapeutic interventions,” he states. The growth in freestanding clinics, ambulatory care centers, and other non-hospital settings supports his view.

Technology will extend patients’ lives—and Porter-O’Grady reminds us that we’re not aging the same way previous generations did. Many Americans are “aging in place,” with communities finding ways to support older people in their homes. Futurist Andy Hines, MS, says, “Baby boomers are going to want to avoid institutions for themselves and their parents.”

These forces mean that much of the patient’s healing takes place where nurses don’t typically deliver round-the-clock care—the home. Unfortunately, most nurses have been educated in a hospital-based model, which doesn’t mesh with today’s trends. Porter-O’Grady urges us to remember that patients don’t necessarily benefit from a hospital stay. “There is a direct line from length of stay to increased morbidity and mortality.”

At the same time, Hines remarks, “There’s a shift away from
institutional care toward individual responsibility, and a move from hospitals and nursing homes to retail, kiosks, and home.” He adds that consumers want more personal control over their healthcare, so we can expect more self-diagnostic tests and innovative ways to deliver care.

Porter-O’Grady knows it isn’t easy for seasoned nurses to accept these changes. “Some nurses are mourning the loss of all they used to do for patients, but that loss isn’t a bad thing.” He advises hospital-based nurses to focus on helping patients make the transition to where they’ll be healing—at home.

Evidence-based practice
You can’t turn around in nursing without encountering the term evidence-based practice (EBP). It’s on the lips of everyone from staff nurses in ambulatory care centers to heads of government agencies.

EBP is one reason facilities designated as Magnet hospitals by the Magnet Recognition Program have been so successful: They’ve set up systems that foster evidence-based care, bringing improved patient care and nurse satisfaction. EBP also serves as the foundation for the disease management work done by nurse practitioners (NPs) and many other nurses.

EBP is more than a buzz term, says Porter-O’Grady. “It’s about getting a handle on what we do that is valuable—that difference it makes. Can we do it again, and can we do it even better the next time?”

Emphasis on safety and quality
Patient safety and quality of care are two trends that have benefited nursing. Rebecca M. Patton, MSN, RN, CNOR, cites the National Quality Indic peace good, professional practice. In 2000, she and colleagues introduced the National Quality Indic peace good, professional practice. In 2000, she and colleagues introduced the National Quality Indicator Database as an example of a program that’s tracking nurses’ impact on patient care outcomes. This database of nurse-sensitive indicators, with data from almost 1,000 U.S. hospitals, is one of several that show nurses’ importance in the delivery of safe, high-quality care in every setting. (See Proof of the nursing effect.)

Because of the quality push, healthcare workforce leaders may see more pay for performance—payment by third-party or government payors based on the quality of care delivered by the facility. Linda Aiken, RN, PhD, believes nurses must be involved in establishing payment criteria.

High times for high-tech
The explosion of medical technology has led to myriad lifesaving and life-enhancing inventions, including spare body parts ranging from knees to thumbs and dramatically improved sensors and diagnostics. Hines says medical devices are “getting more precise, user friendly, and cost effective.” Here’s a rundown of a few areas where technology is making a big impact.

Genes and stem cells
Researchers are linking more and more diseases to genes, with tremendous implications for educating patients about their conditions—and tremendous potential for ethical dilemmas regarding genetic testing. As for stem cell research, Hines cautions that while such research is yielding exciting knowledge gains, these gains are clouded by the ethical controversy that surrounds this issue.

Robots in the OR
Computer-assisted surgery has moved to the next level. Robots have elbowed their way onto the operating-room bed and into the perioperative team. Although too expensive to use for every surgery, robots have proven their mettle in complex procedures and those that require manipulation in a tight area.

We’ve even seen primitive robots that can help nurses, although their abilities are limited. Cedars-Sinai Medical Center in Los Angeles uses a robotlike automated guided system to deliver supplies, says Linda Burnes Bolton, RN, PhD. Of course, robots won’t replace surgeons or nurses, but they can enhance their abilities. Robots also
can free up nurses to spend more time with patients. And, given our aging population and the extension of lives through medicine and technology, nurses will need every means of support possible. (See Tomorrow’s tech trends.)

Nursing workforce
As recently as 2004, a national survey found that 82% of nurses thought there was still a nursing shortage. That’s consistent with others’ perceptions: Earlier that same year, 81% of physicians perceived a nursing shortage where they admitted patients. In 2005, 74% of hospital chief nursing officers and 68% of chief executive officers also perceived a shortage.

For insight into the current state of the nursing workforce, we turned to Peter Buerhaus, RN, PhD. “Clearly the nursing shortage isn’t as intense as in 2001 and 2002, but it has by no means gone away.” But Buerhaus thinks we’re experiencing the calm before the storm. In April 2006, the American Hospital Association reported a vacancy rate of 8.5% in nursing job openings. In his experience, vacancy rates of 9% usually indicate a shortage. He points out that the demand for nurses is rising, with only slow increases in supply, and that nurses’ earnings flattened in 2004 and 2005.

When the nursing shortage grows more critical again, some will say it’s because nurses aren’t satisfied with their jobs. But a study Buerhaus headed in 2004 found that 83% of nurses were satisfied with their jobs. This rate is similar to that of other professionals—about 80% for lawyers, business executives, and primary care specialists. On the other hand, teachers’ job satisfaction is only at 61%.

Patton sees opportunities in the nursing shortage. “As difficult as it will be for us, it will help us as a profession to redefine the role of every member of the healthcare team. We’ll see better utilization of nursing skills, and we could also see better access” to the nurse.

Greying nurses
Whether or not they’re satisfied with their jobs, nurses will continue to spot grey hairs in the mirror as they age. The physical workplace environment will need to be adapted to keep older nurses in the workforce. “We need their experience,” says Burnes Bolton, “but we need to take the burden out of care.” Technology can help accomplish this. She cites the example of using gurneys as patient beds so nurses can avoid back-straining patient transfers.

As the core of the nursing workforce nears retirement, younger nurses are entering the profession, creating intergenerational teams. (See Look how far we’ve come: Nursing through the years.) Nurses of different age-groups need to understand and accept each other’s perspective and appreciate what everyone brings to the team.

Let’s look at a few other factors affecting the nursing workforce.

Physician shortages. A shortage of physicians will increase the demand for NPs. “The sense is that the physician shortages are severe,” says Buerhaus, and these shortages aren’t likely to end any time soon. As the demand for healthcare keeps growing, “we’re going to need NPs in huge numbers, and they could take over much of what medicine does today in our lifetime.”

Foreign nurses. Buerhaus foresees more foreign nurses working in the United States—double or triple today’s number. He speculates that by 2020, as much as 25% of our nursing workforce may have received their nursing education outside the United States.

Hines agrees that foreign nurses are here to stay. He also raises an issue nurses have long faced: How do the standards of one country apply to another? Common standards are needed for the emerging global workforce. At the same time, Patton cautions that using foreign-educated RNs must not detract from the need to offer all nurses a better work environment.

Proof of the nursing effect
For years, nurses have been claiming we make a difference in patient outcomes. Now we have the data to back it up.

One of the biggest stories in research is the emergence of proof that nurses have a positive impact on patient morbidity and mortality. Panelist Linda Aiken spearheaded much of the work in this area. Summarizing the current state of research, Aiken says, “An important amount of information has been amassed, and it all points in the same direction: Nursing has established its importance to patient outcomes.” She points to three key findings:

- Better staffing ratios improve outcomes. Every additional patient in an average nurse’s workload increased the risk of death in surgical patients by 7% (reported in JAMA, 2002).
- Education improves outcomes. Every 10% increase in the proportion of hospital staff nurses with BSNs is associated with a 5% decline in mortality (reported in JAMA, 2003).
- Work environment improves outcomes (reported in Int J Qual Health Care, 2002).

Effects of these findings have been widespread. “Nurse-managers have marshaled this research to move to better nurse staffing in their hospitals,” Aiken says. Physicians also are reading the research and asking for better nurse staffing, and multidisciplinary journals are publishing articles on nursing.

Aiken believes nurses now have many “followers outside of nursing.” These stakeholders include corporations such as Johnson & Johnson, accrediting bodies such as the Joint Commission on Accreditation of Healthcare Organizations, and government agencies that are issuing more calls for proposals in nursing research.

Aiken recommends future nursing research on education, the work environment, and supply of nurses.
Tomorrow’s tech trends

Watch for these new uses of medical technology in the coming years.

Breathalyzer for biological attacks
Johns Hopkins University Applied Physics Laboratory invented a breathalyzer device to determine whether a patient has been infected by a biological warfare agent or has contracted a more common illness with similar symptoms (such as the flu). The Protein Detector Accessory Exhaled Breath Condensate collects and analyzes breath proteins.

Surgical-sponge ID chip
Identification chips implanted under the skin have been used for years to reunite missing pets with their owners. Now they’re being used to help surgical teams avoid leaving sponges inside patients. The chip, impregnated in the sponge, responds to a radio signal sent by a transceiver in a handheld wand. In a study published in the July 2006 issue of Archives of Surgery, the wand was 100% effective in detecting sponges in eight patients undergoing abdominal or pelvic surgery. However, human error is a possibility, so the quest for a fail-safe system continues.

Artificial blood
Artificial blood has long been a dream of healthcare providers. A Phase III clinical trial of the red blood cell substitute PolyHeme (composed of hemoglobin from donated blood) finished enrolling patients in July 2006. Results are expected this fall.

Drug-delivering microspheres
New technologies for delivering drugs include polymer systems, or microspheres. In these systems, drug-eluting beads allow slow, sustained drug release at the tumor site.

Pharmacogenomics
Another growing area is pharmacogenomics, which explores how an individual’s genetics affects response to a drug. The goal is to tailor drugs to a patient’s genetic make-up.

A chip off the old blood cell
Experts believe medical applications of nanotechnology (which deals with matter on an extremely small scale) will expand over the next few years. A nanosized probe connected to a special chip is currently under development. Some experts anticipate that within 20 years, we’ll be able to place a single drop of blood on the chip to detect thousands of markers for cancer and other diseases.

Staffing ratios. Will legislated ratios play a role in the upcoming demand for nurses? Aiken and Buerhaus say no. Aiken believes legislated ratios “will never dominate because most of the institutions in this country are in the private sector; few are government owned.” However, she does think legislation on public reporting will become more common—and these reports may include ratios. She predicts hospitals will increasingly move to better staffing as a result of the evidence.

Buerhaus warns, “If ratios catch on and become federally mandated, it would lead to the demise of the nursing profession. The public would lose trust because they won’t really see better outcomes; the science isn’t there to show it.”

Healing spaces, empowered nurses
Our panelists concur that although nurses’ work environments are improving, more needs to be done. Hospitals already are working on reconfiguring rooms so nurses don’t have to walk so far and supplies are easily accessible. Some have gone a step further, creating healing spaces—quiet areas with calm colors, meditation rooms, and gardens.

Some hospitals are working to make the environment more personally satisfying by offering mindfulness retreats and posting affirmation messages that nurses can read while on duty. Still others have adopted caring models that refocus nursing delivery on caring. (See Workplace and quality initiatives.)

Seeking a balance
Hines predicts the power will shift from the healthcare institution to the individual nurse as nurses seek to balance work and personal life. “The schedule and quality of life for many nurses is dreadful,” he says. “You have these long, tiring shifts of 12 hours on your feet, and lots of on-call and overtime. This runs counter to the social trend toward a greater work-life balance. Right now, the institutions have power over the nurses, but that could shift as nurses realize the opportunities outside the institutional setting.”

Can technology help get nurses back to the bedside?
“Nurses spend less than 40% of their time on direct patient care,” says Burnes Bolton. “We’ve designed a system that doesn’t allow them to be with the patient.”

Technology can help turn that around. Burnes Bolton points out that some devices already in use are aimed at “reducing the time nurses spend hunting and gathering and communicating multiple times in getting or giving information to team members.” These products include tools nurses wear to improve communication and monitor patients remotely, and tools that help nurses and other team members get the information they need to make decisions. Many of these devices have “forcing functions,” such as built-in safety checks used on “smart” infusion pumps.

“‘Smart’ technology is used in many other ways as well. Some beds detect blood flow in the patient’s legs and alert the nurse to
possible deep vein thrombosis. Special patient vests collect physiologic data and transmit it to a healthcare worker’s personal digital assistant. “Smart” technology also is being used to promote medication safety. (See Technologies that reduce medication errors.)

These communicating and data-gathering devices allow nurses to interpret information and spend more time with patients. Cedars-Sinai nurses told Burnes Bolton they want access to a continuous flow of patient information in the patient’s room so they can spend time observing, educating, and coordinating care instead of collecting data.

But all of this technology has a downside: Many of these products don’t “talk” to each other.

Burnes Bolton also is working on efforts to partner with industries to include nurses in developing new technologies for practice. In her view, we need more biometric systems based on individual patients—for instance, a system that automatically knows the patient’s weight and calculates weight-based drug dosages. She encourages nurses to borrow ideas from other fields and industries as well.

Another use of technology is to ensure that patients are informed of surgical risks. Burnes Bolton says Cedars-Sinai uses an interactive product to help patients “really understand what the risks are and what we are going to do to reduce them.”

Who is a nurse?

Students making career choices will increasingly turn to nursing, if they heed official career predictions. The government website Career Voyages (www.careervoyages.com) lists registered nursing as fifth on its list of “hot careers that don’t require a four-year degree.”

But this list’s title reflects one of the biggest controversies in nursing: What entry-level education should be required for nurses? Many of our panelists called for consistency in the basic education of nurses.

This is more than a theoretical point. Aiken points out that her 2003 study found that hospitals in which a higher proportion of direct-care RNs held BSNs had lower mortality rates, and notes that further research in this area is needed. In her view, “we are falling behind” because many other countries require a baccalaureate degree for entry-level nurses.

“Nurses must be knowledge workers who have the ability to analyze and synthesize data,” says Burnes Bolton. “We need to have an education system capable of producing that type of nurse.”

Jeanette Lancaster, RN, PhD, believes we need a more highly educated workforce because of the complexity of patient care, advances in technology, and patients with chronic illnesses who are living longer and need more specialized and sophisticated care. “There is a need for highly skilled nurses in clinical practice,” she says.

Facing the faculty shortage

Lancaster believes that in the next 5 to 10 years, nursing schools will face a worsening crisis, with enrollment increasing as more faculty members retire. Faced with this situation, schools are looking for options. “More and more advanced practice nurses in hospitals are par-
Various healthcare organizations have introduced initiatives to improve the nursing workplace environment or the quality of patient care.

- The Handle with Care Campaign from the American Nurses Association (ANA) is a new curriculum that educates nurses about safe patient handling. Instead of the old “body mechanics” approach many nurses learned in school, nursing students now learn evidence-based strategies, such as using a lift device to move patients over a certain weight and avoiding the use of draw sheets.
- The Healthy Work Environment Initiative, developed by the American Association of Critical-Care Nurses, is dedicated to improving nurses’ work environments. It includes standards for establishing and sustaining healthy work environments.
- The Workforce Commission of the American Academy of Nursing aims to develop and enhance technology in the nursing workplace. The commission’s Technology Industry Partner Coalition encourages firms to develop technical products for acute-care environments.
- The National Database of Nursing Quality Indicators, maintained by the ANA, is a repository for nursing-sensitive quality indicators measured in various hospitals. Indicators include patient falls, staff mix, and nursing care hours provided per patient day. The data have been used to show the positive impact of nurses.
- The 100,000 Lives Campaign, an initiative of the Institute of Healthcare Improvement, engages hospitals to participate in six interventions designed to improve patient care and save lives. The goal was to save 100,000 lives over a period of 18 months; the actual number saved was 122,300.

New roles for nurses

“When the existing system isn’t meeting needs, clever retailers and entrepreneurs fill in,” says panelist Andy Hines, who points to NP-run clinics in retail stores as an example. These clinics arose because people needed easy healthcare access for routine problems; now, if they’re willing to spend a little more money, they have such access.

Panelist Peter Buerhaus believes nurses will assume major roles in ensuring the quality and safety of care and will act as safety watchdogs in healthcare facilities.

Pharmaceutical companies also offer new opportunities for nurses. For years, they’ve been hiring nurses to teach colleagues about the conditions for which their drugs are prescribed. The latest trend is to target educational efforts to patients; companies are hiring nurses to teach patients about the drugs they manufacture and to follow up on the patients to ensure adherence to the regimen.

Most of us are familiar with nurses serving as counselors, but that counseling role will expand to helping patients understand their options. For instance, panelist Tim Porter-O’Grady recently spoke about his upcoming cataract surgery with an ophthalmology counselor who’s a nurse. Many options for cataract surgery exist, and the counselor guided Porter-O’Grady through the decision-making process.

Educational delivery and teaching methods

Content delivery and teaching methods are changing, too.

Delivery. Distance learning has become a popular way to get a nursing degree. Although few people advocate online learning for basic nursing preparation, it has become an increasingly common option for nurses seeking to enhance their education.

Schools also are experimenting with the order in which courses are taught. Some are giving all the classroom work up front, then following that with the clinical work—similar to the model used in business schools.

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act, and evaluate. We use it in our entire life.”

Lancaster believes that no matter what terminology is used in the future, “the bottom line is critical thinking. The nursing process is the foundation of the problem-solving process and has been around for many years. It fits with evidence-based practice.”

Surviving in the new world
We asked our panel what it will take to survive in the nursing world of the future. Being open to change topped the list. “Our work isn’t changing. Change is our work,” Porter-O’Grady says he tells nurses. “If you look at change like that, it wouldn’t be an enemy.” (See New roles for nurses.)

Like other panelists, Porter-O’Grady emphasizes the need for continual learning, but that doesn’t mean nurses need to know everything. “I need to have a mental model in which I have access to the most current data and information possible.”

Patton advises, “See opportunities instead of challenges. There are opportunities for significant reforms in our healthcare system.” Patton adds that nurses need to learn political skills so they can influence others, and should try to understand the business side of healthcare.

Advice for nursing leaders
Several panelists pointed out that some nursing leaders are uncomfortable with change and struggle with transforming the system instead of serving as role models. They fear these leaders may be abdicating their leadership roles.

“Unfortunately, you can hear a sucking sound as leaders are pulled out of leadership roles into operations,” Porter-O’Grady says.

What advice does our panel have for nursing leaders? Porter-O’Grady encourages them to make it safe to discuss what nurses can stop doing and make sure they’re letting go of the right things. He urges them to model change and to discourage their staff from saying “I want to do the most I can for my patients,” because there’s no relationship between volume and value.

He believes leaders have to be comfortable with change and with being vulnerable; they have to be comfortable admitting, “I don’t know, but I can find out....I’m not sure how we’ll get there but I’ll be with you. I won’t desert you.”

Burnes Bolton advises nursing leaders to work together during this crucial time. “We have the attention of the federal government and organizations like the Institute of Healthcare Improvement and the Robert Wood Johnson Foundation.”

Our panelists express concern about a leadership gap and wonder where the next leaders will come from. While new leaders are emerging, the panelists emphasized they have the responsibility to mentor future nurse leaders. “They know that the more impact they have on

Technologies that reduce medication errors
Various technological innovations are available to help ensure medication safety. But according to panelist Michael Cohen, president of the Institute for Safe Medication Practices, these innovations haven’t been widely implemented.

That’s likely to change in the next few years. Cohen estimates that the number of hospitals using bar coding for medication administration will increase from 20% to more than 50% within 3 or 4 years and will reach 90% in another 10 years.

The price of bar-coding technology is dropping, although it’s still one of the more expensive technologies; per hospital, it costs more than $1.5 million to implement. However, that figure pales in comparison to the more than $10-million cost of a complete computer-based medication system.

“Smart” pumps
One key innovation is the “smart” pump, which has special software that helps prevent I.V. medication errors. “Smart” pumps allow nurses and pharmacists to establish I.V. rates and dosages and to set the pump to sound an alarm or even stop if those parameters are exceeded. Some even come with built-in drug “libraries” programmed with such information as normal dosages and dosage limits for specific practice areas, to help reduce the chance of error.

Although the price tag for implementing “smart” pumps throughout a hospital exceeds $1 million, Cohen predicts all I.V. pumps eventually will have “smart” technology. Currently only about 10% to 15% of hospitals use these pumps. But Cohen believes the investment is well worth the cost saved in preventing I.V. drug errors, which he says are “potentially the most dangerous of all.”

“Smart” pump technology is extending to patient-controlled analgesia systems, too, as manufacturers build pulse oximetry and capnography devices into the pumps to help monitor patients—particularly on medical-surgical units.

Electronic prescriptions
The latest Institute of Medicine (IOM) report on preventing medication errors recommends that all prescribers and pharmacists use electronic prescriptions by 2010—a mere 4 years away. (See Drug errors harm 1.5 million people each year, report finds, page 8.) In this system, physicians would send prescriptions directly to a pharmacy. Nurse practitioners also are looking at electronic prescribing technologies, which may come with built-in alerts for potential drug interactions and drug allergies.

However, computerized order systems and e-prescriptions aren’t standardized. A provider may see patients in three hospitals, each with a different order entry system. Preferably, Cohen says, hospital computers should at least have a standard interface. He believes standards are needed so computerized patient information can be shared more easily among physicians’ offices, pharmacies, and hospitals.

Who would pay for this technology? IOM is pushing for Congress to provide funding support.
their profession and their colleagues, the more service they can provide to patients. It's a different way to serve," Porter-O'Grady says.

Moving forward together
As we move forward, nursing will continue to evolve. But some of the basics won’t change—basics such as advocating for patients, seeing how all the pieces fit together for the patient and, most importantly, caring for the patient as a human being. (See More crystal-gazing from our panelists.)

As important new developments continue to affect nursing and healthcare, American Nurse Today will help you understand these challenges and master the skills you need to cope with them. We hope you’ll join us as we explore every facet of the challenging, frustrating—and richly rewarding—profession of nursing.

Cynthia L. Saver, RN, MS, is President of CLS Development, Inc. in Columbia, Maryland.

More crystal-gazing from our panelists

Our panelists willingly crawled out on a limb for us by tying some of their predictions to specific time frames.

In 5 years . . .
Linda Burnes Bolton believes, “nurses will get the evidence they need when they need it, get information for patients when they need it, deliver safe care, communicate with team members, engage with family members, and leave work feeling satisfied.”

In 10 years . . .
“Your going to see patient care decisions increasingly based on the scientific research,” predicts Peter Buerhaus. “We’re out of the baby development stage and into the early childhood stage, and we’ll be in early adulthood” with respect to the state of the science on relating quality of care to hospital nursing.

Buerhaus notes that the credibility of the science is growing. Many researchers are focusing on it, and the available data sets are improving.

In the next 20 years . . .
Andy Hines believes significant technology requiring new ways of thinking will be developed. For example, as life expectancy lengthens, what if a “super longevity revolution” takes place? What if life expectancy grows to 100 to 120 years?

Hines also believes the shift to personal home care will be firmly in place 20 years from now, and envisions care that looks very different from hospital-based care. “Now many of us have home offices. Will there be home health centers?” he asks. “Will healthcare devices such as sensors be integrated into the home?”

Tim Porter-O’Grady predicts that in 20 years, the nurse’s role will include helping a species that’s changing. He thinks we’ll be asking such questions as, “Who are we as human beings when we have new parts? How do people stay in touch with the issues that make us human?” He sees the ability to help us stay in touch as a skill unique to nurses.

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