



SPECIAL REPORT:
**Preparing the Workforce—
Today and Tomorrow**

The business case for optimizing the nursing workforce

By Lillie Gelinas, Editor-in-Chief

In this special section, “Preparing the Workforce—Today and Tomorrow,” you’ll find trends, practical strategies, and food for thought. The articles are designed to help nurses in all specialties and at all levels who face myriad workforce challenges, ranging from a growing older population to the impending retirement of many experienced nurses.

For my own contribution, I’d like to focus on the business case for an optimal nursing workforce. A critical success factor for healthcare organizations is the efficient use and retention of a talented workforce contributing to clinical and operational excellence.

Laying the groundwork for success

Leading performance organizations use a multidisciplinary team whose members understand the urgency of addressing current workforce issues, such as staffing and scheduling systems, professional development, innovative work design, and recruitment and retention programs centering on multigenerational challenges.

A successful future demands implementation of proven people, processes, and technology solutions to improve operational and clinical performance. These include:

- organizational strategies that align with licensure and labor



Even though labor is the largest expense, having a top-notch workforce makes good business sense.

regulations, to ensure deployment of the right staff at the right time for the right patient

- nurse manager roles that are optimized for patient and employee experience oversight; for example, automation of staffing and scheduling responsibilities
- use of workforce data to develop long-term clinical improvement strategies.

Making the business case

Labor remains the largest expense for healthcare organizations. But labor’s ability to affect a hospital’s success extends far beyond the bounds of a profit-and-loss statement. A growing body of evidence supports the workforce’s impact on physician, staff, and patient satisfaction—and ultimately, on revenue and quality of care. Optimizing workforce management also promotes operational and clinical excellence in ways not always considered, such as staff morale improvement to promote quality of care.

Here’s a closer look at the data and research findings related to business aspects of three key workforce elements: the link between overtime and both turnover and injury, the impact of agency nursing, and the need to free managers from outdated systems.

Overtime reality

For most hospitals, nursing overtime is the rule, not the exception. According to industry surveys, more than 50% of full-time nurses work an average of 7 hours of overtime each week, and 15% of part-time nurses work an average of 5.4 hours of overtime weekly. With this pattern, 7% to 10% of total worked hours are overtime hours. From a business perspective, overtime has several negative consequences.

Increased turnover

Turnover is an ongoing challenge. Nurses who work more than 12 hours in a shift and 40 hours in a week are prone to job dissatisfaction and quitting. Nurses who work shifts longer than 12 hours are nearly 1.5 times more likely to leave their positions within a year than nurses who don't. Because 12-hour shifts are becoming the norm and with nearly half of full-time nurses logging overtime, unmanaged overtime can accelerate costly turnover.

What's more, replacing nurses who leave is expensive. In research initially published in the *Journal of Nursing Administration* in 2008, researcher Cheryl Bland Jones, PhD, RN, FAAN, outlined what is now considered valid data and used as industry norms related to the cost of RN turnover: \$82,032 per experienced registered nurse (RN) and \$88,006 per new RN.

Staff injuries

Working in jobs with overtime schedules is associated with a 61% higher injury hazard rate than working in jobs without overtime. Working at least 12 hours per day is linked to a 37% increased injury rate—and with 50% of full-time nurses falling into overtime buckets, hospital exposure to injuries increases. Alarming, healthcare workers' injury rates are almost twice those of the norm, and injury costs hit the organization's bottom line.

Patients in jeopardy

A deep body of literature has established a significant link between overtime and patient safety. Currently, most organizations are unable to track these correlations. As nursing shifts lengthen, so do the chances of medical errors. An often-cited study by Rogers, et al. found that the odds of making an error are three times higher when

The business case for nurse satisfaction

A survey conducted by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) measures patients' satisfaction with the hospital care they received. Results can affect reimbursement, so patient satisfaction is a core competency for hospitals. Nurses not only are on the frontline of patient satisfaction, but they're also commonly the "face" of the hospital for patients. Research has established a link between nurse satisfaction and patient satisfaction.

A 2011 study in *Health Affairs* found the percentage of patients who would definitely recommend a hospital to loved ones decreased 2% for every 10% of nurses who expressed job dissatisfaction. Also, nurses who are more satisfied with their jobs are more likely to have patients who report a better hospital experience, and hospitals where nurses work more than 13 hours per shift are more likely to have patients who rate the hospital less than 7 out of 10 on the HCAHPS survey.

nurses work more than 12.5 hours.

A multistate study by Bae confirmed the greater likelihood of errors in nurses who surpass a 40-hour work week. These nurses were 3.71 times more likely to make medication errors. Clearly, such incidents are linked to decreased quality of care. Based on average costs and incidence, financial exposure stemming from medical errors runs upwards of \$30 million per year for a 300-bed hospital, much of it unreimbursed.

Use of agency nurses

On average, agency nurses represent 5% to 10% of the entire nursing force and may earn 50% to 75% more per hour than the average nurse. Annually, a 300-bed hospital is likely to spend more than \$4.5 million for agency staff. Although agencies fill a critical need, many organizations have been able to dramatically reduce their use of agency nurses through electronic scheduling systems and their own per-diem pools. Limiting use of agency nurses also can help improve staff satisfaction and, ultimately, patient satisfaction. (See *The business case for nurse satisfaction*.)

Freeing nurse managers

Scheduling and bed manage-

ment are complex and time-consuming for managers. A recent KRONOS study found nurse managers spend up to 80% of their day on staffing, scheduling, and bed management, done mostly with paper-based systems. This time competes with efforts to raise quality, prevent harmful events, manage costs, and improve the patient experience.

Across a typical 300-bed hospital, liberating nurse managers from an outdated scheduling process can free up to 6,000 nurse-manager hours annually. Nurse managers can repurpose this time for higher-order professional activities, such as mentoring, teaching, and interfacing with patients and their families to ensure highly reliable and consistent care.

Only the beginning

I've only made a dent in the data related to the business case for optimizing the nursing workforce, but I hope it's enough for you to see that a top-notch workforce makes good business sense. ■

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Visit www.AmericanNurseToday.com/Archives.aspx for a list of selected references.

Moving the needle: What the data tell us about academic progression

By Deborah E. Trautman, PhD, RN

Although support for academic progression was once considered divisive in some nursing circles, times have changed. The need to advance the educational level of the nursing workforce—a key recommendation in the Institute of Medicine (IOM)'s 2010 report *The Future of Nursing: Leading Change, Advancing Health*—is now widely embraced by most national nursing organizations and patient advocates seeking to move the profession forward.

Why is this important? As academic nursing leaders, we understand that education matters and directly affects a nurse's ability to provide high-quality care. The evidence-based findings in the IOM report and related studies have sent a clear message to employers, practicing nurses, students, and other stakeholders:
Preparing

Preparing more highly educated nurses is in our patients' best interest.

a more highly educated nursing workforce is in the best interest of the patients and communities we serve.

Across the nation, many hospitals and other practice settings are providing funding for nurses to continue their education and are offering more flexibility for nurses who must juggle work and school demands. Employers are recognizing education makes a difference and are moving to hire more baccalaureate-prepared nurses into entry-level registered nurse (RN) positions.

Data collected by the American
Associ-

ation of Colleges of Nursing (AACN) show that 79% of employers now require or express a strong preference for nurses with bachelor's degrees.

Growth in BSN and graduate programs

Nursing schools have made achieving the IOM's nursing education goals a top priority and are working to expand capacity in their undergraduate and graduate programs to meet growing demand. Since 2010, 63 new entry-level bachelor of science in nursing (BSN) programs have opened nationwide, in addition to 46 new BSN degree-completion programs for RNs seeking baccalaureate degrees. Growth in graduate nursing programs also has been impressive, with 28 new master's programs, 10 new PhD programs, and 116 new doctor of nursing practice (DNP) programs opening in the last 5 years.

Our progress in achieving higher levels of education is beginning to show. For more than a decade, enrollment in BSN programs has increased steadily each year. After the IOM recommended an 80% increase in baccalaureate-prepared nurses in the workforce by 2020, the number of students entering those programs accelerated rapidly. Over the last 5 years, enrollment in RN-to-BSN programs increased 69%, and enrollment in entry-level BSN programs rose 17%. But despite these gains, only about 55% of RNs currently are



prepared at the baccalaureate level or higher, according to the latest statistics from the National Council of State Boards of Nursing.

In master's programs, students also are returning to school in ever-increasing numbers. Since 2010, enrollment in master of science in nursing (MSN) programs has increased by 31%, with more than 113,000 students now in the MSN pipeline. Much of this growth can be attributed to nurses interested in pursuing advanced roles, such as nurse administrator and clinical nurse leader.

Further along the educational continuum, nursing schools are making great progress in their efforts to double the number of nurses with doctorates, as the IOM recommended. Much of this new growth has been achieved through widespread adoption of and interest in the DNP. (See *Gains in DNP and PhD preparation.*)

Expanding educational options

Fortunately for nurses considering a return to nursing school, options for completing a program have expanded. Many degree-completion programs, including those for RNs seeking to complete a master's degree (RN-to-MSN), are offered completely online or in a hybrid format (a combination of classroom and online sessions). Typically, students have the option of completing programs on a full- or part-time basis, though many schools encourage applicants to enroll full-time when possible. Also, some schools are moving to offer evening and weekend classes to accommodate working nurses' needs.

Sending the right message

For nurses to meet today's employer expectations, climb higher on the career ladder, and assume leadership roles within

Gains in DNP and PhD preparation

In 2004, the American Association of Colleges of Nursing (AACN) endorsed the doctor of nursing (DNP) degree as the appropriate level of educational preparation for advanced nursing practice roles. Since then, the number of schools offering this degree has risen from 7 to 264, with enrollees now surpassing 18,000. Since 2010, 111 new DNP programs have opened and the student population has more than doubled.

The authors of a national study released in 2014 by the RAND Corporation found near universal agreement among nursing's academic leaders regarding the value of DNP education in preparing nurses to serve in one of the four advanced practice registered nurse roles—clinical nurse specialists, certified registered nurse anesthetists, certified nurse-midwives, and nurse practitioners. Students and nurses in the workforce have embraced this message and are enrolling in both post-baccalaureate and post-master's DNP programs to better meet evolving practice expectations.

Growth in nursing doctoral programs also has been impressive since AACN's endorsement of the DNP position statement in 2004, with enrollments growing 54% over the past decade. Since 2010, 10 new PhD programs in nursing have opened, and enrollment has increased 15%.

Many hospitals and other practice settings are providing funding for nurses to continue their education.

health care and the profession, education is the key. Research highlighted in the IOM report indicates nurses with more education are better equipped to provide higher-quality patient care.

Achieving the IOM's recommendations for education advancement will require innovative solutions and collective action by all parties engaged in developing future generations of nurses. Successfully reaching these goals requires strong academic-practice partnerships and a solid commitment among practice colleagues to encouraging and rewarding educational advancement of their nursing staff.

Now is the time for nurse educators, higher-education administrators, employers, legislators, and other stakeholders to commit to marshalling resources and providing opportunities to enable all nurses to move ahead

with their education. Together we can send a message that education is an essential element of nursing practice, while instilling a passion for lifelong learning among new and experienced nursing professionals. Our patients deserve nothing less. ■

Deborah E. Trautman is chief executive officer of the American Association of Colleges of Nursing.

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Keeping nurses healthy, safe, and well

By Holly Carpenter, BSN, RN, and Jaime Murphy Dawson, MPH

To keep patients healthy, safe, and well, registered nurses (RNs) have to be healthy, safe, and well themselves. Yet RNs face health, safety, and wellness risks unique to their profession. This article outlines how RNs and employers can identify, mitigate, and reduce these risks. To provide context and evidence for risks, it also describes key findings from the American Nurses Association's (ANA) HealthyNurse™ health risk appraisal (HRA).

Identifying risks

Workplace risks can be identified in various ways, including employee surveys, incident report reviews, literature reviews, hiring of occupational health professionals, workplace walk-throughs, and detailed observation of employees' routine job tasks. The HRA is another useful tool. In collaboration with Pfizer,

A health risk appraisal survey identifies workplace risks that nurses and nursing students face.

ANA developed an HRA to help RNs and nursing students identify their personal and occupational health, safety, and wellness risks. This online survey allows them to compare their results with established ideal standards and national averages (where available). After completing the survey, respondents can access a wellness portal with resources specific to their identified needs. Compliant with the Health Insurance Portability and Accountability Act, this HRA is free and available to all RNs and

nursing students enrolled in a program leading to RN licensure.

Findings from the HRA survey will help establish context for the actions that nurses and employers need to take. Preliminary findings provide a snapshot of the 3,765 RN and student nurse participants' responses received between October 2013 and October 2014. Of the participants, 90% were RNs, 8% were student nurses, and 2% were retired or former RNs. Because the HRA survey remains open, results can't be generalized to the broader nursing workforce yet. (See HRA's full executive summary at www.nursingworld.org/HRA-Executive-Summary and see *Selected HRA survey responses*.)

Occupational safety

Occupational safety risks for RNs include stress; fatigue; injuries caused by manual patient handling; needlestick injuries; incivility, bullying, and workplace violence; and toxic chemical exposures.

Stress

Respondents in ANA's HRA survey identified stress as the top risk in the work environment; 82% believed they were at a significant risk level. In comparison, the average percentage of employees who feel stressed out is only 36%, as reported by the 2011 Stress in the Workplace Survey from the American Psychological Association.

To cope with stress effectively, RNs must practice self-care. Make the effort to recognize when you're feeling increased stress, and identify and use effective stress-reducing techniques, such as meditation, prayer, mindfulness, exercise, deep



breathing, and work breaks. Employers can provide counseling, individual coping strategies, employee assistance programs, wellness centers, and support groups. A quiet place, such as a restoration room where nurses can go to decompress, may help. Most important, employers must decrease workplace stressors by ensuring optimal staffing, reasonable workloads, appropriate work hours, supportive policies and procedures, and a carefully cultivated culture of safety and respect for employees.

Fatigue

HRA survey respondents reported sleeping an average of 8 hours during a 24-hour period. To ensure a culture of safety, employers and RNs must reduce RN fatigue and sleepiness. ANA recommends RNs work no more than 40 hours in professional nursing during a 7-day period and strive for 7 to 9 hours of sleep in a 24-hour period. Employers need to eliminate mandatory overtime as a staffing solution and give RNs opportunities to provide input into scheduling.

Injuries caused by manual patient handling

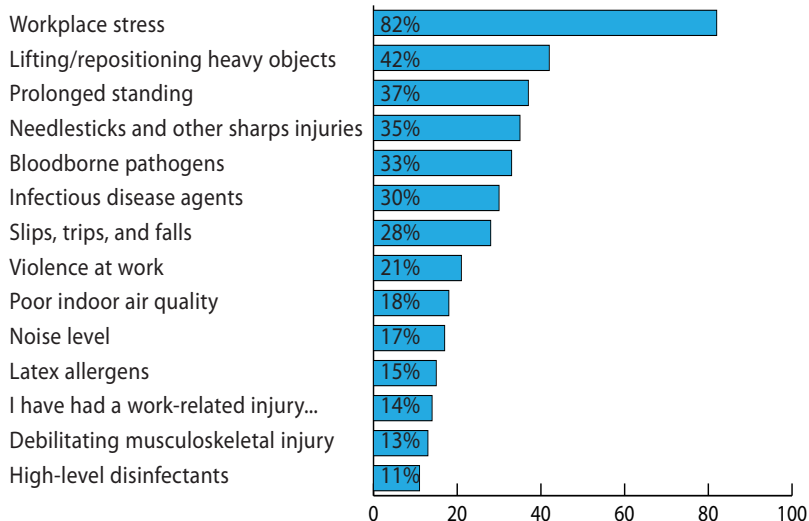
Manually lifting, transferring, and repositioning patients is hazardous and commonly results in painful, career-ending injuries. In ANA's HRA survey, 42% of respondents identified manual lifting as a serious workplace concern and 53% reported experiencing musculoskeletal pain at work. Remember—*there's no safe way to lift a patient manually*, regardless of your physical strength, fitness level, gender, or age.

Musculoskeletal injuries can be reduced drastically through comprehensive safe patient-handling and mobility (SPHM) programs involving SPHM technology (such as lifts and friction-reducing devices). In 2013, ANA released *Safe Patient Handling and Mobility Interprofessional Na-*

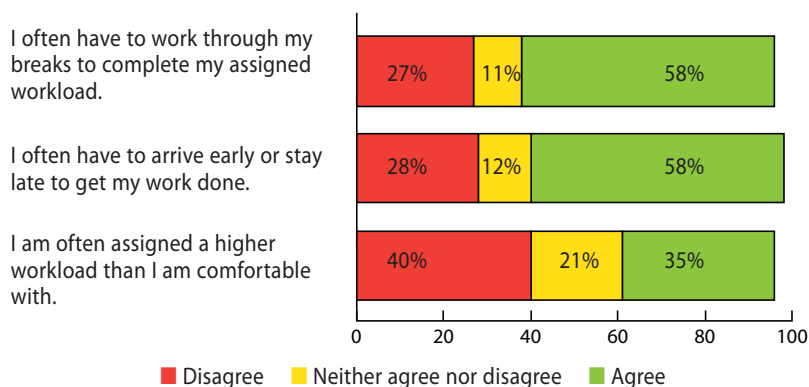
Selected HRA survey responses

The two items below are from ANA's HealthyNurse™ health risk appraisal (HRA) survey.

In my current work environment, I believe I am at a significant level of risk for the following health and safety hazards: (Select all that apply)



In my current work environment...



tional Standards, which outlines the key elements of an effective SPHM program.

Needlestick injuries

The Needlestick Safety and Prevention Act requires employers to review new technology, maintain sharps injury logs, and obtain input from frontline staff in evaluating and selecting safer devices. RNs and employers need to purchase and use safety de-

VICES, ensure that safe sharps disposal is available and used properly, and use best practices when handling sharps. Among HRA survey respondents, 94% reported they have access to sharps safety devices but only 31% said they're involved in the selection process.

Incivility, bullying, and workplace violence

Approximately half of survey re-

spondents said they've experienced verbal or nonverbal aggression from a peer. Aggression from patients and their family members also is a concern: 43% of respondents said they've been threatened by a patient or family member, and 24% said they've been physically assaulted. ANA's Professional Issues Panel on Incivility, Bullying, and Workplace Violence has developed a position statement with detailed recommendations for RNs and employers. The document was released in August 2015.

Toxic chemical exposures

RNs may be exposed to toxic workplace chemicals, including hazardous drugs, pesticides, sterilants, disinfectants, and industrial cleaning solutions. For instance, 11% of HRA respondents reported they felt at significant risk from exposure to high-level disinfectants. Note all chemicals you have handled and have been exposed to. When using and disposing of these products, follow the product's labeling, safety data sheets, instructions, government regulations, and established policies and procedures.

Employers should strictly observe the hierarchy of hazard control—elimination, safer substitute, engineering, administrative controls, and personal protective equipment. They must provide information about chemicals, and RNs should attend all education programs offered. For more information, visit www.osha.gov/SLTC/healthcarefacilities and www.cdc.gov/niosh/topics/healthcare, as well as the websites of the Centers for Disease Control and Prevention, Environmental Protection Agency, and Oncology Nursing Society.

Worksite wellness

Typically, full-time employees spend at least 8 hours at work

or in a related activity during an average workday. Healthy workplaces that promote employee wellness may improve morale, increase employee health, and yield positive financial results. Employers are recognizing this: Nearly 70% of HRA survey respondents reported having access to worksite wellness and health promotion programs.

Diet and exercise

Fewer than 60% of respondents said they have access to healthy foods, such as fruits, vegetables, and whole grains, during work hours. Besides packing healthy food for meals and snacks, avoid sugar-sweetened beverages and join an employee wellness committee. To increase your physical activity during the

Healthy workplaces that promote employee wellness may improve morale, increase employee health, and yield positive financial results.

workday, take the stairs and wear an electronic health tracker. Employers should offer nutritious, fresh, whole foods in cafeterias and vending machines, priced equitably and available to all shifts. Onsite weight-loss programs, gym discounts, and farmers' markets are additional possibilities.

Tobacco cessation

RNs have a low rate of smoking. About 18% of U.S. adults use tobacco, whereas 94% of HRA survey respondents said they don't smoke at all.

Don't use tobacco in any form. Employers should enforce a strict tobacco-free policy in the workplace. The National Quit-

line Network, National Cancer Institute, and other organizations offer free quitlines. For more resources, visit ANA's Tobacco Cessation website (www.nursingworld.org/TobaccoCessation).

Focus on self-care

More than 80% of HRA survey participants responded favorably about their workplace health and safety. But 66% of nurses reported they put their patients' health, safety, and wellness before their own. As a nurse, you need to place greater emphasis on self-care and occupational health. Take ANA's HRA survey and visit ANA's wellness portal (www.anahra.org) to understand personal risks and learn about solutions. ■

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Understanding the charge nurse's role in staffing

By Sarah Siebert, MSN, RN, and Jennifer Chiusano, MA, BSN, RN, NE-BC

If you're a charge nurse, you know making patient assignments is stressful. Call bells light up the hallways like Christmas trees, family members ask for patient updates, and nursing staff make specific assignment

requests. All you want to do is take care of patients, but you have to consider such questions as, "What about all the new admissions?" "Where will all these patients go?" "Who's going to take care of them?"

Every day, charge nurses face the daunting task of balancing the unit's budget with ensuring safe patient care. At the same time, they're aware of the organizational push to increase staff and patient satisfaction. Balancing these sometimes competing needs can be difficult.

Most people agree that nurse staffing aims to match registered nurse (RN) expertise with patients' needs. But staffing is fluid, which creates a challenge not just for nurses but also for patients. Consider the patient who has a different nurse every day, missing out on continuity of care.

A solid staffing plan with proper communication is the basic tool for success, for both individuals and the organization. The American Nurses Association (ANA) outlines principles for nurse staffing in the following areas:

- characteristics of patients and family members
- characteristics of RNs and other staff
- organizational and workplace culture
- practice environment
- staffing evaluation.

Think of these five principles as tools you can apply to your staffing decisions and, on a larger plane, help ensure the organization's overall staffing plan is effective.

1 Assess characteristics of patients and families

Each unit has a unique set of patients and their families. While making assignments, first consider each patient's clinical needs



Think of ANA's nurse staffing principles as tools you can apply to staffing decisions.

(such as acuity and functional ability) and family needs, such as education. Also consider patients' room locations to avoid (if possible) having nurses walk from one end of the unit to another.

Try to give patients the best experience possible. Determine what matters most to them. Most important, view the patient and family members as individuals.

2 Assess staff skills

Once you've identified patient needs, consider characteristics of each nurse. Keep in mind that each nurse has a unique set of clinical skills, personality, and strengths and expresses these characteristics differently. Consider completed competencies, years of experience, culture, and emotional intelligence. Patricia Benner's stages of clinical competence from novice to expert can help guide this assessment and should factor into your assignments. For example, if a nurse has been in clinical practice for only 2 years, she is unlikely to be an expert, so she shouldn't be assigned the most complicated patient on the unit.

Also assess the skills, personality, and strengths of other staff, such as certified nursing assistants and licensed practical nurses. In this case, it's especially important to be aware of each staff member's scope of practice.

Managing the various characteristics of bedside nurses and other staff can be challenging. It's a developed talent that doesn't come easily to everyone. Also, you may need to overcome a perception of favoritism toward certain staff members. Remember—your decisions may not always be popular, but being an effective leader doesn't always mean you'll be liked by all.

3 Understand the culture

As a charge nurse, you're a front-

line leader—the first reflection of your organization—and you need to ensure you are meeting the organization's goals and values. Each unit functions differently, but the charge nurse's role is to make the unit run smoothly. Organizational success depends on charge nurses to execute this function well and help ensure staff are competent. A competent staff makes patient assignments easier.

Of course, your organization has a responsibility to support

Being an effective leader doesn't always mean you'll be liked by all.

you in your efforts by providing such elements as orientation, ongoing education, and time to supervise other staff.

4 Consider the practice environment

Practice environment can be considered from an organizational and an individual perspective. For example, your organization should create an environment where nurses can practice autonomously; but as a charge nurse, you're also responsible for creating a safe, positive work environment. One way to accomplish this is to build strong relationships, based on trust, with nurses and other staff through open communication. Sometimes you may need to explain constraints related to assignments; most staff members aren't familiar with such terms as care hours, earned hours, or actual hours. If you don't know these terms, work with your supervisor to learn more about them.

In addition, the care environment should remain calm even in the midst of chaos. As a charge nurse, you must lead the tone for the unit and establish the appropriate environment.

Remain calm and coach others to do the same.

The bottom line: Staff should feel they're working in a safe and fair environment. If they do, they'll be more likely to embrace their assignments.

5 Evaluate staffing plans

As we all know, patient census fluctuates regularly on nursing units, and patient acuity can change quickly. Your staffing plan for the shift needs to remain flexible; you should reevaluate it on a regular basis. As needed, tap into experts, such as shift supervisors.

The ANA staffing principles focus on a more global level, but you can help there as well. Consider working with your supervisor to help evaluate overall staffing plans based on such factors as patient outcomes, use of supplemental staffing, and nurse and patient satisfaction. You might also want to start an RN-driven staffing committee, which allows bedside nurses to voice their opinion and have a say in nursing productivity.

Meeting the challenge

Making patient assignments can be challenging for the charge nurse. Using the tools described in this article can help you make optimal assignments to benefit both staff and patients. ■

The authors work in Delray Beach, Florida. Sarah Siebert is director of nursing at Pinecrest Rehabilitation. Jennifer Chiusano is chief nursing officer at Delray Medical Center.

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Incorporating technology as a tool for improving quality of care

By Victoria P. Brock, BSN, RN, EMT, and David Wilcox, BSN, RN, MHA, LSSBB

With their unique understanding of the entire spectrum of care, nurses are essential to the successful design, development, and adoption of patient-centered information technology (IT). Without input from bedside nurses, IT projects become mainly about the technology itself. With their input, these projects promote better patient care, increase the clinicians' sense of fulfillment, and yield higher return on investment for the organization.

Nash Health Care System in Rocky Mount, North Carolina, has seen firsthand the mix of people, processes, and technology needed to promote high-quality care. Engaging nurses in continual improvement of technology has helped Nash improve its patient-centered care. Moreover, its thoughtful IT design and receptive, teamwork-oriented culture will help attract a strong Millennial workforce.

Value of IT systems in health care

In health care, an IT system is a collection of automated functions, such as alerts, order sets, care plans, smart tools, and instant messaging. Because these functions must enable clinicians to act quickly and intelligently, they must be designed with clinical input, focus on optimizing patient care, and offer value for the entire care team, patients, and family members.

As patient advocates, nurses are closest to the patient—assessing, providing bedside care, and determining appropriate interventions. IT projects that focus on

Engaging nurses in continual improvement of technology can help hospitals enhance patient-centered care.

the patient must involve tools with robust functionality that enables nurses to act quickly and intelligently as patient advocates.

IT solutions that are natural and easy to understand allow for efficiencies demanded by standards, such as

The Joint Commission's (TJC's) 2015 National Patient Safety Goal on clinical alarm safety. Simply automating through the use of systems alone isn't enough. Efficient processes are created and adopted at the bedside only through the marriage of technology and the nursing workflow.

Opportunities to redesign and improve workflow and systems

At Nash, a new and much larger emergency department (ED) created the need for a new communication infrastructure. The old

ED was small enough for vocal communication; the new ED separates staff into four separate pods. To create efficiencies and meet patient safety standards, leaders decided to implement a mobile communication platform. The new smartphone system connects hospital staff through secure voice and text messaging and serves as a secondary handheld alert-notification device.

The solution's out-of-the-box functionality was robust, but the functions activated had to aid nurses in their daily workflow. When clinicians recognized their current alerting process was cre-



ating alarm fatigue, they worked hand-in-hand with the vendor to examine alarm-management options. While all alerts could have been sent to smartphones, the team instead focused on creating a value-added process that involved bedside nurses in the design. The system was redesigned

to send three critical alerts and two notifications to specific care team members. Because ED nurses were engaged in the design phase, smartphones became tools that enabled them to apply the technology to address specific alerts and notifications immediately. This helped ensure the facility met the requirements of TJC's patient goal on clinical alarm safety; it also led to other communication efficiencies.

Once this communication solution was implemented, time from bed request to bed placement decreased an average of 20 minutes per patient. Before and after go-live surveys in the ED showed a 62% increase in overall nurse satisfaction with their ability to communicate with the rest of the care team using the new technology. Several months later, the communication solution was expanded to the rehabilitation hospital using the same approach. There, overall nurse satisfaction improved 78%.

As with any technology shift, the fact that nurses and other clinical support staff could now communicate with each other using mobile devices needed to be shared with the wider community. Nash leaders emphasized this concept to avoid the perception that nurses were simply texting on their smartphones when working in patient care areas.

Keep listening, keep improving

Good initial design alone isn't enough. Systems designed to help coordinate care with precision require constant calibration. Nash nurses use the system effectively on a daily basis. The challenge is to have nurses actively embrace the technology while keeping them engaged with continual system improvements—and to keep them vocal about using the technology for improvements or identifying obstacles to quality care. Just as important, leadership must lis-

ten to nurses' concerns.

To obtain feedback on the alarm management system, Nash leaders placed a large piece of paper in the commons area; it contained one question: "What is your most annoying alert?" This gave nurses an organized and transparent way to provide feedback. By the end of the day, the term "apnea alerts" appeared all over the paper. Further investigation found that two of the physiologic monitors used daily had incorrectly configured apnea alerts, and alarm volumes from those devices were causing excessive apnea alarms. After the manufacturer's representative visited the hospital to recode the devices, false apnea alarms in the ED decreased 70%. If leadership hadn't solicited feedback, nurses would still be distracted by false alarms.

Understanding the challenges of value-based care, Nash's visionary leaders plan to continue coupling technology with the voice of the nursing staff to produce optimal outcomes. The next step is to use technology to push needed information to nurses. Pushing critical laboratory values, STAT order notifications, and team communication will reduce the time spent looking for timely information.

Harnessing the energy of younger generations

Maximizing Millennials in the Workplace, a 2012 whitepaper by UNC's Kenan-Flagler Business School, points out that by 2020, nearly half of all workers (46%) will be Millennials (born from the early 1980s to the early 2000s). As baby boomers exit the workforce, competition for skilled workers and potential leaders in nursing and other fields with expected shortages will grow fierce.

Confident, team-oriented, high-achieving, and tech-savvy Millennials expect collaborative work cultures receptive to their

ideas. And although most want training and mentorship from managers, they don't necessarily see managers as a primary source of knowledge. Instead, they expect to receive the resources and technology needed to find information on their own.

Nearly 90% of Millennials report their smartphones never leaves their sides, and 60% expect everything to be accessible from their mobile devices by 2019. A 2011 McCann Worldgroup survey found almost half of Millennials would give up their sense of smell to keep their computer or mobile phone. They perceived access to these devices as a sense—a means of perceiving and responding to reality.

The nursing profession is evolving constantly. Harnessing the energy of future generations is crucial to our profession. The workforce advantage will go to hospitals whose culture nurtures Millennials' optimism and desire to contribute—a culture that puts at their fingertips the technology they've come to rely on. ■

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Using technology to engage patients

By Susan C. Hull, MSN, RN

Our increasingly mobile lifestyle has created a new context for health care. Advances in digital health technologies, including personal health apps, sensors, cloud-based data housing, and big data, are essential for engaging patients in ways that tap into their strengths and help them make health decisions.

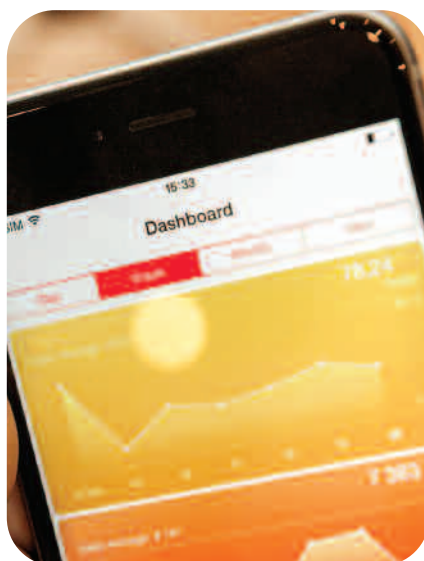
For nurses, this is an exciting time to partner with patients in adopting these technologies, both in brick-and-mortar settings and in new models of more continuous care. These tools are enabling remote monitoring and care coordination for self-care and family care virtually anywhere, complementing traditional care settings. Knowing how to use these technologies allows us to engage patients more effectively, define competencies, and develop the nursing workforce of the future to use mobile and other technologies to support healthcare delivery.

Technology for self-care and family care

A growing number of “health citizens” and “e-patients” (empowered, engaged, equipped, and enabled) are deepening their participation in their own health care through personal health-information tools. Patient portals, personal health records, videos, text and email communications, mobile health (mHealth) apps, devices, and sensors strengthen health knowledge and choices, self-care, and family care. With use of these tools increasing, consumer expectations of health services are changing. More Americans are seeking health care anytime, anywhere, on any device.

The term *mHealth* usually de-

New health technologies allow remote patient monitoring and care coordination virtually anywhere.



notes health-related interventions, ranging from text messaging appointments and reminders to video visits, stand-alone point-of-need diagnostics, medical-grade imaging with data streaming, and automated clinical decision support. The smartphone is a familiar tool for both patients and nurses; mHealth solutions also leverage other functions in mobile phones, creating a suite of powerful life-management tools supporting social connections, fitness, and health. Passive tracking of the patterns of our movements, locations, and phone time and activity bring rich contextual data to help us understand how health interven-

tions affect daily activities.

Self-care tools include smartphone-enabled fitness apps and handheld scanners and wearable sensors to monitor weight, electrocardiographic activity, sleep, blood glucose levels, blood pressure, body temperature, peripheral oxygen saturation, heart rate, and hydration. When combined with bidirectional feedback, personalized engagement, and education, these solutions complement traditional health services. (See *Technology for self and environmental health*.)

More than 40,000 mobile health apps are available from the U.S. Apple iTunes store. A 2013 IMS Institute for Health Informatics study found these apps have simple functionality and typically are limited to information sharing. More than half are downloaded fewer than 500 times, indicating room for growth.

An estimated 93 million Americans care for a loved one at home, including a growing population of at-risk elderly. Social platforms with mHealth tools are available to help family caregivers monitor loved ones' daily health, well-being, and special needs through video, texts, emails, personal health journals, and recording of observations of daily living. Many of these tools feature pill reminders, medication and mood trackers, and alerts to support networks triggered by preferences and needs.

Technology for care coordination

To ensure patients receive high-quality care both in and out of clinical settings, nurses are engaging patient caregivers and other clinicians with new technologies for care coordination.

Technology for self and environmental health

A sensor that attaches to a rescue inhaler is an example of technology that enables self-care. The sensor syncs wirelessly to a smartphone through Bluetooth technology and captures data automatically. Remote monitoring tracks real-time information about when and how often the patient uses inhaled medications, linking symptoms and triggers to medication adherence and rescue-medication frequency. The patient is supported with personalized feedback coupled with helpful data and analytics, with access to health educators, community managers, and care teams.

Asthma risk map

Propeller Health, the company that makes this sensor, is building the first-ever asthma risk map for the United States. The map will let users track how climate change affects frequency and severity of asthma attacks and chronic obstructive pulmonary disease. Pinpointing the time and location of rescue inhaler use will allow the company to notify the community and nation of potential asthma-risk hot spots.

The map also will support development of in-depth models of the impact of climate change on public health. This is an excellent example of cloud-based data housing and big data, including 40 data points, such as weather conditions, wind direction, air pollution, pollen counts, land use, and traffic patterns at the time and location of inhaler use.

Some mHealth solutions can coordinate health services across members of a community, conduct remote patient monitoring, exchange care plans, and measure adherence. These tools broaden patients' access to health services, communication, and data sharing.

Technology-enabled support for care coordination before and after a patient's clinic or hospital visit allows nurses to engage the patient over a much longer time frame. Nurses can design care plans, surveys, assessments, and multimedia programs, as well as customize the use of video, texting, and email functions for new modes of care delivery and more dynamic two-way communication.

Patients and family members also can create their own on-the-fly tools to support their informal family care network. Many of the new family health tools allow family members to manage their own informal care coordination (for instance, to monitor how well an elderly parent is taking medications), as well as to engage more formally with nurses, doctors, clinics, and hospitals.

Comprehensive medication adherence tools now available include automated medication reminders and access to an extensive database of medications and multilingual patient education materials. These tools are more powerful when integrated with biomedical devices that automatically record vital signs and other variables, with thresholds set to automatically alert family or nursing care coordinators.

Technology for transforming health care

The potential to engage patients with personal and mHealth technologies lies in our collective ability to transform the way health care is experienced and delivered. With growing adoption of these solutions, important issues must be resolved, including privacy, security, participant authentication and identification, data exchange and interoperability, and workflow integration for individuals, families, and clinical providers. Whether massive amounts of patient- and device-generated health data will be integrated into electronic health records or personal health

records remains to be seen.

Mobile health technologies also are converging with the fields of systems biology, genetics, and genomics to bring innovations in precise, individualized health care. Some experts predict 50% to 70% of clinic or office visits over the next few years will be replaced with remote monitoring, digital health records, and virtual house calls. Small, wireless biosensors can measure new variables, such as biomolecules from skin sweat, to give advanced warning of electrolyte depletion, muscle breakdown, or an impending myocardial infarction. Advances in continuous glucose monitoring include a smartphone-based artificial pancreas. mHealth research studies are under way, with many opportunities for nursing contribution.

We need to develop new care models enabled by these technologies. Let's chart the nursing workforce of the future. ■

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Four important trends shaping tomorrow's workforce

By Terri Gaffney, MPA, RN

The Patient Protection and Affordable Care Act of 2010 prompted the most sweeping healthcare changes in the past 50 years. These changes are empowering providers and consumers to redefine how care is delivered.

Today, health care is no longer contained mostly within hospital walls. Instead, we're seeing a strategic shift to deliver complex, dynamic healthcare services to the right patient, at the right time, in the right setting. Nurses are being called on to navigate through a changing environment, embrace new and emerging roles, master emerging technologies, engage patients in new venues, and coordinate care across teams and populations.

To find success in tomorrow's workforce, we not only must understand the nature of the changes taking place; we also must acquire new skills and competencies and exploit emerging opportunities to deliver greater value. As leadership guru Peter Drucker said, "Problem solving, however necessary, does not produce results. It prevents damage. Exploiting opportunities produces results."

Among the changes shaping today's health care, four trends are especially significant—consumerism, digital health, big data, and care coordination.

Consumerism

Initially, the drive toward consumerism was fueled by shifting healthcare costs from employers to consumers. As consumers shouldered more of the financial

Nurses can help redefine health care by embracing creativity, innovation, and customer insights.



burden, they assumed more responsibility for their healthcare choices, becoming better informed in the process. A recent survey of healthcare consumers found that 64% actively seek information about their health condition instead of relying solely on their healthcare provider. Today, educated consumers are demanding high-quality care delivered at easy access points.

Consumerism is driving healthcare organizations to find innovative ways to meet consumer demands. To provide care through easy access points, some hospitals have partnered with retail clinics; others are offering extended clinic hours or delivering services in nontradi-

tional settings, such as soup kitchens. Still others have established online health portals where consumers can view their medical records, make appointments, and communicate with providers via e-mail. Some healthcare organizations have embraced telehealth services; video consultations are expected to grow from 5.7 million in 2014 to 130 million in 2018.

The consumerist movement offers opportunities for nurses not only to return to their roots of community-oriented care but also to develop new care models. Using innovation and creativity, we can explore the intersection between health outcomes and patient experience, driving greater value by creating unique patient experiences.

Digital health

As we're all aware, technology is spurring healthcare innovations. Fitness trackers, introduced just a few years ago, are worn by about 20% of consumers today. Adopting the notion of gamification (applying game-design thinking to nongame applications), organizations are harnessing consumers' competitive spirit to drive behavior change.

Such advances in digital health are just one of several disruptive influences transforming health care. Through mobile apps, remote monitoring, wearable technologies, three-dimensional printing, and robotics, digital applications and devices are reducing costs, improving outcomes, and increasing consumer satisfaction. The transformative capacity of these technologies is

still emerging, and nurses can help target these strategies where they make the most sense. By understanding and embracing digital health, we can anticipate how emerging technologies may change practice and prepare for these challenges.

Big data

The ability to turn data into wisdom is becoming a game changer in the healthcare arena. The capacity to aggregate, store, combine, and analyze large data sets (known as big data) has increased with advances in digital data and computing. Bringing data together in intelligent and actionable ways offers great opportunity for improving quality of care and patient outcomes. For hospitals, it's now a strategic priority.

While healthcare organizations see the value in emerging analytics, integrating clinical data into easily usable systems remains a challenge, particularly with a shortage of managerial and leadership talent in this area. As nurses, we must become experts at managing information and assume leadership roles in this transformative space.

Care coordination

Care has been transitioning from inpatient to ambulatory care settings over the past 10 years. Today 65% of healthcare services are delivered in ambulatory settings. As healthcare organizations strive to provide care to the right patient, at the right time, in the right setting, coordinating care to reduce costs, improve outcomes, and ensure safety has become an even more pressing priority.

Organizing patient care activities and sharing information among all participants involved in the patient's care lie at the heart of care coordination. Using a holistic approach, nurses are guided by patient needs and preferences when coordinating

care across settings and among providers. Yet our leadership in this area remains undervalued. We need to highlight our expertise in customer insight, patient experience, and effective and efficient use of healthcare resources.

Finding success with the four forces

Given the pace of change in today's healthcare environment, staying informed of these four crucial trends—and preparing to embrace them—can pose a challenge. Consumer demands have given rise to new expectations. Digital health, big data, and care coordination offer the chance to craft elegant solutions to complex issues. To success-

Using a holistic approach, nurses are guided by patient needs and preferences when coordinating care across settings and among providers.

fully leverage emerging opportunities to create new value, nurses must build on the competencies of leadership, patient-centered care, systems-based practice, informatics and technology, and teamwork. Lifelong learning and skill development are key strategies to finding success in tomorrow's workforce. We must take advantage of every opportunity to communicate the unique perspective we provide. By embracing creativity, innovation, and customer insights, we can redefine health care.

As nurses, we're well-positioned to assert our leadership, shape practice, and ensure the human component stays at the forefront of health care. As patient needs become more com-

plex and care environments more dynamic, not only must we be problem solvers; we also must influence decisions and leverage opportunities to produce results. ■

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