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Issue Table of Contents
May 2005, Volume 105, Issue 5

DEPARTMENTS

Editorial

11
The Sage Within: Celebrate Nurses Week by talking with some wise nurses.
Mason, Diana J. PhD, RN, FAAN, AJN Editor-in-Chief

13
Retaining the Recruited: A shift in focus may make all the difference.
Losee, Rita H. ScD, MEd, RN

BREASTFEEDING.

15
Spear, Hila J. PhD, RN, IBCLC

15
Colterman, K. Jean RNC, IBCLC

15
Young, Pat RN, APN

15
Burke, Joan BSN, RN, IBCLC

15
Gartner, Sally L. RNC, CBC

BREASTFEEDING: Author Jeannette Crenshaw, responds.

CORRECTION.

16
CHRONIC KIDNEY DISEASE.
Harty, Anne MS, APRN, FNP, CNN

16
CHRONIC KIDNEY DISEASE.
Brooks, Deborah MSN, ANP, CNN

CLINIC SHOES.

16
Breen, Carlene RN

CLINIC SHOES.

16
Stephens, Karen C. MSN, RN

19
Kennedy, Maureen Shawn MA, RN

News CAPS.

19
Kennedy, Maureen Shawn MA, RN

20
Dementia: How Well Do Drugs Treat Neuropsychiatric Symptoms?: Results of a review aren't encouraging.
Kennedy, Maureen Shawn MA, RN


21
Kennedy, Maureen Shawn MA, RN

FROM THE NATIONAL INSTITUTE OF NURSING RESEARCH: Kids and Stress and Mental Health: Chronically ill inner-city children are at risk for behavioral disorders.
Kennedy, Maureen Shawn MA, RN
22 Pelvic-Floor Exercises Yield No Long-Term Benefit: Initial improvement in continence not seen at six years.  
Kennedy, Maureen Shawn MA, RN

22 World Health Roundup.  
Kennedy, Maureen Shawn MA, RN

22 Johnson & Johnson Gala Raises Scholarship Funds.  
Kennedy, Maureen Shawn MA, RN

25 DRUG Watch.  
Aschenbrenner, Diane S. MS, RN, CS

28 Is There a Doctor Nurse in the House?: A new vision for advanced practice nursing.  
Nelson, Roxanne BSN, RN

31 Human Rabies: Unusual cases shine the spotlight on an old disease.  
Goldrick, Barbara A. PhD, MPH, RN, CIC

35 Indwelling Urinary Catheters: Common mechanical and pathogenic problems.  
Toughill, Eileen PhD, RN, APRN, C

FEATURES

39 Reflections

My Dad Has Parkinson Disease: And my mother has boundless love.  
Torrisi, Donna MSN, CRNP

And my mother has boundless love.

40 CE Family Presence: Making Room.  
Mangurten, Janice A. RN, CCRN, CEN; Scott, Shari H. MS, RN, LMFT, LPC; Guzzetta, Cathie E. PhD, RN, AHN-BC, FAAN; Sperry, Jenny S. LMSW-ACP; Vinson, Lori A. RN; Hicks, Barry A. MD, FACS, FAAP; Watts, Douglas G. MDiv; Scott, Susan M. MD

How one hospital implemented a family presence policy for invasive procedures and resuscitation interventions.

48 CE TEST: Family Presence: Making Room.

50 CE Caring for Patients on Mechanical Ventilation: What research indicates is best practice.  
Lindgren, Vicki A. MSN, RN, CCRN; Ames, Nancy J. MSN, RN, CCRN

What are the most important interventions to consider, and what are the best evidence-based nursing practices to help patients be liberated from ventilators? This article addresses several integral areas of care.

60 CE TEST: Caring for Patients on Mechanical Ventilation.

62 An End to Angels.  
Gordon, Suzanne BA; Nelson, Sioban PhD, RN

Moving away from the virtue script toward a knowledge-based identity for nurses.

DEPARTMENTS

70 LEGAL Clinic

The Quality of Care Provided in Nursing Homes: Nurses can help facilities do the right things.  
Monarch, Kammie JD, RN
FEATURES
Art of Nursing

Waiting Room.
Murphy, Theresa D. MA, BSN, RN
Waiting Room, a poem.

DEPARTMENTS
From the ANA: Issues Update

Bold New World: Technology should ease nurses' jobs, not create a greater workload.
Trossman, Susan RN

Reducing Pediatric Medication Errors: Children are especially at risk for medication errors.
Hughes, Ronda G. PhD, MHS, RN; Edgerton, Elizabeth A. MD, MPH

2004 Reviewers.

Setting Nurse-Patient Ratios: ANA bill calls for development of staffing systems in hospitals.
Artz, Michelle

JOB focus.

Nursing Counts.
Boltz, Marie MSN, CRNP, NHA; Harrington, Charlene PhD, RN, FAAN; Kluger, Malvina assistant coordinator

Rising Above: New Jersey ICU RNs work together to create art.
Hunt, Loretta

Preparing for Disasters: Helping yourself as you help others.
Papp, Elaine MSN, RN, COHN-S, CM

HOSPITAL EXTRA

Nurses Week-What Did You Get?: Hi, everyone!! Just curious to see what you received for Nurses Week.
Masson, Veneta MA, RN

FYI.

CRITICAL CARE EXTRA

Hypertrophic Cardiomyopathy: A young nurse relates her experience of a life-threatening disease.
Hall, Virginia L. BSN, RN; Drew, Barbara L. PhD, RN

Acute Respiratory Failure: Part 1. Failure in Oxygenation: When a patient loses the ability to oxygenate the blood. Part one of a two-part article.
Smyth, Melinda MSN, RN, CCRN, CNA

VAPNET: One team of Joe Fridays prevented ventilator-associated pneumonia.
Moss, Janette K. MSN, RN, CNA; Dobin, Ava J. BSN, RN, CIC; Solkoff, Faith D. MPA, BSN, RN; McElligott, Robin B. RN, CHQM, LHRM; Shapiro, Brian S. BS, RRT; Ecle, Maria L. MSN, RN, CCRN
Every year I hear from readers who ask why the May issue of AJN doesn’t explicitly address Nurses Week. I suggest they read my editorial from April 1999 that addressed my ambivalence about this Hallmark-card event: too many employers “celebrating” by plying nurses with food, tchotchkes, and platitudes while continuing to treat them poorly. Let me share with you an experience that could be replicated for Nurses Week celebrations in any institution serious about transforming nurses’ workplaces.

In October of last year, the Katharine J. Densford International Center for Nursing Leadership at the University of Minnesota presented a conference, A Summit of Sages (the Center for Creative Health Care Management was a cosponsor and has posted a summary of the conference at www.chcm.com/conferences/clientconf.asp). Joanne Disch, director of the Densford Center, told participants that this was a celebration of six trailblazers and visionary heroes in nursing and health care: Patricia Benner, Claire Fagin, Vernice Ferguson, Marie Manthey, Angela Barron McBride, and Margretta Madden Styles.

Each “sage” was asked to speak about a defining moment in her career. I cannot do justice to what these women shared, but there were a number of points I found inspiring. I have taken the liberty of elaborating on three of them.

You have more power than you realize. Patricia Benner tells staff nurses that nothing will happen on their units that they don’t want to have happen. Her message, in my view, is that although many nurses feel powerless in their positions, they are not. The first step to having power is believing you have it—and using it.

Be prepared to speak for patients and nursing when working with nonnurses. If you’re the token nurse in a group, be very well prepared. Your initial comments cannot be about nursing or you’ll appear to be too self-interested. Start by talking about what patients need or how they are affected by a situation, and then segue into nursing. Describe how nurses can and do contribute to improving patient outcomes. Always speak, even if it’s only to ask a question.

Our invisibility is comfortable; it protects us from facing our fears. While we decry nursing’s invisibility in the media and at decision-making tables in the workplace, individual invisibility is comfortable. Nurses already have a huge responsibility for people’s health and lives, so it shouldn’t be surprising that many nurses don’t want more, as one sage said. Being outspoken and taking risks are likely to make you more visible—and that can be terrifying. One of the most remarkable moments with these women was a discussion of their own fears of failure. But those fears didn’t stop them from pursuing their ideas, and it need not stop you.

One way to uncover the “sage within” is to spend Nurses Week talking with nurses in your community who have been remarkable leaders. Ask them to share their stories, their successes and failures, their strategies for taking risks. The sage need not be a “famous” nurse; a great person to engage in such a dialogue may be a senior clinical leader who has led significant changes in patient care.

I had the privilege of having a number of discussions with another of nursing’s sages before she died, Edith “Pat” Lewis, who was a former editor of this journal (see page 111). She shared her honest opinions of the changes in AJN over the past six years, including telling me when she thought my editorials fell short. But most important, she talked with me about her own experiences and challenges as an editor, further instilling in me the confidence to speak my mind and continue taking risks.

Perhaps Nurses Week should be a time for finding the sage within, sharing what we’ve learned from the past year’s struggles, and encouraging one another to seize opportunities for leadership.
With hiring bonuses, referral rewards, and other such enticements, nurse recruitment is as intense as the NFL draft. Recruiters abound, yet they have no counterparts to ensure these nurses remain in the field. Where are the nurse retainers?

In a study published in the Journal of the American Medical Association in 2002, Aiken and colleagues documented the relationship between nurse staffing and patient death, nurses' burnout, and job dissatisfaction. More creative efforts are needed to relieve overworked and underappreciated nurses, yet hospitals seem slow to grasp this idea. Why not make an all-out effort to retain the invaluable wisdom, knowledge, and skills of experienced nurses? Who do they think will mentor the new nurses who’ve been enticed to enter the field?

Hospitals spend millions of dollars on computer maintenance and virtually nothing on nurse maintenance. Computers are essential, but nursing is the business of hospitals. Competent nurses are corporate assets, not fiscal liabilities. And yet nurses often report feeling neglected, alienated, and disrespected. What a paradox—in health care, the people who deliver care don’t feel cared for themselves. Nurses don’t resign because they dislike treating patients; they resign because they dislike the way they are treated.

Mainly, hospitals have used monetary incentives in recruitment and—far less commonly—retainment efforts. Yet psychologist Martin E. P. Seligman, in his book Authentic Happiness, notes that “beyond the safety net, more money adds little or nothing to subjective well-being.” The safety net for nurses—salaries and benefits—has never been more secure, yet dissatisfaction is soaring. Money alone simply cannot sustain a strong employer–employee relationship, which plays such a crucial role in retention. Critical relationship variables, such as the leadership’s response to a nurse’s suggestions, inclusion in decision making, and nurse autonomy, directly affect satisfaction and retention rates and are too often left to chance (the style of a unit manager) and tradition (“that’s how we have always done it here”).

How nurses treat one another also influences retention. “Nurses eat their young”—everyone has heard the phrase and many nurses have witnessed experienced nurses failing to encourage new nurses. Recently, I witnessed several inconsiderate nurses: supervisors who failed to introduce themselves to a new nurse, nurses arguing loudly in front of a patient, and a supervisor canceling a nurse’s Thanksgiving Day shift after she’d arrived at work.

Susan Shelander, RN, director of recruitment and retention at Memorial Hermann Healthcare System in Houston since 2001, reports that the nurse vacancy rate at her institution has dropped from 11.3% in fiscal year 2002 to 4.8% in fiscal year 2005. Her institution evaluates managers in terms of turnover and retention, values staff input, and conducts frequent nurse focus groups. The fiscal rewards of the retention strategy are indisputable—various sources estimate that the cost of recruiting one nurse can range from $40,000 to 1.5 times the nurse’s annual salary.

Retaining nurses should be a primary goal of every institution, and retention rates should be measured frequently, carefully, and aggressively. Successful efforts will reduce the cost of recruitment—nurses who love their jobs and the hospitals they work for provide free and effective word-of-mouth advertising. For example, most of the professionals employed by Memorial Hermann Healthcare System are hired through the institution’s employee referral program. Recruitment without retention is a colossal waste of time, effort, energy, money, and good nurses. Successful retention efforts keep nurses working—and happy.
BREASTFEEDING
Thanks for publishing “Breastfeeding in Nonmaternity Settings” (January). Nurses need to be informed if they are to promote the Healthy People 2010 breastfeeding goals and objectives. Other useful resources include the recently updated American Academy of Pediatrics breastfeeding guidelines,1 the U.S. Department of Health and Human Services ad campaign entitled Babies Were Born to Be Breastfed, and World Breastfeeding Week (August 1–7), sponsored by the World Alliance for Breastfeeding Action (www.waba.org.my) and La Leche League International (www.lalecheleague.org). I encourage nurses, regardless of specialty, to promote exclusive breastfeeding for the first six months of life and breastfeeding supplemented with other foods for at least one year or longer. Hila J. Spear, PhD, RN, IBCLC Lynchburg, VA

REFERENCES

I encourage everyone to share “Breastfeeding in Nonmaternity Settings” with all the nurses they know who work in hospitals, public health settings, primary care offices, schools, or nursing homes. It’s good from a public health standpoint, but it’s also good for simply supporting young mothers. It’s an extremely positive, thorough, evidence-based, well-referenced, and comprehensive article. K. Jean Cotterman, RNC, IBCLC Dayton, OH

“Breastfeeding in Nonmaternity Settings” needs to be required reading for every nurse in every hospital. Pat Young, RN, APN Sewell, NJ

Jeannette Crenshaw states that exclusive breastfeeding means using breast milk and water, with no other liquids or solids. But exclusive breastfeeding means breast milk only.1 Lactation advocates have worked hard over the last few years to dispel the myth that breastfeeding should be routinely supplemented with anything in the first six months of life. Occasionally, it becomes medically necessary to give some sort of supplement, but this is rare.

The second point is in the accompanying piece, “The Evidence Is In: Breastfeeding Benefits.” Under the section titled “Socioeconomic gains,” it’s stated that breastfeeding can help save money for families even when the potential costs of pump equipment and extra food for the mother are factored in. While the mother is encouraged to have sound and proper nutrition, no extra or special food is required. The same principles of good nutrition apply to the nursing mother as to the rest of the family.2 While good, sound nutrition is ideal, one only needs to look at poorer countries to see that even mothers with less-than-perfect diets still make adequate, good quality milk for their babies. Sally L. Gartner, RNC, CBC Coshocton, OH

REFERENCES

Author Jeannette Crenshaw, responds: Ms. Gartner makes important points. The American Academy of Pediatrics (AAP) states that “exclusive breastfeeding is sufficient to support optimal

CORRECTION
In “Breastfeeding in Nonmaternity Settings” by Jeannette Crenshaw (January), in the section “Interrupting or discontinuing breastfeeding,” the first sentence states, “Sometimes, as when administering a single dose of radiopaque agents for diagnostic purposes to a lactating mother, breastfeeding must be interrupted, but it can be resumed when the radioactive substance is no longer in the breast milk.” It should be stated, “Sometimes, as when administering a single dose of radio- pharmaceuticals for diagnostic purposes to a lactating mother, breastfeeding must be interrupted, but it can usually be resumed when the substance has cleared maternal plasma.”
“Chronic Kidney Disease: An Overview” is great—and how wonderful that it will be a six-part series. Thanks to author Sally Burrows-Hudson for sharing such a personal story. I'm taking copies of the article to the renal clinic where we treat all stages of chronic kidney disease (CKD). I'm sorry that CKD has become such a health crisis, but as Diana Mason said (“The Tragedy of Chronic Kidney Disease,” *Editorial*, February), it’s time for all nurses to become aware and help with prevention. I'm happy to leave behind the days when people would look at me blankly and ask, “You’re what kind of nurse?”

Deborah Brooks, MSN, ANP, CNN
Folly Beach, SC

CLINIC SHOES

I had to write to say how much I enjoyed Therese Cipiti Herron’s painting *The Clinic Shoe (Art of Nursing, February).* I’ve been a nurse for 25 years. My grandmother, who graduated from nursing school in 1918, wore Clinic shoes until she retired in the 1960s. I spent 20 years in the ICU and wore out many a pair. Nothing else could compare to their comfort, or the professionalism they conveyed.

I recently returned to school to complete my bachelor’s in nursing and needed a pair of new shoes for my clinical rotations. I found a distributor in Canada and one in my home state of Missouri. When I wore my Clinic shoes to the long-term care facility, I received many compliments from residents and staff alike. It reminded me of the great honor it has been to work as a nurse.

You have warmed my heart by printing this image. How can I obtain a print of *The Clinic Shoe?* We have plenty of information these days about the science of nursing. But we must never forget the art of it.

Carlene Breen, RN
Parkville, MO

I graduated from an associate’s degree program in 1974 and wore Clinic shoes for all of my clinical nursing duties until 1988. When my daughter graduated from nursing school a few years ago, she came to work at the same facility. I worked nights in the ICU, and she worked nights in the ED. She said, “Mom, please do not wear those old-fashioned nursing shoes. I will be so embarrassed.” I wasn’t sure that I could even find them, but I was not wearing Clinics at that time (many nights I wished that I had been). One night she came to the ICU with a patient from the ED. I looked down at her feet, and what was she wearing? Those old-fashioned nursing shoes! I reminded her of what she had said about them, and she replied, “But they’re so comfortable.” I have teased her many times about that.

Karen C. Stephens, MSN, RN
Corbin, KY

Editor’s note: Prints of *The Clinic Shoe* can be ordered for $135 (including shipping) from the artist, Therese Cipiti Herron, at (619) 669-1729 or tmcherron@aol.com. The prints are on Hahnemühle William Turner watercolor paper in a limited edition of 150. The image size is 12” × 12”, and overall paper size is 20” × 16”. Each print will be signed, numbered, and accompanied by a certificate of authenticity. A large version of the painting, *Lost Soles*, will be shown at the 48th International Award Exhibition at the San Diego Art Institute, from May 1 to June 12. At that time, the paintings will also be on view online at www.sandiego-art.org.
Oxygen Plus CPAP After Abdominal Surgery

Enhanced oxygen delivery helps prevent post-op complications.

Italian researchers halted a multicenter clinical trial evaluating the use of continuous positive airway pressure (CPAP) and oxygen in patients who developed hypoxemia after elective abdominal surgery, when an independent safety committee found that the patients receiving CPAP were faring significantly better than those receiving oxygen without CPAP.

The control group of 104 patients received standard oxygen therapy: oxygen administered through a face mask postoperatively. The 105 patients in the intervention group received oxygen and received CPAP administered through a transparent, latex-free helmet. Both groups received oxygen or the oxygen plus CPAP until they were able to maintain sufficient oxygenation on their own.

Among patients who received CPAP postoperatively, only one needed intubation, compared with 10 of those who didn’t receive CPAP. The rates of pneumonia were similar, with only two cases in the intervention group, versus 10 in the control group. And there were three surgical-wound infections in the CPAP group, compared with 11 in the control group. In addition, more control patients developed sepsis as a result of pneumonia or a surgical-wound infection (nine cases versus two), and control patients stayed in the ICU about one day longer. All of the patients in the CPAP group left the hospital alive, but three patients in the oxygen-alone group died.

CPAP appears to be a safe, low-cost intervention that can reduce life-threatening complications after surgery.—Fran Mennick, BSN, RN


NewsCAPS

Testing is best for toxoplasmosis screening in pregnant women, according to the February issue of the American Journal of Obstetrics and Gynecology. The study revealed that a history of exposure to “recognized vehicles of transmission,” such as cat litter or raw meat, and demographic characteristics, such as maternal age and race or ethnicity, were insufficient to predict infection. The authors concluded that only systematic serologic testing (as is done for phenylketonuria and other conditions) will suffice.

Older male smokers should be screened for abdominal aortic aneurysm, recommends the U.S. Preventive Services Task Force in the February 1 issue of the Annals of Internal Medicine. Although surgical repair is risky, prognosis after rupture of an abdominal aortic aneurysm is grim. A review of the literature revealed that ultrasonography was an effective screening method and that among men 65 and older with any history of smoking, the benefits of screening for aneurysms—and repair of large ones—outweigh the risks.
Dementia: How Well Do Drugs Treat Neuropsychiatric Symptoms?

Results of a review aren’t encouraging.

For patients with dementia and their caregivers, agitation, aggression, delusions, hallucinations, and wandering often cause greater distress than the condition’s hallmark cognitive impairment. Consequences frequently include losses of caregivers’ income and employment and lengthened hospital stays and nursing home placement for patients. Researchers conducted a literature review to determine the most effective drug therapies and came up with . . . not much.

Searching English-language, medical-study databases, they identified studies of drug therapy for neuropsychiatric symptoms in patients with Alzheimer disease, vascular dementia, or Lewy body disease. Of 66 studies selected for full review, and 12 others identified from reference lists, a total of 29 randomized controlled trials and metaanalyses were deemed worthy of analysis.

Atypical antipsychotics. Olanzapine and risperidone “appear[ed] to be at least modestly effective” in patients with Alzheimer disease or vascular dementia. The authors pointed out a paucity of research on other atypical antipsychotics, such as clozapine, quetiapine, ziprasidone, and aripiprazole.

Cholinesterase inhibitors. According to the authors, “Although some trials of cholinesterase inhibitors have shown statistically significant differences, the magnitude of effect has been small and of questionable clinical significance.”

Typical antipsychotics were not found to be useful in treating neuropsychiatric symptoms of dementia. Haloperidol might be helpful in treating aggression, but “it is unclear if this benefit outweighs the adverse effects.”

Antidepressants. Of the serotonergic antidepressant medications studied, only citalopram showed some benefit, and improvement was seen only in two neuropsychiatric symptoms, lability and agitation.

Mood stabilizers. The authors concluded that the use of neither valproate nor carbamazepine is recommended. Lithium appears not to have been studied in this context.

Other drugs. There doesn’t appear to be a clinically significant benefit to using memantine in the treatment of neuropsychiatric symptoms, and so far, no benefits from benzodiazepines or buspirone use have been found. The authors specifically recommend avoiding benzodiazepine use in this population.

They also say that because so few trials have examined patients with Lewy body disease, “no conclusions can be drawn” as to drug treatment for neuropsychiatric symptoms in them. For all patients with dementia, they recommend first ruling out medical causes of neuropsychiatric symptoms such as pain or delirium, then trying nonpharmacologic remedies. Drug therapies should be used with caution and targeted to specific symptoms.

In addition, although atypical antipsychotics have been found somewhat effective in treating neuropsychiatric symptoms in dementia, the risks of cerebrovascular complications associated with these drugs make using them risky. And another recent study, published in the British Medical Journal, found a further risk of using quetiapine, an atypical antipsychotic, in patients with Alzheimer disease: the drug produced a “significantly greater cognitive decline” than placebo and was ineffective in treating agitation.—Doug Brandt and Joy Jacobson, managing editor

Kids and Stress and Mental Health
Chronically ill inner-city children are at risk for behavioral disorders.

It’s known that children with special health care needs, such as asthma, allergies, or attention disorders, have a high risk of emotional and behavioral disorders. But there is little research on the impact of poverty, crime, unemployment, and a lack of social support on the mental health of such children. Researchers surveyed caregivers (63% black) of 257 Midwestern inner-city children with special health care needs and found that most reported feeling a moderate level of stress related to money, job satisfaction, parenting, and housing. Caregivers were given the Child Behavior Checklist for recording behavioral problems in their chronically ill children (ages two to 18 years); 38% of the children received scores indicating they had behavioral or mental health problems that warranted treatment. White children had more behavioral problems than black children did. In addition, the children with poorer health or poorer access to health care tended to have worse behavioral scores.

Study coauthor Joan Austin, of the Indiana University School of Nursing, encourages nurses “to consider the community environment when caring for children. Our study supports the need for multilevel and systems approaches to nursing care that involve coordination and collaboration, not only within the health care professions, but also among a broad array of community partners. The multiple influences on child health need to be addressed if we are to improve outcomes in children with special health care needs who are living in stressful living environments.”

Pelvic-Floor Exercises Yield No Long-Term Benefit

*Initial improvement in continence not seen at six years.*

In most maternity settings, women are taught pelvic-floor exercises to reduce urinary incontinence associated with childbirth. The authors of a recent study had previously reported modestly positive results at one year in a randomized trial of the use of an exercise intervention among women with urinary incontinence three months after giving birth. The 316 women in the intervention group had received advice on pelvic-floor exercises at five, seven, and nine months after delivery (with added bladder training at seven and nine months for those who had symptoms of urge incontinence), and the 376 women in the control group received usual care (which usually included “a brief description of pelvic-floor exercises”).

Five years later (six years after the women had given birth), a follow-up questionnaire was mailed to the women to determine the rates of urinary incontinence in the two groups, as well as rates of fecal incontinence and the performance of pelvic-floor exercises.

Among respondents, the percentages of women in both groups performing the exercises were identical, at 50%, whereas at one year, more women in the intervention group had been performing them (83% versus 55%). And about 75% of the women who’d had urinary incontinence at baseline were still incontinent, whether they had received the intervention or not. Approximately 40% of those who’d had fecal incontinence three months postpartum continued to be incontinent of feces six years later. The authors speculate that “continual reinforcement” of the exercises over time might improve long-term results for this safe intervention.

Commenting on the study, researcher and *AJN* contributing editor Mary Palmer, PhD, RN,C, FAAN, writes that, “It’s hard to postulate why effects seen at one year did not persist in later years. Had pelvic-muscle exercises stopped working? How long did the women perform the prescribed number of pelvic-muscle exercises before they stopped? Had they been performing them correctly? How many sessions and repetitions during each session are needed to maintain the effect on incontinence? We need answers to these questions to better help incontinent women improve or cure their incontinence.”

Palmer also notes that this study “made it clear that strategies used to help people change behavior initially may not be effective in helping them maintain the change.” —Fran Mennick, BSN, RN


**World Health Roundup**

- **Medical strikes wreak havoc in Africa.** A strike by physicians, nurses, and other medical personnel in government hospitals in the Democratic Republic of Congo has led to the deaths of more than 1,350 people in the capital, Kinshasa, according to the United Nations Integrated Regional Information Networks (IRIN). Physicians began the strike in December, demanding that their salaries match those of other public servants—$30 to $70 a month. The government responded by promising better pay and offering a one-time payment of $170 to $361. Nurses and paramedics followed suit and are currently in negotiation with the government. IRIN also reports that nurses in Burundi struck, beginning on March 7, forcing many hospitals to limit care primarily to emergency treatment. The nurses were demanding better working conditions and pay. The nurses resumed work on March 31, after the union and the government signed an agreement.

- **Human cloning under way in Britain.** The creator of Dolly the sheep has been given the green light to clone human embryos for medical research. Ian Wilmut, head of the Department of Gene Expression and Development at the Roslin Institute near Edinburgh, Scotland, will clone embryos of patients with amyotrophic lateral sclerosis in order to derive stem cells, and will go on to destroy the cloned embryos within 14 days of their creation. Wilmut is the second scientist (after Alison Murdoch of the University of Newcastle) to receive the British government’s authorization to clone an embryo.

In South Korea and China, researchers have already derived stem cells from cloned embryos. In the United States, using federal money for human cloning is illegal, although some researchers are planning to use private or state funding to do so.

**Johnson & Johnson Gala Raises Scholarship Funds**

At the Promise of Nursing for New York gala dinner, held March 17 in New York City, $700,000 was raised for scholarships for nursing students and faculty in New York. From left, Diane Mancino, EdD, RN, CAE, executive director of the National Student Nurses’ Association, poses with Andrea Higham and Lorie Kraynak of the Campaign for Nursing’s Future, sponsored by Johnson & Johnson, which also subsidized the fundraiser. The campaign has raised more than $7 million from similar events in 10 states; 325 student scholarships, 70 faculty fellowships, and 80 grants to nursing schools have been awarded.
NEW AND REVISED WARNINGS

Changes are made to the labeling of several drugs.

**Atomoxetine.** Because of two case reports submitted to the U.S. Food and Drug Administration (FDA), the labeling of atomoxetine (Strattera), a drug approved for the treatment of attention deficit–hyperactivity disorder in adults and children, has been revised to carry a boldfaced warning of the possibility of severe liver injury, which can progress to liver failure either necessitating transplantation or causing death. The risk of serious liver damage as an adverse effect of atomoxetine is extremely slight—hepatotoxicity was not identified as a risk during clinical trials involving 6,000 patients. Nevertheless, a description of the signs and symptoms of liver problems has been added to the package insert, and they should be addressed during patient education in the drug therapy. Nurses should be sure that patients and families understand that if pruritus, jaundice, dark urine, abdominal pain or tenderness in the upper right quadrant, or unexplained flulike symptoms develop, the prescriber should be contacted.

**Nevirapine.** The labeling of nevirapine (Viramune), a nonnucleoside reverse-transcriptase inhibitor used to treat HIV infection, has been revised to reflect the higher risk of liver toxicity in patients who have CD4+ cell counts higher than 250/mm³ at the initiation of therapy with the drug, a risk that is also higher among women. Liver toxicity can be either asymptomatic or clinically symptomatic; signs and symptoms can range from elevated liver enzyme levels with at least one other symptom (such as rash, flulike symptoms, or fever) to rapidly progressing liver failure and death. There is a threefold higher risk of asymptomatic liver toxicity among women, and women with CD4+ cell counts higher than 250/mm³ have a twofold greater risk of developing it, compared with women with lower counts. The revised treatment recommendation now states that women with high CD4+ cell counts should not begin nevirapine therapy unless the benefits clearly outweigh the risks. The revised label does *not* state that nevirapine should not be prescribed to women—some medical circumstances do not carry the higher risk of liver toxicity. There have been no reports of liver toxicity (in either mother or child) when the drug has been used in a single dose for the prevention of perinatal HIV infection, for example, nor has it been reported in children infected with HIV—a fortunate circumstance because nevirapine, unlike many other HIV drugs, is available in the liquid form that is easily administered to children. In addition to the revisions made to its labeling, the FDA now requires that the drug be dispensed with a medication guide providing additional information on its possible serious adverse effects. Nurses and physicians should be aware of the nevirapine labeling revisions and should be certain to assess the patient’s CD4+ cell count prior to initiating therapy with the drug; counts lower than 250/mm³ are associated with a lower risk of liver toxicity. Patients and families should be taught the signs and symptoms of liver failure and instructed to read the nevirapine medication guide thoroughly each time a prescription for the drug is filled, as it may have been revised according to new information on adverse effects.

**Darbepoetin.** The labeling of darbepoetin alfa (Aranesp), a drug used to raise the low red blood cell count associated with chemotherapy-induced anemia in patients with nonmyeloid malignancies, also has been recently revised. Studies of other hematopoietic drugs (epoetin alfa and epoetin beta) investigated the effects of raising the hemoglobin levels above 12 g/dL in cancer patients with anemia; results indicated a greater incidence of adverse effects, including thrombotic vascular events and death, when the levels were raised that high. Although the darbepoetin alfa labeling has borne the recommendation that the hemoglobin level should not exceed 12 g/dL, the findings of the other trials have been added to it to more strongly emphasize the risk. Nurses should closely monitor the patient’s response to darbepoetin alfa therapy to confirm that the hemoglobin level is not excessively high.

**Penicillin.** Changes also have been made to the labeling of two forms of penicillin, penicillin G benzathine with penicillin G procaine injectable suspension (Bicillin C-R), and penicillin G benzathine injectable suspension (Bicillin L-A); changes entail boxed warnings stating that neither drug is to be administered intravenously and precautionary statements that Bicillin C-R is not to be used as treatment of syphilis, Bicillin L-A being the form recommended for that purpose. As an additional warning

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By Diane S. Aschenbrenner, MS, RN, CS
Watch

to professionals and to prevent medication errors, the words “Warning: Not For Intravenous Use” have been added in bold red capital letters to the cartons and syringe labels of both drugs, because intravascular administration has been found to result in serious adverse effects, including cardiopulmonary arrest and death. The packaging has been modified further so that the background on the cartons of Bicillin C-R is colored—that of the Bicillin L-A cartons remaining white—and the words “Not for the Treatment of Syphilis” have been added in red to the Bicillin C-R syringe labels.


MEDICATION GUIDE FOR AMIODARONE

An effort to minimize adverse effects.

A new Food and Drug Administration medication guide has been created for distribution with amiodarone (Cordarone), a class III antiarrhythmic drug used to treat life-threatening ventricular arrhythmias that have not responded to other drug therapy. The drug has always been recognized to have significant adverse effects, including pulmonary toxicity (fairly common and possibly fatal), liver toxicity (usually mild but occasionally fatal), and either the exacerbation of the cardiac arrhythmia or the induction of a different, additional one. The effects of amiodarone vary greatly among individuals, possibly because of differences in metabolism within the cytochrome P-450 enzyme system, and probably for the same reason, appropriate dosing with the drug is difficult to achieve because of its exceptionally long half-life and the several drug interactions that can occur. The new medication guide provides patients with detailed information on those risks (as well as on other possible adverse effects), how to minimize them, and when to contact the physician. Nurses should instruct patients and their families to read the guide thoroughly each time the prescription is filled, in the event that the information in it has been revised. Patients and their families should also be made aware that while it states that amiodarone is used only for the treatment of certain ventricular arrhythmias (the only approved use of the drug), it’s now being prescribed fairly often as an off-label treatment of atrial fibrillation. If it’s used for atrial fibrillation, education in the appropriate off-label usage of drugs should be provided to allay any concern about receiving an erroneous prescription. If the reason that amiodarone has been prescribed is ever unclear, the nurse should consult the prescriber.


A NEW DRUG FOR CHEMOTHERAPY-INDUCED MUCOSITIS

Effective in patients treated for hematologic malignancy.

Palifermin (Kepivance), a new drug produced by recombinant DNA technology, is a synthetic form of human keratinocyte growth factor, an endogenous protein that promotes the production of epithelial cells in the skin and on the surface layers of the mouth, stomach, and colon. The drug has been shown to reduce the incidence of mucositis in patients who have cancer and are undergoing chemotherapy and radiation therapy prior to bone marrow transplantation. It appears to induce more rapid replacement of the cells in the mouth and gastrointestinal tract. And if mucositis does develop after the administration of palifermin, its duration is much shorter, at an average of three days, compared with the usually expected average duration of nine days. The drug is administered daily by IV bolus for three consecutive days prior to chemotherapy and three consecutive days after it (a total of six doses). The prechemotherapy doses should be timed so that the third one is given between 24 and 48 hours before the administration of chemotherapy, and the first postchemotherapy dose (the fourth one in all) should be given on the day of administration. The most common adverse effects are skin rash, unusual oral symptoms (such as tingling in the mouth, thickening and discoloration of the tongue, alteration in taste, or dysesthesia), joint pain, unusual sensations in the skin (such as numbness, tingling, burning, or itching), and edema. Mild, transient hypertension is also possible, as are asymptomatic elevations of serum lipase and serum amylase levels, neither of which has been found to be of significance, and proteinuria. Because of its effect on epithelial cell growth, palifermin may stimulate the growth of epithelial tumors. The drug has not yet been tested for efficacy in patients with other types of cancer.

In a move that has received a mixed response, the American Association of Colleges of Nursing (AACN) has adopted a position that, by 2015, may change the current level of preparation for advanced nursing practice from the master’s degree to the doctor of nursing practice (DNP) degree.

According to AACN president Jean Bartels, PhD, RN, the DNP degree will not be a research degree, as the PhD and DNS degrees are. Rather, it will “provide the highest level of preparation for people who want to be in clinical practice. The changing demands of health care are urging us to educate nurses at this level,” she says.

The practice-oriented doctorate is not new to nursing, the AACN position statement points out. It emerged in 1979, when the Frances Payne Bolton School of Nursing at Case Western Reserve University in Cleveland, Ohio, established a doctor of nursing (ND) degree. Since then, interest in developing an alternative to research-focused doctorates has grown.

“Our vision is for nurse practitioners, midwives, clinical nurse specialists, nurse anesthetists, and others who are prepared at the master’s level initially, who are seeking top clinical roles in practice, to move forward with a higher degree,” explains Bartels. “We are seeing a movement toward the DNP as the terminal credential for the highest level of practice.”

The decision was reached at the AACN’s Fall Semiannual Meeting, held October 25, 2004, in Washington, DC, where members voted 160 to 106 in favor of the initiative. (The AACN has about 570 members.) The narrow margin is disconcerting to some nursing leaders, who see a need for more discussion in the nursing community.

The National Organization of Nurse Practitioner Faculties (NONPF) has collaborated with the AACN on developing the practice doctoral degree, but the NONPF does not appear ready to endorse implementation now. In a recent letter to the AACN, NONPF president Ann O’Sullivan, PhD, CRNP, FAAN, points out that her organization thinks that there are “issues that require further consideration by the nursing community before de facto implementation” and calls for a meeting of the “larger stakeholder community.”

The ANA board passed the following motion at its March meeting: “That the ANA Board of Directors neither opposes nor endorses the Doctor of Nursing Practice until a series of concerns and questions can be addressed and answered by the AACN for the ANA board to consider during its May 2005 conference call.”

Many advanced practice nursing organizations in the United States have not adopted formal positions on the practice doctor-
ate. The National Association of Clinical Nurse Specialists is preparing a position statement, according to association president Angela P. Clark, PhD, RN, CNS, FAAN. She says that the proposal raises more questions than it answers.

“This is a time of a nursing shortage, a faculty shortage, and an aging faculty,” she says, “and it is a huge concern to me as to how this will work. Some of the programs are proposed to be 80 credit hours, so I am wondering where we are going to get more faculty to teach these courses.”

Frank Maziarski, MS, CLNC, CRNA, president of the American Association of Nurse Anesthetists, says that his organization hasn’t yet prepared a position statement, but the issue will be the subject of a forthcoming summit involving a diverse group of hospital administrators, educators, and clinicians. Says Maziarski, “We need to discuss what the impact of this initiative will be, not only on students and educators, but on the end-users”—hospitals and patients.

Still, he says, the move from master’s degrees to doctorates may be less of a problem for nurse anesthetists than for other advanced practice specialties; many nurse anesthetist programs involve 30 months of course work and clinical experience.

“Some programs may just need to add on another semester in order to change to a doctoral program,” he says.

Deanne R. Williams, MS, CNM, executive director of the American College of Nurse-Midwives, says that her organization was rather surprised that the AACN would take the additional step of encouraging licensing boards to require a practice doctorate in order to work as an advanced practice nurse. “From the perspective of the client, there is no evidence to support this position,” she says. “Why would we move to virtually eliminate the master’s degree programs if there is no evidence that the quality of care or access will improve? DNP’s may have a broader education, but they may not be better clinicians.”

Williams, however, fears that the move to a practice doctorate, with its associated costs and time commitments, may have the opposite effect—one of discouraging many who would otherwise be interested in a career in midwifery. Those who enter nursing with dreams of becoming a midwife, she says, may decide that they might as well become MDs.

To help facilitate the transition, the AACN’s board of directors has created two task forces with members of both large and small nursing institutions. One will work to outline basic competencies essential for practice doctorate programs; the other will address issues related to the switching from current advanced practice programs to doctoral preparation.

Many questions remain unanswered at this point. Do employers really want doctoral-level nurses? Will the additional investment offer a payoff to nurses in terms of independence and reimbursement? Will the similarity between a practice doctorate and the nurse practitioner title create more confusion about nursing roles among the public? Nonetheless, Bartels is hopeful. She claims that this initiative will not mean that nurses now in practice at the master’s degree level must obtain a doctorate to keep their jobs. “What we are looking at is how we will be training advance practice nurses in the future.” For the American Association of Colleges of Nursing position statement on this issue, see www.aacn.nche.edu/DNP/pdf/DNP.pdf.

—Roxanne Nelson, BSN, RN

**Universities with Practice Doctorate Programs**

Case Western Reserve University (OH)
Columbia University (NY)
Rush University (IL)
Tri-College University (ND)
University of Kentucky
University of South Carolina
University of Tennessee Health Science Center

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**Nursing Luminaries**

These days the good news always seems to get buried under the bad news. But perhaps it doesn’t have to. The Luminary Project is a new effort to collect the stories of nurses who are quietly but brilliantly making positive changes in environmental health—at their facilities, in their communities, and in the world. It’s an outlet for nurses who want to tell the stories of their successes and provides inspiration and tools to others wishing to build on those successes in their own practice. Read stories of the luminaries who are improving environmental health across the country—and add your own. Go to www.theluminaryproject.org.
Human Rabies

Unusual cases shine the spotlight on an old disease.

Strictly speaking, human rabies isn’t an emerging disease—it’s been with us for a long time. However, rabies has been in the news recently because of several highly unusual cases. In one, a 13-year-old Wisconsin girl became the first person known to survive clinical rabies without receiving pre- or postexposure prophylaxis. And two separate clusters of cases—one originating in Texas and the other in Germany—were the first known instances of rabies transmission by solid-organ transplantation.

**THE WISCONSIN CASE**

The following account is based on a case report in the *Morbidity and Mortality Weekly Report* (MMWR) of December 24, 2004, a publication of the Centers for Disease Control and Prevention (CDC).

In October 2004, in Fond du Lac County, Wisconsin, a previously healthy teenager complained of fatigue and of tingling and numbness in the left hand. The symptoms persisted and, on the following day, she became unsteady and developed diplopia. She was examined by a pediatrician and referred to a neurologist on the third day, after the onset of nausea and vomiting. Magnetic resonance imaging and magnetic resonance angiography results were normal, and she was sent home. On the fourth day of illness, she was admitted to a hospital, afebrile and alert, with bilateral sixth-nerve palsy, blurred vision, and unsteady gait. A lumbar puncture revealed an elevated white blood cell count, an abnormal protein concentration, and an elevated glucose concentration. During the next 36 hours, she developed slurred speech, nystagmus, tremors in the left arm, and greater lethargy; her temperature rose to 102°F.

It wasn’t until the sixth day of her illness that an important fact came to light: approximately one month before, she had been bitten by a bat. While attending a church service, she saw the animal fall to the floor, picked it up and was bitten on the left index

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finger. Although the skin had been broken and some blood was shed, she didn’t receive medical attention; the wound was cleaned with hydrogen peroxide, and postexposure prophylaxis (PEP) wasn’t administered. The bat wasn’t captured, so it couldn’t be tested for rabies.

Rabies was then considered in the differential diagnosis and expanded infection-control measures (including droplet precautions and one-to-one nursing) were instituted, and the patient was transferred to a tertiary-care hospital. On arrival, she was alert but had difficulty speaking, impaired muscular coordination, double vision, and was twitching. She had hypersalivation and was intubated.

Blood, cerebrospinal fluid (CSF), nuchal skin, and saliva samples were sent to the CDC for rabies testing. Rabies virus-specific antibodies were found in the patient’s serum and CSF.

Clinical management consisted of a seven-day drug-induced coma, mechanical ventilation, IV ribavirin, and supportive care. According to a physician at the facility, the Children’s Hospital of Wisconsin, the purpose of the induced coma was “to temporarily suppress the functional brain and allow natural immunity to catch up.” During that time, an immunofluorescent assay of the patient’s CSF showed a significant increase in antirabies immunoglobulin G, indicating that her immune system was, in fact, fighting the infection. She was extubated on the 33rd day of the illness and transferred to a rehabilitation unit three days later.

The patient remained hospitalized until early January. She since has learned to use her arms and legs again and has undergone speech therapy; as we went to press, her rehabilitation was ongoing.

**ORGAN TRANSPLANTATION CASES**

In the July 9 and 16, 2004, issues of MMWR, the CDC reported four cases of rabies transmitted by solid-organ transplantation. The following account is based on the initial MMWR report and an update.

In early May, an Arkansas resident was admitted to a hospital in Dallas with severe mental status changes, a low-grade fever, and neurologic findings consistent with a subarachnoid hemorrhage; within two days, he died. The death was attributed to noninfectious causes, and it therefore appeared that there were no contraindications to organ harvesting. His lungs, kidneys, and liver were sent to facilities in Texas and Alabama for transplantation.

The recipient of the lungs died during surgery. Four other recipients—of the liver, each of the kidneys, and a portion of the iliac artery used in another liver transplant—died within several weeks of transplantation, prompting the CDC to investigate the central nervous system tissues of the transplant recipients and the donor. The investigation revealed encephalitis and confirmed the diagnosis of rabies in all four cases. Subsequent tests of the donor confirmed rabies infection, suggesting that he was the likely source of rabies transmission to the organ recipients. Preliminary antigenic tests revealed a rabies virus variant consistent with one found in bats. According to the Arkansas Department of Health, investigation revealed that the donor had reported being bitten by a bat. Laboratory testing of solid-organ donors for rabies isn’t a standard part of organ-donor screening.

Human-to-human transmission of rabies has been reported in eight recipients of transplanted corneas in five countries, including one case in the United States. Investigations revealed that each of the donors had died of an illness compatible with or proven to be rabies. But the four cases reported last summer are the first documented cases of rabies virus transmission among recipients of transplanted solid organs. Rabies virus is not spread hematologically; therefore, transmission of it most likely occurred through the neuronal tissue in the organs and the transplanted iliac artery from the original donor.

The latest cases of human-to-human transmission associated with organ transplantation were reported by German health officials in February. The initial announcement indicated that three of six recipients of organs of a donor who died in late December 2004 were suspected rabies cases. As we went to press, rabies had been confirmed in the donor and three of the recipients, two of whom had died; the third patient was in critical condition. The other three organ recipients hadn’t shown any signs of rabies.

**ABOUT RABIES**

Rabies is a viral infection that occurs naturally in many wild and domestic mammals, but it doesn’t occur naturally in humans. Most human cases are caused by the bite of a rabid animal; the virus attacks the central nervous system. Global surveillance of rabies puts the human death toll at between 50,000 and 60,000 per year. Worldwide, more than 90% of rabies exposures and more than 99% of rabies deaths result from the bites of rabid dogs, particularly in regions with large
Infections

stray-dog populations where canine rabies is endemic.8

More than half of the U.S. cases of human rabies since 1980 have been associated with bat bites.9

According to the CDC9:

More than 90% of all animal cases reported annually to CDC now occur in wildlife; before 1960 the majority were in domestic animals. . . . The number of rabies-related human deaths in the United States has declined from more than 100 annually at the turn of the [last] century to one or two per year in the 1990s. Modern day prophylaxis has proven nearly 100% successful.

Prior to the 2004 Wisconsin case, only five patients ever survived rabies encephalitis, but all were either previously vaccinated or received some form of postexposure prophylaxis before the onset of symptoms; all but one leave the patient with permanent neurologic deficits, and should only be considered when the patient presents at the early stages of the disease, with minimal neurologic symptoms and no other chronic diseases.10

**PREVENTION**

Preexposure vaccination is recommended for people in high-risk groups, such as veterinarians, animal handlers, and certain laboratory workers. If abnormal behavior is observed in any wild animal, an animal control or animal rescue agency should be contacted to remove it.11

There are no documented cases of transmission of the rabies virus from patients to health care providers or family members. Postexposure prophylaxis is recommended only for providers who have been exposed to a patient's saliva, nerve tissue, or CSF 14 days before or at any time after the onset of illness in the patient. Postexposure prophylaxis among other contacts of a person diagnosed with rabies should be reserved for those who have had contact with the patient's saliva, mucous membranes, or open cuts or abrasions.12 The risk of exposure can be minimized through adherence to standard precautions as outlined by the Hospital Infection Control Practices Advisory Committee.13 For more information on rabies and human rabies prevention, see www.cdc.gov/mmwr/preview/mmwrhtml/00056176.htm.

**REFERENCES**


Indwelling Urinary Catheters

Common mechanical and pathogenic problems.

Because of the high rates of morbidity and mortality associated with their use, long-term indwelling urinary catheters (catheters in place for seven days or longer) are recommended in very specific instances only. Unfortunately, they are often used inappropriately. Saint and colleagues found that 28% of physicians who were asked about their hospitalized patients didn’t know which ones had a catheter. And Munasinghe and colleagues found that 38% (N = 34) of indwelling urinary catheters had no justifiable indication.

Indwelling catheters are appropriate for use in treating urinary retention that can’t be treated by other methods, such as intermittent catheterization or medication, and for palliative care at the end of life. It’s also recommended in patients with stage 3 or 4 pressure ulcer of the trunk (once the ulcer is healed, the catheter is removed) and for measurement of urine volume in critically ill patients, such as those with renal failure.

MECHANICAL PROBLEMS

The type of material used for the indwelling urinary catheter may have some effect on long-term use, although research on the appropriate type and size of the catheter or balloon is scant. The long-term use of indwelling urinary catheters is associated with high rates of urinary tract infection and spasms. The most commonly used catheters are latex.

An all-silicone catheter, however, should be used in patients with an allergy to latex. Research on the use of silver-coated urinary catheters indicates that they may lead to fewer urinary tract infections than silicone or silicone-coated catheters and the more common hydrogel-coated latex ones. But additional research on their benefit for long-term catheterization is needed.

Most experts advocate the use of the smallest size catheter effective for a patient—usually 14 French or 16 French—and a 5-mL balloon. Catheters larger than 18 French create discomfort, increase the risk of blockage of the perirectal glands, and can lead to urinary tract infection and erosion.

For long-term catheterization, 5-mL balloons instilled with 10 mL of sterile water should be used. Underinflation of the balloon can lead to balloon distortion and catheter deflection. A 30-mL balloon, sometimes used briefly after genitourinary surgery, decreases bleeding and prevents dislodgement by providing traction. Long-term catheterization with a 30-mL balloon, however, is associated with bladder spasms, urinary leakage, bladder-wall irritation, and greater amounts of residual urine.

Urinary leakage around a catheter is common. Nurses shouldn’t increase the size of the indwelling urinary catheter in response to leakage. This will lead to increased bladder and urethral irritation and bladder spasms and can induce urethral and bladder-neck dilatation and actually increase leakage. The catheter itself is the greatest irritant. Other bladder irritants include caffeine, carbonated beverages, and acidic foods, all of which should be avoided. Leakage can also be a sign of urinary tract infection, for which patients should be treated once a urine culture and sensitivity test is obtained. Anticholinergics are often recommended to treat leakage. Older adults who can’t tolerate high doses of anticholinergics can usually take a low dose of a bladder-specific anticholinergic. All such medications should be used for the shortest time possible.

Urethral catheter tubing should be secured to avoid tension on the bladder neck and accidental dislodgment. In male patients, positioning the catheter on the abdomen best achieves this objective; in female patients, on the anterior medial thigh. (For more information, see “Techniques for Stabilizing Urinary Catheters,” March 2002).

Data on how often indwelling catheters should be changed are lacking. The most common practice, changing monthly, is based on Medicare and Medicaid reimbursement structures and nurses’ schedules, although many experts believe that schedules for catheter changes should be individualized to the patient. Nurses should refer to manufacturers’ recommendations, which vary by type of catheter.
PATHOGENIC PROBLEMS
The Centers for Disease Control and Prevention (CDC) recommends aseptic technique for catheter insertion (see www.cdc.gov/ncidod/hip/guide/uritract.htm). But the usual practice of daily cleansing of the meatus urinarius with antimicrobial solution is expensive and has been found to be no more beneficial than daily cleansing with soap and water. Bacteriuria occurs even with thorough meatal cleansing because pathogens grow on foreign bodies, the flushing normally achieved with urination doesn’t take place, and the drainage bag and tubing can harbor infectious agents.

Biofilms, bacterial colonies encased in a self-generated polysaccharide armor, can cause encrustation and blockage. Why some patients experience blockage and others don’t is unknown. Encrustation is usually caused by Proteus mirabilis; other organisms include Staphylococcus epidermidis, Enterococcus faecalis, Escherichia coli, Pseudomonas aeruginosa, Klebsiella pneumoniae, and other Gram-negative organisms. As the CDC states,

Certain component organisms of these biofilms produce urease, which hydrolyzes the urea in the patient’s urine to ammonium hydroxide. The elevated pH that results at the biofilm–urine interface results in precipitation of minerals such as struvite and hydroxyapatite. These mineral-containing biofilms form encrustations that may completely block the inner lumen of the catheter. Organisms within the biofilm can’t be destroyed by antimicrobial therapy alone. Routine irrigation of indwelling urinary catheters hasn’t been proven to be effective and might actually increase the risk of infection. But current laboratory research shows some promising results in decreasing the incidence of biofilm production. A study of catheter balloons inflated with a triclosan solution found that the urinary pH remained acidic for seven days, and catheters drained freely. Although studies have shown the effectiveness of catheter irrigation with acidic solutions, no large-scale clinical trials have been undertaken. For now, a patient with a blocked catheter should have the device changed frequently, as often as weekly.

Drainage bags should be emptied every four to six hours, at a minimum, to avoid the migration of bacteria into the catheter lumen. The cleaning of drainage bags remains controversial. Most experts recommend maintaining a closed system at all times, but many patients switch twice daily between bedside drainage bags and leg bags, which increases the risk for infection. Cleansing the bag with full-strength distilled vinegar has been shown to reduce the level of bacteria found in urine in the bag, which may be a sign of this technique’s potential to mitigate this source of infection.

Patients with symptoms of a urinary tract infection—fever, chills, hematuria, suprapubic pain—are treated with antibiotics. Older adults may not exhibit the common urinary tract infection symptoms but instead show a decline in mental

A scanning electron micrograph of a Staphylococcus biofilm. A distinguishing characteristic of biofilms is the presence of extracellular polymeric substances, primarily polysaccharides, surrounding and encasing the cells.
function. Prophylactic antibiotics aren’t recommended with indwelling urinary catheterization; they lead to drug-resistant infectious agents. Constipation can exacerbate problems with indwelling urinary catheters and increase the risk of urinary tract infection caused by bladder instability or bladder outlet obstruction. Hydration is especially important in catheterized patients as a way to prevent constipation, as is a bowel regimen consisting of a high-fiber diet and suppositories or mini-enemas if needed. Hydration is also important for internal flushing of the urinary tract. One study found that a uniform and high rate of intake was more important than a high total daily intake to decreasing the risk of catheter blockage. Wilde and Carrigan reported that increased fluid intake reduced the incidence of urinary tract infection.

RECOMMENDATIONS

Cranberry juice is recommended to prevent bacterial adherence to urinary epithelial cells (8 oz. to 16 oz. daily of a 30% or greater cranberry blend, for as long as the patient is catheterized). And in one study, cranberry–lingonberry juice was found to significantly decrease the incidence of urinary tract infection. Cranberry tablets (300 to 400 mg twice daily) can provide the same benefit without additional calories, although in patients at risk for nephrolithiasis (kidney stone formation), cranberry tablets may place them at increased risk for stone formation. Ascorbic acid, 1 to 2 g daily, will help support an acidic urinary tract.

Intravaginal estrogens are helpful in improving patient comfort and decreasing the incidence of urinary tract infection in postmenopausal women with indwelling urinary catheters. It does so by reversing urethral and vaginal atrophy, increasing vaginal moisture, and decreasing vaginal pH. A small amount of estrogen cream around the urethral meatus produces similar results. Research on the link between estrogen and cancer—in particular estrogen use in women with a history of breast or uterine cancer—highlights the need for caution with any medication that contains estrogen. However, research indicates that the systemic absorption of vaginal estrogen is minimal. There is little information on the use of estrogen around the meatus. Patients with indwelling urinary catheters are at risk for a variety of catheter-related illnesses, including nephrolithiasis, urethral fisture, prostatitis, and bladder cancer. For this reason, such patients should be evaluated by a urologist at least annually.

REFERENCES

My Dad Has Parkinson Disease

And my mother has boundless love.

Illustration by Fred Sebastian

Reflections

My dad has Parkinson disease. There is a do-not-resuscitate directive on the refrigerator. My mother is his caretaker.

For now, Dad sits in his chair, leaning so far to the right that it looks as though he might just tumble out. His body can no longer hold him upright. The chair’s electronic components lift him to a standing position. He used to love electronic gadgets, though this is one he would not have wished for.

My dad has diminished cognition, vision, and hearing; his high-volume earphones play books on tape. Does he really follow the story? Or does he listen for our sake? If nothing else, it lets us believe he takes pleasure in the stories we play for him.

My dad has Parkinson disease. My mother is his caretaker, and she is often tired. The four rooms of their fastidious home are scattered now with the things that keep him going. Pill bottles and organizers line the new, almond Formica countertops: Stalevo for parkinsonism, Zoloft for depression, Seroquel for drug-induced psychosis, MiraLax for constipation. Alarms remind my mother to measure his blood pressure and give the pills. At night, he wears foam-rubber booties to protect his heels from rubbing against the sheets. I tuck my mother in, but I cannot attach the condom catheter. For this, I call my mother.

My mother has not lost her sense of humor. Her sighs, frequent and long, are the only signs of her stress. We wonder together what is left of my father’s mind. Then he gives us a glimpse. One afternoon, we sit around the family’s heirloom mahogany dining table. My mother’s friend Norma, recently widowed, is urging her to go to a dinner–dance. “You can sit with me and the girls” she says, and my mother says for the third time, “I just couldn’t. I have a husband.” Dad breaks in: “Heah, what are you doing, leading my wife astray?” My mother laughs, such that her face turns red and the tears flow.

To the rescue. Strangers, men and women, ring the doorbell at 8 AM. When they arrive I am in nightclothes, Mother is in a housecoat, our hair is uncombed, teeth are not brushed, makeup is not applied, beds are not made. They are the helpers; we are the helped.

My mother has not lost her sense of social correctness. It is Dad’s 83rd birthday. Will it be his last? We lift him into a wheelchair and take him out to dinner. My mother feeds him: “Come on, Carl,” she says, “finish this last bite of broccoli.” In the restaurant, my mother is self-conscious, wondering whether the other patrons are turned off by the nursing-home appearance of our table in the corner. I don’t care. Mother cares a lot. I turn and look at Dad, who has chocolate ice cream smudged across his face. I turn back to my mother and say something that makes her laugh.

Goat lady. One day, 44 years ago, my dad learned that I had joined other children in tormenting an older woman who had a goat tied to a tree in her yard. We kids had decided that she must be a witch and so had every right to taunt her. “Goat lady, goat lady,” we chanted, as we threw empty cans at the goat. My dad greeted me that afternoon at the large, gray-pillared front porch of our home, car keys in hand. I had tormented a witch, who happened also to be Dad’s client. He was an attorney, and soon we were on our way to the goat lady, to whom I would apologize in person. I imagined her huge nose, long fingernails, raggedy clothing, and mean disposition. But I saw that she was in fact rather grandmotherly, which turned my terror into shame.

Do not resuscitate. My dad has Parkinson disease. He loves chocolate ice cream, but not nearly as much as he loves my mother. He probably doesn’t know how exhausted she is. He says he may not be around much longer. Most of the time his voice is barely a whisper, but I hear these words clearly. There is a do-not-resuscitate order on the refrigerator, but we need no reminder that this disease takes him away from us, daily, bit by bit. One day we will have to love him more than we ever have and let him go.

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ajn@lww.com
Until April 2002, in the ED of Children’s Medical Center in Dallas, we sometimes allowed families to be present at patients’ bedsides during invasive procedures (IPs, such as central line placement, lumbar puncture, and chest tube insertion) and resuscitation interventions (RIs, including emergency endotracheal intubation and cardiopulmonary resuscitation). However, we had no guidelines or policies on the presence of family—defined as relatives or significant others with whom the patient shares an established relationship—during such interventions, nor did we have any formal support from our ED administrators. In practice, we drew the line on certain procedures that we deemed too painful for families to witness.

In 1995 the Emergency Nurses Association (ENA) developed clinical guidelines to support the option of family presence during IPs and RIs. Other health organizations, including the American Heart Association (AHA) and the American Association of Critical-Care Nurses, have since followed suit. In addition, advanced training programs such as the AHA’s Advanced Cardiac Life Support Course and Pediatric Advanced Life Support Course and the ENA’s Trauma Nursing Core Course and Emergency Nursing Pediatric Course have been incorporating family presence recommendations into their curricula.

We decided that our ED should have a written policy regarding family presence. First we examined recent surveys, many of which found that the majority of family members...
want to be in the room while their loved ones are undergoing emergency procedures. In addition, a variety of research studies we reviewed documented how being present at a loved one’s bedside benefited family members: they felt less anxious about what was happening to the patient and were more likely to believe that everything possible was being done; they also felt they had provided emotional support to the patient. Two of these studies, published in AJN, were conducted by one of the authors of this paper (Cathie E. Guzzetta), along with other researchers: the first, “Family Presence During Invasive Procedures and Resuscitation: The Experience of Family Members, Nurses, and Physicians,” was published in February 2000, and the second, “Family Presence During Invasive Procedures and Resuscitation: Hearing the Voice of the Patient,” was published in May 2001. We also discovered numerous studies demonstrating that family presence did not disrupt the delivery of emergency care, that family members who were present during IPs and RIs had not experienced adverse psychological effects, and that nearly all family members said they would do it again if a similar event were to occur. After examining the literature on family presence, we assessed the attitudes and opinions of the staff in our hospital’s ED regarding family presence and used our findings to develop a written policy. Three months after it was instituted, we evaluated the effectiveness of our policy, as well as any associated problems.

ASSESSING STAFF ATTITUDES

The ENA recommends that facilities developing a family presence policy identify “project champions”—people who will be committed to the policy’s realization. Following this recommendation, we formed a multidisciplinary group of nurses, physicians, social workers, child life specialists, chap-
lains, a psychiatric nursing consultant, and a research consultant—all advocates of family presence. The group was called the “Core Family Presence Team,” and its goal was to develop a family presence policy at our institution.

Increasing awareness. We began by inviting a panel of speakers to present a lecture on family presence to our ED staff. This presentation incorporated research findings on family presence and was part of a mandatory program that was repeated three times. In addition, we distributed clinical and research articles on family presence. These two measures increased the staff’s awareness of family presence and generated much discussion.

Family presence self-assessment survey. We then developed a survey entitled “Self-Assessment Survey Related to Family Presence During Invasive Procedures and Resuscitation Interventions,” which was adapted from an ENA survey designed to assess staff attitudes, concerns, beliefs, and individual current practices about family presence. We formulated definitions of family presence and attached them to our survey, which consisted of 12 questions to be answered with a “yes” or a “no”; we also provided space for comments (see Figure 1, page 43). Selected demographic data such as age, sex, race, ethnic origin, education level, job title, and years of experience were included. To ensure that our survey was clear and understandable, we tested it on staff volunteers outside the ED. We then sent out the survey to the 290 health care providers in our ED. Participation was voluntary and anonymous.

Results. Of the 290 distributed surveys, 109 were completed and returned (a 38% response rate). The average age of the respondents was 34 years (range 21 to 59 years). The majority of respondents were female (62%) and white (86%). About 37% had medical degrees, 25% had bachelor’s degrees, and 24% had diplomas or associate’s degrees. Most graduating from basic training in their fields, respondents had eight years of experience on average (range 0.3 to 30 years).

Yes or no? After analyzing the responses to the “yes” or “no” questions, we found that the majority of respondents

- believed they should provide psychosocial support to family members (92% felt they should provide this support during IPs; 74% felt they should do so during RIs).
- felt comfortable performing IPs or RIs in the presence of family members (87% for IPs; 60% for RIs).
- believed that families should have the option to be present at the bedside (89% for IPs; 79% for RIs).
- had participated in IPs or RIs in the presence of family members (93% for IPs; 68% for RIs).
- felt that their performance was not affected by the presence of family members (69% for IPs; 76% for RIs); however, some respondents did feel that their performance had been hampered (18% for IPs; 19% for RIs).
- had had family members ask them if they could be at the patient’s bedside during an IPs (about 88% had received this request); however, less than half (46%) had received it for RIs.
- would want their family members present at the bedside if they were to become ill or critically injured (86% for IPs; 71% for RIs) and they would want the same option if they had a critically ill or injured family member (89% for IPs; 76% for RIs).
- would support a formal written policy in the ED for family presence (83% for IPs; 71% for RIs). While more nurses (95%) than physicians (65%) said they would support a written policy for IPs, this difference was not statistically significant ($P = 0.07$). However, significantly more nurses (95%) than physicians (32%) said they would support a written policy for RIs ($P < .001$). We suspected this discrepancy might be influenced by the physicians’ years of experience: when we further analyzed physicians’ responses regarding a written family presence policy for RIs, we found that about 60% of the more experienced ones (attending physicians with 11 or more years of experience) supported such a policy, while only 27.8% of those with less experience (resident physicians with less than four years of experience) did so.

Perceived benefits and impediments. Many respondents believed that family presence during IPs allows families to better understand the care the patient is receiving and gives them a sense of control. Family presence during RIs was seen as facilitating the grieving process and providing closure if death should occur. Some viewed family presence as an integral part of health care and believed fam-
Self-Assessment Survey Related to Family Presence During Invasive Procedures and Resuscitation Interventions

1. Providing psychosocial support to family members is a part of what I do during:
   a. invasive procedures  q Yes  q No
   b. resuscitation interventions q Yes  q No

2. I generally feel comfortable providing psychosocial support to families during:
   a. invasive procedures  q Yes  q No
   b. resuscitation interventions q Yes  q No

3. I generally feel comfortable in performing interventions while family members are at the bedside during:
   a. invasive procedures  q Yes  q No
   b. resuscitation interventions q Yes  q No

4. I believe family members should have the option to be present at the bedside during:
   a. invasive procedures  q Yes  q No
   b. resuscitation interventions q Yes  q No

5. I have participated in a situation in which a family member was present during the performance of:
   a. an invasive procedure  q Yes  q No  (If "No," skip to Question 8)
   b. resuscitation intervention q Yes  q No  (If "No," skip to Question 8)

6. During an invasive procedure, when a family member was present, my performance of interventions was:
   a. q facilitated  b. q hampered  c. q not affected

7. During resuscitation interventions, when a family member was present, my performance of interventions was:
   a. q facilitated  b. q hampered  c. q not affected

8. In the past, I have been asked by a family member if they could be present during:
   a. invasive procedures  q Yes  q No
   b. resuscitation interventions q Yes  q No

9. I believe the following are benefits/barriers to family presence during invasive procedures and/or resuscitation interventions.
   Invasive procedures:
   Benefits: ______________________________________________
   Barriers: ______________________________________________
   Resuscitation interventions:
   Benefits: ______________________________________________
   Barriers: ______________________________________________

10. If I were critically ill or injured, I would want the option to have my family present with me at the bedside during:
    a. invasive procedures  q Yes  q No
    b. resuscitation interventions q Yes  q No

11. If I had a critically ill or injured family member, I would want the option of being present with them during:
    a. invasive procedures  q Yes  q No
    b. resuscitation interventions q Yes  q No

12. I would support a formal written policy in our ED giving the family the option of being present during:
    a. invasive procedures  q Yes  q No
    b. resuscitation interventions q Yes  q No

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Some feared that a written policy would impose family presence on both staff and families; some families might feel that their presence during an IP or RI is not a choice but an expectation. Many indicated that the decision to allow family members at the bedside should depend on the family’s emotional stability as well as on the procedure being performed. Some feared that a written policy would impose family presence on both staff and families; some families might feel that their presence during an IP or RI is not a choice but an expectation. Many indicated that the decision to allow family members at the bedside should depend on the family’s emotional stability as well as on the procedure being performed.

**Family Presence Policy at Children’s Medical Center, Dallas**

**I. PURPOSE**
To offer family members the option, when appropriate, of being at the bedside during invasive procedures (IP) and/or resuscitation interventions (RI). Family presence: the attendance of the family members in a location that affords visual or physical contact with the patient during IP or RI.

**II. POLICY**
The option of family presence at the bedside during IP and/or RI will be offered to the family, providing that the following criteria are met:

A. Uninterrupted patient care will remain the priority.
B. A member of the health care team (family facilitator) will assess the patient’s family for appropriateness of family presence.
   1. Members of the health care team shall participate with the family facilitator in evaluating whether families are suitable candidates for bedside presence.
   2. Before the family presence option is offered, families will be assessed for appropriate levels of coping and the absence of combative behavior, extreme emotional instability, and behaviors consistent with altered mental status.
   3. Suspected child abuse is an absolute contraindication to family presence.
C. The physician in charge/direct care provider is informed of and is in agreement with the option of family presence.
D. The family will be offered the option of family presence. Family members who do not wish to participate will be supported in their decision.
E. A maximum of two family members may be present at the bedside at a given time. When prioritizing family member visitation and determining next of kin, the members of the health care team will use Administrative Policy Disclosure and Informed Consent 2.04.
F. Before entering the room, the family facilitator will prepare the family for bedside presence. He/she will explain that patient care is the priority. He/she will describe the patient’s appearance and condition, procedures being performed, and the importance of the family’s supportive role.
G. The family facilitator will provide the family with personal protective equipment as appropriate. The health care team will instruct the family members where to stand and what they may or may not touch to prevent contaminating the patient or supplies during a sterile procedure.
H. The family facilitator will escort the family to the bedside and remain with the family during the bedside presence until, upon collaboration with the health care team, it is appropriate for the facilitator to depart.
I. When in the room, the family facilitator will:
   1. Provide comfort measures, such as a chair at the bedside or tissues.
   2. Provide opportunities for families to ask questions.
   3. Facilitate opportunities for the family to see, touch, and speak to the patient.
J. If a family member becomes faint, overwhelmed, or disruptive at the bedside, the family facilitator will immediately escort him or her from the area and arrange appropriate supportive care.
K. After completing the patient bedside visitation, the family facilitator will escort the family to a comfortable area, address their concerns, provide comfort measures, and address other psychosocial needs identified during the intervention.
L. If members of the health care team involved in a family presence identify the need for debriefing regarding the case, the area supervisor will facilitate an immediate and appropriate processing and debriefing of the incident.

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performed.

Asked to place themselves in the patient’s situation, some said they would not want their families to remember them “in that condition.” However, of those whose own family members had undergone an IP or RI, many believed family presence to be essential to the patient’s well-being. One person wrote, “I would fight to be in the room with a family member, as I would like those last few minutes with them.”

Most respondents commented on the importance of having designated personnel who would assess family members’ emotional stability and monitor their presence throughout the procedure, even escorting them out if necessary. Many identified the appropriate preparation of families for the procedure as essential to their own comfort level with family presence. Some indicated that child life specialists and social workers might help address these concerns.

Regarding their own experiences with family presence, some respondents noted that family presence had increased their stress level and impeded their performance. Others indicated a keen awareness that the difficult topic of death affects not only families but staff as well. Overall, experiences with family presence during RIs were somewhat less positive than those during IPs, with respondents commenting that “there is not enough time to explain the process and procedures to parents,” that the lack of preparation of the family “hampered” the resuscitation process, that parents sometimes dictated medical decisions (for example, when to end a code), and that performance anxiety made the process more difficult for staff during resuscitation efforts.

Policy planning. The low response rate (38%) to this survey limited our interpretation of how the entire ED staff felt about family presence, since the beliefs of those who did not respond remained unknown. Nevertheless, those who responded, particularly the nurses and attending physicians, supported family presence. As a result, the Core Family Presence Team recommended that a formal written policy, called “Presenting the Option of Family Presence during Invasive Procedures and/or Resuscitation Interventions” be developed and approved for our ED.

**FAMILY PRESENCE POLICY DEVELOPMENT**

In developing our family presence policy, we used the ENA family presence guidelines,1 expanding them in order to address the concerns and recommendations of our ED staff. All group members agreed that a family presence policy needed to ensure that uninterrupted patient care remained the priority goal, and that family presence should be viewed as an option, not an expectation. In the policy, we specified that family members need to be assessed to determine whether they are appropriate candidates for family presence as shown by the absence of combative behaviors, extreme emotional instability, or behaviors consistent with an altered mental state (as a result of drugs or alcohol). In addition, we specified

M. The family facilitator will communicate the need for family follow-up to the appropriate social worker.

III. GUIDELINES
A. Will patient care be interrupted if family members are present?
B. Has the family been screened for appropriateness of bedside presence?
C. Is the physician in charge/direct care provider in agreement with family presence?
D. Is family aware that only two members will be permitted in the patient care area at one time?
E. Is a family facilitator available to remain with the family until it is appropriate for the facilitator to depart?
F. Has the family been prepared for bedside presence?
G. Is the family aware that they can step out of the patient care area at any time?
H. Is the family aware that they may be asked to leave at any time at the discretion of the physician in charge/direct care provider?
I. Has the family been assured that they will be frequently updated if they choose not to be at the bedside?
J. Was family presence documented in the nursing or progress notes?

IV. RESPONSIBILITY
Physician, Nursing, Respiratory Care Practitioner, Clinical Technician, Social Work, Child Life, Pastoral Care, Translation Services.

V. REFERENCES
Administrative Policy Disclosure and Informed Consent 2.04. Children’s Medical Center, Dallas, Texas, 75235.
On the Cover

This month, AJN is proud to feature two photographs by acclaimed photographer Sylvia Plachy (see cover and page 41). Named the 2004 Distinguished Photographer of the Year by Women in Photography International, Plachy has enjoyed a career spanning more than 40 years. Her work has been featured in such publications as the New Yorker, Harper’s, and Artforum, and can be found in the permanent collections of the Museum of Modern Art, the Museum of Fine Art in Houston, and the San Francisco Museum of Fine Arts, as well as many others. Recently, Plachy was chosen as the first photographer for Lens, a new weekly feature in the New York Times that highlights images unique to New York City.

Born in Hungary, Plachy escaped the revolution with her parents in 1956, living first in Vienna and then moving to the United States; she began her career as a photographer in 1964. Plachy worked for New York’s Village Voice for 30 years and it was during her tenure there that the photographs in this month’s issue were made. The photographs, taken at Booth Memorial Medical Center (now the New York Hospital Medical Center of Queens) in Queens, New York, in 1983, are part of a series on the city’s EDs. Plachy traveled with emergency medical technicians at night as they worked; she worried that her presence would be an imposition to the patients and their families. She found the opposite to be true—if anything, she says, she provided a diversion. Patients and family members, waiting in hallways, “were glad to have someone to talk to.” Plachy believes family presence in hospitals is vitally important—families “can send their good wishes and their prayers and the wish to have [the patient] well,” all of which can provide healing beyond what clinicians do.

Although she is often described as a photojournalist, the term belies the poetry of Plachy’s images. In describing her work, Plachy’s mentor, Hungarian photographer Andre Kertesz, has said, “I have never seen the moment sensed and caught on film with more intimacy and humanity.” This is evident in the photo that accompanies our article on family presence—without a tear-stained face or any of the standard markers of grief, Plachy is able to convey the sense of anxiety experienced as one waits to hear the fate of a loved one. Her ability to render it with intimacy and humanity is what defines her art and is what makes her an appropriate choice for this issue.—Lisa Melhado, associate editor

that the physician (or direct care provider) in charge of the procedure has to agree with the option of family presence before the option is presented to the family. Designated staff, such as nurses, social workers, child life specialists, and chaplains, were identified in the policy as “family facilitators” who would be responsible for assessing families as appropriate candidates, offering the option of bedside presence to the family, preparing them for the procedure, escorting them to the bedside, and staying with them and supporting them during the event.

After developing a draft, we presented it to our ED medical and nursing directors, along with an executive summary of our survey and several research articles on family presence. This process continued up the hospital chain of command to include the chief of surgical services, chief medical officer, chief nursing officer, and chief legal counsel. We also consulted all multidisciplinary services, such as social work, child life, and pastoral care.
We continued to revise the policy according to the feedback we received, and presented the final draft to the hospital’s medical executive committee. We then received preliminary approval from the nursing and medical directors of our ED pending the results of a policy evaluation.

To prepare the ED staff for the new policy, we sent ongoing notifications by electronic mail, made presentations at staff meetings, and conducted informal group and private discussions. In addition, because the resident staff rotates monthly through our ED, we enlisted the support of our chief residents and presented ongoing educational sessions during their resident noon conference. (These educational sessions have now been incorporated into our new-employee and resident orientations.)

Finally, we developed a “Family Presence Policy Evaluation Form,” designed to document whether the family presence policy was implemented correctly and whether patient care was affected by family presence. For example, the form documented whether

- a family member was an appropriate candidate for family presence.
- the family facilitator had to escort family members out of the room because they were overwhelmed or disruptive.
- patient care was interrupted.

The family facilitator, who received special training in family presence and in collecting data for this evaluation, was responsible for filling out this evaluation form.

EVALUATION

During the three-month evaluation, 65 families were considered as possible candidates for family presence. Of these, 54 families were assessed as appropriate candidates for it, nine were deemed inappropriate and were not offered the option, and two declined.

The family facilitators—nurses, social workers, and other staff such as child life specialists, chaplains, and physicians—prepared all families. None of the families present during procedures was disruptive, and none had to be escorted out of the room; two family members left on their own accord. In 100% of the family presence cases, patient care was not interrupted.

The results of the evaluation revealed that the policy was being implemented correctly, that it was effective in screening candidates for bedside presence, and that it did not disrupt patient care. Suspected child abuse was identified as a contraindication for family presence and was added to the policy.

Based on the results of this evaluation, the policy “Presenting the Option of Family Presence During Invasive Procedures and/or Resuscitation Inter-

Many professional organizations recommend that family members be given the option to be with their loved ones during invasive procedures or resuscitations. But family presence policies rarely exist in hospitals.

ventions” was approved and implemented in our ED. (See Table 1, page 44.)

We are now completing a research study investigating the problems and benefits of family presence from the perspective of family members and health care providers in our pediatric ED.

IMPLICATIONS FOR PRACTICE AND RESEARCH

Many professional organizations recommend that family members be given the option to be with their loved ones during IPs or RIs. However, family presence policies rarely exist in hospitals. In a recent survey of nearly 1,000 critical care and emergency nurses throughout the United States, more than half indicated that they had brought families to the bedside, but only 5% said their units had written policies regarding family presence. 19

More research on family presence is needed (for example, on its long-term effects on families or its legal implications). However, until new data emerge to demonstrate that the problems outweigh the benefits, there is no reason not to formalize the practice and establish family presence programs as an option for all families.

REFERENCES

4. American Academy of Pediatrics, American Heart Associa-
To provide registered professional nurses with an opportunity to review how an institution assessed the attitudes and opinions of the ED staff regarding family presence and used the findings to develop a written policy.

**LEARNING OBJECTIVES:** After reading this article and taking the test on the next page, you will be able to

- discuss the issues surrounding family presence during invasive procedures and resuscitation interventions, as well as how the authors explored these issues.
- describe the results of the authors’ survey of ED staff about family presence.
- outline the features of the family presence policy established at the authors’ facility.

**To earn continuing education (CE) credit, follow these instructions:**

1. After reading this article, darken the appropriate boxes (numbers 1–15) on the answer card between pages 48 and 49 (or a photocopy). Each question has only one correct answer.
2. Complete the registration information (Box A) and help us evaluate this offering (Box C).*
3. Send the card with your registration fee to: Continuing Education Department, Lippincott Williams & Wilkins, 333 Seventh Avenue, 19th Floor, New York, NY 10001.
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All answer cards for this test on "Family Presence: Making Room" must be received by May 31, 2007.

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Family Presence: Making Room

1. In previous studies of family presence during invasive procedures (IPs) and resuscitation interventions (RIs), it was determined that family members who were present
   a. experienced increased anxiety about what was being done.
   b. were more likely to disrupt emergency procedures.
   c. tended to believe that everything possible was being done.
   d. learned the value of having advance directives in place.

2. According to several studies, most family members who were present during an IP or RI report that, should the situation arise again, they would
   a. prefer to be present again.
   b. consider the patient’s wishes first.
   c. ask for more explanation of procedures.
   d. feel less anxious if a clergy member were available.

3. Before establishing family presence guidelines, the authors’ facility first used which strategy to increase the ED staff’s awareness of and interest in family presence?
   a. showed a videotape on the benefits of family presence
   b. invited guest speakers to lecture on family presence
   c. asked the staff to read a literature review about the topic
   d. encouraged the staff to form discussion groups

4. Results of the authors’ family presence self-assessment survey indicated that most respondents
   a. felt that their performance had been hampered by family presence.
   b. had been asked by the family if they could stay during RIs.
   c. felt comfortable with the family during IPs but not RIs.
   d. believed they should support the family during IPs and RIs.

5. Of the ED staff surveyed, what percentage of respondents indicated that they would want their family members present if they themselves required an RI?
   a. 86%
   b. 71%
   c. 65%
   d. 60%

6. Of those surveyed, significantly more nurses than physicians indicated that they would support a written policy for family visitation during RIs. The authors concluded that physicians’ opinions varied according to their
   a. experience with family presence.
   b. familiarity with grief.
   c. years of medical experience.
   d. performance anxiety.

7. Many respondents felt that when an RI is unsuccessful, family presence
   a. helps provide closure.
   b. offers helpful options.
   c. escalates emotions.
   d. jeopardizes teaching.

8. Some survey respondents expressed apprehension that with a written policy in place, family members would view their presence during RIs as
   a. a choice.
   b. a dilemma.
   c. a privilege.
   d. an expectation.

9. Most respondents noted the importance of having designated personnel who would
   a. escort family members out of the room, if this became necessary.
   b. monitor the patient’s progress and condition at all times.
   c. notify security staff whenever problems or safety issues arose.
   d. help the family with arrangements if the patient died.

10. Respondents also commented on less favorable experiences with family presence. For example, some respondents noted that during RIs
    a. family members tended to talk and this was distracting to staff.
    b. the staff felt it necessary to try to block family members’ view of certain actions.
    c. family members sometimes dictated when a code should end.
    d. the staff spent more time explaining things to family members than tending to the patient.

11. The survey’s usefulness is limited by
    a. the subjective nature of the questions.
    b. the relatively low response rate.
    c. its inclusion of both physicians and nurses as respondents.
    d. peer pressure to accept a policy.

12. The authors’ group agreed that a family presence policy must ensure that which of the following remains a priority?
    a. providing more information for families about IPs and RIs
    b. improving patient and family satisfaction ratings
    c. helping staff become more comfortable with family presence during IPs and RIs
    d. ensuring uninterrupted patient care

13. Essential to the new family presence policy at the authors’ facility is an evaluation form, which in part documents whether
    a. the family members felt they received thorough explanations of procedures.
    b. the staff welcomed the family at the bedside.
    c. the family facilitator had to escort family members out of the room.
    d. the family members expressed appreciation to staff for their efforts.

14. Before a family is offered the option of family presence during IPs or RIs, the family facilitator must screen each member for
    a. combative behavior.
    b. visible anxiety.
    c. facial flushing.
    d. lack of interest.

15. In cases where child abuse is suspected, the family
    a. must be accompanied by the family facilitator at all times.
    b. will be allowed only very brief visits during an RI.
    c. is prohibited from attending IPs or RIs.
    d. can only be allowed at the bedside if security or law enforcement personnel are present. 
Barbara Liston, a 65-year-old retired social worker, has been diagnosed with ventilator-associated pneumonia after 10 days on a positive-pressure mechanical ventilator. A chest X-ray shows bilateral infiltrates with increased densities that are worse on the right side. Her ventilator settings include fractional concentration of oxygen in inspired gas (FiO2), 80% (increased from 40% in response to a rise in nighttime hypoxemia); tidal volume, 500 mL; ventilation rate, 12 breaths per minute; and positive end-expiratory pressure (PEEP), 8 cm H2O. Values for her arterial blood gases, drawn two hours earlier, are pH, 7.35; partial pressure of arterial oxygen (PaO2), 75 mmHg; partial pressure of arterial carbon dioxide (PaCO2), 55 mmHg; and serum bicarbonate, 20 mmHg. Thus, Ms. Liston’s PaO2/FiO2 ratio, an indicator of oxygenation status, is 94. She has an extensive history of chronic obstructive pulmonary disease and supplemental oxygen use at home. She has an enteral feeding tube in place, but feeding has been suspended because her gastric residual volumes have been greater than 100 mL per hour. She is lying flat in bed with a temperature of 103°F. Heavily sedated, she responds only to suctioning.

What are the most important interventions to consider, and what are the best, evidence-based nursing practices to help Ms. Liston be liberated from the ventilator? This article addresses several integral areas of care, including weaning from mechanical ventilation, preventing ventilator-associated pneumonia, providing nutritional support, managing anxiety, timing tracheostomy, preventing aspiration, and promoting sleep. (In this article, mechanical ventilation refers to the use of positive-pressure ventilators that deliver air invasively through endotracheal or tracheal tubes.)

The longer a patient remains on mechanical ventilation, the greater the risk of complications, which increase the likelihood that the patient will require a longer hospital stay. Patients on mechanical ventilation are occupying beds not only in ICUs, where its use is typical, but also on intermediate care and step-down, medical–surgical, pulmonary rehabilitation, and long-term care units.

**WEANING FROM MECHANICAL VENTILATION**

The length of time spent on a mechanical ventilator (ventilator length of stay) varies among patients. Weaning should occur without undue delay, in order to reduce the risk of complications (such as...
pneumonia and airway trauma) and their associated costs.\(^1\) But premature weaning can also have undesirable results, such as compromised gas exchange and, if the patient must be reintubated, difficulty reestablishing an airway. In some cases, tracheostomy may become necessary. For these reasons, investigators have sought criteria that would help predict a patient’s weaning potential.

In 1991 Yang and Tobin developed the frequency–tidal volume ratio (also known as the rapid shallow breathing index); most weaning protocols today incorporate it. The ratio is expressed as frequency of respiration (f, given in breaths per minute) divided by tidal volume (VT, given in liters) as measured during spontaneous, unsupported respiration. They reported it to be an accurate predictor of both weaning failure, if the result was greater than 105, and success, if the result was less than or equal to 105.\(^2\) A later study evaluated the frequency–tidal volume ratio and four other indices and determined that although none was a strong predictor of weaning success, they were all useful in predicting failure (unsuccessful weaning trials).\(^3\)

As an indicator of oxygenation status, the PaO\(_2\)–FiO\(_2\) ratio has had its proponents and detractors; studies of its reliability and validity have yielded mixed results. However, in comparison with other such indicators, it appears to be among the more useful ones and often is used to assess acute lung injury. One 2003 study compared the accuracy of the PaO\(_2\)–FiO\(_2\) ratio and the Murray lung injury score as measures of lung injury severity.\(^4\) The researchers determined that the PaO\(_2\)–FiO\(_2\) score predicted death better and recommended that it
“replace more complex and potentially therapy-dependent scores.” The PaO₂–FiO₂ ratio can be calculated readily from arterial blood gas results and the prescribed FiO₂ ventilator setting.

In 1995 a multicenter study published in the *New England Journal of Medicine* reported that “a once-daily trial of spontaneous breathing led to [successful] extubation about three times more quickly than intermittent mandatory ventilation and about twice as quickly as pressure-support ventilation.” Another study of 300 adult patients on mechanical ventilation demonstrated that daily assessment of respiratory function using several indices, including the PaO₂–FiO₂ ratio, followed by a trial of spontaneous breathing when appropriate, significantly reduced complications and critical care costs.

Studies have shown that weaning is most successful when a multidisciplinary team collaborates. In one study of a collaborative weaning plan, the team used weaning boards (dry-erase boards kept at the bedside to communicate to the team, patient, and family) and flow sheets (paper sheets kept at the bedside to record the weaning process and the patient's responses to each trial). The intervention decreased medical ICU lengths of stay by an average of 3.6 days and ventilator lengths of stay by an average of 2.7 days.

**Best nursing practice.** Guidelines published in the December 2001 issue of *Chest* (www.chestjournal.org/cgi/content/full/120/6_suppl/375S) recommend that patients be formally assessed to determine their readiness for discontinuation of mechanical ventilation. Nurses can ensure that such assessment occurs daily—checking for evidence that the underlying cause of respiratory failure has been reversed, for adequate oxygenation and inspiratory effort, and for hemodynamic stability—and can discuss the findings with physicians. The patient’s progress in attempting to breathe spontaneously should also be considered.

The nurse should monitor patients for signs of respiratory intolerance, such as thoracoabdominal asynchrony, the use of accessory muscles to breathe, tachypnea, decreased oxygen saturation, hypertension, tachycardia, and diaphoresis, and for symptoms such as dyspnea, discomfort, and anxiety. Respiratory muscle fatigue may occur during weaning; it usually takes about 24 hours for a patient to recover from such fatigue, although some may recover more quickly. Dyspnea is common in patients on ventilators and should be evaluated. Powers and Bennett studied five dyspnea-rating scales and determined all five to have reliability and validity in critically ill patients on mechanical ventilation; of the five, the numeric scale was easiest for patients to use. Such a scale typically allows patients to rate their dyspnea on a scale from 0 (no breathlessness) to 10 (most severe breathlessness) (some versions use a 4-point or other range).

The guidelines recommend that the following values be met before weaning: PEEP, less than or equal to 5 to 8 cm H₂O; FiO₂, less than or equal to 0.4 to 0.5 (40% to 50%); pH, 7.25 or greater; and PaO₂–FiO₂ ratio, greater than 150 to 200. Generally, a PaO₂–FiO₂ ratio of greater than 300 is considered normal, although lower levels may be acceptable.) The pH level and PaO₂–FiO₂ ratio are based on arterial blood gas results and can be calculated easily by the nurse. The frequency–tidal volume ratio is also easily calculated and can be useful in predicting weaning failure.

The guidelines define hemodynamic stability as “the absence of active myocardial ischemia and the absence of clinically important hypotension” and, accordingly, patients receiving very-low-dose vasopressor therapy or none at all may be considered for weaning. The patient’s ability to initiate an inspiratory effort should be evaluated as well. This is done by measuring negative inspiratory force, using a gauge attached to the endotracheal or tracheostomy tube. The patient exhales as completely as possible, then breathes in with as much force as possible for about five to 10 seconds. A negative inspiratory force of –20 cm H₂O or greater indicates readiness for weaning.

**PREVENTING VENTILATOR-ASSOCIATED PNEUMONIA**

Nosocomial pneumonia is most commonly caused by aspiration of oropharyngeal secretions. Risk factors include critical illness, immunosuppression, use of an artificial airway or mechanical ventilation, lengthy hospitalization, and long ventilator length of stay. Patients on mechanical ventilation are six to 21 times more likely to develop nosocomial pneumonia than those not on mechanical ventilation.

One study found that clinically suspected nosocomial pneumonia occurred less often in patients in a semirecumbent position (45° angle) than in those in a supine position (8% versus 34%). The researchers also concluded that the risk of nosocomial pneumonia increased with “long-duration mechanical ventilation and decreased consciousness.”

Oral microorganisms, which tend to concentrate in dental plaque, can migrate to and colonize the lungs. In patients who are critically ill and on mechanical ventilation, this can cause ventilator-associated pneumonia. Dental plaque and associated microbes can be managed through toothbrushing and oral rinsing, administering an antimicrobial agent, or both. Proper oral care is essential in this population. Yet a recent study of patients on mechanical ventilation found that toothbrushing, which is effective in removing plaque, was not performed routinely, and that sponge toothettes, which are ineffective for plaque removal, were used instead.
In a recent pilot study, 34 intubated trauma and surgical patients were randomly assigned either to receive a single application of 2 mL of a 0.12% chlorhexidine solution by spray or swab to cover all oral surfaces or to a control group. Patients in both treatment groups (spray and swab) showed decreased oral bacterial growth; patients in the control group did not. The researchers concluded that the use of chlorhexidine soon after intubation may delay or prevent the development of ventilator-associated pneumonia. An oral rinse of chlorhexidine (Peridex) was shown to be effective in preventing nosocomial pneumonia in patients intubated after cardiovascular surgery.

**Best nursing practice.** Weaning and extubation should occur as soon as the patient is ready.

Elevating the head of the patient’s bed to a 45° angle will reduce the likelihood of aspiration of oral secretions. Oral care should include toothbrushing at least every 12 hours. The use of sponge toothettes every two to four hours to stimulate the oral mucosa is also recommended, but it should not replace toothbrushing. Subglottic secretions should be suctioned regularly, and proper cuff pressure should be maintained to prevent leakage of contaminated secretions. Application of chlorhexidine by spray or swab to cover all oral surfaces may also be useful, but further studies in patients on long-term ventilation are needed.

**MANAGING ANXIETY**

Having to depend on a machine to breathe and being unable to speak can bring about anxiety, which can result in sleep disturbances, increased myocardial oxygen consumption, and increased sympathetic output; the last can lead to tachypnea, tachycardia, or hypertension, making weaning...
Sedation by continuous IV infusion has been associated with prolonged ventilator lengths of stay.

more difficult. A patient’s inability to speak may also make it harder for nurses to meet his needs.

In our experience, the most commonly used anxiolytics in adult critical care are the benzodiazepines midazolam (Versed) and lorazepam (Ativan). Midazolam, a short-acting drug, has a more rapid onset of action and a shorter half-life than does lorazepam, an intermediate-acting drug. In a randomized, controlled study, Swart and colleagues evaluated the drugs’ effectiveness in 64 patients on mechanical ventilation who required long-term sedation. Patients received either midazolam or lorazepam by continuous infusion. The researchers found that with lorazepam it was “significantly easier” to attain and manage the desired sedation level; there were no differences in recovery between the two groups during the 24 hours immediately after discontinuing the drug. Propofol (Diprivan), a hypnotic agent with rapid onset and a short half-life, is delivered intravenously and is often used for short-term sedation of patients on mechanical ventilation. But it’s recommended for short-term use only; high-dose infusions have been associated with “propofol syndrome,” a rare but “potentially fatal complication characterized by severe metabolic acidosis and circulatory collapse.”

According to recently published clinical guidelines on the use of sedatives in critically ill adults, the development and use of sedation guidelines by a multidisciplinary team can reduce ventilator and ICU lengths of stay by about half (from 317 to 167 hours and from 19.1 to 9.9 days, respectively) without a change in mortality rate; direct patient care costs may be reduced even more dramatically.

Sedation by continuous IV infusion has been associated with prolonged ventilator lengths of stay. There is evidence that a daily interruption “to allow patients to ‘wake up’” may be advisable. Kress and colleagues studied 128 adults on mechanical ventilation who were receiving either midazolam or propofol through continuous infusion. In the intervention group, infusion was stopped daily until the patient awakened or seemed uncomfortable, at which point a physician decided whether to resume infusion; in the control group, infusion was interrupted only at a clinician’s discretion. The researchers found that daily interruption reduced the median ventilator length of stay by 2.4 days and the critical care length of stay by 3.5 days. This was accomplished with no difference in the rate of adverse events (such as self-extubation or tracheostomy) in the two groups.

The initiation of sedation can cause hemodynamically unstable patients to develop hypotension. Some clinicians believe it’s safer to administer benzodiazepines in small-bolus doses rather than by continuous infusion.

Nonpharmacologic interventions may be useful as well, although little research in this area has been conducted in patients on mechanical ventilation. In a literature review, White reported that music therapy has been shown to reduce anxiety and pain levels, heart and respiratory rates, and blood pressure in critical care and perioperative populations. One study of 54 patients on mechanical ventilation tested the effects of a single 30-minute music therapy session. The researchers found that those in the intervention group had less anxiety and were more relaxed, as evidenced by decreased heart and respiratory rates, than did those in the control group.

Happ and colleagues recently studied communication methods in patients on mechanical ventilation in an ICU and found that they communicated primarily through head nods and mouthing words. Other methods used, although less common, were gesturing and writing. More research is needed to determine the most effective means of communication with this population.

Best nursing practice. In patients who are alert and oriented, anxiety can be assessed using a Likert scale. In patients who are not alert and oriented, assess for behaviors associated with anxiety, such as pulling on tubes or catheters, restlessness, and agitation. When a patient exhibits anxiety, first rule out possible clinical causes such as hypoxemia, metabolic abnormalities, cerebral hypoperfusion, adverse drug reactions, and alcohol or drug withdrawal.

If sedation is needed, the minimum amount that will achieve the sedation goal should be given, preferably either as small-bolus doses or, if through continuous IV infusion, with daily interruption and reassessment of the patient’s need. Work with an interdisciplinary team to develop an algorithm or guideline for sedation administration at your facility. If a patient’s gastrointestinal tract is functioning properly, the gastrointestinal route is preferred. Determine whether the sedative can be administered orally rather than intravenously, as the latter route carries a higher risk of infection.

Sedation assessment tools that have validity and reliability, such as the Riker Sedation–Agitation Scale or the Motor Activity Assessment Scale, may be useful for titration of sedative dosage,
whether administration is continuous or intermittent. A newer scale, the Richmond Agitation–Sedation Scale, has demonstrated both validity and reliability and is the first scale capable of “detect[ing] changes in sedation status over consecutive days of [ICU] care.” Ongoing monitoring and frequent reassessment with regard to sedation can reduce a patient’s ventilator length of stay.

Another intervention is developing a communication plan. Nurses should assess each patient to determine which communication methods are best and share this information with team members and the patient’s family. Give the patient paper and pencil to determine whether the handwriting is legible. Picture and alphabet boards can be useful as well. The American Association of Critical-Care Nurses has endorsed one such tool, the EZ Board (manufactured by Vidatak, LLC), a portable, nonelectronic communication board with preprinted letters, phrases, and pictures; it’s available in English and Spanish versions. Music therapy may also help reduce anxiety.

MALNUTRITION AND NUTRITIONAL SUPPORT

Protein-energy malnutrition, which is common in critically ill patients, decreases muscle mass and thickness and results in diminished strength and endurance. When respiratory muscles such as the sternocleidomastoid and the diaphragm are affected, diminished pulmonary function, shortness of breath, fatigue, and decreased response to hypoxia can result. Malnutrition also suppresses immune system function and increases susceptibility to infectious disease, including nosocomial pneumonia.

For patients on mechanical ventilation, experts recommend starting nutritional support by the third day of intubation. If the patient is malnourished, this should begin within 24 hours of intubation. Nutritional support helps sustain the immune system, promote wound healing, and maintain muscle mass. In a recent study of 200 hospitalized critically ill adults, the use of an evidence-based nutrition management protocol significantly decreased the mean ventilator length of stay.

Underfeeding and overfeeding. For critically ill patients, enteral nutrition is preferred to total parenteral nutrition because it provides adequate calories and more nutrients, preserves gut integrity and immune function, is associated with fewer complications, and is less expensive. But it’s important to feed the patient the correct amount. Underfeeding can lead to loss of lean body mass, poor wound healing, and diminished immunity, thereby increasing the risk of infection. In a prospective study of 44 adult patients who were critically ill and on enteral feeding, it was determined that patients were receiving only about half of the nutritional goal amounts set by a dietitian. Physicians ordered a daily mean feeding volume that was 65.6% of the recommended amount. Moreover, only 78.1% of the volume ordered was actually given, mainly because of feeding interruptions prompted by diagnostic or surgical procedures, routine nursing care, high gastric residual volumes, or displaced tubes. The researchers determined that withholding enteral nutrition was avoidable 66% of the time.

Similarly, a recent prospective study of 187 patients in intensive care found that average caloric intake was only about half that recommended by the American College of Chest Physicians (ACCP). However, the researchers noted that “moderate caloric intake (for example, 33% to 65% ACCP targets; approximately 9 to 18 kcal/kg per day)” was associated with better outcomes than higher caloric intake, especially among patients with more severe illness (including those on mechanical ventilation). Overfeeding can increase physiologic stress, worsen hyperglycemia, cause “fatty liver,” and increase respiratory demand by elevating carbon dioxide production.

Gastroparesis, which frequently occurs in critically ill patients, impairs drug absorption, leads to higher gastric residual volumes, and increases the likelihood of gastroesophageal reflux and aspiration. The cause of gastroparesis often remains unknown.

Best nursing practice. Although there’s no single indicator for nutritional status, several measures can be useful. Nurses can also request assessment by a dietitian to determine nutritional needs and establish feeding goals.

Indirect calorimetry allows accurate estimation of a patient’s daily resting energy expenditure from measurements of variables such as oxygen consumption and carbon dioxide production. It’s useful for determining a patient’s nutritional needs and can help prevent both overfeeding or underfeeding. In one study, researchers compared indirect calorimetry with other energy estimation methods and concluded that it should be “an integral part of all nutrition support regimens.” Drawbacks include the fact that it requires trained personnel and specialized, expensive equipment. If indirect calorimetry is an option, nurses can suggest that it be used.

Other indicators of nutritional status include serum prealbumin, urine urea nitrogen, and electrolyte levels. Because serum prealbumin has a shorter half-life than serum albumin (three days versus 21 days), it’s a better indicator of possible protein-energy malnutrition. (However, serum prealbumin levels may be higher in patients with renal insufficiency.) Decreased protein intake diminishes the body’s nitrogen store, causing nitrogen deficiency, which a 24-hour urinalysis can reveal. Some electrolyte imbalances can impair ventilatory muscle function. Low magnesium levels have been associated...
A variety of enteral feeding tubes are available. Small-bore feeding tubes can be placed through the oral or nasal cavity into either the stomach or the transpyloric area; larger-bore tubes can be placed through the oral or nasal cavity into the stomach. Nasogastric tubes are generally used for no longer than six to eight weeks, in part because prolonged use can result in nasal septal or esophageal erosion, sinusitis, or distal esophageal stenosis. Gastrostomy, duodenostomy, and jejunostomy tubes enter percutaneously through the stomach or abdominal wall; these types are used when longer-term enteral nutrition is required. A gastrostomy tube permits bolus as well as continuous feedings; this type is most appropriate for patients with intact gag and cough reflexes and adequate gastric emptying. Duodenostomy and jejunostomy tubes require slow, continuous feeding over the course of 12 to 24 hours, because the small bowel cannot buffer osmotic loads as effectively as the stomach. Monitoring gastric residual volumes is often done to assess a patient’s tolerance of tube feeding and risk of aspiration. Normal rates of gastric secretion are about 100 to 150 mL/hr. One study found that nurses often stopped tube feedings if a patient’s residual volume was either greater than twice the hourly rate or greater than 200 mL. But although there’s some evidence that residual volume levels correlate to feeding tube intolerance, it’s not known what specific level increases the risk of aspiration. The recently validated Canadian Clinical Practice Guidelines for Nutritional Support in Mechanically Ventilated, Critically Ill Adult Patients states that “a protocol that incorporates prokinetics at initiation and tolerates a higher gastric residual volume (250 mL) should be considered as a strategy to optimize delivery of [enteral nutrition] in critically ill adult patients.”

Feeding tube placement is a factor. According to a literature review by Swanson and Winkelman, when the feeding tube is placed in the noncontracting portion of the stomach, residual volume can be as great as 800 mL without adverse effects because the stomach has reserve capacity and can distend easily. But if the tip of the feeding tube is in the duodenum, a residual volume of only 200 mL can cause discomfort and possibly result in intestinal perforation.

with muscle weakness, as has hypophosphatemia; the latter has also been associated with weaning failure. Monitoring gastric residual volumes is often done to assess a patient’s tolerance of tube feeding and risk of aspiration. Normal rates of gastric secretion are about 100 to 150 mL/hr. One study found that nurses often stopped tube feedings if a patient’s residual volume was either greater than twice the hourly rate or greater than 200 mL. But although there’s some evidence that residual volume levels correlate to feeding tube intolerance, it’s not known what specific level increases the risk of aspiration.

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Until research can establish at what residual volume level enteral feedings should be withheld, a specific recommendation cannot be made. If a patient’s residual volume level is high enough to cause con-
cern, the following recommendations by Parrish and McCray, drawn from the American Association of Critical-Care Nurses Protocols for Practice: Care of the Mechanically Ventilated Patient, may help. Position the patient on the right side for 15 to 20 minutes before checking residual volume levels; this helps the patient to avoid aspirating secretions from the fundus gastricus. In some cases transpyloric placement of the feeding tube might help. Confer with the dietitian about using a more calorie-dense formula at a reduced rate (less volume per hour). Monitor glucose levels because hyperglycemia may lead to gastroparesis; if glucose levels rise above 200 mg/dL, the physician should be notified. Opioids should be avoided when possible because these drugs tend to cause constipation. Gastroparesis can usually be managed with prokinetic agents such as metoclopramide (Reglan).

TRACHEOSTOMY
There is no consensus on when a tracheostomy should be performed. When patients cannot be weaned and noninvasive, positive-pressure ventilation cannot be used, a tracheostomy should be considered; if weaning attempts fail repeatedly, it may be necessary. If in such cases the patient will need ventilation for longer than three weeks, a tracheostomy should be performed as soon as possible. Recent studies have suggested that early tracheostomy leads to better outcomes and decreases ventilator lengths of stay. In one prospective, randomized study, 124 patients in medical ICUs received either early (within 48 hours) or delayed (at days 14 to 16) tracheostomies. The patients in the early-tracheostomy group had shorter ventilator and ICU lengths of stay and experienced less mouth and larynx trauma than did the patients in the delayed-tracheostomy group. Another study in patients with severe head injuries found that early tracheostomy (at day 5 or 6) was associated with fewer total days on ventilation than was prolonged endotracheal intubation.

Both endotracheal and tracheostomy tubes can lead to complications. With an endotracheal tube, potential complications include upper airway injury such as glottic and subglottic ulcerations, chronic glottic incompetence, laryngeal stenosis, vocal cord paralysis, and tracheal stenosis. Both endotracheal and tracheostomy tubes can lead to complications. With an endotracheal tube, potential complications include upper airway injury such as glottic and subglottic ulcerations, chronic glottic incompetence, laryngeal stenosis, vocal cord paralysis, and tracheal stenosis. Problems such as hoarseness, laryngeal erythema and ulceration, and granulomas can remain long term (still present after six months) in a small subset of this population. Many of these complications will not be apparent until the patient is extubated or, if the patient has a tracheostomy tube, until he can use a speaking valve.

The benefits of tracheostomy include greater patient comfort, a more secure airway, more effective airway suctioning, decreased airway resistance, better patient mobility, and greater opportunity to speak and eat normally.

**Best nursing practice.** When a patient’s condition warrants it, the nurse can suggest that a tracheostomy be considered. There is no standard guideline for changing a tracheostomy tube routinely. It is usually changed when a functional problem (such as a cuff rupture) occurs or when a design change (such as a different size) is warranted. The first tube change should not be performed until seven to 10 days after the initial tracheostomy, in order to allow the stoma and tract to mature.

Immediate posttracheostomy complications (within the first 24 hours) can include pneumothorax, subcutaneous emphysema, and bleeding at the insertion site. It’s important to prevent accidental decannulation during the first 72 hours, because during reinsertion there is greater risk of tissue damage and unsuccessful ventilation. Most tracheostomy tubes are sutured in place with purse-string sutures that prevent such displacement. Check suture integrity and call for assistance immediately if the sutures are found not to be intact or the tube becomes dislodged.

**RISK OF ASPIRATION**
Any artificial airway increases the risk of aspiration. Potential complications of aspiration include hypoxemia, chemical pneumonitis, pulmonary infection, mechanical obstruction, atelectasis, abscess, fibrosis, and respiratory distress syndrome; death also can result.

A speech therapist can perform a bedside swallowing evaluation to look for signs of aspiration; if necessary, videofluoroscopy can be performed. One recent study compared the reliability of the bedside colored dye test with that of videofluoroscopy for detecting aspiration in patients with tracheostomies. Both tests indicated aspiration reliably, but the colored dye test had a high false-negative rate.

Silent aspiration (aspiration without the normal cough reflex) can occur. Moreover, the presence of dysphagia appears to have poor predictive value. In a study of 93 patients with neurologic disorders, silent aspiration occurred in 20% of patients who had no complaints of swallowing difficulties and in 49% of those with dysphagia. Patients who require prolonged endotracheal intubation or tracheostomies tend to develop decreased sensation of the airway, and that too may increase the risk of silent aspiration, as a literature review conducted by Pannunzio has suggested.
Best nursing practice. Monitor patients closely for signs and symptoms of aspiration. These include sudden onset of coughing and shortness of breath, as well as increased heart and respiratory rates. You may hear rales or wheezing, or draw feeding matter from the endotracheal tube when suctioning. The patient may become cyanotic and develop a fever.

It’s important to bear in mind the possibility of silent aspiration. Preventive measures include keeping the head of the bed raised at a 45° angle. If appropriate, request an order for a swallowing evaluation to be made by a speech therapist. Nasogastric feeding tubes should be marked at the entry point upon placement; after initial insertion, proper placement should be verified (preferably by abdominal X-ray). Tube placement should be reassessed periodically by checking the mark to make sure the tube hasn’t shifted.

Because disrupted sleep affects oxygen consumption, carbon dioxide production, and other aspects of respiration, it’s likely to inhibit weaning.

SLEEP

Sleep is crucial to physical and psychological well-being, yet disrupted sleep is common among patients in ICUs. Patients may experience sleep deprivation, sleep fragmentation (abnormal sleep–wake cycles), abnormal patterns of rapid eye movement (REM) and non-REM sleep, or a combination of these. Possible causes include environmental factors (such as excessive light and noise), diagnostic and other procedures, routine patient care, and pain. Possible consequences of disrupted sleep include upper airway collapse, endocrine and immune system dysfunction, cognitive impairment, changes in the brain’s metabolic functioning, and behavioral effects such as disorientation and agitation. However, there has been little research into the effects of disrupted sleep in patients on mechanical ventilation.

Some studies indicate that almost all patients on mechanical ventilation experience disrupted sleep. Using 24-hour polysomnography, Cooper and colleagues analyzed sleep patterns in 20 critically ill and ventilated patients. None of them had normal sleep; 12 didn’t sleep “as it is conventionally measured” at all, and eight had severely fragmented sleep patterns. The researchers hypothesized that, because disrupted sleep affects oxygen consumption, carbon dioxide production, and other aspects of respiration, it’s likely to inhibit weaning. Freedman and colleagues studied 22 patients in a medical ICU (20 were on mechanical ventilation) and found they were “qualitatively, but not necessarily quantitatively, sleep deprived.” All had sleep–wake cycle abnormalities.

Excessive noise has often been suggested as a leading cause of disrupted sleep. There is evidence that reducing it can help (see “Noise Control: A Nursing Team’s Approach to Sleep Promotion,” February 2004). In another study, Olson and colleagues tested a nursing intervention designed to reduce both excessive noise and light in a neurocritical care unit. During twice-daily “quiet times,” lights were dimmed, televisions were turned off, and visits by family members and clinicians were minimized. Patients were 1.6 times more likely to sleep during the intervention than during the control period. However, Freedman and colleagues determined that environmental noise was responsible for only 17% of awakenings overall. They concluded that other factors must play a larger role than previously thought in disrupting sleep.

A recent retrospective study of 50 patients in four ICUs examined patterns of nocturnal care-related interactions. The researchers found that “the high frequency [of such activity] left patients few uninterrupted periods for sleep.” They suggested that clustering nocturnal care-related interactions could help remedy this.

Best nursing practice. Until more is known about sleep disruption in patients on mechanical ventilation, interventions used in critical care populations should be tried. For example, nurses can mitigate excessive noise and light using the methods outlined above. Dines-Kalinowski recently described four other nursing interventions, including:

• assessing for and managing pain.
• promoting comfort at bedtime through such measures as good oral care and proper positioning.
• reducing anxiety by communicating with the patient about upcoming procedures.
• coordinating care with team members to minimize nighttime interruptions.

Listening to soft music or reading may help some patients relax. One study of critically ill patients found that back massage improved the quality of sleep.

If these measures are ineffective, the nurse can ask a physician to order a sleeping agent at bedtime. However, many drugs commonly administered to patients in ICUs can interfere with sleep. Agents that combine a benzodiazepine and an opioid are frequently used to sedate patients on mechanical ventilation. Both benzodiazepines and opioids are known to decrease REM sleep and stage 2 sleep.

If sleep disruptions occur, review the patient’s medications and, if possible, limit any that may interfere with sleep. Drugs that increase total sleep time may not improve the quality of sleep.
Melatonin, a naturally occurring hormone, appears to maintain normal sleep patterns. But as of this writing only one pilot study with eight patients has been conducted in a critical care population\(^1\); more research is needed before it can be recommended for patients on mechanical ventilation.

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**REFERENCES**


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Caring for Patients on Mechanical Ventilation

1. Using the Rapid Shallow Breathing Index before a weaning trial with your patient who is on mechanical ventilation and being maintained with a tidal volume of 600 mL and a respiratory rate of 14, you determine that this patient is likely to:
   a. be weaned successfully.
   b. require additional positive end-expiratory pressure (PEEP) before a weaning trial.
   c. need prolonged mechanical ventilation.
   d. have developed complications of mechanical ventilation.

2. When assessing patients for readiness to wean, you should monitor for signs of respiratory intolerance, such as:
   a. bradycardia.
   b. hypotension.
   c. diaphragmatic breathing.
   d. thoracoabdominal asynchrony.

3. According to Powers and Bennett, which type of dyspnea scale is easiest for patients to use?
   a. visual analog
   b. verbal descriptor
   c. numeric rating
   d. graphic representation

4. Which of these is a good indication of readiness to wean?
   a. a PEEP less than or equal to 8 to 10 cm H2O
   b. an FiO2 less than or equal to 0.5 to 0.6
   c. a PaO2–FiO2 ratio less than 0.5 to 0.6
   d. a negative inspiratory force of –20 cm H2O or greater

5. Of the following, the most effective and practical way to prevent nosocomial pneumonia in patients on mechanical ventilation is to:
   a. keep the head of the bed elevated 30°.
   b. brush their teeth at least every 12 hours.
   c. use sponge toothettes instead of a toothbrush.
   d. apply chlorhexidine to tooth surfaces daily.

6. Which agent used to reduce anxiety in patients on mechanical ventilation has been associated with a rare but life-threatening syndrome of severe metabolic acidosis and circulatory collapse?
   a. propofol (Diprivan)
   b. midazolam (Versed)
   c. remifentanil (Utiva)
   d. lorazepam (Ativan)

7. When patients on mechanical ventilation are receiving sedation by continuous intravenous infusion, they:
   a. are likely to have reduced ventilator and ICU lengths of stay.
   b. should not have the sedation interrupted until they are ready to be weaned.
   c. are at risk for developing hypotension as sedation begins, if they are hemodynamically unstable.
   d. are unlikely to benefit from nonpharmacologic interventions.

8. The preferred method of sedative administration for patients on mechanical ventilation is:
   a. gastrointestinal
   b. intramuscular
   c. transdermal
   d. intravenous

9. The first sedation assessment scale that can identify changes in sedation status over multiple consecutive days of intensive care is the:
   a. Observer’s Assessment of Alertness/Sedation Scale
   b. Riker Sedation–Agitation Scale
   c. Motor Activity Assessment Scale
   d. Richmond Agitation–Sedation Scale

10. According to Happ and colleagues, patients who are on mechanical ventilation in an intensive care environment most often communicate via:
    a. writing
    b. gesturing
    c. using head nods and mouthed words
    d. using alphabet boards

11. Patients on mechanical ventilation who are not already malnourished should begin receiving nutritional support:
    a. on the same day as intubation
    b. within 24 hours of intubation
    c. by the third day of intubation
    d. by the fourth day of intubation

12. Probably the most accurate way to determine a patient’s nutritional needs is to:
    a. use indirect calorimetry
    b. monitor serum electrolytes
    c. measure body mass index
    d. measure gastric residual volumes

13. When a patient receiving enteral feedings has a residual volume high enough to cause concern, which intervention is recommended?
    a. withholding feedings until the residual volume is reduced appropriately
    b. considering switching to total parenteral nutrition
    c. positioning the patient on the left side and rechecking the residual volume
    d. feeding a more calorie-dense formula at a reduced rate

14. Tracheostomy tubes should be replaced:
    a. on a regular, predetermined schedule
    b. only after the stoma and tract have matured
    c. when they become clogged with mucus
    d. only in patients who develop tracheal stenosis

15. A common clinical sign of aspiration is:
    a. wheezing
    b. chest retractions
    c. facial flushing
    d. depressed respirations

16. Of the following, the way to improve the quality of sleep in an intensive-care patient is to:
    a. administer benzodiazepines, opioids, or both, as prescribed
    b. encourage the patient to watch television to help induce sleep
    c. prohibit visitors in the late evening to reduce stimulation
    d. communicate with the patient about upcoming procedures
Nurses often disagree on the causes of and possible solutions to the current nursing shortage. Mandatory staffing ratios versus Magnet hospitals? Sign-on bonuses for nurses versus more unionization of RNs? The aging of the nursing workforce versus working conditions? Still, most nurses agree that the profession needs a contemporary image to attract new recruits and reinforce the idea that nursing is a profession grounded in science, technology, and knowledge. To present a modern image and solve the crisis, dozens of dif-

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Moving away from the ‘virtue script’ toward a knowledge-based identity for nurses.

Nurses practice the proper method of bandaging arms in a nursing class in 1930.
different groups have produced advertising campaigns and promotional messages to attract new recruits to the profession.

A close analysis of the words and images used in these campaigns reveals that, instead of creating a modern, accurate version of today’s nurse, many simply repackage nursing’s traditional stereotype of women born to be good, kind, and self-sacrificing—not educated to provide care based on science and practical skill. Although many studies—conducted by nursing, medical, and public health researchers—have documented the links between nursing care and lower rates of nosocomial infections, falls, pressure ulcers, deep-vein thrombosis, pulmonary embolism, and death, most promotional campaigns are conspicuous for their failure to promote these data. Even when ads feature a mix of men, women, and minorities, what is often communicated is a sexist, archaic message: nursing is “virtuous” work.

**LEARNING FROM THE PAST**

Nursing’s image has been studied in past decades, but what’s rarely addressed is why and how nurses themselves reinforce traditional images of their work. Similarly, the historical origins of nurses’ choices of verbal and visual images have been poorly explored. It’s crucial that, in a period of rampant cost cutting to health care services, nurses convey their central importance to hospital and health service managers, insurers, policymakers, politicians, and new recruits to the profession. To do so, nurses must reexamine the history of their image as “virtuous workers” and understand the power that what we call the “virtue script” has over the nursing profession.

The virtue script bases the presentation of nursing on characteristics such as kindness, caring, compassion, honesty, and trustworthiness, attributes associated with “good women.” This script sentimentalizes and trivializes the complex skills, including caring skills, nurses must acquire through education and experience—not simply individual inclination. Only when freed of the virtue script can nursing assert its identity as a knowledge-based profession that is critically important to patient care.

**THE ANGEL IMAGE: NURSING’S BEGINNINGS**

In the mid-19th century, urbanization and industrialization helped to eliminate many small family farms, and factories began to provide many of the goods that women had previously produced in the home. There was now a generation of women who needed to support themselves by working outside their homes, but those who wanted to work as nurses confronted a pressing problem: moving unchaperoned in public places and working for money were frowned upon; how could women remain respectable members of society and work for a living? Before the efforts of nursing reformers, such as Florence Nightingale, nursing was considered the domain of religious women and servants.

While religious women were portrayed as angels and thus protected from the stigma of working with sick strangers (most of whom were male), nonreligious nurses were not considered to be respectable. Charles Dickens’s depictions of drunken, heartless nurses Sarah Gamp and Betsy Prig in *Martin Chuzzlewit* (originally published in the 1840s) both encapsulated and solidified the stigma of secular nursing. Nurse reformers thus faced a challenge—to
make nursing safe for respectable lower- and middle-class women who would not be attracted to its ranks otherwise. In a society in which gender roles were very rigid, they also needed to make it safe for female nurses to work with male medical students, surgeons and physicians, hospital managers, and boards of governors. Whether nurses practiced on battlefields or in hospitals or homes of the rich and poor, they were confronted with unpleasant, unladylike realities such as poverty and disease. In an era that prized blushing innocence, nurses’ knowledge of anatomy and their experience of the world outside the domestic sphere threatened their respectability.

For centuries, before the arrival of nurse reformers like Nightingale, nursing care was delivered mainly by religious women whose vows and veils—and self-sacrificing, altruistic mission—protected them from the stigma of hard work caring for the sick. By borrowing this religious template as well as traditional Victorian notions of charity, nurse reformers, who were, like Nightingale, often very pious women, made it possible for thousands of women to find purposeful work immersing themselves in the gritty realities of nursing. It also allowed nursing to become the first social activity of women outside the home that gained acceptance among respectable classes and ultimately facilitated women’s work in other professions.2

Equally important, the foundation of nursing as virtuous work—as opposed to knowledge-based work—furnished nurses who were trained in secular institutions with an important arm in their battles with medicine and male physicians over what was to become, by the late 19th century, the highly contested terrain of the contemporary hospital. Until well into the 20th century, these hospitals were charitable foundations, which frequently had religious affiliations.

**The Battle for Reform**

As scientific medicine consolidated its authority, many physicians felt threatened by the movements for women’s suffrage and education. These movements included not only women who wanted to be physicians, but also nurses who wanted more training, education, and authority. Nightingale fought for a woman’s right to do purposeful work outside the home. Elizabeth Blackwell, the first female physician, was also a staunch advocate of nursing education. And outspoken English nurse reformer Ethel Bedford Fenwick, who championed nursing registration and founded the *British Journal of Nursing* in 1893, and her American colleague Lavinia Lloyd Dock, author of *Materia Medica for Nurses*, one of nursing’s first textbooks, were prominent advocates of women’s suffrage.

When the movement for nursing reform began in the 1860s, these women initiated the long journey that transformed nursing from lowly work performed by servants or women of religious affiliation into a secular profession. Key North American reformers included Isabel Adams Hampton Robb, the ANA’s first president; Dock; and M. Adelaide Nutting, who became the first nurse ever appointed to a university professorship. Key women in the United Kingdom included the Nightingale Nurses, trained at St. Thomas’s training school for nurses, as well as Fenwick. This new breed of women formed nursing associations and nursing schools, and they were determined to turn nursing into a profession. They published journals, such as *AJN* and the *British Nursing Journal*, and exerted their leadership over rapidly developing groups of trained nurses. Between 1900 and 1920, nursing registration was introduced in many parts of the world.

**Improvements to nursing.** From their earliest days, reformers struggled to place nursing authority in control of the nursing workforce. They wanted a matron—not a physician—to be in charge of nurses and to decide where nurses worked. They wanted nurses to be accountable to the matron’s authority and insisted that students have a formal program of training and experience. To gain this sphere of influence, Nightingale and her counterparts across the Atlantic fought a series of battles with medical and hospital administrators. As a result, hospitals gained better-trained, better-educated nurses, but physicians lost direct control of the nursing workforce (although they still controlled much of the practice of nursing).

The movement to improve nursing was infused with the politics of women’s emancipation. Medicine was a male bastion that quickly began defending its territory against the incursions of female physicians and contemporary nurses.3 Newspapers and medical journals of the time were full of debates, letters, and squabbles over the proper relationship between medicine and nursing—and one of the fundamental issues was power over nurses’ knowledge and practice. Physicians and their political supporters insisted that nurses were no more than physicians’ servants, dependent on physicians’ knowledge. In an unsigned and untitled 1880 editorial, the *Times of London* presented the point clearly: “nursing is merely one of the means of cure, . . . and . . . it can only be rightly carried out under absolute and unconditional subjection, in every principle and detail, to the doctor who is responsible for the case.”

**Fighting the opposition.** Faced with medical opposition and patriarchal traditions, nursing reformers, who as women had no political, legal, or economic power, had to transform nursing into a
The focus on virtue in advertisements for nursing can be recast, and a new image of knowledge-based nursing can be produced. The British Columbia Nurses Union created a campaign to explain the importance of nursing to the public. In this advertisement, a nurse is standing smiling at a patient’s bedside as he is about to begin eating his hospital meal.

What if all presentations of nursing were this comprehensive?

profession respectable enough to attract middle-class women and yet not be a threat to male medical authority. This class issue was critical for nursing reform. For better-educated, middle-class women—who were used to employing and directing servants—to be attracted to nursing, many changes were needed. Traditional nurses had been accommodated on the wards, directly off stairwells, and no family of standing would allow a daughter to live in such precarious lodging. This prompted the creation of cloisterlike group homes for nurses that had chaperones and did not permit male visitors. It was a first step in attracting a higher class of women to train as nurses.

To assuage physicians, nurse reformers also downplayed nurses’ knowledge and skills and emphasized their virtue and ethics. Like Nightingale, reformers in Britain, the United States, Australia, Canada, and France exploited the Victorian view that women possessed a superior moral power and essential female virtues that could be used for the common good. The very success of nurse reformers in creating the first mass profession for women put nurses in the paradoxical position of playing an important role in health care, while sentimentalizing and trivializing the very critical role they played. Taught in religious orders to “say little, but do much,” the only way nurses could say more was to couch their description of their work in charitable, devotional, or altruistic terms. (For more on this topic, see Say Little, Do Much: Nursing, Nuns, and Hospitals in the Nineteenth Century, University of Pennsylvania Press, 2001, written by Sioban Nelson, one of the authors of this article.)
Pursuing Professionalism

Even as women have gained greater social, economic, legal, and political power in the late 20th and early 21st centuries, nurses and their political supporters still rely on the virtue script. This is apparent in many campaigns that support the nursing profession, including advertisements, videos, brochures, articles, and newsletters, which are targeted to those in the profession and the public.

“These messages are so pervasive that nurses themselves believe them. They then try to pass them on to other health care professionals, patients, and media.”

“Nursing: The Ultimate Adventure.” This video, produced by the National Student Nurses’ Association, promotes the career of registered nursing to junior and senior high school students. The video makes references to learning and knowledge, but what nurses learn and know is never specified. What is instead emphasized is the public warmth and love nurses receive. Beverly Malone, then-president of the ANA, declares: “The public loves me as a nurse and they don’t even know my name, but if I say I’m an RN, there’s affection and warmth and an experience that means so much to me.” A young woman in the video further encourages students to choose nursing by saying that nursing is “a job where people will love you.”

Nursing Profile. In October 2001, this Michigan nursing magazine ran an article on the accomplishments of an African-American nurse, Birthale Archie, RN, who also has MSN and BS degrees. Rather than alerting the reader to the fact that this nurse was “educated to help others,” the headline on the cover of the magazine proclaimed she was “Born to Help Others.”

Nurses Week. In 2002 the ANA chose the tagline “Nurses Care for America” for its biennial convention and Nurses’ Week theme; in 2003 its Nurses Week slogan was “Lifting Spirits, Touching Lives.” And in 2002, to celebrate National Nurses Week, Ohio Health Systems produced a brochure with a gauzy picture of nurses wheeling a sick patient. The copy read as follows:

People believe there are beings
That come to you in your darkest hour
Guide you when your life hangs in the balance
Cradle you.
Calm you.

Protect you.
Some people call them guardian angels.
We call them nurses.

Perpetuating the Angel Image

These messages are so pervasive that they create a social feedback loop that reinforces and then reproduces the 19th-century view that nurses are sentimental workers who may even act as agents of a higher power (God or the physician). Through a complex historical process nurses inherit these virtuous images. Nurses then stress these images when they discuss their work. Nursing departments and executives may approve these traditional images for use in promotional copy. Not realizing they are reinforcing traditional stereotypes about the profession, they may also suggest the use of these images to public relations departments. Once the virtue script is relayed by nurses to other health care professionals, the public, patients, and the media, these groups broadcast the messages to an even wider audience. This audience then closes the social feedback loop when the idea is projected back on its source—nurses who then have to “live” the ideal.

Some of the most critical participants in the social feedback loop are the mass media. In stories or headlines about nurses in newspapers and magazines, nurses are often portrayed as self-sacrificing, self-effacing angels of mercy.

In 2001 the Toronto Star ran a story about a nurse who had founded a community health care center dedicated to serving children and adolescents. The nurse, Ruth Ewert, after identifying a glaring lack of adolescent health care services, raised money for a center to provide the needed health care. The headline, instead of reflecting her knowledge, courage, and persistence, introduced her as an “angel in our midst.”

In the spring of 2003, the New York Times ran an article, “Premature Births Rise Sharply, Confounding Obstetricians,” on the rising number of premature births. The article featured a photograph of a nurse reaching tenderly toward a premature infant in a neonatal ICU in what could be considered a nurturing act reserved for mothers. The lengthy article is filled with quotes from numerous physicians and demonstrates their scientific knowledge on the subject—but there is only one quote from a nurse and nurses never comment on the science involved in caring for premature infants. The article further supports physicians’ quest for knowledge by saying: “Doctors can save most premature babies, but they haven’t found a way to stop premature births.” Such depictions of nurses have serious effects. Nurses are excluded from the process of scientific curiosity and discovery and from the acts of rescuing babies from complications.
and saving their lives—which is precisely what nurses who work with such babies do. If health care administrators and policymakers are allocating scarce resources, to whom will they give the money—the “tenders” or the “savers”? Given the virtue script, it is not surprising that patients whose lives have been saved by good nursing care also seem unable to recognize the knowledge and skill it requires. In his book Still Me, the actor Christopher Reeve described in great detail the extraordinary activities of the physicians who saved his life after his 1995 equestrian accident. Of his ICU nurses, he had this to say:

The nurses were so gentle. I still remember their sweet southern voices, trying to strike the correct balance between being sympathetic and being straightforward. One morning a favorite nurse, Joni, arranged for me to be taken up on the roof of the hospital to watch the sunrise.

While this is certainly part of good nursing care, Reeve had made it the totality of nursing care.

This social feedback loop has influenced one of the most expensive contemporary campaigns designed to recruit nurses, address the nursing shortage, and change the profession’s public image. The Johnson & Johnson company has spent more than $20 million on its Campaign for Nursing’s Future. With the help of nurse advisers, it has produced television spots, videotapes (one in which nurses talk about their work and another in which patients testify to the importance of nurses), and brochures about nursing work.

The campaign’s television advertisements are accompanied by voiceovers and a soundtrack. A female nurse appears and says, “The art and science of medicine combined with awesome nursing care can perform miracles.” The soundtrack has the following ditty:

There are some who live for caring with all they have to give
There are some who have comfort to share
They dare to care
They dare to cry
They dare to feel
They dare to try . . .
There are some who dare to care

The jingle accompanying the “Patient Perspectives” video includes the following lines:

You’re always there when someone needs you
You work your magic quietly
You’re not in it for the glory
The care you give comes naturally

In the campaign’s recruitment video, a nurse says:

“Being a nurse is about holding someone’s hand. Being a nurse is about giving a really good shot to a six-year-old who’s terrified. It’s about putting an ice pack and making it better on someone . . . or getting the wrinkles out of the back of a sheet that’s causing someone to be uncomfortable who has to lay on the bed. . . . And sometimes, you know, just rubbing someone’s back is the answer to all their prayers.”

Many nurses have lauded the campaign as a welcome recognition of the importance of nursing—which it certainly is—but have failed to recognize its problematic aspects. Thus nurse Melissa Fitzpatrick, former editor-in-chief of Nursing Management, wrote: “These ads showcase diversity, intelligence, competence, and caring—the essence of nursing. They make me even more proud than usual to be a nurse and thrilled that our profession is getting prime airtime that millions of viewers worldwide see each day.”

One is struck by the similarity of these campaign messages to those of Hallmark cards for Nurses Week. “What is a nurse?” one of its 2002 Nurses Week cards asks. “A nurse,” according to the card’s answer, “is a special person, an angel in disguise, with tenderness in every touch, and caring, watchful eyes.”

These messages are so pervasive that nurses themselves believe them. They then pass them on to other health care professionals, patients, and the media.

NURSES AND PUBLIC OPINION

Today’s nurses are under increasing pressure to concretely connect nursing practice and patient outcomes. It is thus difficult to understand why nursing and nurses appear to have such a limited vocabulary when discussing and promoting their own work. Even more difficult to understand is why, when there is a great deal of data documenting the critical importance of nursing in patient care, nursing groups and their political supporters make so little use of it.

One reason nurses may rely so heavily on the virtue script is that many believe this is their only legitimate source of status, respect, and self-esteem. For the past 150 years nurses have been told that only physicians really need scientific training. Deprived of status and respect that stems from a standard university education, nurses were taught the way to gain social respect was to establish themselves as the most devoted, altruistic, and trustworthy members of the health care team. The polarized view of women and nurses holds that they are either good or evil, Madonnas or whores. Nurses may also feel that these images help to counteract depictions of the cruel nurse, like Nurse Ratched, or the nurse as porn star.

Opinion polls reinforce the belief that nurses are generally prized for their virtues, not their knowledge. Highly publicized polls conducted in North America by Harris Interactive and the Gallup Organization give nurses very high marks for being more ethical, honest, and trustworthy than physi-
The Johnson & Johnson Campaign for Nursing’s Future
A response from those involved.

The four of us make up a research team that has been awarded a grant by Johnson & Johnson to conduct broad-reaching studies related to the nursing shortage, perceptions of nursing, and the effectiveness of the Johnson & Johnson Campaign for Nursing’s Future. The team consists of nurses, a physician, and researchers. While the article by Suzanne Gordon and Sioban Nelson focuses on two of the campaign’s activities—advertising and recruitment—we would like to provide a fuller picture of the campaign.

Recruiting a sufficient nursing workforce requires diverse educational programs, workplaces, and mentors. No initiative can be everything to everyone.

Johnson & Johnson’s Campaign for Nursing’s Future was launched in February 2002 in response to the critical shortage of nurses. Campaign activities have been many and varied, including two 30-second television advertisements; five videos on nursing; 8 million pieces of recruitment materials distributed to hospitals, nursing schools, and junior and senior high schools; a Web site; regional celebrations that raise funds for scholarships and fellowships; training materials for students distributed on the Web site; and continuing education activities through Nursing Spectrum. All materials are presented in both English and Spanish. The campaign’s budget has been around $30 million.

These materials were designed for various purposes: to raise public awareness of the shortage and possible solutions, to draw attention to and to celebrate the importance of nursing expertise, to build interest in nursing careers in a diverse population, and to provide a centralized Web site where essential information—about the shortage, careers, degree programs, and financial matters—can be accessed.

Caring and compassion are central themes in these materials, certainly in the advertisement and video that Gordon and Nelson describe. When the public is surveyed about the kind of care it wants from nurses and physicians, caring and compassion rank equally with expertise and skill.

A complete (or even cursory) assessment of the campaign’s materials shows that it stresses many themes other than compassion—the lifesaving importance of nurses’ skills, the varied career opportunities, the excitement of nursing in specialized environments, and the place for men and people of color in the profession.

INDEPENDENT EVALUATION OF THE CAMPAIGN
From the outset of the campaign, Johnson & Johnson recognized the importance of independent, peer-reviewed evaluation of its activities.

In June 2002, our team began analyzing annual population and labor statistics, gathering information on critical trends in workforce change, and conducting national random-sample surveys of the American public, nursing students, physicians, nurses, and hospital and nurse executives. Topics include awareness of and solutions to the shortage, the profession’s image, nurses’ learning and working environments, and awareness of the campaign. Results are in various stages of journal publication: some are in press and will be published this year (in Nursing Economics and the Journal of Professional Nursing, for example);

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MOVING FORWARD
Given the persistence of institutional restrictions on nurses, it is also understandable that so many focus on their virtues. Nurses are too frequently denied a voice on issues of relevance to patient care or their concerns are restricted to the boundaries of caring and then dismissed by hospital administrators. They may face a closed door when it comes to claiming a legitimate voice in the scientific and medical management of patients. They may often be prevented or discouraged from

icians and many other professionals (nurses topped the Gallup trustworthiness poll last year). But when it comes to “knowledge,” nurses survey ratings may plummet. When the Harris poll asked respondents whether they would consult a nurse on a variety of health care issues, on which nurses clearly have great expertise, very few said they would. Those who felt nurses were ethical and honest apparently felt they had only the most limited knowledge and would not ask them questions about women’s health, osteoporosis, or sexually transmitted diseases.
By Peter I. Buerhaus, PhD, RN, FAAN, Karen Donelan, ScD, Linda Norman, DSN, RN, and Robert Dittus, MD, MPH

others are under review, and a number are under development. Unfortunately, agreements with journals preclude us from providing details of the results; watch for publication this year and in 2006.

EFFECTIVENESS OF THE CAMPAIGN
Since the campaign began, we have found that Americans—parents, teenagers, nursing students, nurses, chief hospital executives, and chief nursing executives—are very much aware of the nursing shortage and concerned about its effect on patient care. In surveys we have asked if respondents have heard of

- brochures and videos encouraging people to “Be a Nurse”
- national television commercials about nurses with the slogan, “They Dare to Care”
- the campaign’s Web site, www.discovernursing.com
- the “Promise of Nursing” fundraising events

Among nurses aware of the campaign, more than 90% indicated that they believe the campaign has had a positive impact on the general public’s image of nursing, the number of nursing school applicants, recognition of nurses in health care organizations, and regional and local initiatives to promote nursing. Moreover, more than 90% of students who were in the process of deciding to become nurses when they became aware of the campaign said it made them feel positive about nursing. Advertisements often stimulated discussion about the profession, but ultimately were less important in influencing career decisions than they were in raising awareness of the shortage, issues of job security, and the influence of nurses.

Recruiting a sufficient nursing workforce requires diverse educational programs, workplaces, and mentors. No initiative can be everything to everyone. We all share responsibility for fostering change. Patients, the health care system, and the nursing profession deserve nothing less.

Speaking to the media on medical treatment or research and may be excluded from consultations with politicians and policymakers about “medical” policies and issues in which nurses play a critical role.

Although much changed for women in the 20th century, nurses continue to rely on images of hearts and angels and appeals based on references to closeness, intimacy, and holism. These images are a fundamental part of nurses’ claim that they have a superior connection to patients—and are a humanizing presence in an increasingly impersonal health care system.

While Johnson & Johnson and others who sponsor recruitment advertisements insist their efforts are attracting new candidates to nursing, it is far from clear that new nurses will remain at the bedside once they discover the realities of nursing work and contemporary working conditions. A focus on nurses’ knowledge in the context of the realities of contemporary health care might actually help retention as well as recruitment. For example, in the Johnson & Johnson recruitment video, the nurse could have spoken about the ways in which nurses make sure patients don’t develop fatal postsurgical complications, and that they pay attention to small details, such as smoothing out wrinkles on a sheet to reduce the risk of a patient developing an excruciating and costly pressure ulcer. Or she could have mentioned the fact that when nurses talk with patients they discover important facts, such as whether patients understand how to take their medications, whether they have support at home, and whether they are frightened and anxious.

Nursing groups need to promote professional data in recruitment and Nurses Week campaigns—and in hospital promotional literature about nursing staff. An ad used by the British Columbia Nurses Union is an excellent example of how these data can be used in a clever way (see “A New Image for Nursing?” page 65). In Australia, the Australian Nursing Federation has a great slogan: “Nurses, you can’t live without them.” And United American Nurses has a wonderful comment in one of its brochures: “Saving Lives Is Serious Business.”

The crisis in recruitment and retention of nurses demands that the value of nursing knowledge and work, as opposed to the sentimental valuing of nurses, be made clear to the public and employers.

REFERENCES
In July 1998 Lawyers Weekly USA, a newspaper that tracks litigation trends in the United States, predicted that the next big wave of litigation would be lawsuits against nursing homes. Since then, the number of multimillion-dollar “megaverdicts” rendered against nursing homes has soared.

Quality-of-care issues have plagued the long-term care industry for years, and the problems have persisted despite the conclusions of reports such as Nursing Staff in Hospitals and Nursing Homes: Is it Adequate? issued by the Institute of Medicine in 1996. This report described the relationship between nurse staffing levels and quality of care and recommended that staffing levels in nursing homes be adjusted to take into account the mental and physical condition of residents. But despite the link between adequate staffing and good care outcomes, quality-of-care issues persist.

Five cases. The following cases, all decided between 2001 and 2004, illustrate the kinds of quality-of-care issues that have plagued nursing homes.

Fuqua v. Horizon/CMS Healthcare Corporation. In 2001 a Texas jury awarded the estate of Wyvonne Fuqua $312.8 million in damages to be paid by Horizon/CMS Healthcare Corporation, the former owner of the Heritage Western Hills nursing home in Fort Worth. Ms. Fuqua suffered from dementia and lived at Heritage Western Hills for two and a half years, until her family moved her to another long-term care setting, where she died after two months.

When Ms. Fuqua’s family moved her out of Heritage Western Hills, they alleged that she was malnourished and dehydrated. “Her joints had stiffened from the lack of movement. She had 16 [pressure ulcers] . . . nine of them exposed fatty tissue while the remaining five rotted the skin away to the bone.” (A 1997 lawsuit prosecuted against Horizon/CMS Healthcare Corporation, for maltreatment of another resident of the same nursing home, resulted in a jury award of $92 million, damages that were later reduced to $11 million by the Texas Supreme Court.)

Advocat, Inc. v. Sauer. Also in 2001, a jury awarded $15.4 million in compensatory damages and $63 million in punitive damages to the estate of Margaretha Sauer, a 93-year-old resident of the Rich Mountain Nursing and Rehabilitation Center in Mena, Arkansas, who died as a result of severe malnutrition and dehydration. Thirteen days before her death, a scheduled enteral feeding tube insertion was delayed and never completed. Ms. Sauer was also found to have pressure ulcers, contractures, and Alzheimer disease. After her death, her family filed a cause of action against Diversicare Leasing Corporation, the organization that operated the nursing home, Diversicare Corporation of America, and Advocat, the parent company that owned 64 nursing homes in the southeastern United States and Canada at the time. Two years after the jury verdict, the Supreme Court of Arkansas reduced the compensatory damage award to $5 million and the punitive damage award to $2.1 million.

Lavalis et al. v. Copperas Cove, LLC et al. In 2002 another Texas jury awarded $21.5 million to the estate of Rose Bonton, a resident of the Hill Country Rehabilitation and Nursing Center in Copperas Cove. The facility was managed by Epic Health Management.

Ms. Bonton had returned to the nursing home after being hospitalized for pneumonia; she was having difficulty breathing and the charge nurse attempted suctioning. In the process, Ms. Bonton gagged, choked on vomit, and suffocated. Because of the alleged negligence associated with the suctioning, the charge nurse was also named as a defendant, as was another charge nurse who allegedly failed to call 911 or to take other appropriate action. The director of nursing was also a named defendant.

By Kammie Monarch, JD, RN

The Quality of Care Provided in Nursing Homes
Nurses can help facilities do the right things.

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Edwards v. Mariner Health Care, Inc. In December 2003, a Mississippi jury awarded $6.5 million to the estate of Charles Edwards. Before his death in 2000, Mr. Edwards had been a five-year resident of Greenwood Health and Rehabilitation Center, in Greenwood, Mississippi, one of 275 nursing homes operated nationwide by Mariner Health Care, Inc. Despite the nursing home’s assertion that the residents, including Mr. Edwards, received good care, the Edwards estate alleged that Mr. Edwards had “suffered persistent bed sores, been covered with his own dried feces, and been left lying for long periods in urine-soaked bedding.”

Crook v. Mariner Post-Acute Network, Inc. Approximately three months after the Edwards verdict was rendered, another Mississippi jury awarded $10 million in damages to the family of Mamie Crook, against the Clinton Health and Rehabilitation Center, a nursing home owned by Mariner Post-Acute Network, Inc. Ms. Crook was a resident at the facility for about 15 months, until she died in 2000. While there, Ms. Crook had her left leg amputated at the knee because of pressure ulcers. In its lawsuit, the Crook family alleged that the amputation was necessary because the staff at the nursing home provided inadequate care and failed to turn her properly. The nursing home contended that the amputation was the result of other conditions, including “Alzheimer disease, diabetes, anemia, hypertension, and two strokes.”

COMMON THEMES
The cases highlighted here have one thing in common: they concern the quality of care delivered. Four of the five cases involved patients who, at their deaths, were malnourished, dehydrated, and had pressure ulcers. Only the case of improper suctioning involved the insufficient technical skill of the staff.

None of the published reports of the four other cases suggests that the nursing homes defended the lawsuits by asserting that staffing was sufficient. This is significant, in light of the fact that several studies have found that two major contributors to poor feeding, inadequate nutritional intake, deterioration, malnutrition, dehydration, and starvation are inadequate staffing and inadequately trained staff.

Another common theme among these cases is the for-profit status of the nursing homes implicated. Research has indicated that for-profit long-term care settings have 20% lower staffing levels than nonprofit and governmental facilities. In 2001 Charlene Harrington, a nurse-researcher who has made extensive studies of care outcomes in long-term care settings, observed that staffing levels at facilities that have fewer than two nurse aide hours per resident-day and 0.75 licensed nurse hours per resident-day—regardless of for-profit or nonprofit status—are “dangerous to residents and do not comply with federal health and safety requirements.”

An expert panel that studied the issue of staffing in long-term care settings recommended 24-hour RN supervision, minimum staffing ratios for caregivers and licensed nurses that take into account the time of day and patient or resident need, and at least four and a half hours of direct care given to each resident every day.

WHAT CAN BE DONE?
Individual nurses within facilities, as well as professional nursing organizations and other groups, can take certain steps to improve the situation.

Individual nurses. It’s imperative that nurses in long-term care work to ensure that nothing in the practice environment stands in the way of adhering to standards of care. If you’re working in long-term care and can’t articulate the standards of practice for long-term care nursing, consider purchasing copies of documents such as Scope and Standards of Gerontological Nursing Practice, published by the ANA (see http://nursingworld.org/books/pdscr.cfm?cnum=15#GPN21). According to that document, nursing care is consistent with gerontologic standards of care when all of the following are performed:

• collect patient health data
• analyze assessment data in determining diagnoses
• identify expected outcomes of the older adult
• develop a plan of care that prescribes interventions to attain expected outcomes
• evaluate the older adult’s progress toward the attainment of expected outcomes
• systematically evaluate the quality of care and effectiveness of nursing practice
• evaluate her own nursing practice in relation to professional practice standards and relevant statutes and regulations
• acquire and maintain current knowledge applicable to nursing practice
• contribute to the professional development of peers, colleagues, and others
• make ethical decisions and take ethical actions on behalf of older adults
• collaborate with the older adult, the older adult’s caregivers, and all members of the team
• interpret, apply, and evaluate research findings to inform and improve nursing practice
• consider factors related to safety, effectiveness, and cost in planning and delivering patient care

This kind of document can be useful in
• analyzing current care practices (in light of the expectations set forth in such standard-setting documents)
• developing and refining job descriptions for nurses who work in long-term care
• evaluating the performance of long-term care nurses
• revising and refining staffing policies so that RNs deliver care that’s consistent with standards
• developing opportunities for continuing education of professional staff and nursing assistants
• developing documentation guidelines that nurses can use to document care, thereby improving the quality of care and drawing attention to situations that compromise it.
• framing conference discussions of the nursing component of the care provided to nursing home residents.

When attempting to remedy quality-of-care issues such as staffing and skill sufficiency, nurses should
• convey, in a constructive manner, their desire to uphold the standards of care.
• present data.
• propose solutions that are designed to be beneficial not only to residents but to those who provide care, their employers, and other stakeholders.
• conduct their own practice in a way that’s consistent with such standards.

**Professional nursing and other organizations.** Advocacy may also be regulatory or legislative in nature. For instance, from a regulatory perspective, perhaps it’s time to approach the Securities and Exchange Commission and propose that, if staffing levels fall below evidence-based thresholds, monetary sanctions be imposed against publicly traded, for-profit companies that own or operate long-term care facilities.

A more positive regulatory approach might be to reward long-term care settings that have sustained outcomes that exceed specific evidence-based thresholds. Rewards might include enhanced reimbursement rates, or exemption from unannounced site visits for a period of time.

While state laws and regulations vary, federal law requires that at a minimum, nursing home residents have the right to:
• be free from discrimination.
• be treated with respect.
• be free from abuse and neglect.
• a restraint-free environment.
• accurate information about services and fees.
• manage their own money.
• privacy and to keep and use personal property.
• medical care.
• spend private time with visitors.
• social services.
• leave the nursing home.
• report complaints.
• be protected from unfair transfer or discharge.
• take part in care planning.

In the end, change is up to residents but to those who provide care, their employers, and other stakeholders.

**REFERENCES**

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5. Zemel D. $21.5M nursing home award shows ‘incredible potential’ of such suits. Lawyers Weekly USA February 18, 2002; 19.
I choose a corner seat where I can see the Bunker Hill Monument, a solitary pike rising skyward. Remind myself to feel lucky. As my mother taught me, I’m wearing my best underwear, hands folded in my lap like a supplicant, alert for the sound of my own name being called. A woman all in yellow is led through the double doors, her straw bag stitched with pink flamingoes. Then it’s my turn. They put me in stirrups, paint my insides with iodine. I say, It’s okay, you’re not hurting me. A couple of snips and it’s over, pieces of me float in a jar. Just some silly cells gone wild, something to be managed, like my ex-husband or the sumac that keeps trying to take over the lawn.

Theresa D. Murphy teaches mindfulness-based stress reduction techniques to people with chronic illness, as well as to the general public. She is a past recipient of two Massachusetts Cultural Council grants; her poetry has appeared in the Comstock Review, Phoebe, and other journals.

Murphy says that writing this poem brought together her “seemingly disparate selves”—patient, nurse, and poet—in a satisfying way. She says, “As does the narrator of Elizabeth Bishop’s poem, ‘In the Waiting Room,’ I wonder how I have come to be here, and I am acutely aware of the ‘similarities’ that make us human.”

Editor’s note: Elizabeth Bishop’s poem “In the Waiting Room” can be read at www.poets.org/poems/poems.cfm?prmID=971. The small girl who narrates Bishop’s poem has accompanied her aunt to a dentist’s office on a wintry afternoon. As the girl waits, studying photographs in a National Geographic magazine in a room “full of grown-up people,” she becomes aware for the first time that she is both an individual (“an Elizabeth”) and part of a larger group, humankind (“one of them”). It is a moment bound in awe and terror. Bishop’s narrator tells herself, “I scarcely dared to look / to see what it was I was,” even as she hears her aunt cry out in pain and feels the waiting room “sliding / beneath a big black wave.” Although in the next stanza the child returns to firmer ground (“it was still the fifth / of February, 1918”), we sense that such moments will come again. “What similarities,” Bishop’s narrator asks, “held us all together / or made us all just one? / . . . How had I come to be here, / like them. . . .” Bishop leaves these questions unanswered.—Sylvia Foley, MFA, senior editor

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**Bold New World**

Technology should ease nurses’ jobs, not create a greater workload.

In 1899, Charles H. Duell, a commissioner for the United States Office of Patents, reportedly said: “Everything that can be invented has been invented.” He obviously was wrong.

Technology continues to change, often with dizzying speed, and no industry is immune.

For decades, the ANA has viewed technology as having a crucial role in health care, one that could greatly benefit nurses and patients if implemented wisely. Most recently, the ANA’s House of Delegates approved a resolution stating that technology should be used to augment, not replace, RNs’ decision making when determining patient safety practices.

The resolution also calls for RNs to be integrally involved in the research, development, evaluation, and purchase of technological systems aimed at improving the safety and quality of patient care, and that these systems don’t create an undue burden on nurses who already are struggling to provide direct care to their patients.

“You can’t just shove technology at people and expect that all the problems that led to staffing shortages will go away,” says Susan Newbold, MS, RN,BC, FAAN, cochairperson of a state-commissioned workgroup that looked at ways that workplace technology could ease the nursing shortage in Maryland. “Trouble may be just starting if the wrong technology is introduced.”

And there are cases when the technology is good but it’s implemented poorly, says Dana Womack, MS, RN, a health care technology expert.

“To this day nurses don’t have the input they should when computerized systems and other technology are selected,” says Newbold, a Maryland Nurses Association member. “We really need to be at the table when those decisions are being made.”

Besides RN involvement at the unit level, Womack says that more nurses need to take staff positions within their hospitals’ information technology department. There, they can raise a red flag when a new type of technology could adversely affect nurses or patient care.

“Technology should really work for nurses, make their daily lives easier,” says Womack, coauthor with Newbold of the workgroup’s 2004 report _Technology’s Role in Addressing Maryland’s Nursing Shortage: Innovations and Examples_ (available online at http://maryland.nursetech.com/F/NT/MD/Nursing Innovations2004.pdf), “And I’ve found that what’s good for nurses tends to be good for patients.”

**TECHNOLOGY IN ACTION**

One innovation that nurses at a Kansas hospital have embraced is motorized, ceiling-mounted patient lifts, which are available in patient rooms throughout most of the medical center.

The lifting system, which slides along ceiling tracks and uses slings of various sizes, allows nursing staff at Salina Regional Health Center to lift, transfer, and reposition patients weighing up to 1,000 lbs. Furthermore, nurses can walk patients, whose weight is supported by the lift system, in the halls, says Esther Carlson, MSN, ARNP,BC, chairperson of the hospital’s patient safety and performance improvement committees and a Kansas State Nurses Association (KSNA) member.

A hospital study of the lift system’s effectiveness completed in 2003 showed that patient-handling injuries decreased by 30% (from 30 in 2001 to 21 in 2003), the severity of injuries decreased dramatically, and institutional costs associated with worker injuries decreased by about 96%.

Aside from eliminating harmful manual lifting, this technology has been successful because nurses participated in selecting the equipment and were trained extensively in its use.

A committee that included nurses and other direct-care staff evaluated six different systems. Then nursing staff on high-injury units, such as the ICU, piloted three of the preferred systems. The selected system was installed on other units in November 2002.

Clearly defined lift policies and protocols also were developed to help direct-care staff determine when a lifting device was required, which helped bolster the system’s use.

Furthermore, all nursing staff participated in a comprehensive training program, which encouraged nurses to ride in a lift so they could describe the experience to their patients accurately, as well as ease fears, says Stephanie Moore, ARNP, CNS, advanced practice nurse, medical-surgical, and a KSNA member.

Meanwhile, ICU nurses at Avera Queen of Peace Hospital in Mitchell, South Dakota, have the assistance of critical care...
nurses from Avera Queen of Peace then were trained as “super-users” so they could train the rest of the ICU staff and serve as resources for on-site physicians, says Reider, a South Dakota Nurses Association member.

“We’re just beginning to see some of the benefits of this technology, which have been reported in other facilities,” she says. They include decreased patient morbidity and mortality and increased job satisfaction among nurses.

GO AHEAD, PRACTICE

Anxiety often runs high among new nurses, particularly when they confront situations that require a quick response. To alleviate that anxiety, Dartmouth–Hitchcock Medical Center (DHMC) in New Hampshire launched a program in June 2004 to build new graduates’ confidence and competence by using human simulation technology. Participants in DHMC’s nurse residency programs practice on mannequins that can be programmed with a range of human responses so that nurses can perfect routine skills and actions required in potentially life-threatening emergencies.

The patient simulators can talk, breathe, and have heart and lung sounds. They can be catheterized, have chest tubes inserted, be shocked with automated external defibrillators, die—and come back to life.

“We can create any complication,” says Suzanne Beyea, PhD, RN, FAAN, codirector of DHMC nurse simulation programs, member of the New Hampshire Nurses Association, and chairperson of the ANA’s Committee on Nursing Practice Information Infrastructure.

“Every nurse is drilled on how to
respond if a patient arrests. In this program, nurse residents learn to recognize and manage high-risk, low-frequency problems that can lead to failure-to-rescue events.”

For example, nurses learn how to respond when a “patient” seizes after being administered too high a dose of meperidine (Demerol). They must call the physician, be as assertive as necessary (a nurse colleague plays the role of a “difficult” physician), and work with other members of their team effectively to create a positive outcome. And it’s all done in a safe learning environment.

Before patient simulators were introduced, the length of time new nurses spent in orientation varied—with some never feeling ready to practice independently. Now most nurses say they feel ready to practice after completing the 15-week residency, and unit managers report these new nurses are more clinically proficient sooner.

Although experienced nurses on some units are already using the simulators to practice skills, Beyea expects this technology’s use will only increase.

Nurses who work at Veterans Affairs facilities have been the pioneers of a technological advance that’s been promoted by the Institute of Medicine and the Food and Drug Administration. It’s called the Barcode Medication Administration system, and the process works like this: A physician enters medication orders electronically. Once verified by a pharmacist, the orders then appear on patients’ electronic medication administration records.

When it’s time for the medications to be given, such as those at 8 AM, the nurse takes the medication cart along with a wireless computer to the patient’s room and calls up his medication record. The nurse then scans the barcode on the patient’s wristband and the barcode on the unit-dosed medication. Once scanned, the computer records that the drug was given unless the nurse documents otherwise.

Although medications may take longer to distribute, the majority of nurses like the system because they recognize its benefits, says Marianne Harrington, RN, who oversees the BCMA system at Central Arkansas Veterans Healthcare System in Little Rock.

“Since it was instituted in 2000, we’ve seen a significant decrease in medication errors,” she says. “This system accurately identifies the patient, the medication, the dosage, and the time frame.” ▼
Do No Harm

Reducing Pediatric Medication Errors

Children are especially at risk for medication errors.

Of all the ways that pediatric patients can be harmed during treatment, medication errors are the most common and the most preventable. When medication errors occur, pediatric patients have a much higher risk of death than do adults. Evidence suggests that for each medication error that harms an adult patient, there are 100 undetected errors. Approximately one in every 100 medication errors results in what is known as an adverse drug event, in which a patient is harmed or dies as a result. Considering how many inpatient medication orders and outpatient medication prescriptions are written each day, the number of pediatric medication errors is likely to be staggering.

As research results emerge, we are beginning to understand the impact of medication errors on children. Several studies of pediatric inpatients found rates of medication error ranging from 4.5 to 5.7 errors per 100 medication orders, rates similar to those found in studies of adult inpatients. Horen and colleagues found that pediatric outpatients had three times the risk of an adverse drug reaction, compared with adult outpatients, especially when the medication was used for an “off-label” indication—a common practice in pediatrics. While this study found significant error rates, the frequency of pediatric medication errors in ambulatory settings may be greater, because there are fewer checks and balances in place to prevent them. According to Miller and colleagues, “Pediatric patient safety in ambulatory care settings should be a high research and policy priority given the unique vulnerabilities of children, the glaring lack of current knowledge, and the disproportionate reliance on ambulatory care as compared to inpatient care.”

Medication errors take many forms, but they don’t all result in injury or death. Medication errors are defined as the preventable, inappropriate use of medications that may occur at any stage of the medication process, including ordering, transcribing orders, dispensing, administering, and monitoring. In some instances, medication errors result in an adverse drug event. Adverse drug events can also occur at any step in the medication process.

Types of Medication Errors

Bates and colleagues, among others, have demonstrated the phases of the care process in which medication errors are most likely to occur. In pediatrics, the prescribing or ordering phase is associated with the most errors—usually dosing errors—followed by the administering phase. According to research recently published in AJN, “When respondents to a staff patient-safety survey were asked to identify which profession has primary responsibility for ensuring patient safety, 96% of nurses and more than 90% of physicians, administrators, and pharmacists assigned primary responsibility to nurses,” regardless of the factors that contributed to the error (see “An Error by Any Other Name,” June 2004). Therefore, nurses involved in the care of children must be well informed about their patients and the medications ordered.

Contrary to earlier research, nurses play a significant role (specifically in medication administration) in pediatric medication errors. Even though many errors are caught before a drug is administered, medication errors not caught or intercepted by nurses can result in an adverse event. Because nurses are the ones who predominantly administer medications to patients, they are often the last potential barrier between a medication error (such as the wrong medication given at the wrong time) and serious harm. Nurses have a responsibility to ensure that patients receive the right medication at the right time, and to monitor patients after they’ve given or have taken the medication to observe possible adverse events.

The Unique Nature of Medications for Children

Children and adolescents are at greater risk than adults for medication errors because they have an immature physiology as well as developmental limitations that
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Inherent to research in children (for example, ethical concerns about using children as clinical trial subjects, the necessity of obtaining parental consent, and the difficulty of enrolling a sufficient number of children). However, the majority of medications used in neonates24,25 and children who need chemotherapy26 are off-label (sometimes called unlicensed) medications, because the majority of medications FDA approved for children don’t offer many of the therapeutic benefits of off-label medications. It’s safe to use an off-label medication in a child only when its use is fully understood by all clinicians who treat the patient.24 Because most medications don’t carry information on child-related dosing guidelines, adverse effects, or safety and efficacy information, using medications in off-label applications—that is, without FDA approval for children—puts children at significant risk for error.24,27

**WHAT’S THE RIGHT DOSE FOR A CHILD?**

Giving an adult dose to a child without considering the child’s weight, age, and clinical condition can cause an overdose and may result in toxicity and death. The most commonly used methods for calculating pediatric doses involve determining a fraction of an adult dose. Such calculations have been used by pediatricians nationwide for more than 50 years and may be used in children 12 years of age and younger and in those weighing less than 40 kg.26 (While the calculations are necessary to convert adult doses to safe pediatric doses, it’s important to note that the calculated fraction of the adult dose may not be safe for a particular child, given his health condition, status, and physiology.)

- **Weight-based method.** The following equation can be used to calculate a pediatric dose based on the child’s weight in kilograms:

\[
\frac{\text{child's weight in kg}}{50 \text{ kg}} \times \text{ adult dose in mg} = \text{ pediatric dose in mg}
\]

The FDA also includes weight-based dosing recommendations for specific medications at [www.fda.gov/cder/pediatric/labelchange.htm](http://www.fda.gov/cder/pediatric/labelchange.htm).

- **Body-surface area (BSA).** A nomogram is used to determine dosage based on the actual size of the child, using the child’s height in centimeters and weight in kilograms. A straight line drawn across the nomogram from the child’s height (in the left column) to the child’s weight (in the right column) will intersect the BSA column (center) at a point indicating the child’s approximate BSA in square meters (m²). Then use the following equation to calculate the pediatric dose:

\[
\frac{\text{child’s BSA in m}^2}{1.73 \text{ m}^2} \times \text{ adult dose in mg} = \text{ pediatric dose in mg}
\]

This method assumes that the glomerular filtration rate is proportional to BSA. The glomerular filtration rate (which is an indication of how well the kidneys are able to excrete the medication) can be used as an index of filter integrity in patients three years of age and older.28,30 This kind of dosage calculation is often used with medications that have a low therapeutic-toxic ratio, in which the rate of excretion is

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affect their ability to communicate and self-administer medications. Another important factor is that the great majority of medications are developed in concentrations appropriate for adults; therefore, pediatric indications and dosage guidelines often aren’t included with a medication, necessitating weight-based dosing or dilution.28 That is, in order for many drugs to be used in children, safe dosages—which are fractions of those normally given to adults—must be calculated. Determining pediatric dosages can be complicated because of the need to calculate them according to the child’s weight; therefore, those children who take such medications are at greater risk for medication error than others who take medications that don’t require such calculations. If no calculation is required, the risk of an error decreases significantly.

Research has identified some of the children most vulnerable to medication errors, including those:

- who are younger than two years,17
- who are in ICUs, especially neonatal ICUs,4,18,19
- who are in EDs, especially if seriously ill, between the hours of 4 AM and 8 AM or on weekends,20
- who are receiving chemotherapy,21
- who are receiving IV medication,21,22
- whose weight hasn’t been documented.23

Many of the medications of benefit to children in emergency situations and in the treatment of certain diseases have been approved by the Food and Drug Administration (FDA) only for use in adults.24 Testing of these medications in children has been thwarted by several barriers inherent to research in children (for example, ethical concerns about using children as clinical trial subjects, the necessity of obtaining parental consent, and the difficulty of enrolling a sufficient number of children). However, the majority of medications used in neonates24,25 and children who need chemotherapy26 are off-label (sometimes called unlicensed) medications, because the majority of medications FDA approved for children don’t offer many of the therapeutic benefits of off-label medications. It’s safe to use an off-label medication in a child only when its use is fully understood by all clinicians who treat the patient.24 Because most medications don’t carry information on child-related dosing guidelines, adverse effects, or safety and efficacy information, using medications in off-label applications—that is, without FDA approval for children—puts children at significant risk for error.24,27

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important in achieving the correct therapeutic effect, as in chemotherapy.

- **Status of prematurity.** When calculating dosages of medications to be given to premature newborns (infants born at less than 30 weeks’ gestation), special consideration is given to their unique physiologic characteristics, including low gastrointestinal motility, high levels of extra-cellular body water, low total body fat composition, and decreased plasma protein binding. Essentially, this results in much smaller doses for premature infants than would be given to other infants.

- **Dilution.** Dilution is used when adult doses of liquid preparations of medication are available, from which a pediatric dose must be prepared. The general rule is to divide the desired amount of medication by the amount of medication in the available liquid preparation, and then multiply the result by the available amount of liquid preparation. For example, suppose you’re given an order for a child to receive 120 mg of penicillin, and the liquid preparation that’s available contains 200 mg of penicillin in 5 mL of liquid. How many milliliters should be given? Cross-multiply the following:

\[
\frac{200 \text{ mg}}{5 \text{ mL}} : \frac{120 \text{ mg}}{x \text{ mL}}
\]

This yields the following proportion:

\[200x = 600\]

Then solve for \(x\) by dividing both sides of the equation by 200:

\[\frac{200x}{200} = \frac{600}{200}\]

Therefore, \(x = 3\); the pediatric dose is 3 mL.

Formulas such as these shown above are especially useful when a child weighs less than 40 kg. Pediatric dose calculations employing units such as milligrams per kilogram of body weight or milligrams per square meter of BSA require an accurate weight in kilograms, not pounds. As children gain or lose weight and as their bodies mature, pharmacokinetics change; dosing must reflect these changes. It’s critical to monitor and document weight changes and the child’s age, as well as responsiveness to the drug therapy.

Several important exceptions or caveats apply to any conversion formulas used. For example, standing orders for ibuprofen (Advil and others) or acetaminophen (Tylenol and others) to reduce fever assume that the correct dose for a particular patient will be determined by the patient’s weight in kilograms multiplied by the suggested amount of the medication in milligrams per kilogram. Unfortunately, errors can be made when a clinician calculates dosages for patients weighing 40 kg or more, the threshold at which an adult dosage can be considered, and the standard pediatric-dose conversion formulas become less useful. Clinicians should adjust the dosage according to the patient’s illness and overall medical condition, such as the presence of diseases affecting metabolism of the drug.

A system of checks and balances should be instituted in every facility, but that has not been the case. The Institute for Safe Medication Practices reported on a survey of health care workers it conducted in 2000. Only about half of all respondents said that a pharmacist always recalculates a drug dose before filling an order or that the child’s weight in kilograms has been entered into the pharmacy computer before the drug is given out.

Technologic advances, such as computerized physician order entry with clinical decision support and bar coding, can decrease, if not eliminate, errors. Clinical decision support software provides clinicians with comprehensive reference information on medications, such as dosing parameters and recommendations, potential drug interactions, and known side effects. Computerized physician order entry can help prescribers determine the therapeutic medication dose using weight-based calculations, thereby eliminating human miscalculations and providing a warning if the attempted dose is too large or small, or if there’s a potentially harmful medication interaction or allergy.

**MATHEMATIC MISCALCULATIONS**

As noted above, almost all pediatric medications require the clinician to perform a mathematical calculation, one that may be complex. The most common calculations involve fractions, percentages, decimals, and ratios. In mathematical tests, new interns and nurses have been found to have poor mathematical skills—nurses more so than physicians—and pharmacists have demonstrated the best computational skills. The inability to calculate the correct therapeutic volume of a drug dose accounts for the majority of pediatric medication errors. Research has found that the major problems behind many of these miscalculations are associated with

- an inability to conceptualize the right mathematical calcul-
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Preventing Pediatric Medication Errors

There are several practical steps that nurses should take to improve pediatric medication safety. While any of the following would be a good way to start, a multifaceted approach that includes all of these actions is recommended.

Report medication errors. Understanding how errors or "near misses" occur provides important information on preventing medication errors. Unfortunately, formal incident reports are not indicative of the total number of medication errors. Nurses underreport them if they fear reprisal or if they are uncertain of the definition of an error. Managers are responsible for ensuring that nurses and other providers are not punished for mistakes, that error reporting is encouraged, and that hiding mistakes is discouraged.

Know the medication before administering it. You must have adequate knowledge of any medication you are about to administer to a child, specifically: why the medication is being used, whether it is appropriate for a child, what the acceptable or recommended therapeutic dose range is, and how patients may respond (including possible adverse reactions). If you are unsure or concerned about the dosage, remember that asking questions and gaining more information is always in the patient's and your best interests.

Lack of drug knowledge has been found to account for 15% of medication administration errors among nurses, who should take advantage of pharmacists' knowledge when preparing, administering, and monitoring drug therapy.

When a medication is prescribed for an off-label use in a child, double-check the suggested dosage and duration of treatment with a pharmacist, in an appropriate reference such as a current edition of Physician's Desk Reference or in a computerized drug order entry system. If a medication is prescribed for an off-label use, finding the correct dose may be more difficult. The FDA publishes a list of off-label pediatric uses for approved drugs at www.fda.gov/cder/pediatriclabelchange.htm.

As our knowledge of medications improves and the variety of available medications increases, nurses must continue to develop their knowledge and understanding to ensure medication safety. Some medications, known as high-alert medications, have been associated with higher rates of medication errors, and nurses should be particularly cautious when administering them and double-check any orders for them (see Table 1, page TK).

Confirm patient information before administering medications. Every child, especially those weighing less than 40 kg, must be weighed and the weight documented in the medical record prior to administering any medication. The weight should be recorded in kilograms, not pounds. Don’t give any medication until the current weight is recorded. Also, make sure that the most recent weight was used in the calculation of the dose. It’s important to note that some research has found that those who make tenfold calculation errors are also more likely to cause other medication errors. Some errors of this type have been linked to performance on calculation tests because those who perform poorly on such tests are more likely to make a mistake in practice, especially when fatigued or distracted.

order and between recommended dosing and the patient’s order.
• make sure everything is double-checked by you and either a pharmacist, coworker, or computerized drug order entry system before any drug is administered.11, 34, 50-52
• if an order is given verbally, write it down and repeat it back to the prescriber for confirmation.
• be aware that rules, routines, and policies concerning medication errors are meant to assist nurses and other providers and to decrease the likelihood of error53, 54; however, they can also give a false sense of security if followed in lieu of active involvement in the problem-solving often needed to determine what therapeutic dose will be effective and safe.55

Certain critical information—standardized dosing and infusion rates and administration times—should be distributed and displayed. Many medication errors have been made because of an overreliance on memory.9, 45 Work collaboratively with an interdisciplinary team to establish maximum and subtherapeutic dose ranges and maximum single dose amounts for each pediatric medication, based on a child’s age and weight (when applicable).

For some medications given frequently, establish standardized doses and standardized dosing times, to prevent problems with missed doses or the administration of drugs at the wrong time. This should include standardized protocol checklists (see Table 2, at left) and safety reminders for nonstandardized doses and high-alert medications.

Minimize distractions during medication administration. Distractions interfere with the

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Hospitals4, 43.  48.  49</th>
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<td>Analgesics</td>
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<td></td>
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<tr>
<td>• Acetaminophen</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Antiinfectives, antibiotics</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Antihistamines</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Antineoplastics</td>
<td></td>
<td></td>
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<tr>
<td>Asthma medications</td>
<td>X</td>
<td></td>
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<tr>
<td>Bronchodilators</td>
<td>X</td>
<td></td>
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<tr>
<td>Cardiac drugs</td>
<td>X</td>
<td></td>
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<tr>
<td>Electrolytes, minerals, and vitamins</td>
<td></td>
<td></td>
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<tr>
<td>Insulin</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Opioids (such as morphine)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Sedatives (such as opioids, benzodiazepines, chloral hydrate [Aquachloral Supprettes and others], barbiturates)</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. High-Alert Pediatric Drugs Associated with Medication Errors by Setting

Type of Medication                      | What to Check                                                                 |
----------------------------------------|-------------------------------------------------------------------------------|
Common medications (such as antibiotics and antipyretics) | □ name and purpose of medication
  □ name of child to receive the medication
  □ weight of the child (in kilograms) and appropriate dosing
  □ any drug allergies or sensitivities
  □ any contraindications to using with other medications being taken
  □ that policies and procedures for safe medication administration are followed |
Off-label medications (such as immunosuppressants, antineoplastics, and cardiac medications) | □ verify with the prescriber: the medication, its dosage, and duration of administration
  □ double-check dosage
  □ discuss with team, including pharmacist, possible drug–drug interactions or adverse reactions to be vigilantly monitored while monitoring the child |

Table 2. What to Do Before Giving Any Medication to a Child


also important to document known allergies and previous medication use.

Double-check orders and collaborate with other clinicians to verify information.
Handwritten orders can be misinterpreted and verbal orders confused and miscommunicated, leading to errors and, potentially, fatal overdoses.3 To avoid errors,
• get clarification from the prescriber on incomplete and illegible orders and discrepancies, such as those between protocols or standardized regimens and the patient’s order and between recommended dosing and the patient’s order.
• make sure everything is double-checked by you and either a pharmacist, coworker, or computerized drug order entry system before any drug is administered.11, 34, 50-52
• if an order is given verbally, write it down and repeat it back to the prescriber for confirmation.
• be aware that rules, routines, and policies concerning medication errors are meant to assist nurses and other providers and to decrease the likelihood of error53, 54; however, they can also give a false sense of security if followed in lieu of active involvement in the problem-solving often needed to determine what therapeutic dose will be effective and safe.55

Certain critical information—standardized dosing and infusion rates and administration times—should be distributed and displayed. Many medication errors have been made because of an overreliance on memory.9, 45 Work collaboratively with an interdisciplinary team to establish maximum and subtherapeutic dose ranges and maximum single dose amounts for each pediatric medication, based on a child’s age and weight (when applicable). For some medications given frequently, establish standardized doses and standardized dosing times, to prevent problems with missed doses or the administration of drugs at the wrong time. This should include standardized protocol checklists (see Table 2, at left) and safety reminders for nonstandardized doses and high-alert medications.

Minimize distractions during medication administration. Distractions interfere with the
ability to concentrate and may lead to errors during the process of administration.\textsuperscript{15, 17} Being inattentive or allowing yourself to rush through tasks or from patient to patient while administering medications should be avoided.\textsuperscript{18}

**Communicate with parents and families and involve them in patient care.** Pediatric patient care inherently involves the family. Nevertheless, depending on the age and developmental stage of the child, family members may not always be aware of the treatment plan. This can be complicated because families are focused on the well-being of their child. It’s important to communicate with parents and families from admission to discharge. For example, upon admission the nurse may have to ask the family some probing questions about medications that are being taken at home. Parents may forget that the child has been taking an antibiotic or antipyretic at home. While it may take a few extra minutes to obtain an accurate history from the family, they are still a vital source of information.

The Agency for Healthcare Research and Quality states that the single most important thing families can do to prevent medical errors is to actively participate in the child’s health care.\textsuperscript{19} Nurses can involve the family whenever administering a medication and inform worried parents by taking the time to state the name of the medication, discuss why the medication is being administered and explain the dose, frequency, and purpose of the medication. This can even have the bonus result of providing an important safety check for potential errors. For example, a study of medical errors on the neonatal intensive care unit reported that, even when families contributed to the cause of errors, they also assisted in the discovery of them.\textsuperscript{18}

**Improve communication among clinicians during transitioning and handoffs.** When the patient is in transition from one clinician to another or from one setting to another, patient safety can be jeopardized. These are times when medication errors and patient treatment protocol errors are most likely to occur.\textsuperscript{1} Clarity is required whenever one communicates with another clinician, and especially when handing off a patient to the next shift or to another clinician. One study showed a 17\% reduction in medical errors as a result of improved communication among health care staff.\textsuperscript{11}

**Provide child-centered care to patients and their parents and families.** The transition home—whether from hospital, ED, or physician’s office—is a time when education and clear communication is needed among patients, their families, and all clinicians involved. The route of medication administration is likely to change, and parents and family members will have to assume responsibility for dispensing and administering medications. In addition, as a child is discharged home, the family may be least receptive to new information because of anxiety about their ability to manage their child’s care. During these transitions, nurses can educate the family on the plan of care and assess the family’s readiness to receive new information.

Simple steps that nurses can incorporate into discussions about discharge include confirming the type of medication to be administered and the route of administration. Parents, family members, and patients will need to know what the medication looks like, exactly how and when to give—or take—the medication, how to use the correct administration devices (droppers, oral dosing syringes, medication cups), the importance of using the correct administration device to avoid over- or underdosing, what to do if a dose is missed or if the child spits out the medication or can’t or won’t take the solid form, and what to look for that would warrant a call to the pediatrician. If injections are necessary, ask parents to demonstrate their ability to administer them; research has demonstrated that this can improve the accuracy of and compliance with a treatment regimen.\textsuperscript{20} Nurses should also encourage families to seek out information on their child’s care, read package labels carefully, and ask questions about their medications.

**REFERENCES**

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Insufficient nurse staffing is the number-one concern of nurses today. Therefore, securing appropriate staffing to protect nurses and patients remains a top priority for the ANA.

The ANA supports nurse–patient ratios to address the current crisis but feels strongly that these ratios must be set—not by legislators, but in the workplace, in direct coordination with nurses themselves, and based on unit-by-unit circumstances and needs. While the ANA respects all attempts to address the staffing issue, it has real concerns about the establishment and legislation of fixed nurse-to-patient ratios in federal or state legislation. While such legislated numerical ratios seem to offer a concrete solution and may appear to be a good fit for some workplaces, so many other variables—including acuity of patients, level of nursing staff experience, layout of the unit, and level of ancillary support—are key to establishing the appropriate nurse–patient ratio for any one unit.

This is why the ANA worked with Senator Daniel Inouye (D-HI) and Representative Lois Capps (D-CA) during the last session of Congress to develop and introduce legislation that would ensure adequate RN staffing in health care facilities. This vital legislation is aimed at ending the widespread practice of health care facilities stretching their nursing staff with unsafe patient loads, mandatory overtime, floating to specialty units without training and orientation, and other practices that undermine safe, quality care.

The bill also amends the conditions of participation for hospitals in the Medicare program and establishes a requirement for minimum staffing ratios. Rather than establishing a specific numeric ratio, the act requires the establishment of a staffing system that “ensures a number of registered nurses on each shift and in each unit of the hospital to provide for appropriate staffing levels for patient care.”

Specifically, the staffing system must
• be created with input from direct-care RNs or their designated representative,
• be based on the number of patients and level of patient acuity, with consideration given to patient admissions, discharges, and transfers on each shift,
• reflect the level of preparation and experience of those providing care,
• reflect staffing levels recommended by specialty nursing organizations,
• provide that an RN not be forced to work in a particular unit without having first established that he or she is able to provide professional care on such a unit.

Another key provision of the bill requires public reporting of staffing information. Under the legislation, hospitals would be required to post daily the number of licensed and unlicensed staff providing direct patient care on each unit and each shift, specifically noting the number of RNs.

Finally, the bill provides whistleblower protections for RNs and others who file a staffing complaint. The bill establishes procedures for receiving and investigating complaints and creates enforcement mechanisms, including civil monetary penalties that can be imposed by the Secretary of Health and Human Services for each knowing violation.

While there is widespread agreement in the nursing community about the nature of the current staffing crisis, there is ongoing debate over the best solution. The ANA believes that RNs are the professionals best prepared to make these staffing decisions. See www.nursingworld.org or http://thomas.loc.gov for more information.

Setting Nurse–Patient Ratios

ANA bill calls for development of staffing systems in hospitals.

So many other variables are key to establishing the appropriate nurse–patient ratios for any one unit.

S 71 and HR 1372 would mandate the development of staffing systems in hospitals. The legislation is aimed at ending the widespread practice of health care facilities stretching their nursing staff with unsafe patient loads, mandatory overtime, floating to specialty units without training and orientation, and other practices that undermine safe, quality care.

Specifically, the staffing system must
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Opportunities are everywhere throughout the southeastern United States. “The current market is wide open for RNs of all skill levels,” says Linda R. Easterly RN, BSN, MS, COHN-S, president of the Georgia Nurses Association. “There are numerous opportunities for nurse managers and especially APNs.” And that extends to research and special programs, as well.

MAGNET CATCHING ON
After a slow start, the number of facilities attaining Magnet status in the South is increasing. Easterly mentions that Georgia has two Magnet hospitals, St. Joseph’s Hospital of Atlanta and St. Joseph’s/Candler in Savannah, with numerous other systems working on this select criteria. The number of Magnet facilities elsewhere throughout the region are Alabama, one; Florida, 12; Louisiana, three; North Carolina, eight; and Virginia, two. To find out more, please see http://www.nursecredentialing.org/magnet/facilities.html.

EDUCATIONAL OPPORTUNITIES
Nurses can find many educational opportunities in the South. “There are many outstanding universities—with numerous scholarship opportunities for nurses wishing to advance their education,” Easterly says. Besides the multitude of undergraduate and master’s programs available at top universities throughout the South, there are also several doctoral programs for nurses, including those at the Medical College of Georgia and Emory University.

LIVING AND WORKING IN THE SOUTH
The South is a fun and beautiful area of the country to both work and play, with a varied landscape that features everything from mountains to ocean. Additionally, the cost of living in the region is favorable to any region in the United States. Florida has no state income tax and many southern communities regularly make various “Top 10” lists as great places to live. Arkansas, Mississippi, North Carolina, and Virginia are also among a growing list of “compact states,” which recognize the RN licenses of other compact states.

Your Guide to Job Opportunities in the Southern States and Florida

Forsyth Medical Center
3333 Silas Creek Parkway
Winston-Salem, NC 27103
Contact: Nurse Recruiter
(336) 277-1909
Fax: (336) 277-1901 or (336) 277-1902
Email: abnuss@novanthealth.org
Web site: www.novanthealth.org

Lakeland Regional Medical Center
1324 Lakeland Hills Blvd.
Lakeland, FL 33805
Contact: Human Resources/Nurse Recruiter
(800) 355-5762
Fax: (863) 284-1892
Web site: www.lrmcjobs.com

NCH Healthcare System
225 9th Street North
Naples, FL 34102
Contact: Diane Sterlacci, Kathy Howes, Robert Shea
(800) 955-5165
Fax: (239) 436-5055
Email: careers@nchmd.org
Web site: www.nchmd.org

Self Regional Healthcare
1325 Spring Street
Greenwood, SC 29646
Contact: Debra Metts, Recruitment Specialist
(864) 227-5005
Fax: (864) 227-4993
Email: dmetts@selfregional.org
Web site: www.selfregional.org

South Carolina Hospital Association
Contact: Anne Howard
(803) 796-3080, ext. 264
Email: ahoward@scha.org
Web site: www.SCHealthJobs.net

VCU Health System
P.O. Box 980066
Richmond, VA 23298-0066
Contact: Jaime Cook, Nurse Recruiter
(800) 755-NURSE (6877) or (804) 628-0918
Fax: (804) 628-8873
Web site: www.vcuhealth.org/careers

http://www.nursingcenter.com
A Look At NICHE

Hospital use by people ages 65 and older has increased substantially. The percentage of discharged patients in this age group rose from 20% in 1970 to 38% in 2002, while the percentage of discharged patients younger than 65 either decreased or did not rise. In 2002 patients ages 65 and older accounted for 45% of hospital days of care; the average length of stay was 5.8 days, longer than in any other age group. This Nursing Counts describes NICHE, a program designed to respond to the special needs of hospitalized older adults.— Marie Boltz, MSN, CRNP, NHA


At this writing there are 153 active NICHE hospitals; many have reported increased nurse competence and improved patient outcomes, including fewer fall-related...
NICHE at Inova Fairfax Hospital

At Inova Fairfax Hospital in Falls Church, Virginia, NICHE has provided a vehicle for beneficial change in the care of older adults. With initial funding from the Inova Foundation, interdisciplinary leaders attended the NICHE Leadership Conference in 2001 and subsequently created geriatric nursing initiatives in education, practice, and special programs. Targeted clinical areas included patient safety, use of physical restraints, medication, falls, and delirium.

Using the Hartford Institute’s staff development curriculum guide, several basic geriatrics courses were developed, and more than 90 participants from various disciplines have attended thus far. The courses address the normal aging process; geriatric syndromes such as diminished function; and falls, incontinence, and pharmacologic issues. Course content has also been adapted for 35 nonlicensed staff. An advanced class has been taken by 50 geriatric resource nurses and 14 newly certified gerontology RNs. More than 150 participants have attended annual one-day symposia focusing on evidence-based practice specific to older adults. To make geriatrics information available to staff on all units, a hospital-designed Web site has been developed.

As nurses became more aware of the needs of geriatric patients and more skilled in geriatric care, they identified practice areas in need of change. For example, nursing staff evaluated three confusion assessment tools before choosing the Confusion Assessment Method for incorporation into a nursing assessment standard. Nurses also identified the need to change physician order sets to include more appropriate medications and dosing regimens. All new policies (such as the anticoagulation policy) are reviewed, and recommendations for age-specific modifications are made.

Changes in daily practice have yielded measurably improved outcomes. On non–critical care units, restraint use has decreased 99% as a result of risk identification and more effective individualized care (for example, more frequent toileting, increased family involvement, and closer monitoring); falls have been reduced by 39%. Pressure ulcer incidence and average lengths of stay have also been reduced on NICHE-focused units.

For information about NICHE at other hospitals, see the May–June 2002 issue of *Geriatric Nursing*.—Deirdre M. Carolan Doerflinger, PhD, CRNP, and Gwen Kinney, MSN, RN

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Editor’s note: For more information on the program at Inova and these results, contact Deirdre M. Carolan Doerflinger at deirdre.carolan@inova.com.
It was 2003. Belkis Ramirez had just returned to her unit from a conference held by the American Association of Critical-Care Nurses. She had been especially moved by the keynote address, entitled “Rising Above,” which was delivered by the association’s president, Dorrie Fontaine, as well as a painting with the same title that had been commissioned by the organization to illustrate the conference’s theme. So inspired was Ramirez by the painting that she was carrying a copy of it with her.

Ramirez, a nurse on the medical intensive care unit (MICU) at St. Joseph’s Regional Medical Center in Paterson, New Jersey, suggested that Rising Above be recreated in mosaic form as a MICU art project. The unit had already produced two mosaics, one called The Holy Family, created in honor of the hospital’s Catholic roots, and the other a memorial to the victims of the terrorist attacks of September 11, 2001.

MICU nurse Jocelyn Espejo, who had planned to become an architect before she found nursing, sketched the painting onto canvas. It was Espejo’s idea to use the colorful IV medication caps that are often tossed in the garbage after opening. But the caps only came in 10 colors.

Advanced practice nurse Janice Wojcik, who helped oversee the efforts, says, “We had to actually ‘rise above’ to figure out how we were going to get this particular art project accomplished. We couldn’t do the artwork justice using what we had used in the past.” So the nurses incorporated multicolored beads to instill depth and texture in the more intricate areas of the piece.

For two months, it was commonplace to see groups of nurses cutting the caps on their lunch breaks or gluing pieces together at the nurses’ station during downtime. Sometimes nurses took parts of the project home with them; others would stay after their shifts to finish a section. As the nurses worked, they...
spoke about what Rising Above meant to them, the symbolism behind the images, the difficulties they encountered daily in the tense environment of critical care, and how they could look for new solutions to the challenges they faced in practice.

For each nurse, the opportunity to contribute to the project held a different significance. Cindy Schmidt found the assignment a relaxing ice-breaker that brought her closer to her new colleagues. “When the project started, it was exciting because everyone was just going in and out,” she says. “If they had a minute they’d stop. Everybody, I think, had a spirit of being one doing that work.” Nurse Arturo Eijansantos got involved because he felt a deep pride for his unit that he wanted to transfer to artwork.

In February 2004—more than 3,000 medication caps later—the mosaic was completed. Wojcik estimates that more than 35 nurses contributed to the project, which is now displayed on the wall at the entrance to the MICU, serving not only as a greeting to visitors but as a reminder of the nursing team’s accomplishment.

Of even greater value, says Wojcik, the project stimulated a cultural shift she hadn’t seen before. “Now, when you go on to the unit, you’ll often see two of the RNs in the room together working with a patient. It’s not so much my patients as it is our patients. They want to deliver excellent care, and they’ve come to realize they work much better together than they do individually.”—Loretta Hunt

Remembering Edith ‘Pat’ Lewis
Influential editor and mentor to many.

Edith Patton Lewis, Pat to her friends, died in February at her home in Connecticut at the age of 90. Pat was a watchful critic and champion of nursing well into her last few months. We offer the following remembrances from former colleagues and friends as a tribute to this woman described as intellectual, eloquent, insightful, strong, and feisty.

Thelma M. Schorr, BSN, RN, FAAN, worked with Pat for many years. The following is an adaptation of an obituary she wrote about Pat, which was issued as a press release by Diana Mason, editor-in-chief of AJN, on February 25.

Pat began her editorial career when she joined the editorial staff of AJN in 1945. She went on to become editor of AJN and Nursing Outlook and the founding managing editor of Nursing Research during the 35 years she was associated with the AJN Company. Aside from writing trenchant editorials, she would mentor new staff from all of the company’s six journals when they were sent to her to learn to edit. “Remember,” she would say, “never overestimate the readers’ experience or underestimate their intelligence.”

Pat retired in 1980 but continued her professional watchfulness, sending affectionate but pointed letters to the editors of several nursing journals and providing brief essays about pretentious prose or issues she felt strongly about. The following is from a piece she wrote for Image: The Journal of Nursing Scholarship that appeared in its Spring 1986 issue:

Having finally accessed Image’s pages, printwise, this writer is behooved to prioritize her objectives so that the conceptualizations contained herein will be translucently articulated and the parameters of the discourse strictly delimited in order to maximally impact the parameters.

And if you lasted all the way through that sentence, you are to be commend-ed, congratulation-wise, for your patience and fortitude. If you saw nothing wrong with it and had no trouble understanding it, I worry about you. Actually, my only conceptualization is to say, “Isn’t that an awful way to write.” And my only objective is to plead with you, in the name of all editors and readers, “Please don’t write like that.”

Barbara Stevens Barnum, PhD, RN, FAAN. Pat was incapable of writing a dull editorial. Most of them, if they are read today, sound completely contemporary. Perhaps that means that nursing is too slow to solve its problems. But I think it has something to do with the fact that Pat’s vision was futuristic, wise, and fresh. Outside of her family, Pat’s main love was nursing. For years, she relished nursing conventions and the chance—no, not to compare ideas—but to light them up, especially outside of the meetings with a few good friends, preferably in a smoke-filled lounge.

Pat had a thing about penguins. They were everywhere—one on the door of her apartment, on her stationery, on her Christmas cards. I thought it sad that her chosen totem was one of the few birds that cannot fly. But I discovered later that they can literally jump out of the water, always landing on their feet. I knew then that Pat had picked just the right animal totem after all. She had her feet planted solidly on the earth but she could take bold leaps when she wanted to.

In Memoriam

Nell Watts, MSN, RN, FAAN, 79, died February 28 in Indianapolis after a long illness. For more than two decades, Watts was the executive director of Sigma Theta Tau International, the honor society of nursing. Under her leadership, the society expanded from a national entity of 50 chapters into an international organization of 324 chapters and moved its headquarters from a two-room office to a 33,000-sq. ft. one, the International Center for Nursing Scholarship, located on the campus of the Indiana University School of Nursing, her alma mater. Memorial contributions in her name can be made to the Nell Watts Fund for International Scholarship at Sigma Theta Tau International Foundation for Nursing, 550 W. North Street, Indianapolis, IN 46202, or to the Fisher Center for Alzheimer’s Research Foundation, 1 Intrepid Square, W. 46th Street and 12th Avenue, New York, NY 10036. ▼
Preparing for Disasters

Helping yourself as you help others.

Disaster disrupts the entire community, including the lives of its nurses. Yet as a nurse, you may expect yourself to function normally, despite personal trauma, fears, and worries. You may believe that you should sacrifice yourself for others. But personal concerns may interfere with your ability to perform.

You can increase your effectiveness during a disaster by preparing a family emergency plan and learning ways to cope with stress. Employers can help by addressing personal and family concerns early, setting up communication systems, and employing strategies to minimize the adverse effects of stress.

YOUR PERSONAL EMERGENCY PLAN

Make a plan using information from the American Red Cross, Federal Emergency Management Agency (FEMA), or your local emergency management office. The plan should include:

- where the family will meet if you can’t get home
- how to get information to each other (for example, ask an out-of-state friend to be your contact; be sure everyone knows the phone number)
- how to care for your pets

Know the disaster plans at your children’s schools, your spouse’s and your workplaces, and other spots your family frequents.

Prepare a disaster supply kit for your cars with water, nonperishable foods, toilet paper, prescription medications, a battery-operated radio, a first-aid kit, sturdy walking shoes, rain gear, blankets, and a backpack.

Store disaster supplies in your home: water, nonperishable foods, nonelectric can opener, and a battery-operated radio.

Ensure everyone knows how to shut off water, gas, and electricity at the main switches.

AT WORK

The National Center for Post-Traumatic Stress Disorder, the Center for Mental Health Services of the U.S. Department of Health and Human Services, and FEMA recommend the following:

- Limit on-duty hours to 12 per day.
- Pair up to monitor one another’s stress.
- Encourage and support your coworkers.
- Drink plenty of water.
- Eat healthful snacks: fresh fruit, whole-grain breads, and other energy sources.
- Take a break when you feel loss of stamina, coordination, or tolerance for irritation.
- Use available counseling.
- Talk about your emotions.
- Stay in touch with family and friends, and defuse briefly whenever you experience troubling incidents and after each work shift.

EMPLOYER PLANNING

The Joint Commission Resources Guide to Emergency Management Planning in Health Care recommends that employers develop an emergency plan that tackles logistical issues, such as

- a communication system that allows nurses and families to connect.
- transportation to and from work.
- provisions for child care and adult care.

To help staff cope, employers may want to

- provide on-site stress counselors.
- enact policies that encourage the disaster “buddy” system, breaks, and 12-hour shifts.
- establish work rotations from high- to lower-stress functions.
- provide support that allows staff to share emotions.
- supply a break room for resting and sharing of emotions.

Employers also should ensure that supervisors know the psychological impact of disaster, can recognize the signs of distress, and know where to go for help.
Nurses Week—What Did You Get?

Hi, everyone! Just curious to see what you received for Nurses Week.

Denim shirts with the company logo
Swiss Army–type knives with fourteen blades
Carnations in dollar-shop vases
One wilted rose
Soap on a rope
I think I’m worth more than this
A live band at the Holiday Inn
A potato bar luncheon
If you weren’t there, you got nada
Nothing
Not a thing
A PA announcement thanking the nurses
We dug out our caps & wore them all day
our VP of Nursing came to the unit and stayed for an hour
we sat with her & shared our stories of why we went into nursing
We got pizza one day (if you were there)
and ice cream one day (if you were there)
Rolos, Skittles and M&Ms—give me the tools to do my job
instead of tote bags and candy
A drawing for some pretty cool prizes—movies, massages, a month off call
A bonus
We got to work overtime!
I presented my findings to the Executive Team and found out Tuesday
that they had approved another nurse . . . the best thing I could have gotten
One of my patients agreed to an interview with a local paper
and our story made the front page
My Mom is proud that I’m a nurse, so I got a Hallmark from her
Smiles, hugs, great gifts that cost no money
They did away with the corny shoelaces, thank god
Overall it’s kinda nice
I was thinking about all nurses out there this week
I appreciate all of you.

Veneta Masson is the author of Rehab at the Florida Avenue Grill (poetry, Sage Femme Press, 1999) and Ninth Street Notebook: Voice of a Nurse in the City (nonfiction, Sage Femme Press, 2001), as well as the coordinator of Reflections. This is a “found poem,” a form of poetry in which the poet assembles phrases selected from a source or sources. In this case, Masson says, the lines come “from actual posts to an Internet bulletin board.”
Hypertrophic Cardiomyopathy

A young nurse relates her experience of a life-threatening disease.

By Virginia L. Hall, BSN, RN, and Barbara L. Drew, PhD, RN

BARBARA L. DREW: I met Virginia Hall in January 2003, two weeks into the spring semester. She was a senior nursing student and I was an assistant professor at Kent State University College of Nursing in Kent, Ohio. We were to talk about an honors project that would be part of her psychiatric–mental health nursing course. She was a little out of breath and had a sheen of perspiration on her upper lip. “Sorry,” she said, while she caught her breath. “It’s good for me to take the stairs, but it’s still a little hard. I had open-heart surgery during the break.” I asked her to tell me about it. As she talked, it became clear that she was still recovering—physically and emotionally. Besides the trauma of surgery, she had faced mortality, and she was only 21 years old.

I said that her honors project might be the perfect opportunity: she could explore the literature on hypertrophic cardiomyopathy and describe the condition, her surgery, and recovery. I told her she could write as much about her thoughts and feelings as she was ready and willing to do. As it turned out, she was ready, willing, and able. This article is based on her project.

VIRGINIA L. HALL: I’ve been a medical–surgical nurse for two years. Before that I was in a bachelor’s of science in nursing program at Kent State University. My training was normal enough, until November 2002. That month, the beginning of my senior year, I had an echocardiogram as part of a routine checkup (I had a lifelong heart murmur that hadn’t been recently evaluated). During the echocardiogram, the technician left the room and a cardiologist came in. I thought this was a little odd; it’s unusual for a physician to be present for a routine echocardiogram. He asked me if I had chest pain or shortness of breath and if I ever fainted; I said “yes” to all of these questions. He told me that my interatrial septum was 3.9 cm thick (greater than 2 cm is abnormal). He said I had hypertrophic cardiomyopathy, referred me to another cardiologist, and sent me home, telling me to take it easy. I was frantic: What did “take it easy” mean?

After that echocardiogram, I began to read extensively about hypertrophic cardiomyopathy, a thickening of the heart muscle reported to occur in about 0.2% of the population. I had been diagnosed with a particular type, hypertrophic cardiomyopathy with obstruction: the muscle in my heart’s septum had grown so thick that the leaflets of the mitral valve were obstructing blood flow from the left ventricle into the aorta, causing regurgitation back into the atrium. In this disease, the left ventricle may become stiff, leading to increased diastolic pressure in the heart and impaired filling. This is often detectable through a crescendo–decrescendo systolic murmur, which my doctor heard, leading him to conclude that my left ventricle had stiffened.

The disease often reconfigures the heart, but many patients are asymptomatic. Others may have dyspnea, chest pain, palpitations, or syncope. Some patients are diagnosed only after sudden cardiac death. I had been experiencing dyspnea, chest pain, palpitations, and syncope my entire life and had attributed these symptoms to being out of shape.

Hypertrophic cardiomyopathy is inherited. A mutation in any one of 10 genes can cause it; although these have been identified, genetic testing has not proven helpful. There is no cure for the disease, but treatments include drugs and surgery. β-blockers are usually the medication of choice because they lower the heart rate and decrease the occurrence of arrhythmia. One other method of decreasing septal size is alcohol ablation, in which alcohol is injected through a catheter into a branch of the left anterior descending coronaryartery.
artery. This will induce a controlled myocardial infarction, which decreases the thickness of the septum. This procedure was developed recently and is usually recommended for patients who are poor surgical candidates. My left ventricle was so obstructed that I was a primary surgical candidate.

Although different doctors favor different approaches, deciding how to proceed on a case-by-case basis, the American College of Cardiology estimates that 5% of patients require a septal myomectomy.¹ In this procedure, part of the septum is removed to allow unrestricted blood flow through the outflow tract. This is most often the treatment considered for patients younger than age 35, who are at the highest risk of sudden cardiac death. In such cases, an implantable cardioverter defibrillator (ICD) is also often placed: a little box-shaped device the size of a pager, it's inserted under the pectoral muscle with one or two leads into the heart. The device measures the heart rate; if it exceeds a set limit, the ICD sends an electric shock to return the heart to a normal rhythm.

I had a laboratory workup, an electrocardiogram (ECG), a chest X-ray, cardiac catheterization, an echocardiogram, and a stress echocardiogram. For the stress echocardiogram, tidal volume, heart rate, and blood pressure were closely monitored while I walked on a treadmill at increasing intensity. After three days of tests, the cardiologist decided I should have a myomectomy and an ICD placed. There were two weeks between diagnosis and surgery, and just one week to prepare myself for the procedure.

I couldn’t believe it—I had to have open-heart surgery around my final exams, and I had to make sure I had four weeks to recover so I could attend classes in the spring. I quit my job so that I could focus on getting better and going to school. I had no idea what my life would be like for the rest of my life. I knew that I would never be able to play tackle football or get drunk. I might pass this disease on to my children—if I could survive a pregnancy.

I was on an emotional rollercoaster. In front of my colleagues, I was the comedian. I would say things like “Just call me the Grinch: my heart grew three times the size it’s supposed to be,” or I would sing the Janis Joplin song “Take Another Little Piece of My Heart.” I didn’t want anyone to think I had changed. I wanted people to know I could handle it. I had to be strong for myself.

With my family I was the educator. I worried that if they saw I was afraid, they would get scared. I printed out papers and brochures, and brought home books. Whenever I had a palpitation, I would try not to show how it upset me. I never complained of shortness of breath or chest pain. My family suddenly embraced me. My brother, who hadn’t called me in four years, starting calling four times a week. They were all scared I was going to die soon.

The hardest part was facing my fiancé. I had no words of encouragement to offer him. I had no mask to put on with him, and I showed him how scared I was. Our lives had changed forever. He feared for my life and cried.

I had always lived every moment as if I would live forever. I hadn’t appreciated people; I wouldn’t let go of grudges. Now I knew that death could be sudden and I had to be prepared. Now I started telling people that I cared about them. I became thankful for what I had.

I had seen open-heart surgery and I knew every detail of what could go wrong. I could wake up with a tube helping me breathe. I was scared of the pain. I was afraid of contracting a nosocomial infection. I was scared I might have a huge infection in my teeth that no one had noticed, and that I would develop endocarditis. I was terrified that I’d have poor nursing care because of the shortage.

The procedure was to take place in a hospital renowned for heart surgery. The staff did days of teaching with me. My surgeon told me the risk of death during surgery was 1 in 105. I asked him, “What number am I? Please tell me I am not number 105.” I asked about rates of sepsis and pneumonia. I needed all the information I could get. I was too scared to stay by myself for fear my heart would begin to palpitate and not stop. I had hospital phone numbers tacked up on my walls. The night before the surgery, I was scared to fall asleep in case my heart stopped.

I was also depressed as I anticipated spending the Christmas break recovering. While my peers worked and family members lived their lives, I would practice getting out of bed. I didn’t know anyone my age who’d had open-heart surgery. I had no idea how to talk to someone about the sadness I felt, yet my surgery was all I wanted to talk about; it was all that was on my mind.

BLD: Ms. Hall’s researching of her cardiac condition and sur-
gery is typical of the monitoring style of coping in which a person anticipates a threatening event by seeking information. She was also very selective in sharing her worries with others. This selectivity likely served two purposes. First, she wanted to protect the people around her by putting them at ease and reducing their anxiety. Sharing jokes and intellectualizing also provided some distraction and relief from facing fear 24 hours a day.

There were some contradictions between her emotions and her behavior during the time between diagnosis and surgery. She craved information and understanding, yet she declined an opportunity to visit a young person who’d survived similar surgery. She felt compelled to talk about her fears—but only with her fiancé. Such inconsistencies are not surprising. When faced with a stressful event, people tend to use coping mechanisms that have been successful in the past and to turn to reliable, supportive relationships to maintain their equilibriums.

**OPEN-HEART SURGERY**

VLH: I had a myomectomy and an ICD implanted. The surgery lasted for five hours. I woke up in a hospital bed. The first thing I asked was, “Am I alive?” I remember the nurse chuckling as I was moved into my bed. I had never been in so much pain. Whenever I was asked to rate the pain on a scale of 1 to 10, I said, “10.” I memorized the pain on a scale of 1 to 10, I had no strength.

The next day I was moved to a regular nursing floor. The same day, they told me to get up and walk, and I couldn’t believe it. I hated how they reminded me to eat and drink every two hours. I hated having to ask for medications and I hated having to pee in a hat. I had always been in control of my life, and now I was not. It occurred to me that my own patients were similarly at my mercy. The little things I had asked patients to do now became my routine for five days. Then I was sent home.

New fears and frustrations started once I was home. I was back to being scared out of my mind. I had fever. I was taking 100 mg propoxyphene napsylate (as Darvocet-N) and 600 mg acetaminophen (as Tylenol) for pain every four hours. I called the doctor every night. I said I had sepsis, but he just encouraged me to perform spirometry and walk around more. I used the incentive spirometer 20 times an hour (twice what was expected) and walked every second I could because I couldn’t sit comfortably. Every night I cried to my fiancé because I could not lie flat for the pain. I thought I would never get better.

By Christmas I had weaned myself off the propoxyphene napsylate. On the first day of the spring semester, only four weeks after my surgery, I walked to my classes. My life went on; family and friends stopped calling me every day. Eventually, I stopped feeling depressed and anxious. I had learned how to take care of myself. I had learned I had the strength to live with this disease.

My prognosis is good. I recently had my annual checkup, which included a laboratory workup, an ECG, an echocardiogram, and a stress echocardiogram; my ICD was also checked. Although my B-type natriuretic peptide level was elevated, I passed the echocardiograms with flying colors. Right after the surgery, my heart rate was at 160 beats per minute 20% of the time, and I was started on metoprolol (Toprol-XL) 50 mg twice a day; I still take 100 mg of metoprolol daily, as well as 81 mg of aspirin.

I graduated in May 2003. I worked in a postcardiothoracic surgical ward for a year, often stopping to see patients who had had surgery similar to mine. I wanted to make sure they could vent their feelings. It was therapeutic for them and for me. Shortly after I graduated, I married my fiancé; we honeymooned in the Dominican Republic. The following year we loaded up and moved to Arizona, the best decision of my life; I began working at the Mayo Clinic. My husband and I are discussing having a family. I have every intention of going back to school. The journey of my life is nowhere near completed.

I gained the knowledge that comes from facing a fear of death and going through preoperative preparation for cardiac surgery and postoperative recovery. My experience helps me understand where my patients are coming from. I know that when a patient is scared, he does not want to hear “Just calm down; you’ve lived this long.” He wants a nurse to listen and help him understand what’s going on. I know that we are there not to fix his fear but to help him cope with it.
COMPUTERIZED STANDING ORDERS FOR NURSES IMPROVE VACCINATION RATES

More effective than computerized physician reminders.

The use of computerized standing orders for nurses to administer influenza and pneumococcal vaccines to eligible inpatients is more effective than the use of computerized physician reminder systems, according to a recently published study.

From November 1998 through December 1999, a period encompassing two influenza seasons, eight general medical physician teams at an urban public teaching hospital were randomly assigned to either a computerized standing orders group or a computerized physician reminder group (control) to compare the vaccination rates among 3,777 hospitalized patients in their care. In both groups, the computer searched for patients eligible for the vaccinations (those older than 65, those with a chronic illness that increased the susceptibility to influenza or pneumonia, and those with no record of having received vaccination according to the recommended time frame). For patients deemed eligible to receive either vaccination, the computer either generated standing orders for nurses to administer it at discharge or sent reminders to physicians that had to be accepted by them in order for vaccination orders to be transmitted to the nurses during patients’ hospitalizations. The primary outcome was the vaccination rate.

Half of those hospitalized during the influenza seasons (848 patients) were deemed eligible for the influenza vaccination (n = 385, standing orders group; n = 463, control group). Significantly more patients in the standing orders group (42%) received vaccinations, compared with those in the control group (30%).

Likewise, 829 patients (22% of those hospitalized during the study period) were noted to be eligible for the pneumococcal vaccination (n = 406, standing orders group; n = 423, control group). Fifty-one percent of patients in the standing orders group received the vaccination, compared with only 31% of those in the control group. Large proportions of the unadministered influenza and pneumococcal vaccinations, 63% and 58%, respectively, were attributable to eligible patients’ declining to receive them.

According to the researchers, the use of computerized standing orders for vaccination of eligible patients appears to be an easily applied practice that increases vaccination rates. However, the great percentage of patients who declined vaccination during the study indicates that more education on the vaccinations should be provided to correct any misconceptions held about risks incurred in receiving them.


RISK OF DEATH AFTER ISCHEMIC STROKE

Study reveals the predictors.

A large study of patients with ischemic stroke reveals that not only are there differences in the predictors of death in the hospital among men and women in the short term, pneumonia and increased intracranial pressure are the complications most likely to cause death after the stroke in that setting.

During 2000 researchers studied 13,440 ischemic stroke patients admitted to hospitals participating in the German Stroke Registers Study Group to determine the predictors of in-hospital death and the specific medical and neurologic complications causing death. Researchers analyzed the effects of age, hypertension, diabetes mellitus, previous stroke, atrial fibrillation, stroke severity, and destination at discharge on in-hospital mortality rates. The risks of death associated with medical and neurologic complications during hospitalization, such as recurrent stroke, pulmonary embolism, epileptic seizure, pneumonia, and increased intracranial pressure, also were investigated.

Overall, the in-hospital mortality rate was 4.9%. Multivariate analyses showed that the independent predictors of in-hospital mortality in women were older age (more than 65 years), greater stroke severity (affliction with two or more neurologic deficits), and atrial fibrillation. The predictors among men included those factors, as well as the presence of diabetes and previous stroke. Increased intracranial pressure and pneumonia were the complications associated with the greatest risk of death during hospitalization. In fact, 94% of patients with ischemic stroke who also had increased intracranial pressure died because of it, while 31.2% of patients in the entire population of stroke patients died of pneumonia. The medical and neurologic complications examined during the study accounted for more than half of all the in-hospital deaths during the year.

According to the researchers, the results of the study may help clinicians to better direct interventions among patients admitted to the hospital with ischemic stroke, particularly in regard to the prevention and treatment of increased intracranial pressure and pneumonia.

Acute Respiratory Failure: Part 1. Failure in Oxygenation

When a patient loses the ability to oxygenate the blood. Part one of a two-part article.

By Melinda Smyth, MSN, RN, CCRN, CNA

Something about Amy Morely doesn’t seem right. The 53-year-old woman was admitted to the ICU with an exacerbation of chronic obstructive pulmonary disease and has spent two days on mechanical ventilation. She’s been transferred to the medical–surgical unit, however, because more beds were needed in the ICU, and her vital signs were stable and her pulse oximetry readings were normal. She suffered an acute asthma attack after contracting influenza, and since transfer from the ICU, she has become restless and confused, and her breathing is labored.

The ICU nurses and the attending physician are familiar with Ms. Morely, who is taking antidepressants and anxiolytics, and they reassure you that she often “acts out” and hyperventilates when she doesn’t receive enough attention. She has received additional doses of lorazepam (Ativan) and has been placed on assisted ventilation using a bilevel positive airway pressure (BiPAP) device.

Ms. Morely’s daughter is with her and is very concerned. She tells you that her mother is not making sense. “She seems to think she’s at home and keeps asking for her poodle,” she says.

Ms. Morely has sinus tachycardia at the rate of 120 beats per minute, her respiratory rate has slowed to 14 breaths per minute and is irregular, and her pulse oxygen saturation (as measured using pulse oximetry; SpO₂) remains high at 98% with the BiPAP machine set at 40%. The respiratory therapist says that he’ll measure her blood gases in 20 minutes. Ms. Morely’s condition deteriorates further, her pulse dropping to a rate of 54 beats per minute and her respiratory rate to 10 breaths per minute. She appears to be deeply asleep; in half an hour, Ms. Morely is in full cardiopulmonary arrest and doesn’t respond to any advanced life support intervention. She dies before the attending physician has checked on her.

Ms. Morely’s story is, unfortunately, true, although her name has been changed. She died of acute respiratory failure, which often goes undetected by physicians and nurses, primarily because the symptoms of it can vary widely, depending on the cause. Medication effects or coexisting structural or metabolic disorders further complicate patient assessment.

A life-threatening condition caused by a failure of the respiratory system to efficiently exchange gas, acute respiratory failure results in low oxygen levels, high carbon dioxide levels, and higher-than-normal blood acidity. There are many possible causes of poor oxygenation, but cases involving poor ventilation (the failure of the muscles of respiration to move air in and out of the pulmonary alveoli) are considered to be in a separate category; even though they ultimately lead to the same failure in oxygenation, the treatment plans differ as the body’s coping mechanisms begin to fail. This article, the first of two concerning acute respiratory failure, deals with a basic failure in oxygenation induced by other causes. A second one, to be published in the June issue, will present an exploration of the failure of ventilation.

**Acute Failure of Oxygenation**

The failure of oxygenation can be defined as “an arterial partial pressure of oxygen (PaO₂) of less than 55 mmHg, when the fraction of inspired oxygen (FiO₂) is 0.6 or greater.” If a patient appears to experience acute oxygenation failure and is at risk for developing hypoventilation, pulmonary edema, acute respiratory distress syndrome, or like Ms. Morely, an acute asthma attack, the nurse or physician should suspect hypoxemia. Hypoxemia can be the result of hypoventilation, but most cases of severe, acute hypoxemia result from disorders of the alveoli in which the relationship between alveolar ventilation and blood flow or perfusion in the lung is altered.

Any change in the ratio of ventilation to perfusion is known...
as a ventilation–perfusion (V/Q) mismatch. It can involve dysfunction in either and can vary in severity, from dead space ventilation, in which the capillary is completely obstructed and cannot receive oxygen (no perfusion takes place), to true shunt, in which no oxygen can pass through the alveolus (there is no ventilation). Higher-than-normal V/Q ratios reflect poor blood perfusion, whereas lower-than-normal ratios reflect poor ventilation. A V/Q ratio of 0 is the result of right-to-left shunt units or “silent units.” In conditions of V/Q mismatch and right-to-left shunt, areas of low or absent ventilation relative to perfusion contribute to severe hypoxemia because the addition of poorly oxygenated blood from inadequately ventilated areas of the lung to well-oxygenated blood from normally ventilated areas of the lung produces a “venous admixture,” blood returning to the left ventricle that is extremely low in oxygen. An increase in the patient’s alveolar–arterial oxygen (A-a) gradient indicates a V/Q mismatch.

**SYMPTOMS**

Oxygenation failure may lead to a rapid deterioration of physiologic functions. Initially, like Ms. Morely was, a patient may be slightly restless and mildly confused, with a rapid heart rate and a respiratory rate that’s higher than normal while at rest. Clinicians often attribute these seemingly harmless symptoms to less serious conditions, such as anxiety, cognitive impairment, or adverse responses to medication, especially if the increase in the work of breathing obscures the severity of the underlying hypoxia. Ms. Morely’s case underscores the need for nurses always to suspect the worst before assuming that less serious disorders account for a patient’s symptoms.

The physiologic responses in most patients in the early stages of oxygenation failure follow a predictable pattern, regardless of the cause; they are the body’s attempt to stabilize a life-threatening condition and can often lead to a missed diagnosis. Acute respiratory failure triggered by an alteration in oxygenation usually creates a compensatory hypocarbia, which is indicated by the presence of respiratory alkalosis (as determined from arterial blood gas [ABG] values). The hypocarbia exists when hypoxemia stimulates the carotid body and aortic body chemoreceptors, leading to an increased sympathetic nervous system discharge, precipitating an increase in the heart rate and an exaggerated ventilatory drive that result in partial pressure of carbon dioxide (PaCO₂) values of less than 35 mmHg. An enhanced ventilatory drive during the early stages of acute oxygenation failure can disguise a worsening A-a gradient.

**ASSESSMENT**

It’s important that nurses suspect a failure of oxygenation, even in the absence of specific signs of it or radiographic changes. In the case of Ms. Morely, had the nurses in the ICU understood the complexity of her condition and assessed for oxygenation failure and its causes prior to transferring her, they might have been able to take life-saving measures. Often, there are no adventitious breath sounds and chest X-rays are clear during the early stages of the disease; such changes become apparent only later. The
nurse must determine and report the patient’s vital signs, neurologic status, cardiac rhythm, fluid balance during the previous 24 to 48 hours, preceding laboratory results, ABG values, the SpO₂ level, complete blood count, and any deviation from normal assessment findings. In Ms. Morely’s case, peak expiratory flow rate testing, which is noninvasive and inexpensive, could easily have been performed by the respiratory therapist. Peak expiratory flow rates between 50% and 70% of the patient’s personal best indicate severe airway obstruction. A peak flow rate of less than 50% is cause for grave concern. Ms. Morely’s nurses should have insisted also upon ABG analysis immediately because the PaCO₂ level would have been helpful in staging the asthma attack. The development of hypercapnia in a patient with severe asthma indicates the final stages of an attack and the risk of cardiopulmonary arrest.³

Nurses should also be aware that patients at high risk for a V/Q mismatch and a resultant failure of oxygenation are those who have experienced some form of shock (cardiogenic, hypovolemic, or septic), including, but not limited to, cardiac failure, long-bone fractures, smoke inhalation, deep vein thrombosis or pulmonary embolism (or both), bronchospastic disease, pulmonary contusion, pneumonia, or traumatic injury.¹¹ Interventions and diagnostic testing are determined according to the suspected etiology of the V/Q mismatch.

Cellular hypoxia doesn’t follow the same pattern in all patients, however, and even in the presence of a relaxed appearance or normal vital signs, close attention should be paid to the patient’s level of consciousness, complaints, laboratory test results (including
venous oxygen saturation (SvO₂) provides the most comprehensive and reliable results but is not widely used because it's expensive and makes the patient uncomfortable. Pulse oximetry is the test most widely used for respiratory assessment, but it doesn’t always present a true picture of oxygenation, especially in cases of acute asthma with hyperventilation or in which supplemental oxygen is in use. If a patient is severely anemic, pulse oximetry might indicate high saturation, despite a significant cellular oxygen debt because of the hemoglobin's limited oxygen-carrying capacity. In addition, pulse oximetry doesn't quantify variations in hemoglobin's affinity for oxygen, which changes in response to certain conditions, altering the normal relationship between PaO₂ and arterial oxygen saturation. An increase in hemoglobin's affinity for oxygen occurs in conditions in which there is a low metabolic rate, resulting in higher hemoglobin saturation for a given PaO₂. These conditions, which include alkalosis, decreased PaCO₂ values, hypothermia, and depleted stores of 2,3-diphosphoglycerate (2,3-DPG), an intermediate metabolite of glucose that facilitates dissociation of oxygen from hemoglobin at the tissue level, cause a variation in the normal oxyhemoglobin dissociation curve known as a “shift to the left.” Although SpO₂ values may appear satisfactory, greater hemoglobin binding impairs oxygen unloading at the cellular level and reduces the amount of oxygen dissolved in plasma.
dissolved oxygen may be inadequate for intracellular transport. Conversely, a decrease in hemoglobin's affinity for oxygen occurs in conditions in which there is a high metabolic rate, such as acidosis, hyperthermia, hypercapnia, and elevated levels of 2,3-DPG, conditions that result in a shift of the oxyhemoglobin dissociation curve to the right. Although the pulse oximeter may reflect a slightly lower-than-normal PaO₂ value, oxygen is more readily available for intracellular transport because of decreased hemoglobin binding. However, that state of decreased hemoglobin affinity for oxygen may slow the loading of oxygen at the alveolar–capillary membrane level.

Dysfunctional hemoglobin, such as carboxyhemoglobin in heavy smokers or methemoglobin in patients exposed to excessively high levels of nitrate medications, cannot bind or carry oxygen effectively, and high levels yield faulty SpO₂ results. In such cases, only laboratory testing can determine the actual percentage of dysfunctional hemoglobin. Specific interventions for elevated dysfunctional hemoglobin levels include increasing the FiO₂ by turning up the percentage of delivered oxygen, hyperbaric oxygenation, and in the case of a severely elevated carboxyhemoglobin level, decreasing the demand for oxygen by restricting patient activities and controlling fever, anxiety, pain, or shivering. In the case of an elevated methemoglobin level, the intake of nitrates should be decreased.

As long as one keeps in mind the limitations of pulse oximetry, that technology can remain an inexpensive, uninvase means of following trends and warning of significant changes in hemoglobin saturation (although it’s not an indication of overall oxygen supply).

**GOALS OF CARE**
Patients with acute oxygenation failure deteriorate rapidly when compensatory mechanisms break down. Unless disease-specific intervention occurs promptly, the increase in the work of breathing quickly leads to respiratory muscle fatigue, worsening hypoxia and gradually increasing PaCO₂ levels. If left untreated, the patient will progress to a state of exhaustion, resulting in a failure of ventilation, worsening hypoxia, anaerobic metabolism, and resultant end-organ tissue destruction. If the patient exhibits signs of oxygenation failure, nurses should optimize oxygen
delivery, minimize oxygen consumption, and determine the underlying cause of V/Q mismatch so that specific treatment can be initiated.¹,²³

Nurses should continually assess breath and heart sounds. Breath sounds and wheezes become diminished, and heart sounds become muffled as the patient approaches the end stages of an asthma attack. It’s also imperative that nurses pay attention to changes in the patient’s mental status and to decreases in the respiratory rate; mental lgardy and decreases in the level of consciousness can result as carbon dioxide levels begin to increase.

When the oxygen supply is inadequate to meet metabolic requirements, the demand for oxygen should be minimized. Coexisting clinical conditions or concurrent treatments that increase oxygen uptake, such as fever, shivering, seizures, burns, hyperthyroidism, agitation, anxiety, pain, a high metabolic rate, increased patient care activities, or high-carbohydrate feeding, necessitate vigilance.⁴ Also, any nonessential patient care activities should be delayed to reduce global demand.

If a patient experiencing a failure of oxygenation displays extreme agitation, anxiety, and air hunger, sedation is contra-indicated—even though those psychomotor responses increase oxygen demand—unless the airway is managed and ventilation is mechanically controlled. Ms. Morely should not have received either lorazepam because it’s a benzodiazepine and a strong respiratory depressant. Even though she was agitated, the agitation stemmed from oxygenation failure and bronchospasm. After receiving the benzodiazepine, she experienced a diminished respiratory drive and became more hypoxic and obtunded. As the PaCO₂ level rose, she quickly progressed to status asthmaticus, the end stage of asthma attack; her body was no longer responding to the β-agonists, and the result was cardiopulmonary arrest.

When applied early in oxygenation failure, interventions to reduce the work of breathing and improve V/Q matching are helpful in improving patient outcomes.¹⁶,¹⁵ Such strategies improve oxygen supply and may reduce oxygen demand. The use of supplemental oxygen (and the patient’s increased respiratory drive) allows some patients to maintain PaO₂ levels close to normal during the early stages of hypoxic failure.³

In some cases, such as in the early stages of adult respiratory distress syndrome, early airway management and mechanical ventilation can improve outcomes. In other cases, such as in patients with pulmonary emboli or asthma, the crisis can best be managed by pharmacologic or noninvasive ventilatory support (or both), coupled with frequent patient monitoring.¹ A BiPAP machine, which provides partial respiratory support, can decrease the work of breathing, but it should be used with caution in cases of poor airway management or lethargy because there will be no control of the airway or ventilation if the patient fails to initiate a breath.

Nurses, who often are the primary bedside caregivers to acutely ill, hypoxic patients, have an opportunity to improve their patients’ overall outcomes by being attentive to subtle changes in condition and maintaining a high level of clinical expertise in managing acute respiratory failure. The second part of this article will present an exploration of the failure of ventilation, in which presentation, etiology, and interventions are somewhat different from those seen in the failure of oxygenation.▼

REFERENCES

VAPNET

One team of Joe Fridays prevented ventilator-associated pneumonia.

By Janette K. Moss, MSN, RN, CNA, Ava J. Dobin, BSN, RN, CIC, Faith D. Solkoff, MPA, BSN, RN, Robin B. McElligott, RN, CHQM, LHRM, Brian S. Shapiro, BS, RRT, and Maria L. Ecle, MSN, RN, CCRN

According to the Centers for Disease Control and Prevention (CDC), hospital-associated pneumonias, including ventilator-associated pneumonia (VAP), kill 20% to 50% of the patients who get them; VAP alone accounts for 60% of all deaths caused by hospital-associated infections. The cost of VAP is heavy as well: $40,000 to treat a single case.

At Coral Springs Medical Center (CSMC) in Coral Springs, Florida, the incidence of VAP on the critical care unit (CCU) increased by 50% between 2001 and 2002—or 14.9 cases per 1,000 ventilator days to 22.3 cases per 1,000 ventilator days. (This translates into 11 cases in 2001 and 22 cases in the first 10 months of 2002). While this VAP rate fell within the national rates—estimated by the CDC to range from 10% to 65%, or from 4.2 to 16.3 cases per 1,000 ventilator days in an adult CCU—the sudden rise in the incidence of VAP was disconcerting. In addition, the cost of VAP treatment in 2002 was estimated at $880,000. We knew improvement was necessary.

A facility of the North Broward Hospital District (NBHD), CSMC is a 200-bed community hospital with more than 900 clinical and support staff members, among them 600 physicians and 330 nurses. The CCU is a 16-bed, multispecialty unit. Each year, the CCU’s nurse manager and staff nurses develop a performance improvement plan, which is approved by the hospital’s quality council.

To address the increase in the VAP rate in our CCU, the quality council created an interdisciplinary team made up of leaders (the epidemiologist and the regional manager of critical care, both nurses); physicians (including the chairperson of the infection control committee, the medical director of critical care, and the medical director of the ED), administrative staff (the chief operating officer, the chief financial officer, and the guest relations coordinator), core team members (including the regional manager of cardiopulmonary services, critical care nurses, and respiratory therapists), and two team facilitators (from the quality management staff).

The team called itself the VAPNET team, “VAP” signifying ventilator-associated pneumonia and “NET,” an allusion to the detective show Dragnet.

The VAPNET team then investigated potential causes of the increased VAP rates.

Handwashing and glove use. For several hours during day and night shifts, the epidemiologist observed the staff’s handwashing technique and glove use, and concluded that these were being carried out properly, thus ruling them out as suspects.

Antibiotic use. The infection control committee evaluated the dosages and administration of all antimicrobials used in the CCU and found them appropriate.

Nutritional care. At CSMC a dietitian evaluates patients’ nutritional needs upon their CCU admission, and the team found that the recommended diets were followed during patients’ stays. Nutritional care was therefore ruled out as well.

Respiratory care. The team examined oxygen administration and suctioning, as well as the cleaning of ventilator equipment and the changing of suction tubes. All practices were properly carried out. The respiratory therapists conducted their own analysis, and they found that their practices met with their profession’s best practice guidelines, which include reducing the frequency of ventilator circuit changes and using closed-catheter suction systems.

Oral care. Poor oral hygiene in patients on ventilation can cause the formation of dental plaque (with respiratory pathogens), bacterial colonization of the oropharyngeal area, and aspiration of subglottic secretions. A recent study of subglottic secretion drainage in patients receiving mechanical ventilation showed...
that basic oral care reduces the incidence of VAP by 12%. Using CDC guidelines, evidence-based protocols, and clinical studies as benchmarks for oral care for patients on ventilators, the team observed the oral care on various shifts at the CCU and determined that our oral care did not meet the best practice guidelines: the CCU nurses did not all use the same technique for oral care, and some provided care for longer periods than others. We had found our culprit.

**ACTION PLAN**

To improve oral care in the CCU, team members visited other units of the hospital, including pediatrics and the operating room; they also went to dental offices. These visits offered the team a better understanding of the equipment and administration methods needed to reduce the VAP rate.

The team decided to purchase—or if need be, develop—an oral care device that would be safe, efficient, effective, and easy to use. Because stopping suctioning during ventilation increases the risk of infection, the device would have to allow for continuous suctioning even as oral care is provided.

Several oral care products were examined, beginning with a device called a “Yankauer”—a long plastic tube used for oral suctioning. While the Yankauer was the right size and provided the proper depth for suctioning, it did not include a protective device that would keep it clear of oral secretions between oral care interventions. The team therefore decided to improve the design by adding a protective cover to decrease the risk of contamination and developing a mechanism to provide suctioning while administering oral care.

As we developed a prototype, we received a visit from a vendor of oral care products, who presented a device with a retractable sheath on a Yankauer designed to
The oral care system was purchased for $25,000, with the approval of the chief nursing officer and the chief financial officer. Oral care is now provided three times per day on all ventilator-dependent patients.

VAPNET achieved a 91% reduction in VAP rates; in 2003 we had 1.9 cases per 1,000 ventilator days, well below the national rates (4.2 to 16.3 cases per 1,000 ventilator days). For the past 12 months the CCU has had no cases of VAP. Patient and family satisfaction rates soared to 100% from 88%, and surveys of medical and nursing staff revealed 100% satisfaction with this new protocol. In addition, VAPNET saved the hospital more than $800,000 in one year.

Since our hospital is part of a districtwide system, our protocol was shared with our three sister facilities, all of which implemented it as of January 2004. Because these other facilities are larger than CSMC, VAP prevention could save the NBHD more than $4 million a year.

In November 2003 the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) reviewed our practices and offered us a score of 99, received by only 2% of U.S. hospitals. It has also shared our protocol with hospitals nationwide.

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As we developed a prototype, we received a visit from a vendor of oral care products, who presented a device with a retractable sheath on a Yankauer designed to
help contain oral secretions and to protect against environmental contaminants. While this product had never been marketed as a tool to minimize or eliminate VAP, it met the team’s criteria. Another vendor presented a second device (with a Y connector), which would allow for suctioning during oral care.

**TRIAL**
The team assessed each product in terms of the ease with which suctioning could be controlled; the effectiveness of the brush, the swab, and the oral rinse; the hydration and moisture provided to the patient; and the packaging and ease of use.

**Homemade device.** Because the nurses found the product cumbersome and difficult to handle, the team ruled it out.

**Device with retractable sheath.** The packaging of this product was separated into three sections for morning, afternoon, and evening, so it was very easy for the nursing staff to determine the three periods of oral care. The nurses also liked that the soft tip on the covered Yankauer reduced the potential for oral trauma.

**Device with Y connector.** The nurses found the packaging awkward and the brush too abrasive. In addition, this product did not contain an oral rinse, nor did it provide suction control. Knowing that if a product is user-friendly compliance is more likely, the team recommended the device with the retractable sheath.

**ORAL CARE PROTOCOL**
In October 2002 an oral care protocol was implemented, consisting of setting up equipment, positioning the patient’s head to the side or in a semi-Fowler position, providing deep suctioning as needed, brushing the teeth using the suction toothbrush for approximately one to two minutes, gently brushing the surface of the tongue, and applying lip balm if needed.

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