# Geriatric Nursing

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Ann Schmidt Luggen

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INFORMATION FOR AUTHORS

Editorial Policies

Geriatric Nursing welcomes manuscripts about all aspects of aging that will interest people who work directly or indirectly with elders wherever they are living—in the community, in the acute care hospital, or in a long-term care facility.

Authors are encouraged to contact the editor, Priscilla R. Ebersole, at the address given below. Before submitting a manuscript for review, briefly describe the content of your manuscript and the experience and knowledge that qualify you to discuss the subject. Summarize in about 35 words the main points you plan to make.

Geriatric Nursing is a refereed journal. Manuscripts are reviewed by at least two editorial advisors and by the editor. Enclose a self-addressed, stamped envelope for return of manuscripts that are not accepted.

Letters to the editor are encouraged. Please double-space letters and include a phone number for verification.

Manuscript Preparation

Preparation of a manuscript according to the following guidelines will expedite review and publication. Submit three copies of the manuscript and supporting materials (abstract, reference list, tables, figures, and figure legends). Type the manuscript on good quality white bond paper, (8 1/2 x 11 inches) on one side of the page only, with liberal margins (at least 1 inch on all sides). Use double spacing throughout the paper, including title page, abstract, text, acknowledgments, references, tables, and figure legends. Length of the manuscript depends on the nature of the content, but brevity—about 8 to 10 pages—is desirable. All pages should be numbered consecutively (beginning with the title page) in the upper right-hand corner.

Once a manuscript is accepted, the final version of the manuscript should be submitted on diskette along with three copies of the printout. The author accepts responsibility for the submitted diskette exactly matching the printout of the final version of the manuscript. Guidelines for submission of an accepted manuscript on diskette will be sent to the author by the editorial office.

For full instructions regarding manuscript submission, contact Priscilla Ebersole at the above address, managing editor Leslie Flatt at flattbussvcs@msn.com, or consult the Web site at www.gnjournal.com.

Book Reviews

Books and monographs are accepted for review. Send review copies to: Marianne L. Matzo, PhD, APRN, BC-GNP, FAAN, Professor and the Frances E. and A. Earl Ziegler Chair in Palliative Care Nursing, The University of Oklahoma Health Sciences Center College of Nursing, Oklahoma City, OK. Or email: mmatzo@ouhsc.edu. No books will be returned. Geriatric nurses interested in reviewing books should contact Dr. Matzo at this address.
Seeking Safety and Security

The Maslovian concept of human need has been a convenient way to address the issues of aging. The pyramidal structure of these needs is ranked in a hierarchy with basic needs such as food, fluids, shelter, and all the aspects of biologic integrity on the bottom rung. For many elders, these are not well met and become the major focus of concern. When these are achieved, the next rung of significance is achieving safety and security. Above these are a sense of belonging, then self-esteem, and at the peak of the pyramid is self-actualization. The design is straightforward and the areas discretely separated for the purpose of simplicity, but it is clear in Maslow’s writings and in practice that all needs are intermingled; in meeting one need, others are often partially resolved as well. This humanistic framework guides one to think beyond the limitations in bodily function that often become the focus of professionals caring for the aged. In this issue of *Geriatric Nursing* we are somewhat focused on issues of safety and security.

There is a thrust in much of the geriatric literature that focuses on various aspects of safety, medications being one of the most frequently discussed. Fall prevention is another issue of significance. Increasingly, there is concern about the safety of hospital personnel who encounter dangerous and increasingly unsafe situations.

The nurse shortage benefits institutions and is an excuse for the inadequate number of RNs and other personnel in hospitals and long-term care situations. These account for a great number of problems in the safety of patients and health care providers. We have said before and will say again that concerned professionals must refuse to work where there is inadequate personnel. There are many institutions that hold high standards and appropriate patient-to-personnel ratios, so we know it can be done.

Achieving a sense of safety in our world today is extremely difficult—perhaps it always has been. In part, this has to do with mind-set. Those with an optimistic bent may simply see things through a pink-tinted lens, while pessimists look through a darkened glass. Yet to a large degree, it depends on where we look. Those with the dark glass can stare in the face of an eclipse of the sun, which happens only rarely, and perhaps be awe struck, whereas those with the gloriously tinted glass will see beauty in ordinary everyday events. As caregivers, we try to walk a fine line between optimism and pessimism as we seek truth and advocacy, although these are often clouded by our limited concepts of reality.

Fear is another mental state that skews perceptions—fear of the immediate future and fears of events and experiences that may occur. These can be addressed directly by simply asking what an individual is afraid may happen and by listening thoughtfully without platitudes or false assurances. Fears expressed may lose some of their potency.
Within these parameters, we approach the aged in our care. Do we make mistakes and often falter in our mission? Of course. It is the manner in which we handle these mistakes that makes the difference between compassion and growth or guilt and failure.

The elders we care for who seem to feel most secure are those involved with others and with ideas beyond their immediate situation, those who retain a sense of humor, those who have a transcendent concept of life, and those whose pain is appropriately addressed. Nonetheless, even those remarkable people who have achieved some satisfaction at all the levels of the human-needs hierarchy are at times overwhelmed with fears and concerns about their basic biologic function. They can be assured that this is a necessary concern when the body betrays the individual’s expectations. This betrayal erodes confidence and feelings of security. There is no betrayal quite so devastating as that experienced when one’s body betrays the body’s expectations. It entails a fundamental loss of trust. Thus, caregivers become the source of trust by exhibiting sincere concern, reliability, and dependability. We meet the patient, client, or resident wherever they are at the moment of each encounter and at whichever level on the human-need hierarchy they have attained. Each is struggling to make meaning of the situation. Nurse and client benefit as they seek mutual understanding.

Letter to Editor

Dear Editor:

I’m a bit behind on journal reading and just finished your January 25 anniversary issue. I always read your editorials and always enjoy them. Thanks for writing them. The anniversary edition made me think about my career. I started as a nurse’s aide in rural Michigan—earned only $1.13 an hour, but loved every minute of the work.

It is hard to even imagine geriatric care as it was then and where it is now. The only books available to me then were published in England; none yet available in the United States. It took about 15 years after Medicare before the United States seemed to notice that elders were in need of special care. That has always amazed me! I can’t even begin to tell my GNP preceptors what it was like when I began. It is like describing the United States before there were cars.

It is amusing to see the fancy papers and research projects today that verify and support with statistics the ideas I learned from my patients years ago. I always chuckle when I read a paper describing the benefits of listening to the old folks.

Thanks to you, Pat Hess, Mathy Mezey, Ingeborg Mauksch, and all the others who have helped me on my way to where I am now in our exciting field of geriatric care. I am very glad my path led me here.

Trudy Keltz RN, GNP

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One of the legends in geriatric nursing passed away June 23, 2005, at Foulkeways, a Friends (Quaker) Retirement Center in Gwynedd, Pennsylvania. Cynthia Kilburn Kelly, first editor of Geriatric Nursing journal, was born in Bedford, Massachusetts; received her BA from Wellesley College; her BS from Columbia University; and her nursing diploma from Columbia University Presbyterian Hospital School of Nursing. She attended the University of Pennsylvania where she received her master’s degree in nursing science. Cynthia was employed in clinical, teaching, and administrative nursing from 1949 to 1972. From 1972 through 1978, she was senior editor of the American Journal of Nursing; from 1979 through 1986, she served as the first editor of Geriatric Nursing. Her many interests included family, travel, music, gardening, playing Scrabble, and learning from people of the developing nations.

Cynthia was a leader in the field of geriatric nursing. As the first editor of the Journal, her expertise and philosophy formed the direction the publication would take for several years. She was the person who personally helped me leap the hurdles of neophyte editorship and, until 2 months before her death, she was still giving me advice and assistance.

Early on she recommended that I take the editorials very seriously, writing, “Your plans for the Journal sound ambitious and interesting. My only regret is that you are giving the editorial to others. A strong editorial by the editor in each issue is, I believe, the best means to develop the magazine’s character and point of view. Pat Lewis’s editorials in Nursing Outlook, Thelma Schoor’s in AJN and Barb Schutt’s in AJN are classics” (Cynthia Kelly, personal correspondence, 1994). I took her advice.

One of the features of Geriatric Nursing that she particularly enjoyed was called “70+ and Going Strong” in which she brought to the attention of readers the vitality of various-aged individuals. Her own amazing vitality was exemplified when she joined the Peace Corps at age 70 and spent 2 years on the island of Chuuk in the Federated States of Micronesia (1990-91).

Her meticulous and expansive knowledge of how to use the English language correctly was impressive. Until her last months, she was producing the Foulkeways Monthly Bulletin, the Foulkeways Literary Supplement and other newsletters, papers, and flyers for the retirement center as well as the Friends meetings that she attended faithfully.

I met Cynthia through our mutual dear friend, Mary Opal Wolanin. The 2 of them formed a formidable team; I was awestruck. As I got to know Cynthia better, I especially appreciated her dry sense of humor, her appreciation of nature, and her energy.

Another mutual friend, Neville Strumpf, PhD, RNC, FAAN, of the University of Pennsylvania School of Nursing, remembers, “As a young nurse working at the Hospital of the University of Pennsylvania, Cynthia wrote a murder mystery based on the life and characters of the hospital in the 1950s. Although it was never published, there is a copy of the manuscript in the collections of the Barbara Bates Center for the Study of the History of Nursing at the University of Pennsylvania. It is delightfully clever, with an undertone of Cynthia’s wry humor, and provides a window into the culture of medicine and nursing during those years. Cynthia also gave a lecture at the Penn Nursing Alumni Weekend several years ago and said that “old age wasn’t bad—as long as you had the 3 M’s—Money, Mobility, and Marbles.”

A memorial service is planned for Cynthia in the fall at the Gwynedd Meeting House, near the Foulkeways Retirement Community, where she lived since 1992. Cynthia was indeed warm, responsive, and wise. She lived as she believed—that the aged should not be relegated to the “senseless, sexless, useless category.” I would refer our readers to the last thing I received from her that was published in the 25th anniversary issue of Geriatric Nursing:

“Health at any time of life, but especially in our advanced years, is inseparable from decent housing, transportation, food, water and sunshine, relief from pain, solace in loss, affection, respect, and stimulation, independence of choice, and physical-emotional care when our reserves begin to flag.”

I will miss her for many reasons.

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Directors of Nursing (DONs) Know How to Do It!

Editor Priscilla Ebersole, RN, PhD, FAAN, reports on her attendance at the annual convention of the National Association of Directors of Nursing in Long Term Care (NADONA/LTC), held in New Orleans June 24-29, 2005. The celebratory atmosphere persisted throughout the conference, amplified by excellent presentations, numerous exhibitors, sponsors for all meals and receptions, and awards and recognition for outstanding job performance. The highlights of the event were the presentation of colors by 3 U.S. Marines in full dress uniform during the opening ceremony, followed by a National Association of Directors of Nursing Administration member from each state carrying the state flag; a riverboat trip; the awards banquet; and a 600-strong DON march through several downtown blocks wearing Mardi Gras beads, lead by a band and clowns on stilts—all with a police escort! These folks know how to have fun as they learn and grow in professional stature.

Nurses at Increased Risk for Injury

According to a study authored by Jane Lipscomb, PhD, RN, FAAN (associate professor at the University of Maryland, Baltimore, School of Nursing), published in the October 2004 issue of the American Journal of Public Health, increased injuries among RNs may be due to organizational changes within the health care system. In the study that looked at more than 1000 RNs, neck, shoulder, and back injuries are increasing as nurses are expected to work longer shifts and provide more care to more patients. Almost one-third of the nurses surveyed had suffered a back injury, 20% had suffered a neck injury, and an additional 17% reported having a shoulder injury. These types of injuries were nearly 4 times more likely to occur when nurses were working under health system changes—such as being asked to care for sicker patients and working longer hours. The study provides further evidence for the need for a systemic approach to improving working conditions in the health care industry.

Extended Work Shifts Substantially Increase the Likelihood of Medical Errors

Along similar lines, an article in Health Affairs (“The working hours of hospital staff nurses and patient safety,” Rogers et al., 2004; 23:203-12) cited that long hours worked can dramatically increase the likelihood of medical errors. With no state or federal regulations restricting the number of hours a nurse may work in a 24-hour or 7-day period, hospitals have extended work shifts and overtime to cope with the shortage of registered nurses. Some nurses work a shift lasting 12 hours or longer, which according to the study triples the likelihood of medical error. Working overtime doubled the odds of making at least 1 error, regardless of how long the shift was originally scheduled. Working more than 40 hours per week significantly increased the risks of an error or near error.

Guided Care Study Launched for Seniors With Chronic Conditions

Researchers at the Johns Hopkins Bloomberg School of Public Health recently announced the launch of a 5-year study of a new approach to health care—Guided Care. The study places specially trained registered nurses in primary care practices in the Baltimore–Washington, D.C., area and northern Virginia. In Guided Care, a specially trained RN helps 2 to 4 primary care physicians provide coordinated comprehensive health care for chronically ill older patients. The study will measure the effects of Guided Care on the quality of life and on the overall health care costs and is supported by grants from the U.S. Agency for Healthcare Research and Quality, the National Institute on Aging, the John A. Hartford Foundation of New York City, and the Jacob and Valeria Langeloth Foundation.

Inappropriate Medication Use in the Elderly Continues

In a recent study funded by the Agency for Healthcare Research and Quality (AHRQ), phar-
macy data for more than 157,000 elderly members from 10 geographically diverse health maintenance organizations (HMOs) were calculated. The researchers studied the use of 33 potentially inappropriate medications from January 2000 through June 2001 in these patients. The results were disturbing: despite more than a decade of concern and recommendations against the use of potentially inappropriate medications in the elderly, 29% of HMO enrollees 65 years of age or older received at least 1 of the 33 potentially inappropriate medications during the period of the study. For the full study, see the article in the *Journal of the American Geriatrics Society* (Simon et al., 2005;53:227-32).

**Beginning-of-the-Month Error Spike**

In an article published in the January issue of *Pharmacotherapy*, the journal of the American College of Clinical Pharmacy, sociologist David Phillips from the University of California at San Diego documented the first study to demonstrate a beginning-of-the-month spike in deaths attributed to mistakes in prescription drugs. In the first few days of each month, fatalities due to medication errors rise by as much as 25%. The primary suspect is the increase in pharmacy workloads at the beginning of the month and a consequent increase in error rates. Government assistance payments to the elderly and sick are typically received at the beginning of the month, and thus there is generally a corresponding spike in the purchase of prescription medicines at that time. As the pharmacy workload increases, the error rates go up as well. Suggested solutions for the problem include increasing staffing levels at the beginning of the month and government assistance payments being spread out over the month.

**A New Type of Computer “Virus”**

While not a virus, according to a recent study presented at the 15th Annual Sessions of the Society for Healthcare Epidemiology of America in Los Angeles, some potentially harmful bacteria can survive for prolonged periods of time on the keyboards and keyboard covers of computers. The problem is especially important in hospitals and other health care environments where patients are at higher risk of contracting bacterial infections from health care providers who use computers. The authors of the study used bacteria commonly found in the hospital environment: MRSA (methicillin-resistant *Staphylococcus aureus*), VRE (vancomycin-resistant *Enterococcus faecium*), and PSAE (*Pseudomonas aeruginosa*). The bacteria were capable of prolonged survival with growths of the bacteria evident 24 hours after contamination. Infections caused by these 3 bacteria can be life threatening, but usually do not cause problems in healthy people. However, they can be deadly for hospitalized patients whose immune systems are compromised by other disease or illness. In addition, recent outbreaks of MRSA skin infections in otherwise healthy persons (community-acquired MRSA) have raised concern among infectious disease experts. The authors of the study tested the effectiveness of several disinfectants but maintained that the most important disease prevention strategy remains to wash one’s hands with soap and water before patient contact.

**EPA’s Aging Initiative**

The Environmental Protection Agency’s (EPAs) Aging Initiative, which is working to protect older adults from environmental health risks through the coordination of research, prevention strategies and public education, is available at the EPA’s Web site: [www.epa.gov/pesticides](http://www.epa.gov/pesticides). Information on pesticides and tips for pesticide use are available. Remember, in event of poisoning, the National Poison Control Center can be reached at (800) 222-1222.

**Recalls**

**Misbranded Hospital Bed Systems Seized**

In March 2005, the Food and Drug Administration (FDA) initiated seizures of all finished Vail 500, 1000, and 2000 Enclosed Bed Systems made by Vail Products of Toledo, Ohio. According to a news release, use of these systems pose a public health risk because patients can become entrapped and suffocate, resulting in severe neurological damage or death. Consumer inquiries should be directed to the toll-free number: (888) INFO-FDA [(888) 463-6332].

**Product Recall**

The FDA has recently notified health care providers and patients that the Guidant Corporation is recalling certain implantable defibrillators and cardiac resynchronization therapy de-
fibrillators. These devices can develop an internal short circuit without warning, resulting in failure to deliver a shock when needed. Models covered by this recall are the PRIZM 2 DR, Model 1861, manufactured on or before April 16, 2002; CONTAK RENEWAL, Model H135, manufactured on or before August 26, 2004; and CONTAK RENEWAL 2, Model H155, manufactured on or before August 26, 2004.

If you know of patients with these units, they should contact their doctor to determine the best course of action.

Resources

Medicare Prescription Drug Program Information Packets

Drs. Barbara Resnick and Kathleen Jett have recently prepared a comprehensive document for the Coalition of Geriatric Nursing Organizations on the upcoming changes in Medicare/Medicaid prescription drug benefits. The information can be used to help educate clients and their families concerning changes in Medicare and Medicaid prescription drug benefits and is a comprehensive overview of the various options available. The packet of information is available for download at the Hartford Web site: www.hartfordign.org.

Single Source for Patient Safety Findings and Resources

The Agency for Healthcare Research and Quality (AHRQ) has recently launched a new Web site that serves as a 1-stop location for resources pertaining to improving patient safety and preventing medical errors. The new resource represents the first comprehensive effort to help health care providers, administrators, and consumers learn about all aspects of patient safety. Users of the site can customize the site around their unique interests by creating a home page for themselves. Subscribers can access weekly PSNet updates. For additional information, go to the Web site available at http://psnet.ahrq.gov.

Congratulations

Our own Tina M. Marrelli, MSN, MA, RN, section editor for the Home Health Column of Geriatric Nursing for the past several years, has recently been named the new Editor-in-Chief of the Home Healthcare Nurse journal. Marrelli, a graduate of Duke University School of Nursing, holds master's degrees in health administration and nursing and has more than 25 years of experience. We extend out best wishes to Tina in this new endeavor.

NADONA/LTC recently announced that it has been awarded the ANA-SNAPG (American Nurses Association—Specialty Nursing Association Partners in Geriatrics) implementation grant for the period of February 2005 through January 2007. Only 10 specialty nursing associations are eligible for this grant program according to the group's vice president, Lepaine Sharp-McHenry, RN, MS, FACDONA, so NADONA/LTC is honored to be among this esteemed group. The grant will be used to further develop 3 regional education programs focused on best practices of geriatric care in long-term care.

In other NADONA/LTC related-news, Charlotte Eliopoulos, a specialist in holistic gerontologic and chronic care nursing, will join NADONA/LTC as their new director of education. In this position, Eliopoulos will collaborate with NADONA members and staff to assess the education needs of the membership and will develop and implement programs to address those needs.

Earlier this year, American Retirement Corporation (ARC), announced that it was providing NADONA memberships to 25 Directors of Nursing at their various ARC facilities. Joan W. Saunders, executive director/founder of NADONA/LTC, says she is thrilled to see leading health care companies actively encouraging the pursuit of professional knowledge and support through NADONA.

Passages

Cynthia Kelly, a leader in the geriatric nursing field, former editor of the American Journal of Nursing (1972–1978), and the inaugural editor of Geriatric Nursing (1979–1986), passed away on June 23, 2005, at Foulkeways, a Friends (Quaker) Retirement Center in Gwynedd, Pennsylvania. (Please see editor’s article on page 271 of this issue).
CALENDAR

OCTOBER

19–22
American College of Nurse Practitioners’ 7th Annual National Clinical Conference—NP Practice—The Solution to America’s Health Care Crisis, Palm Springs Convention Center, Palm Springs, California. Information can be obtained at the organization’s Web site: www.acnpweb.org.

21–23

27–29
Arizona Geriatrics Society’s 17th Annual Conference and Symposium: Innovations in Geriatric Medicine, Embassy Suites Hotel at Stone Creek, Paradise Valley, Arizona. Register online at www.arizonageriatrics.org.

NOVEMBER

6–8

12–16
Sigma Theta Tau International 38th Biennial Convention—Create the Future Through Renewal, Indianapolis, Indiana. Visit the Web site (www.nursingsociety.org) or send an e-mail to Indy05@sti.iupui.edu.

18–22

MARCH 2006

16–19

31–April 2

APRIL 2006

27–29

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THE NEW FEAR FACTOR: HAZARDOUS DRUGS REVEALED

Barbara Cassidy, BSN, RN, MA

Like many Americans, I have a naïve sense of immunity to many of the world’s problems. I have always considered the U.S. drug supply to be reliable when I needed it and as invincible as the Federal Reserve Bank. That all crashed a few weeks ago when a colleague called from a nursing home in the southwestern United States saying that while at work she had opened a new 30-dose box of 325-mg acetaminophen and realized that what she was looking at was generic aspirin. There is a distinct difference between acetaminophen and aspirin tablets. She was floored that the drug she was about to administer to a patient was mislabeled, mispackaged, and a direct threat to her patient, who was allergic to aspirin. If she had not been vigilant in “seeing what she was really looking at” she might have missed the blunder. She wanted to know who to call with her complaint. Her best option was to inform the director of nursing and the risk manager for her organization. Both should work with the facility’s consulting pharmacy to manage this very serious error. The real trouble with this error may well have been that this was a flaw in another, less well-known segment of the drug industry.

Although this example is chilling enough, consider the Department of Health and Human Services (DHHS) March 15, 2005, “Warning Letter” written to a drug repackaging company in Virginia. The letter warned the company’s chief executive officer to stop packaging drugs using the same equipment for penicillin products, cephalosporin products, ibuprofen, and other drugs. The DHHS cautioned the company to separate these medications with regard to the packaging equipment as well as the air filtration system. It was that telltale white powdery residue inside the capsule-holding cassette that raised the cross-contamination red flags. The polite phrase at the end of the letter smacked the company knuckles with the note that “these violations are not intended to be all-inclusive.” Furthermore, the company failed to use original manufacturer’s expiration dates on the drugs in the repackaged form. One wonders what else the company did to raise the hackles of the Food and Drug Administration (FDA) and what did not make it into the Warning Letter.

In an article dated April 9, 2005, the Gainesville Sun newspaper identified on its Web site three national drug wholesalers that had been subpoenaed to appear before New York Attorney General Elliot Spitzer. The inquiry concerns the back-office market for resold drugs. This “other” market for resold drugs occurs because of gaps in the chain of integrity of the drug supply. Although many of the drugs traded in this market are legitimate, there are inventories of drugs that are counterfeit and work their way into the drug system. This came to light in early 2003 when counterfeit Lipitor and Procrit tablets reached the drug market. In the case of counterfeit Lipitor, 175,000 bottles of altered Lipitor were recalled in 2003. More than 4 million of the fake tablets were made in Costa Rica and Honduras and smuggled into the United States. The FDA defines “counterfeit” as a drug sold under a product name without proper authorization. This applies to drugs fraudulently mislabeled in a way that indicates approval; the product also may be altered in terms of the inert or active ingredients and sold as authentic. Indi- viduals who purchase fraudulent drugs risk problems such as allergic reactions to the inert or inactivated ingredients, thus worsening existing conditions. Hazardous ingredients or incorrect ingredients also pose risks for unexpected side effects.

Wholesalers stock up on specific drugs, wait for manufacturers to raise prices, and then release the repackaged drugs in the inflated market. According to the Gainesville Sun Article, this has been widely accepted practice in the
drug industry for some time. The three largest companies in question in the New York attorney general’s investigation handle about 75% of the drugs sold in the United States. Each time drugs are repackaged and resold, the capacity to track the biointegrity of the medications is compromised.

The FDA Enforcement report for October 6, 2004, does not offer much reassurance. Mingled among the food recalls for some alfalfa sprouts and sesame seeds was a casual listing of spironolactone tablets, 25-mg blister packages of 30 tablets, recalled because Heartland Repackaging Services in Toledo, Ohio, “mispacked” the spironolactone with 2-unit dose strips of 40-mg furosemide. Involved in the recall were 1,343 30-count boxes. Further down the list, 100 tablets of 20-mg OxyContin tablets were also mispackaged with a 10-mg tablet of the same drug; 10,285 bottles were involved in that recall. The spironolactone was distributed in Ohio, Indiana, Tennessee, Kentucky, Washington, and Maryland. The OxyContin was distributed nationwide.

So how much of the U.S. drug supply is suspicious? Furthermore, what are we doing about this? The FDA reports that we “can be confident in the quality, safety and efficacy of medications purchased from a US licensed pharmacy.” The FDA does not have the authority to regulate foreign drug manufacturing companies. Drugs purchased on the Internet are not guaranteed safe. If medications are purchased online, look for the Verified Internet Practice Sites (VIPS) Hyperlink Seal. The FDA does not know the prevalence of counterfeit medications worldwide and estimates that 10% of the worldwide market is counterfeit, with some countries reaching 50% counterfeit levels. In July 2003, the FDA established the Counterfeit Drug Task Force. Its assignment was to explore technologies to identify and authenticate prescription and over-the-counter (OTC) medications. The number of counterfeit investigations has reached 20 per year, and this is an increase of 5 times from the number identified in the 1990s. The FDA has acknowledged that counterfeiters are increasingly more sophisticated. New technology is designed to identify and authenticate prescriptions and OTC medications. Near-infrared spectroscopy (also known as Ramen spectroscopy or vibrational spectroscopy) detects infrared light emitted during scanning and provides a signature or one-of-a-kind “fingerprint” of the drug’s composition. Drug information can be stored and authenticated on a per-batch basis, thus keeping counterfeiters guessing. This information is stored in a database and cross-matched. Only the pharmaceutical manufacturer and collaborating FDA personnel have access to the databases.

On November 15, 2004, the FDA announced radio frequency identification (RFID) technology that will use RFID tags on product packaging that allows for tracking of drug products as they move through the drug supply. Boxes of Viagra will be the first containers featuring the new technology. As long as we are using two approved Joint Commission on Accreditation of Healthcare Organizations (JCAHO) methods for identifying the patient, why not do the same to identify the drugs themselves? Move over, barcode laser-reader. Grab your RFID scanner, nurse, your tool belt just got heavier. Reading just the package label is now insufficient. “Reading the drug” will be essential.

It is reasonable to consider the elderly population is at high risk for medication errors, particularly for cardiovascular, cholesterol-lowering, and anti-inflammatory drugs. Commonly prescribed medications happen to be the ones most frequently mispackaged, mislabeled, and farmed-out to poorly monitored manufacturing plants in out-of-the-way places. As health care recipients, whether elderly or not, we are in a vast pharmaceutical system of research, manufacturing, distribution, administration and federal oversight. Each of the points in the process depends on the legitimacy of the previous step. Even if the prescription is flawless and the patient consumes the medication as it was intended and the medication performs according to parameters, the drug system is still grappling with a growing undercurrent of mistrust.

So if you thought that as nurses, our only hazardous drug concerns were confined to the realm of OSHA (Occupational Safety and Health Administration) compliance, it is time to widen the view of what and who has a hand in the drug process. From manufacture to administration, it is not as clean-cut as we would like. The safe handling of drugs in the relative haven of hospital or clinic, although far removed from the
fields of Honduras and Costa Rica, now includes fraud detection.

References


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SAFE FOOD IS MORE IMPORTANT FOR PEOPLE WHOSE IMMUNE SYSTEMS MAY BE WEAKENED BY THE EFFECTS OF AGING. DIETARY SUPPLEMENTS CONTAINING INGREDIENTS WITH STRONG BIOLOGICAL EFFECTS ON THE BODY CAN HARM OLDER ADULTS.

DIETARY SUPPLEMENT SAFETY

Dietary supplements can have druglike effects and may interact with food and medication. To ensure safe supplement use, health care providers working with older adults must ask about their use of herbs, vitamins, minerals, other dietary supplements; over-the-counter medications; and prescription medicines and record the information in the medical record. An example of a potentially hazardous combination of supplements and medications is coumadin (a prescription medication), ginko biloba (an herbal), aspirin (an over-the-counter medicine), and vitamin E (a dietary supplement). Older adults may have specific reasons for taking each of these substances without realizing that all of them have blood-thinning properties that can combine to cause excessive bleeding and even a stroke, according to the Food and Drug Administration (FDA). Taking ginko biloba along with vitamin E and aspirin may increase bleeding time enough to present a risk during surgery that would not be revealed by a professional’s review of prescribed medication alone.

References such as those listed in Box 1 or an online resource such as the National Institutes of Health (NIH) Office of Dietary Supplements database and fact sheets (http://dietary-supplements.info.nih.gov/) supply information about usual dosage, side effects, and safety. The NIH Web site offers a Warnings and Safety Information page with a listing of FDA Alerts about supplement products and information on reporting adverse events related to supplements. For example, older consumers taking kava for relaxation or sleeplessness should know about the Consumer Advisory on kava-containing supplements that may be associated with severe liver injury.

FOOD AND SUPPLEMENT SAFETY

FOOD SAFETY ISSUES

Two important rules stand out when it comes to ensuring safe food for older adults—wash hands frequently and maintain food at the proper temperature. The first rule is important for preventing contamination of food with bacteria and viruses. The second is important for slowing the growth of bacteria and viruses if food is contaminated.

HANDWASHING

In an FDA database on food-borne illness risk factors, 38% of nursing homes surveyed were out of compliance on the guidelines for proper, adequate hand washing. Consumers also lag behind in their hygiene practices—only a third of consumers used soap when washing their hands in a recent small study.

Hands are the most common way to transfer pathogens from one person to another. Written Guidelines for Hand Hygiene for Health-Care Workers (Box 1) available from the Centers for Disease Control and Prevention (CDC) evaluate hand-cleaning methods. Washing with soap is a good way to clean hands, but the best way is to use alcohol-based handrubs. Nail tips should be no longer than one-fourth of an inch.

FOOD TEMPERATURE

Keeping food out of the temperature danger zone ensures that it is safe to eat. The upper limit of the temperature danger zone was recently lowered by 5° Fahrenheit in Food Code guidelines because the FDA now believes that
maintaining food at 135° Fahrenheit or higher is sufficient to prevent the growth of pathogens and will effectively prevent food-borne disease. Some states have adjusted their own food code regulations to reflect this new level, and others have not. Institutions must verify proper holding temperature regulations for their food service to avoid citations during surveys.

It can be difficult to keep cold foods at 41° Fahrenheit or lower in institutional food service, especially while preparing mixed foods such as chicken salad. Food service personnel know to chill ingredients, such as mayonnaise, ahead of time and prepare in small batches to avoid a hazardous temperature change. Another major food service problem is the time it takes to cool cooked foods to storage temperatures. Specific time and temperature rules exist for this process to prevent excess growth of microorganisms.

Checking temperatures with a refrigerator thermometer is a good idea for older consumers because it is the only way to be certain that the temperature is correctly maintained at 40° Fahrenheit. Older adult consumers also need to know temperature rules for food storage and what to do if there is a power outage.

Fruits and Vegetables

Food-borne illness associated with fresh produce persists. For this reason, FDA recently developed a produce safety action plan to prevent contamination and minimize the detrimental public health impact of fruit and vegetable consumption. A Produce Handling Education Campaign provides brochures, graphics, and activity ideas for educating consumers and food-service staff about washing fruits and vegetables thoroughly and other tips for preventing illness caused by pathogens on produce. Part of the existing “FightBAC!” program, the information and downloadable materials are found at http://portal.fightbac.org/pfse/toolsyoucanuse/phec/. Research shows that unwashed melons, for example, can be contaminated when the knife used to cut them drags bacteria from the rind surface onto the cut fruit. Most people wash fruit that will be eaten whole, but many people do not know they should wash the outside of fruit that is peeled and cut into pieces. Much more useful information is available from www.foodsafety.gov a portal to safety information from several government sources.

PEGGY K. YEN, MPH, RD, LD, is a public health nutrition consultant in Baltimore, Maryland.

Box 1. Desktop Food and Supplement Safety References

- Diagnosis and Management of Foodborne Illness: A Primer for Physicians and Other Health Professionals, April 2004. Developed jointly by the American Nurses Association, American Medical Association, Centers for Disease Control, Food and Drug Administration, and the U.S. Department of Agriculture, it is available free of charge at www.ama-assn.org/ama/pub/category/3629.html.
If the doctor has not said,  
“No more sugar—you have diabetes.”  
Or  
“Lower your salt intake, your blood pressure is too high.”  
Or  
“Lose weight.”  
Or even if he has

They rarely go to the market  
with good intentions.  
But wearing mismatched comfortable shoes  
Held on with elastic bands  
And pulling a trolley to bring  
it all home in and hold onto  
when they cannot breath anymore.

They buy frozen salmon crumble  
And four packets of Mr. Kipling’s cakes.  
Strawberries, in season, or not.  
To be eaten with mounds of soft-scoop ice cream.  
Watched only by the television  
that doesn’t get angry  
When they take their teeth out  
To pick off the pips and spit.

They fill plastic vegetable bags  
with chocolate bars,  
Choosing a different checkout line each day  
So no one will guess  
the candy is not for the grandchildren.

They don’t want to sit outside the store parked  
on Deadman’s Bench  
Waiting  
While someone else buys  
them broccoli.
Unintentional injuries are the ninth leading cause of death in persons aged 65 and older. For every fatal home injury, there are 650 nonfatal home injuries. The most common nonfatal injuries are from falls, objects (struck by/fallen against), sharp objects, overexertion (e.g., lifting, moving heavy objects), and poisoning. In addition to young children, the highest rates of nonfatal unintentional injuries occur in women and in persons aged 70 and older (http://www.homesafetycouncil.org).

Older adults treasure their independence and prefer to age in place even when their safety and independence are compromised by physical decline. They usually value their independence over being “safe.” Home-care nurses are in an excellent position to assist older clients in identifying both internal and external factors that may affect their home safety and assist them in developing a personal plan to promote safety and prevent unintentional injuries in the home. The purpose of this article is to discuss through a case study the components to consider in assessing home safety from an intrinsic and extrinsic perspective as well as to identify assessment and educational resources for clients and caregivers to use to prevent home injury.

**Case Study**

Mrs. Andrews, aged 87 years, tripped on a table leg while playing cards at a senior center and fractured her hip. She underwent surgery for internal fixation of the left hip with multiple screws. Mrs. Andrews was transferred to a rehabilitation unit at Fox Chapel Nursing Center 3 days postsurgery. She has exceeded expectations in her rehabilitation plan and will be discharged home at the end of the second week of rehabilitation. The home-care team has been asked to evaluate home safety for Mrs. Andrews before discharge.

**Home Safety Assessment**

The Cochran Review on modifications of homes notes that injuries occur as a result of complex interactions between individuals and the environment. These injuries can always be considered multifactorial in nature; therefore, home safety begins by identifying hazards (intrinsic and extrinsic) that may lead to injury. It is important to assess for home hazards that may lead to falls, poisoning, and fire or burns as well as to identify protective practices in use. The assessment begins by assisting clients and their caregivers in identifying the intrinsic or individual factors that may lead to injury around the home.

**Intrinsic Factors.** Intrinsic factors are personal characteristics that may lead to injury. Table 1 contains a list of the intrinsic factors to consider when assessing Mrs. Andrews for home safety. The number of chronic diseases and medications play a role in injury. As the team reviews Mrs. Andrews’s medical record, they find that she has been having trouble with her balance for the last several years. Three years ago, she fell down the basement stairs and fractured her left shoulder. Her other chronic conditions include osteoarthritis of her right hip and knee, hypertension, and diabetes. She also has developed blepharospasm, an excessive contraction of the eyelid muscles of both eyes that requires botox injections every 4 months. Her family notes that she has difficulty hearing even though she refutes this. She is currently on 6 medications for her chronic conditions. She will be going home with pain medication as well.

During the family interview conducted at the nursing center, the team found that Mrs. Andrews has lived alone for many years and con-
continues to drive her car. Her husband was killed in an automobile accident at age 38, and she raised her 5 children alone. She is determined to continue to live in her own home. “I have done so well that I am able to go home in 2 weeks instead of 3. That shows I will be able to take care of myself in my own home.” Mrs. Andrews’ children express concern about their mother’s ability to care for herself, but she refuses to stay with the children who live close by.

The average 75-year-old has 3 chronic medical conditions and uses 5 prescription drugs. Symptoms experienced from chronic illnesses such as functional decline, fatigue, and physical discomfort as well as side effects from medications may lead to home safety issues. Sensory deficits such as poor vision and hearing, decreased reaction time, and changes in proprioception (sensory feedback mechanisms for motor control and posture) can lead to unintentional injuries from falls, fire hazards, electrical hazards, medication errors, and difficulty negotiating stairs and uneven surfaces.

It is critical for home-care nurses to help clients identify home-safety issues related to personal factors such as difficulty in carrying out activities of daily living (ADLs) and instrumental ADLs (IADLs). Unsteady gait, dizziness when moving from sitting to standing, and frequent problems in maintaining balance may lead to falls and home care nurses can help them devise personal strategies to prevent injury. For example, referrals can be made to physical and occupational therapists to help clients select aids and devices that can assist them with ADLs.

The home-care nurse can help Mrs. Andrews

<table>
<thead>
<tr>
<th>Intrinsic Factors</th>
<th>Extrinsic Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of chronic conditions</td>
<td>Home security</td>
</tr>
<tr>
<td>Medications</td>
<td>• Lighting</td>
</tr>
<tr>
<td>• Number</td>
<td>• Entry doors locked</td>
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<tr>
<td>• Side effects</td>
<td>• Garage door locks</td>
</tr>
<tr>
<td></td>
<td>• Sliding glass doors</td>
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<tr>
<td></td>
<td>• Windows</td>
</tr>
<tr>
<td>Sensory changes</td>
<td>• Fall safety</td>
</tr>
<tr>
<td>• Vision</td>
<td>• Clutter</td>
</tr>
<tr>
<td>• Hearing</td>
<td>• Lighting</td>
</tr>
<tr>
<td>• Reaction time</td>
<td>• Nonskid mats and throw rugs</td>
</tr>
<tr>
<td>• Balance</td>
<td>• Grab bars</td>
</tr>
<tr>
<td></td>
<td>• Handrails on stairs</td>
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<tr>
<td>Functional decline</td>
<td>• Sturdy stepstool with hand rail</td>
</tr>
<tr>
<td>• Activities of daily living</td>
<td>Fire safety</td>
</tr>
<tr>
<td>• Instrumental activities of daily living</td>
<td>• Cooking</td>
</tr>
<tr>
<td>• Cognition</td>
<td>• Water heater</td>
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<tr>
<td>• Strength and mobility</td>
<td>• Fire extinguisher</td>
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<td></td>
<td>• Smoke alarms</td>
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<td></td>
<td>• Fireplace</td>
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<td></td>
<td>• Fire escape plan</td>
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<tr>
<td>Apparel</td>
<td>• Electrical safety</td>
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<tr>
<td>• Shoes and slippers</td>
<td>• Cords</td>
</tr>
<tr>
<td>• Long sleeves</td>
<td>• Appliances</td>
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<td></td>
<td>• Ground fault protection</td>
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<td></td>
<td>• Appropriate light bulbs</td>
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<td>• Electrical heaters</td>
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<td>• Fuses</td>
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<td></td>
<td>• Poison safety</td>
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<td></td>
<td>• Storage and location</td>
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<td>• Cleaning products</td>
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Table 1. Intrinsic and Extrinsic Factors Related to Injury
plan how she will perform her ADLs and IADLs once she arrives home. Mrs. Andrews needs to be aware of available resources such as those found in Table 2. In addition, reviewing Mrs. Andrews’ medications and understanding of their purpose, dosage, side effects, and safe storage procedures is important. The Home Safety Council has developed a medication tracking form that can be printed from the Internet that includes the following information: name, dosage, times taken per day, actual times taken each day, and a note section for each medication.

Extrinsic Factors. Extrinsic factors found in the environment may influence home safety. Table 1 contains a list of the extrinsic factors to consider in assessing Mrs. Andrews’ home for safety. Appropriate factors from the list need to be applied beginning outside the home and then to all rooms, stairways, hallways, and entryways within the house. The Home Safety Council (HSC), National Fire Protection Association, National Center for Injury Prevention and Control of the Centers for Disease Control and Prevention, and Consumer Product Safety Commission (CPSC) have developed a variety of home-safety checklists that can be used by clients and their caregivers. Table 3 contains a list of Internet resources for home safety.

The first step in the environmental assessment begins by examining how Mrs. Andrews enters her home. She will need to negotiate 7 stairs from the sidewalk to her front porch and 2 additional stairs into the house. The side entrance is at ground level, but she has a small landing with stairs down to the basement and up to the kitchen. The HSC recommends bright lights at the top and bottom of stairs with hand rails along both sides and secured for the full length of the stairway. Stairways should be free

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**Table 2. Community Resources for Caregivers**

<table>
<thead>
<tr>
<th>Meals on Wheels</th>
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<tbody>
<tr>
<td>In-home support for cleaning</td>
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<tr>
<td>Senior centers</td>
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<tr>
<td>Parish nurses</td>
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<tr>
<td>Support groups for widows and widowers</td>
</tr>
<tr>
<td>County, city or not-for-profit agencies to assist older adults</td>
</tr>
<tr>
<td>Home modification specialists: <a href="http://www.homemods.org/index.shtml">www.homemods.org/index.shtml</a></td>
</tr>
</tbody>
</table>

**Table 3. Internet Resources on Home Safety**

- **Home and Safety Council**
  - [www.homesafetycouncil.org/index.aspx](http://www.homesafetycouncil.org/index.aspx)
  - [www.homesafetycouncil.org/resource_center/resourcecenter.aspx](http://www.homesafetycouncil.org/resource_center/resourcecenter.aspx)
- **National Resource Center for Safe Aging**
  - [www.safeaging.org/](http://www.safeaging.org/)
- **Merck Institute of Aging and Health**
  - [www.miaonline.org/tools/falls/tools.html](http://www.miaonline.org/tools/falls/tools.html) CDC
- **National Fire Protection Association**
  - [www.nfpa.org](http://www.nfpa.org)
  - [www.nfpa.org/sparky/PDF/SparkyChecklist.pdf](http://www.nfpa.org/sparky/PDF/SparkyChecklist.pdf)
of clutter. All entry doors should be locked with a keyed entry lock and deadbolt lock. Two-keyed deadbolt locks should be replaced so exit in the event of fire will not be hindered. Doors should feature wide-angle peepholes. The home-care nurse finds that Mrs. Andrews’ home meets these suggested standards.

Upon entry into Mrs. Andrews’ home, the home-care nurse finds a living room, dining room, kitchen, bathroom, and 2 bedrooms on the first floor. In the living room, there are 4 small braided rugs in the walkway to the dining room, kitchen, bathroom, and bedrooms that slide freely on the hardwood floors. In the living room, there is 1 table lamp, several extension cords plugged into a single socket, and the telephone located on the sideboard near the dining room. The hallway leading to other areas of the first floor is dark. The CPSC recommends that throw rugs be secured with double-faced carpet tape or rubber matting to back of the rugs. Conditions of all electrical cords should be checked and care must be taken not to overload electrical outlets. The maximum wattage bulb allowed by fixture should be used; if the wattage is not known, a bulb of no more than 60 watts is recommended. Frosted bulbs, indirect lighting, shades, or globes on light fixtures may be used to reduce glare. Additional lighting may be needed to reduce shadowed or dark areas that can hide tripping hazards. Telephones should be located where they can be easily reached from the floor.

Mrs. Andrews’ kitchen is brightly lit with numerous electrical appliances on the countertops. Pot holders and towels hang on a towel rack above the gas stove. A fire extinguisher is mounted on the wall next to the stove. All cleaning products are stored in the basement. Knives hang on a magnetic bar mounted on a cabinet next to the stove. The electrical outlets in the kitchen do not have ground fault circuit interrupters (GFCIs) as recommended by HSC and CSPC to prevent electrocution when using electrical appliances near water. In addition, knives and other sharp objects should be stored in a safe place, and combustible materials (potholders and towels) should be stored away from the stove.

The bathroom is easily accessible. There are abrasive strips on the floor of the bathtub or shower. The mats have nonskid rubber backing, but no nightlight or grab bars near the tub and shower or the toilet is noted, nor is there a GFCL. The bedroom is carpeted and free of clutter with easy access to the bed using a walker. The switch to the overhead light is mounted near the doorway and a lamp was located on the bedside table.

Upon completion of the home assessment, the home-care nurse notes that Mrs. Andrews had several protective injury practices in place. These included a clutter-free home, meeting the home security and stairway standards, a fire extinguisher located next to the stove, storage of cleaning products away from food, abrasive strips on floor of the tub and shower and skid free mats in the bathroom. The home-care nurse can use checklists and educational resources identified in Table 3 to assist Mrs. Andrews and her family in improving home safety in the areas of lighting, throw rugs, fire and electrical safety in the kitchen, and electrical safety and placement of grab bars in the bathroom.

Educational Resources on Home Safety

Key Internet education resources on home safety are found in Table 3. A general description of the table Web sites follows.

- The Home Safety Council is dedicated to helping prevent unintentional injuries in the home. Its Web site contains programs, safety guides, materials on state of home safety, and a resource center. The resource center contains 13 checklists that can be used by clients and caregivers to assess home safety including home security, safe steps, and bathroom, kitchen, fire, electrical, and medication safety.

- The National Resource Center for Safe Aging gathers and shares information and resources on senior safety, including fall prevention, pedestrian and motor vehicle safety, and prevention of elder abuse. Access to a variety of falls toolkits can be found under Best Practices on the Web site.

- The Merck Institute of Aging and Health has created a falls toolkit that contains professional tools and educational resources. The professional tools include the Get Up and Go Test, a home safety questionnaire, story of your falls, medical history, and fall evaluation—initial visit. The educational resources include general information on falls and a variety of materials on aids and devices and exercise.
The CDC National Center for Injury Prevention and Control has created a toolkit on falls that contains fact sheets and brochures as well as current statistics on unintentional fall rates.

The National Fire Protection Association is a leading advocate of fire prevention and an authoritative source on public safety. Their home safety checklist takes about 20 minutes to complete and includes cooking, heating, electrical safety, and smoke alarm and home fire escape plans.

The Consumer Product Safety Commission has developed a comprehensive checklist on home safety. It includes assessment questions with recommendation for all areas of the home. The checklist includes safety areas covered in other checklists just described but also recommendations regarding placement of electrical outlets and switches, space heaters, and wood-burning stoves, as well as information on emergency exit plans, GFCIs in kitchen and bathroom, water temperature, lighting requirements, and storage areas (power tools and chemicals).

Summary

The home-care nurse, as a key member of the home-care team, plays a vital role in providing clients and caregivers with the knowledge and skills to prevent unintentional injuries in the home. Home safety begins with assessing for intrinsic and extrinsic factors that may lead to injury. Using assessment data, the home-care nurse and team assist clients and caregivers in identifying problem areas and in suggesting strategies for injury prevention. Home-care nurses promote best practices in home safety by educating clients and caregivers about home-safety resources (local, state, and Internet) and the importance of a personal injury prevention plan.

References


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Rein Tideiksaar
2002, Health Professions Press, 240 pages, paperback, $19.00

Falls in Older People: Risk Factors and Strategies for Prevention.
Stephen R. Lord, Catherine Sherrington, and Hylton B. Menz
2001, Cambridge University Press, 249 pages, paperback, $65.00

Approximately one-third of people over age 65 fall each year, with rates even higher among hospitalized elders and those living in nursing facilities. Accidents and injuries are the fifth leading cause of death in the population over age 65, and falls make up a large portion of this category. The greatest concern with falls is the risk of hip fracture, which occurs in about 1% of all falls. The morbidity and mortality associated with hip fracture in older adults is significant, although many elders dismiss falls as a minor incident and fail to report the occurrence to health care professionals. Some fear that admitting a tendency to fall may result in a recommendation for nursing home placement. Family members may seek institutionalization in an attempt to prevent or limit injuries in people who continue to experience recurrent falls at home. However, many of those patients continue to fall even after being transferred to a long-term care facility.

The topic of falls breaks down into epidemiology, intrinsic and extrinsic risk factors, fall risk assessment, diagnostic workup, treatment plan for prevention and management, and ongoing evaluation of interventions individualized for each patient. Another way to think of fall management is to identify environmental and medical risk factors, as well as target interventions for both.

Falls in Older People: Prevention and Management (3rd ed.) by Rein Tideiksaar has several key features. The basic writing and illustrations make it particularly useful for patient and family education and for use on nursing facility teams. Similar texts may state that environmental modifications are necessary (e.g., a lower bed, different seating system, increased lighting). This book spells out clearly and specifically the number of inches the chair seat should be from the floor, the angle of the chair back, the length of the chair cushion, and so on. Illustrations are clear and helpful, making this text useful in educating patients and families about environmental modifications in the home as well as educating nursing staff in long-term care facilities.

The book is divided into sections on causes of falls, clinical evaluation, and preventative strategies, including information from professionals from several disciplines. There is less focus on medical issues and more on environmental ones. However, another advantage is the content related to long-term care facility teams and how to approach the problem of fall prevention from an interdisciplinary perspective. The text includes references to the minimum data set tool, forms for incident reports, environmental falls assessment tools, and side rail and restraint use forms. Having these easily reproducible forms increases the chance that these tools will actually be implemented, rather than simply sit unused at the nurse’s station.

Often in long-term care, there is a feeling that because the patients are so frail, they are inevitably going to fall. This book provides concrete, user-friendly ideas that can be shared in quality assurance meetings or fall committee meetings, which are likely to encourage increased accountability on the part of certified nursing assistants, rehabilitation staff, and nurses. Again, specific advice is given for restraint reduction, side rail reduction, and other issues specific to long-term care. The author briefly reviews the role of external hip protection and the importance of patient and staff compliance.

Perhaps one conclusion that can be questioned is the author’s contention that bed alarm systems work to prevent or reduce falls. He cites 2 references, 1 from 1992 and 1 from 1985, which were multifaceted fall prevention programs including bed alarms as part of a comprehensive plan of care. No subsequent studies
have proven that bed alarms alone reduce or prevent falls; in fact, some experts believe they may even contribute to falls by startling the patient with a loud noise. In facilities that use these devices frequently or with a large number of patients, the overall quality of life in the facility can be questioned, because loud, buzzing alarms can be heard almost all the time. In addition, as the author points out, if the system is not user-friendly and the staff’s response is not rapid, the fall cannot be prevented in many cases. Although newer alarm systems are being developed that get around some of these issues, this area needs further study.

The final sections on case studies, forms, and guidelines are particularly useful and could be used to teach physicians, advanced practice nurses (APNs), medical or APN students, or nursing home staff. Home-care nurses could carry this small paperback reference with them and use it to explain to patients or families why certain environmental modifications in the home might be necessary for improved safety. In conclusion, for APNs or RNs working in long-term care, I would recommend this book. For physicians and APNs, I would suggest this text in combination with the American Medical Directors Association Clinical Practice Guideline on Falls Prevention, available at www.amda.com.

Stephen R. Lord is a well-known falls researcher who has authored or coauthored many articles, as well as served on expert panels for guideline development over the years. His new text, *Falls in Older People: Risk Factors and Strategies for Prevention*, is coauthored by Catherine Sherrington and Hylton B. Menz. This heavily referenced text goes into detail on fall risk factors, specifically addressing postural stability and sensory, neuromuscular, medical, medication, and environmental factors. These sections include references to current literature and comparisons of previous studies, with a final evaluation on how the relative importance of various risk factors should be viewed.

Lord and colleagues’ text gives considerable background on the evaluation of gait and balance, vestibular sense, reaction time, and other measures that can be helpful in evaluating falls. Again, the focus is on reviewing the literature and original research in this field, so that the practitioner has an idea of where to focus efforts with a particular patient, based on the evidence.

In strategies for prevention, attention is given to footwear, assistive devices, and environmental modifications. A nice overview of which risk factors are likely to be modifiable and which are not is helpful. The section on exercise is somewhat longer than in Tideiksaar’s book, but neither is sufficiently detailed to help the clinician caring for younger seniors to design an individualized program for each patient. Because this intervention usually involves a physical therapist, however, the information provided in Lord’s text is generally adequate.

Overall, this text is an excellent review of evidence-based literature on the topic of fall risk factors and strategies for prevention. The focus is on outpatient management of community dwelling fallers, although hospital and long-term care facility falls are briefly discussed.

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Aging Gracefully: NGNA Web Site Gets a Facelift

A little nip here and a little tuck there, in June the National Gerontological Nursing Association (NGNA) unveiled a new look to our Web page. The Web page is now fully functional. Pictured here is a screen shot of what the new Web page looks like. www.ngna.org

Counseling Points™—A New NGNA Publication!

As the role of the gerontological nurse in the care of the elderly continues to evolve and grow in importance, the way we communicate with patients must also evolve. The development of Counseling Points, a new publication, was spurred by this need. Counseling Points is an official publication of the National Gerontological Nursing Association (NGNA). The publication has been made possible thanks to an unrestricted educational grant from Janssen Medical Affairs.

These publications will bring together leading nurses in the field of gerontology who will share their knowledge and experience in a practical, hands-on way to help gerontological nurses enhance their communication and patient management skills to ensure better outcomes. The first in the series of four planned issues, Psychosis in Alzheimer’s Disease: A Roundtable Discussion, was published in May 2005. NGNA members receive a complementary copy of this publication as a part of their membership benefits. A limited number of copies are available for distribution upon request to the National Office. To request a copy of Psychosis in Alzheimer’s Disease: A Roundtable Discussion, please contact the NGNA National Office, ngna@puetzamc.com or (800) 723-0560.

Other issues that are currently underway include

- Quality Indicators: Improving Quality Care for Older Adults with Mental Health Disorders
- Changes in Cognition and Function: Implications for Caregivers of Older Adults
- Behavioral Issues in Alzheimer’s Disease

NGNA Committees and Task Forces: What Would We Do Without You!

NGNA is a volunteer organization, run by and for gerontological nurses who give their time and talents to the organization for free. Yes, the old adage “you get more than you give,” is true. There are real benefits to participating actively in organizational activities, including gaining new knowledge and insights into providing state of the art care to older adults, improving health care for older adults, networking, leaving a legacy to the next generation of gerontological nurses, reconnecting with old friends and colleagues, and making new friends.
Committee and task force membership is a way for NGNA members to share their expertise and gain valuable networking contacts. In addition, participation on an NGNA committee or task force provides invaluable insight into the work of the association and is an important step for those who will want to participate in the leadership of the Society at the national level.

NGNA Committee and task force members reflect the broad interest and expertise of the NGNA membership. An annual call for volunteers is sent to the membership in the newsletter, is available at the annual convention and can be downloaded from the Web site, www.ngna.org. Committee appointments are made in January. Task Force appointments are made as the need arises.

NGNA has 6 standing committees that serve as the main operational body for the planning and execution of the activities of the association. All committees, with the exception of the Nominating Committee, are made up of volunteers. NGNA members may serve on one committee at a time.

The NGNA Board of Directors also establishes task forces to accomplish a specific activity. A task force reports directly to the board through the task force chair. Task forces are created from a pool of volunteers for special projects; task force members may also be solicited based on known experience or expertise. NGNA members may serve on a task force during their official appointment on a committee.

Most committee and task force business is conducted via e-mail or fax; however, committee and task forces members are asked to participate on conference calls as needed. A description of NGNA’s various committee and task force charges and a list of members for the 2005-2006 NGNA committees and task forces follows.

Chapter Development Committee

This committee works with forming chapters to assist them through the steps to becoming chartered. The committee is also responsible to help chartered NGNA Chapters maintain active status. Most committee business is conducted via e-mail; however, committee members are asked to participate on conference calls as needed.

Committee Chair
Kathy Long (acting Chair)
Committee Members
Eve Lewis
Jill Mitchell
Anne Cardinale
MaryAnne P. Shannon
Mary Cummins
Nancy Kollman
Sandra Stang
Patricia A. Robinson
Board Liaison
Barbara McCabe

Clinical Practice Committee

This committee develops the content for various projects as charged by the NGNA Board of Directors, including review of clinical poster abstracts submitted for the annual meeting and selecting the Innovations in Clinical Practice Award winner that is presented at the annual convention.

Committee Chair
Kay Cresci
Committee Members
Mary Jo Dagney
Audrey Cochran
Joanne Alderman
Sharon Dixon
Jane Campbell
Jennifer Lamb
Claire Hoffman
Sharon Dixon
Lauren Van Sanders
Marlene McCraw
Kimberly Hickey
Board Liaison
Jane Hannah

Education Committee

This committee develops the content for various projects as charged by the NGNA Board of Directors, including Innovations in Clinical Practice (ICP) Fast Fact Sheets (http://24.249.193.144/ngna/home.php?l=/resources_lnk&x=2).

Committee Chair
Bronwynne Evans
Committee Members
Cheryl McCahon
Carol Williams
Denies Rohr
Program Planning Committee

The most time-intensive NGNA committee, the Program Planning Committee is responsible for reviewing the abstracts and coordinating the annual NGNA Convention. The committee meets for monthly conference calls and communicates through e-mail and fax.

Chair
Deborah Kolb
Committee Members
Sandra Lee Bieganski
Karen Koren
Donna Pittman
Mary Ann Jarmulowicz
Teal Kuzma
Kimberly Hickey
Jacqueline Ford
Board Liaison
Martha Sparks

Research Committee

This committee reviews the research poster abstracts each year to identify the finalists and winner of the Judith Braun Award that is presented at the annual convention. The committee may be charged to review research grant proposals as a call for proposals is available.

Chair
Pamala Larsen
Committee Members
Mary Beth Buschman
Stacie Lyons
Patty Coleman
Judith Hertz
Harriet Duncan
Janice Crist

Nominating Committee

The Nominating Committee is the only NGNA committee with elected members. Committee members are responsible for recruiting eligible candidates for the annual election. Self-nomination for candidacy is encouraged, but many highly qualified and modest candidates need encouragement to run for office.

Committee Members
Deborah Marks Conley
Barbara Hammer
Florida Freeman
Rebecca Province
Anne Tito

Awards Task Force

This task force is responsible for reviewing NGNA award and scholarship applications and making recommendations for awarding of the awards and scholarships to the NGNA Board of Directors.

Award Task Force Members
Dennis J. Cheek
Jean M. Gaines
Molly C. Morand
Karen Koren
Jennifer Lamb

Elder Abuse Position Statement Task Force

In May 2005, the NGNA Board of Directors formed a Task Force to prepare an NGNA positions statement on Elder Abuse.

Chair
Amy Cotton
Task Force Members
Joyce Ricci Gilette
Alice Dupler
Anne Cardinale
Mary Ellen Casey
Elizabeth Tanner
Ann Bucci
Dianne Thames
Jeanne St. Pierre
Kelly Acevedo
Mary Hibbert
Yvette W. Stokes Finney
Mary Feit
Deborah Angelo
Mary Ann Slaughter

For more information on the work of NGNA Committee’s and Task Forces, visit the NGNA Web site, www.ngna.org, or contact the NGNA National Office at ngna@puetzamc.com or toll free (800) 723-0560.

National Gerontological Nursing Week is
October 1-8, 2005

This is a wonderful opportunity for gerontological nurses to be recognized by their employers and coworkers. The NGNA National Office has a flyer on “How to Organize and Celebrate National Gerontological Nurses Week.” Included with the flyer is a sample letter to your mayor that you can use to request that a proclamation be put forth to designate October 1-8, 2005, as National Gerontological Nurses Week in your own city.

Visit the resources page of the NGNA Web site, www.ngna.org, to download the flyer and sample letter to the mayor on “How to Organize and Celebrate National Gerontological Nurses Week.” While on the Web site, visit the online store for materials that are available to help celebrate the week. If you wish, you can contact the NGNA National Office at (800) 723-0560, or by e-mail, ngna@puetzamc.com to request information on “How to Organize and Celebrate National Gerontological Nurses Week.”

Be All That You Can Be: Become a Certified Gerontological Nurse

Nurses in gerontological practice at all levels have the opportunity to obtain certification in their specialty. NGNA has a collaborative relationship with the American Nurses Credentialing Center (ANCC), which offers 4 exams for the gerontological nurse: Generalist Gerontology for Associate and Diploma Nurses, Generalist Gerontology for BSN Nurses, Gerontological Nurse Practitioner, and Clinical Specialist in Gerontology. For information about test dates, fees, and eligibility, visit the ANCC Web site, www.nursingworld.org, or call ANCC at (800) 284-2378. Remember that NGNA members get a discount on registration fees, so make sure your NGNA membership card is available when you submit your application.

The Certification Examination for Practical and Vocational Nurses in Long Term Care (CEPN-LTC) is available for LPNs/LVNs. To request a candidate bulletin and a copy of the CEPN-LTC Test Plan, write to The National Council of State Boards of Nursing, Department SSD, 676 N. St. Clair Street, Suite 550, Chicago, IL 60611-2921.

Floods, Tornados, and Hurricanes

This section on how Hurricane Dennis affected our association management company, Puetz and Associates, was written almost 3 months ago, not knowing that shortly before publication we would be recovering from the most devastating natural disaster in modern times, Hurricane Katrina.

The loss of life and destruction are massive and continue to unfold everyday since the hurricane made landfall on August 29. As we review the proofs of this column, knowing that there is little time for updates, we would like to offer our sincere condolences to those affected by Hurricane Katrina. Recovery will continue for many months and for some take many years. As gerontological nurses, we all know the impact these events have on the elderly. We thank all of those nurses, their family, and friends who have assisted with the recovery and relief efforts. For more information on how to assist the victims of Hurricane Katrina, contact the American Red Cross at http://www.redcross.org/.

As many NGNA members already know, the National Office is located in Pensacola, Florida, an area known for its beautiful beaches and rich 440 years of history. Pensacola Beach is the hub of Santa Rosa Island, one of the longest barrier islands in the world. The Gulf Islands National Seashore covers much of the island, keeping beaches accessible to the public and preserving the area’s environment and history. Living in paradise, however, is not without its challenges. The Pensacola
area has been hit by hurricanes 45 times in 135 years of tracking these storms.

In July 2005, Pensacola, while still recovering from hurricane Ivan which made landfall less than a year earlier, resulted in $14 billion in damage, claimed the lives of 54 people, and destroyed more than 7,000 homes, was hit yet again by hurricane Dennis. Fortunately, the damage sustained was much less; the storm resulted in evacuation of the area for several days and damage to the NGNA National Office. Staff members’ homes were minimally affected, but damage to the roof resulted in water damage in, of all places, the storage room. NGNA staff members were offline for several days due to power outages and cable damage.

NGNA would like to thank its members for their patience and understanding during these times when Mother Nature disrupts the day-to-day operations of the organization. We hope you will join us in commending Puetz and Associates, our management company, for getting the office open so quickly and working under challenging circumstances. We’re also glad staff and their families escaped injury!

Call for Abstracts: NGNA’s 2006 Annual Meeting

NGNA’s 2006 Annual Meeting will be held October 4-8, 2006, in Cincinnati, Ohio, at the Hyatt Regency Cincinnati. The deadline for submitting proposals for oral presentations is January 31, 2006, and the deadline for submitting abstracts for posters is March 1. For more details and instructions on how to submit a proposal or abstract go to www.ngna.org or call the National Office at (800) 723-0560. Research poster abstracts are eligible for the Judith V. Braun Research Award; clinical practice abstracts are eligible for the Innovations in Clinical Practice Award; accepted abstracts will be published in the NGNA Section in GN. This is a great way to share your experience and knowledge with fellow gerontological nurses.

The Medicare Modernization Act: Ready or Not, Act Two Begins

January 1, 2006

An Outreach Toolkit (see http://www.cms.hhs.gov/partnerships/tools/materials/medicaretraining/MPDCountreachkit.asp) is available to equip community-level organizations with the materials needed to provide clear, accurate information and assistance to their clients on the Medicare prescription drug coverage. The toolkit is developed with basic, straightforward information that can be easily conveyed to beneficiaries.
Improving Quality of Care Through Systems Research:  
A Guide for Managers and Practitioners

Ceanne Alvine, MBA, RN

Nursing systems research is a dynamic blend of analyzing workplace conditions, organizational culture, and quality outcomes. Concepts such as leadership, front-line worker decision making, empowerment, and communication are now more effectively measured, setting the stage for more detailed organizational analysis in nursing homes. The advent of large data sets such as the Minimum Data Set has advanced the abilities of managers, practitioners, and clinicians to better evaluate quality outcomes for residents. Combining research on organizational characteristics with the quality outcomes measured in large data sets, provides exciting new ways to understand factors that drive resident health outcomes. Managers working in long-term care must often take a systems approach to problem solving. Nursing systems research can help inform leaders about aspects of the organization that most affect quality. Increased knowledge about systems issues will assist administrators, directors of nursing, and other leaders in nursing homes with their tactical problem solving on a day-to-day basis. (Geriatr Nurs 2005;26:294-299)

Nursing leaders and practitioners working with older adults in nursing homes today face unprecedented pressures to perform. Corporate pressure for profits, family pressure for quality care, a litigious society, and a highly regulated environment make navigating a course for success difficult. Each year millions of dollars are spent in both the public and private sector to find ways to improve the health of Americans while maintaining or improving efficiency in the health care service delivery system. Long-term care managers and practitioners must weigh sometimes competing demands for quality of resident care and cost-effectiveness. To meet all of the expectations effectively, directors of nursing (DONs), administrators, and charge nurses must develop skills in the identification of systems problems and problem solving. Using a conceptual model and ideas gleaned from nursing home systems research can help leaders working in nursing homes to better understand and analyze system-based problems and create tactical plans for addressing them. The purpose of this article is to provide nurses and other managers an overview of systems research in nursing homes and explain how this work can benefit them in their role as leaders in the long-term care context.

Systems Characteristics

Systems research takes root in thermodynamics and related sciences where the individual parts of a system work together to make a whole. The whole is made of structures, processes, and outcomes. In the case of a nursing home, the structure is the building, the layout of the nursing unit, the chain of command, the available tools to do the job, and the like. The primary processes in a nursing home are the delivery of care to nursing home clients. Supporting processes include clinical and administrative procedures, for example, what to do if a resident is short of breath or how to order drugs from the pharmacy. Flow of residents and communication through the system can also be thought of as the processes. Resident outcomes can be measured in various ways, but at a minimum they can be measured with the rate of mortality, morbidity, and quality of life. Resident outcomes have often been conceived of as
the absence of some medical condition such as a urinary tract infection, decubitus ulcer, or fall. Composite indicators, such as survey results, quality indicators, and resident satisfaction surveys, may also be indicative of resident outcomes. Maintaining an outcome focus with respect to nursing system interventions is critical to developing the ability to use systems research in daily clinical and administrative decision making.

Case Study

A clinical example is a good way to gain perspective on systems-related problems. Ann is an RN charge nurse on the 3 to 11pm shift on a busy Medicare unit. She has 18 patients and 1.5 aides to assist her in their care. During the initial medication pass, she notes that 4 residents are missing medications that she had reordered 24 hours prior. She calls the pharmacy, but they have no record of the reorder that Ann had placed the previous night. Ann explains the situation and reorders the medication for the second time. The medications will arrive several hours late. Ann asks the pharmacist if they have new staff, because drugs are often missing. Ann leaves a note for the DON stating that she wants to discuss the pharmacy problems at the DON’s earliest convenience.

To evaluate the process from a systems perspective, one must look for a root cause to the issues. Ann took steps to address the immediate problem—4 residents were without their medication. After identifying missing medications as a recurrent problem on the 3 to 11pm shift, she asked for an appointment with the DON to see what steps could be taken to receive all medications promptly, so that in the future medications may be given to the residents on a timely basis. Reporting this type of event was a normal reaction and followed procedure.

In this scenario, the structure seems to be intact. A nurse, pharmacist, and manager are available to solve problems. The process for reordering medications is in place but has broken down for some reason. Involved staff and managers typically discuss the event, and do a systems analysis to determine why the system failed, and what changes need to be made to prevent this from happening again (Table 1).

Table 1. Old School Versus Systems Approaches to Problem Solving

<table>
<thead>
<tr>
<th>Individual Problem Solving</th>
<th>Systems Approach to Problem Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blame someone, discipline</td>
<td>Identify the root cause</td>
</tr>
<tr>
<td>Fix isolated incidences</td>
<td>Observe for trends between and among facilities</td>
</tr>
<tr>
<td>Compliance focused</td>
<td>Resident focused</td>
</tr>
<tr>
<td>Add more surveillance</td>
<td>Simplify the process</td>
</tr>
<tr>
<td>Individual error</td>
<td>System error</td>
</tr>
<tr>
<td>Oppressive work environment</td>
<td>Empowered staff</td>
</tr>
<tr>
<td>Punitive response by those in power</td>
<td>Cooperation between staff and management</td>
</tr>
<tr>
<td>Reactive</td>
<td>Proactive-stay prepared</td>
</tr>
</tbody>
</table>

Data from Hemman EA. 2002.

Perhaps a step is missing from the procedure, or an individual was not trained on the procedure, or it was just human error. A plan of correction should be implemented and communicated to all staff and managers involved. It is unclear whether any adverse outcome occurred to the residents involved, but missing medication is a violation of a standard of care in most facilities and of broad concern for resident safety. In addition, efficiency was lost when Ann had to stop her work and notify the pharmacy, then spend time explaining to the residents why they would receive their medications late.

The previous case study typifies where a system failure in medication delivery can have an impact on patient outcomes. Even though the nurse attempted the intervention of medication administration, there were system barriers which stood in the way of achieving the expected patient outcome of the patient being medicated as ordered. An effective action plan for correcting the situation must consider the specific organizational characteristics related to system, provider, patient and the interactions between each. There are many methods of in-
Some questions addressing this specific inquiry would include: Does this only happen with one pharmacy; does the medication only not get delivered on a specific shift; or when a particular individual either orders the medication, or processes the order? Is it a random event, or is there a pattern evident? The case study illustrates how nurses and managers working in long term care facilities address system concerns on a regular basis. Unfortunately, problems will recur unless the underlying cause is identified and properly remedied. Truly fixing the problem requires a willingness and awareness by all parties involved to stay problem-focused while working through the system issues at hand.

Before a manager, or charge nurse, or researcher can recommend steps for system improvements, the complex, interrelated structure, processes and outcomes must be dissected into smaller and smaller parts. Similarly, nurse scientists interested in systems-level phenomenon think both broadly and in detail about issues in long-term care settings that affect resident outcomes. A systems approach in research can be used to address issues like turnover, leadership abilities, and decision making and their impact on resident outcomes. To understand underlying aspects of a system that may trigger unintended consequences, or system failure, researchers often use a framework to conceptualize where problems resonate within the system (Figure 1).

The Quality Health Outcomes Model is a nursing model that shapes structure, process, and outcomes into a model that reflects the domain of nursing. The model includes interventions, client, outcomes, interventions, and context. The interventions include direct and indirect clinical processes. This may include processes such as decision making and communication among members of the healthcare team. The client includes individuals, families, or groups to whom interventions are directed. Outcomes of both treatment interventions and nursing systems level interventions are included. System defines the context where care is given. The system includes the attributes of the nursing facility such as size, ownership, skill mix, staffing mix, and other structural elements.

The model holds that a direct relationship between interventions and outcomes does not
exist. Instead, outcomes are always affected by system and client characteristics. Mediating factors are those that influence or alter the affect of one variable on another. For example, mediating factors in long-term care facilities that affect resident outcomes may be the staffing mix or the ownership type. Both are considered structural elements that may mediate with treatment intervention processes and affect health outcomes for residents. Likewise, the individual, family, and community mediate how well an intervention will work. Analyzing these processes can contribute to science and to nursing practice and make way for improvements. The use of scientific methods in this type of analysis builds credibility for the profession’s ability to define and articulate needed changes in the healthcare system. Managers and nurse leaders working in long-term care facilities can use the information to improve nursing systems in their area of concern.

Relationship of Systems Problem-Solving to Systems Research

Systems research is similar to managerial system problem solving, only with a slightly different focus and usually occurs on a larger scale. Systems researchers collect data on large groups of people or analyze existing secondary data sets. Databases used in long-term care systems research for secondary data analysis are the Minimum Data Set³ (MDS), the Quality Indicators developed from the MDS⁴, the National Nursing Home Survey⁵, and Older Americans 2000.⁶ Nursing homes, rather than individual residents, can be the unit of analysis in systems research. Using the quality indicators (QIs) developed by the Centers for Medicare and Medicaid (CMS) would be one way to examine differences between nursing homes using a secondary data set as the unit of analysis. Quality Indicators have evolved through the CMS process and are now usually referred to as Quality Measures.

The CMS has developed QIs to assist nursing facilities in developing quality improvement plans.⁴ The newly developed QIs also inform the public about the quality of care within individual nursing homes.⁵ QIs are also used in California as one aspect in the presentation of a Web-based nursing home report card that profiles the characteristics of nursing homes for public use in the selection of a nursing home.⁴ The national QI set represents a step forward in the measurement of quality outcomes not dependent on the medical model. Researchers in public health and nursing are using the QIs to measure a variety of resident-related outcomes.⁸,⁹

Researchers, managers, and practitioners can all benefit from using the QIs to improve resident outcomes. QIs derived from the MDS are being used for quality improvement initiatives within facilities in Missouri. The University of Missouri at Columbia nurse researchers in partnership with the department of health have begun a Quality Improvement Intervention Study using a gerontological clinical nurse specialist to support quality improvement activities in nursing homes.⁸,¹⁰ Large data bases such as the nursing home quality indicators have proved to be useful in improving incontinence among older adults living in nursing homes.¹¹ However, approaches to improve the accuracy of the MDS and QI data are still needed.¹²,¹³

In systems research, some nurse scientists collect their own data and do extensive fieldwork on multiple sights. Anderson et al, are working on a 4-year study to collect and analyze data in nursing homes to examine the relationships between nursing management practices and quality of care, to understand front-line worker problem solving and quality of care, and to identify patterns of cross-disciplinary communication among medicine prescribers and quality of care.¹⁴ Previous studies have attempted to describe the relationship between management practices and resident health outcomes and nursing homes as complex adaptive systems.¹⁵ Communication openness, participation in decision making, relationship leadership, formalization, and DON tenure and years experience have been used as independent variables to attempt to demonstrate their relationship to resident outcomes.

Results

Nurse researchers are working alone and on interdisciplinary teams to address context of care issues in long-term care. These issues can be thought of as organizational culture components such as leadership style, the level of staff
Empowerment, communication, and decision making. A partial list of nurse scientists conducting nursing systems research and their area of expertise is shown in Table 2. Discovering which organizational factors in a nursing home drive quality can provide information about the need for overall system improvements.

Staffing, staff morale, and poor QI performance are context of care concerns. Dr. Charlene Harrington has published multiple studies that analyze staffing and its relationship to case-mix, state survey deficiencies, and quality of care. Her work points to the need for improved staffing and to the fact that resident outcomes are adversely affected when RN availability is diminished. The collective results of Harrington’s studies, as well as those of other researchers, is that higher nursing staff levels are associated with certain QIs in nursing homes, including not-for-profit facility ownership, a lower proportion of Medicaid patients per facility, increased functional improvement of residents, a lower drug error rate, and lower numbers of survey-related deficiencies.

Dr. Barbara Bowers is a nurse who focuses on nurse-aide learning within long-term care. The overall goal of her research is to explore the relationship between public policy and the organization and quality of long-term care services. Dr. Bowers has conducted research on the nursing home culture and staff morale. Dr. Rantz is a nurse that successfully used the MDS for research focusing on improving quality outcomes for nursing home residents. Her quid-pro method for quality improvement resulted in significant progress at underperforming nursing homes in Missouri.

Discussion

Nurses who are committed to the improvement of quality of care for older adults living in nursing homes can benefit from using a systems approach to problem solving. Systems research can inform practice on which issues are most prevalent within nursing homes so that effective change can occur. It is critical to the science of gerontological nursing that nurses continue to expand their role in systems research within long-term care facilities and partner with social scientists, nutritionists, organizational theorists, and health economists to develop ways to truly understand best organizational practices for long-term care. Practitioners and managers’ use of nursing systems research findings in their day-to-day practice will enhance their understanding of systems-level problems and to identify interventions that will lead to significant, appropriate change for residents living in long-term care facilities.

Since the Omnibus Budget Reconciliation Act of 1989, workers in long-term care facilities have progressively and consistently begun to solve problems on effective, interdisciplinary teams. Many of us have known

| Table 2. Examples of Systems Research in Organizational Culture in Long-Term Care |
|---------------------------------|----------------------------------|
| Anderson, R                     | Nursing home as a complex adaptive system, leadership, and quality outcomes |
| Bowers, B                       | Nursing home culture and staff morale; nurses aide issues |
| Forbes-Thompson, S              | Connections between structure, process, and outcome related to end-of-life care |
| Harrington, C                   | Nursing home staffing; staffing and deficiencies on state survey results; designing a web-based report card for nursing home comparison |
| Mitchell                        | Quality Health Outcomes Model for systems research |
| Mueller, C                      | Staffing mix and resident outcomes; improving urinary incontinence |
| Rantz, M                        | Using MDS data to improve quality; Missouri quality initiative using quality indicators (QIs); evaluating QIs and their relationship to quality in nursing homes |
| Popejoy, L                      | Quality improvement using QIs |

Geriatric Nursing, Volume 26, Number 5
intuitively for years what some of the barriers are to quality resident outcomes but were without the ability to demonstrate that counterproductive organizational practices interfered with good resident care. Now, using the appropriate measurements and models, it is possible to conceive of and build a more complete analysis of the effect of organizational factors and nursing intervention on resident, family, or community outcomes.

Much of nursing research throughout our brief history as a science has focused on the nurse-patient relationship. However, this has, by manner of influence and assumption, limited the scope of nursing research to a great degree. An expanded interpretation of nursing research will allow nurses to develop more intense collaboration with other disciplines, to expand nursing science through exploration of new theories, and to create a means for systems research to influence quality patient outcomes.

References


CEANNE ALVINE, MBA, RN, is affiliated with John A Hartford Scholar University of Arizona College of Nursing in Tucson.
Goody Prescribing

Eating dark chocolate may be protective of the cardiovascular system and keep those who are healthy, healthier. Dark chocolate contains rich-flavonoids, and a high flavonoid intake confers a beneficial effect on endothelial function in healthy adults (the study subjects were young, healthy adults). Chocolate led to a significant increase in resting and hyperemic brachial artery diameter throughout this study. Flow-mediated dilation increased significantly. Aortic augmentation index was significantly decreased due to chocolate throughout the study. Pulse wave velocity of the carotid-femoral pulse, a measure of endothelial function, did not change to a significant extent. The study concluded that consumption of dark chocolate exerts a beneficial effect on endothelial function and may exert a protective effect on the cardiovascular system. Further studies are warranted to assess long-term effects.

Reference


Inappropriate Prescribing

According to a recent report, and despite a decade of consensus-based recommendations, the use of inappropriate drugs in older adults continues. In this study, 29% of health maintenance organizations (HMOs) elderly patients received at least 1 of 33 potentially inappropriate medications. Five percent of these older adults were prescribed at least 1 of 11 drugs that “should always be avoided in elderly patients.” This study was supported by the Agency for Healthcare Research and Quality and analyzed pharmacy data for nearly 160,000 elderly patients from 10 geographically diverse HMOs.

Reference


Barbara Resnick, PhD, CRNP, FAAN

According to estimates from the Insurance Institute of Highway Safety, there are 23 million current drivers over age 65; 20 years from now, 25% of drivers will be over 65. Adults over age 85 are 9 times more likely to be in a fatal car accident than persons between 25 and 69 years of age. Dobbs, Heller, and Schopflocher concluded that drivers over 65 years with cognitive impairment made more hazardous errors than both “normal” older drivers over 65 years and “normal” younger drivers between 30 and 40 years of age. Fifty percent of the errors occurred during lane changes and merges and while approaching intersections.

A recent study in the Journal of Neurology and Neurosurgical Psychiatry adds to our understanding of driving safety among older adults with cognitive impairment. Uc et al identified specific problems that seem to occur among older adults with cognitive changes when they continue to drive. Specifically, these investigators explored visual search and recognition of roadside targets and safety errors during a landmark and traffic sign identification task in drivers with Alzheimer’s disease. There were 33 drivers with probable Alzheimer’s disease of mild severity included in the study and 137 neurologically normal older adults. All of these individuals underwent a battery of visual and cognitive tests and were asked to report detection of specific landmarks and traffic
signs along a segment of an experimental drive. The research team found that drivers with mild Alzheimer’s disease identified significantly fewer landmarks and traffic signs and made more at-fault safety errors during the task than control subjects. Roadside target identification performance and safety errors were predicted by scores on standardized tests of visual and cognitive function. The research team concluded that drivers with Alzheimer’s disease are impaired in a task of visual search and recognition of roadside targets. It is anticipated that the demands of these targets on visual perception, attention, executive functions, and memory probably increase cognitive load and thereby worsen driving safety.

Mandatory revoking of an elder’s license can result in increased dependence on others, a decrease in activity level, loss of social contact, depression, functional impairment, and isolation.4,5 Clinical implications of this work support the utility of screening older adults for cognitive functioning, among other screenings, when attempting to establish driving safety. Abnormal findings should be discussed with the patient, family, and as appropriate to the state motor vehicle association (www.dmv.org). Providers should check with their local department of motor vehicles (DMV) because states vary in terms of who can report unsafe driving practices related to health, whether reporting is required, and whether reporting can be done anonymously. Addressing driving safety with patients and families and reporting driving concerns to the DMV should be done so that a comprehensive evaluation of driving safety can be initiated if so indicated, and the individual helped to optimize his or her safety when driving.

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BARBARA RESNICK, PhD, CRNP, FAAN, FAANP, is an associate professor at the University of Maryland School of Nursing and a nurse practitioner at Roland Park Place in Baltimore. She is past president of NCGNP.
The condition of chronic dry eyes affects many of our elderly patients and affects 3.2 million women—1 in 12—over age 50 in the United States. It affects women 2 to 3 times more often than men. It is a common complaint during menopause. Xerophthalmia, another name for dry eyes, is actually the most common complaint heard by ophthalmologists.

Pathophysiology

Dry eyes (sicca syndrome) occurs commonly in postmenopausal women because of the hormonal changes in aging. Testosterone plays a critical role in maintaining the tear-making lacrimal gland. With aging, the production of testosterone in women diminishes, and the ocular surface is easily inflamed. If the lacrimal gland becomes inflamed, tear production is much reduced.

The lacrimal apparatus consists of lacrimal glands, the lacrimal sac, and lacrimal ducts. The lacrimal glands secrete tears. The lacrimal sac and ducts convey tears into the nasal cavity. The capacity of the lacrimal glands to secrete tears diminishes with aging.

Clinical Assessment

The patient will present with the complaint of dry and itchy eyes or the sensation of a foreign body or gritty feeling. The clinician may note that the patient carries fluids to provide frequent sips of water or other fluids; this may be an indication of a sicca syndrome of dry eyes and dry mouth. Such patients may also suck on hard candies such as lemon drops or chew gum constantly in an effort to stimulate salivary secretions.

In several studies of community and nursing home populations in Sweden and in Greece that included elders aged 52-95, many had positive objective evidence of sicca. These subjects denied the sensation of dry eyes, however.

Differential Diagnosis

The differential diagnosis consists of the many diseases and disorders that cause similar symptoms of dry eye. See Box 1 for a list of disorders in the differential. The most common concern with dry eyes is that the patient has Sjögren syndrome. See Box 2 for clinical features of this syndrome, an autoimmune disease that causes an exocrinopathy or destruction of the salivary and lacrimal glands and includes other problems such as a liver and kidney disease. It occurs predominantly in women and in late middle age and older.

Approximately 35%-38% of elders older than age 50 report having sicca syndrome, which may occur as a primary condition or secondary to Sjögren syndrome, systemic lupus erythematosus, rheumatoid arthritis, or scleroderma. Most do not have Sjögren syndrome but atrophic mucus-producing cells causing sicca.

If sicca syndrome is accompanied by Raynaud phenomenon, polyarthritis, vasculitis, neurologic manifestations, psychiatric manifestations, interstitial pneumonitis, or loss of other exocrine functions, the diagnosis may be Sjögren syndrome and require a rheumatology specialist referral.

Labs

To distinguish between Sjögren syndrome and common aging changes, evaluation of autoantibodies including anti-Ro and anti-La can be performed. Rarely, biopsy of the minor salivary gland of the lip can confirm the Sjögren diagnosis. Other objective laboratory findings include a mild anemia, elevated erythrocyte sedimentation rate (ESR), and a normal C-reactive protein. Hypergammaglobulinemia and autoantibodies for rheumatoid factor may be found, as well as antinuclear antibodies and organ-specific antibodies—for example, salivary duct antibodies.

A simple test to evaluate just tear production is the Schirmer’s test. See Box 3 for information on how to conduct this simple test. Further diagnostics requires availability of a slit-lamp examination after Rose Bengal staining of the cornea and conjunctiva and are best done by an ophthalmologist. Sialometry, or measurement of salivary flow, and sialography, which is radiologic assessment of anatomic change in the salivary system are also used to evaluate for Sjögren syndrome.

Treatment

Treatment of dry eye is symptomatic. Treatment of sicca syndrome consists of parasympathomimetic drugs such as pilocarpine orally 3 times daily. This stimulates salivary secretion. Side effects include urinary frequency, diarrhea, flushing, or sweating. However, elders with glaucoma, iritis, asthma, chronic obstructive pulmonary disease, or congestive heart failure should not use this medication.

Dry eyes can be managed with artificial tears such as methylcellulose drops (HypoTears). If they are used more than every 3 hours, it is advisable to obtain a brand that does not contain preservatives. For night hours, the use of ophthalmic petrolatum (Lacrilube) is helpful. The use of viscoelastic tear formulations of chondroitin sulfate or hyaluronic acid are not superior to artificial tears. For management of
associated inflammation, topical cyclosporine (Restasis), 1 drop every 12 hours, will suppress inflammation and increase tear production. This treatment may cause burning, hyperemia, discharge, pain, and blurred vision, however.3

Wearing wrap-around glasses is helpful in preventing evaporation of eye moisture.8 This is especially useful in dry climates. Winter heating causes dryness in the room environment and using a humidifier or setting out bowls of water on heaters can help. Avoiding irritants such as cigarette and cigar smoke and hairspray is also helpful when the eye feels irritated. Finally, the nurse practitioner should examine medications prescribed to ensure that none in the regimen—for example, anticholinergics (tricyclics, antihistamines, ipratropium, neuroleptics)6 and anti-Parkinson disease medications—cause dryness of eyes.

Further treatment includes the planned obstruction of the nasolacrimal duct with plugs. Silicon plugs are durable and can be removed if necessary. If this method of treatment is successful, permanent punctual occlusion can be performed by the ophthalmologist.5

References


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0197-4572/05/$ - see front matter © 2005 Mosby, Inc. All rights reserved.
Over half of America’s 1.9 million farms are operated by persons over age 55. Farming is one of the most dangerous occupations in the nation; the oldest age group in farming suffers disproportionately high mortality and morbidity rates. Results from this study indicate that farmers may have unique perspectives of health and the role that work plays in their health outcomes. Despite the perceived positive attributes of farm work, the nature of the work performed by this sample of 725 farmers indicates the continued performance of tasks that place them at high risk for injury. Because of the contextual nature of farm life, work modification counseling may be more beneficial for the aging farmer than abstinence from work. Examples are provided. (Geriatr Nurs 2005;26:304-308)
vey was completed either by mail or telephone. Questionnaires included information on demographic variables, farm work, health conditions and injuries, mental health indicators, and items related to work organization. Respondents in selected geographic clusters were also invited to participate in focus groups to provide insight into issues that might not have been readily evident through survey methods. Findings presented here are based on qualitative and quantitative data collected during the initial survey and focus groups conducted in 2003. Because of the small amount of farm work reported by female respondents, only the results of the male respondents are included in this analysis.

Sample Selection

Farmers in Kentucky and South Carolina participated in the study. Kentucky farmers who had participated in a farm family study in the 1990s and who were aged ≥50 were asked to participate. A roster of African American farmers aged ≥50 in South Carolina who agreed to be contacted was generated by the South Carolina Agricultural Statistics Service. Spouses of all the farmers were also invited to participate to capture the work organization of the family unit.

Data Analysis

Data were analyzed using SAS software. Descriptive analysis was used to summarize the sample, including means, standard deviations, and frequency distributions. Qualitative data were analyzed through individual interpretation of the researchers who conducted the groups; the researchers then compared their interpretation and came to agreement.

Study Sample

A total of 725 male farmers from Kentucky (n = 609) and South Carolina (n = 116) completed the survey. Ethnicity composition included 76% Caucasian, 23% African American, and 0.4% American Indian. The average age of the participants was 67 years. The mean number of acres in the total farm operation was 157 acres, which is comparable to family farms in the southern United States. Most participants (63%) lived on “general” farms that raised a variety of livestock and crops; the remainder reported crop only (32%) or livestock only (5%).

Results

Although most of the participants were past the usual retirement age for U.S. workers, 42% stated that they were not retired from farm work. In addition, the majority of those who considered themselves retired also reported performing farm work, as illustrated by a focus group member who considered himself retired: “Well, I help my neighbors and son when they need it. [What do you do?] Plowing, seeding, baling hay, mowing. And I still do some custom work . . . we do some research plots for the seed companies.”

Farmers had a different perspective from the general population on what constitutes work. If the task was a voluntary one, such as helping a neighbor or family member, it was not considered work. One participant noted that “There are differences in kinds of work. If you are doing it because you want to, then it’s not work.”

When asked about the level of personal satisfaction they gained from doing farm work, 70% percent of the respondents said they found a great deal of personal satisfaction from doing farm work. The mean number of hours worked on the farm in the week preceding the survey was 19.8 (SD = 17.9) with a range from zero to 120 hours. When asked if they would stop farm work in the next 5 years, half stated it was not at all likely. The farms had been in their families for an average of 49 years, and the individuals had personally farmed the land for an average of 33 years. Although three-quarters of the sample stated that less than 45% of their household income came from farming, many of the farmers could not envision a time when they would not farm. Results from the focus groups suggested that farmers prefer farm work to idleness and firmly link their life satisfaction to their sense of accomplishment from their work.

As illustrated in Table 1, the type of farm work performed by the participants in the past year was varied and hazardous. Only 3 of the top 10 tasks identified (ordering supplies, bookkeeping, and major purchasing) were primarily sedentary in nature. The remaining work involved close interface with machinery, transportation, or livestock. Few farmers reported working only in 1 or 2 areas; participants reported performing an average of 11.1 different tasks in the last 12 months.
Health Perception and Conditions

The link between health and work for these farmers was evident. Forty-three percent of the sample defined good health as the ability to work, and 32% rated their health as excellent or very good. Only 9% rated their health as poor. Study participants noted that they felt work and health were strongly related, as evidenced by comments such as, “When you quit and sit down doing nothing, the truth is you haven’t got long.” The mean number of chronic health conditions reported was 2.3 (SD/2.0). The top 3 chronic conditions found in this sample were arthritis or rheumatism, hypertension, and hearing problems (see Table 2). A significant number also reported having back problems, diabetes, skin cancer, cataracts, and previous heart attacks or strokes. Despite the presence of comorbidities, farmers noted that “no matter how sick you get . . . you just do what you have to do.”

Injury

In addition to chronic health conditions, 21% of the sample reported an injury in the past year, with about half of all injuries directly related to their farm work. The types of injuries reported were not minor. Seven percent (n = 47) had a cut that required stitches, and 3% (n = 21) reported a broken bone. Two farmers had experienced an amputation in the past year. Four percent (n = 27) of the sample suffered burns, and 1% (n = 7) had a reaction to chemicals. Sixteen percent (n = 116) reported suffering musculoskeletal injuries such as sprains and strains within the past year.

Discussion

Older farmers continue to perform work that places them at increased risk for injury and negative health outcomes. While the number of hours worked varied within the sample, more than one-fifth of the sample reported receiving an injury severe enough to prevent doing farm work. Not all of these injuries were sustained while actually performing farm work; however, it could be that the injured farmer’s health was compromised by any number of consequences of farm work. Financial pressures, off-farm employment, musculoskeletal injuries, and even the side effects of an underlying health condition or medication could have contributed to the injury. More detailed information about injury causation would be needed to support these hypotheses, but they are plausible, especially for older adults.

The type and number of physical farm-work tasks, especially tractor driving, mowing fields, and working with livestock, are known to result in high mortality and morbidity in agriculture. Another study found that the majority of injuries in farmers over age 50 were incurred while handling livestock. Animals are unpre-
dictable, and the mass and energy of the animal can culminate in injury when animal and worker collide. Myers reported that more than 25% of injuries sustained by farmers over age 70 were related to machine maintenance. Three-quarters of the sample in our study reported performing machinery repair. Mowing fields, operating equipment, and tilling ground all involve heavy machinery. Tractor operation is the leading cause of death among older farmers. Farmers seldom relinquish tractor driving and often deny their declining ability to safely operate the machine.

The role of health and perceived health status of farmers are linked with work performance. In this sample of farmers, work may be thought of as a proxy indicator of health. Study participants reported that as long as they could function at all, they would not stop farming. They often did not perceive the labor they performed as "work." They expressed fear of idleness, indicating that they felt they would soon die if they did not work. Work continued even in the presence of chronic health conditions and was not perceived as compromising their health or increasing their risk for injury. The chronic health conditions reported by this sample mirror those of the general older population over age 70 in the United States. Although most of the general population over age 70 is retired, farmers enrolled in this study continued their work and may represent only the healthiest of the older farmer cohort. This would underestimate the true magnitude of the disease burden.

The interface between the health conditions reported by this sample—injury and risk for poor outcomes—is apparent. The top 3 causes of external injury are related to farm machinery, equipment, and livestock. These are consistent with farm work performed by this sample of older farmers. A farmer with arthritis or back pain may have increased pain when sitting in a stationary position on the tractor for extended periods. There may be increased difficulty holding tools to perform machine repairs, resulting in muscle strain. Farmers with hearing or vision problems might not be cognizant of dangerous environmental situations while mowing the fields. These health deficits may result in overturning tractors or running over coworkers. A diabetic farmer who sustains a laceration while repairing equipment is at increased risk for infection and delayed healing.

Few farmers ever completely retire. A substantial percentage of this sample defined health as the ability to work. These farmers plan to continue working even though they acknowledge a number of health impairments and acute injuries. What remains is to design a system that will support them in their decisions to remain active in their occupation and will promote their health and safety.

Implications

Older farmers enjoy their work. It gives them a sense of accomplishment and cannot be extricated from their heritage and culture. The responsibility of the nurse to provide care within the context of the client is of utmost importance when caring for farmers. Nurses should ask farmers what they do on a daily basis to gather information about the work they perform. Simply asking whether they work will not elicit accurate data from farmers. Farmers in this study who reported that they were retired also provided evidence to the contrary when specifically queried about farm tasks. Counseling about work modification and reorganization may be more readily accepted by the farm client than insistence on stopping work altogether. For example, suggesting that the patient who is diabetic take snacks along to the field may prevent hypoglycemic episodes.

Wearing proper protective clothing and checking the fit of work boots can lessen the sequelae of poor circulation, such as ulcerations and skin breakdown. The farmer with arthritis or back problems could benefit from extra mirrors or a swivel seat for the tractor that would allow him to pivot and look at trailing equipment rather than twisting his body. Hearing loss can be prevented by encouraging the use of hearing protective devices and demonstrating proper use of this protection. Wide-brimmed hats and sunglasses can reduce the risks of cataracts and skin cancer. Perhaps the most important intervention is to acknowledge the importance of work and advise the farmer to pace himself, include frequent rest and hydration periods, and avoid working alone. Myers stated that nurses who understand the cultural context of farming are better equipped to render effective care that can promote healthy outcomes and prevent injury to these older workers.
References


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The Clinical Laboratory Improvement Amendment: How It Applies to the Use of Urine Dipsticks in the Long-Term Care Facility

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The urine dipstick is one of the waived tests that is used in the long-term care facility under guidelines of the Clinical Laboratory Improvement Amendment (CLIA). Through recent surveys, the Centers for Medicare and Medicaid Services (CMS), which oversee this program, have identified significant problems in many testing sites. Because of the magnitude of the problem, the surveys will be continued. To comply with CLIA guidelines and safely and appropriately use the urine dipstick in the long-term care facility, nurses need to be aware of these guidelines. The purpose of this article is to discuss CLIA requirements regarding waived tests, specifically the urine dipstick, in the long-term care facility. (Geriatr Nurs 2005;26:309-316)

Background

In 1988, the Clinical Laboratory Improvement Amendment, or CLIA, was passed by Congress. Under CLIA guidelines, certain waived tests, such as fecal occult blood, blood glucose monitor, and the urine dipstick, may be performed in relatively unregulated settings such as long-term care facilities, physicians’ offices and clinics. Recent studies have shown that as many as half of the laboratories performing waived tests failed to meet standards for quality control and assurance. To confirm the magnitude and implications of these findings, Congress has funded further surveys. To assist the nurse in understanding requirements for these surveys, this article discusses CLIA guidelines as they relate to one waived test, the urine dipstick. Much of the information contained herein is applicable to other waived tests as well.

Discussion and Nursing Implications

The Centers for Medicare and Medicaid Services oversee CLIA. They require a certificate of waiver (COW) for laboratory work such as the dipstick to be done. (Certificate requirements are available online.)

In addition to CLIA requirements, some states such as Florida, California, Pennsylvania, and New York have additional regulations for facilities performing waived tests. Access to this information can be obtained through the individual state health departments listed at the CLIA Web site, www.cms.hhs.gov/clia/ssa-map.asp.

To understand the implications of CLIA for the long-term care facility (LTCF), this study used questions from the survey tool used for on-site inspections (Tables 1 and 2). (The complete document can be found online.)

A list of good laboratory practices recommended by CMS (Table 3), other material found at the CLIA Web site, and input from a Health Provider Evaluator Specialist (surveyor) were also used.

The CMS has clarified government regulations regarding CLIA, stating that beyond performing only the permitted waived tests, there were 3 additional requirements for COW laboratories:

1. enrollment in the CLIA program,
2. pay certificate fees biennially, and
3. follow manufacturer’s test instructions.

The CMS fact sheet reported results of the expanded pilot study. With regard to the first requirement: almost a quarter of waived laboratories surveyed had certificate problems, that is, information was not current or was inaccurate. Implications of these results are clear. The second requirement needs no discussion. Problems identified in the pilot study relating to the third requirement—following the manufacturer’s test instructions—including failure to have or follow
Table 1.
Survey Questions That Relate to the Testing Center in General

1. Are the current manufacturer’s instructions available for all tests performed?
2. Does the testing center routinely review the latest package inserts to be certain that there have been no changes in the product or the procedure?
3. Does the testing center maintain a log of the tests performed and quality control results?
4. Does the testing center comply with the current manufacturer’s instructions for all tests?
5. Does the testing center follow the manufacturer’s instructions for proper storage and handling and use the proper expiration date for the storage method?
6. Does the testing process include a quality control protocol?
7. Does the testing center understand good laboratory practices?
8. Is there an order for the test in the patient’s chart?
9. Are results recorded properly according to standard protocol established by the long-term care facility?

From CMS, CLIA waived/ppmp laboratory project, current activities, questions the surveyor uses.10

Table 2.
Survey Questions That Relate to Personnel

1. Do the staff who perform the test understand the instructions?
2. Do they know how to document results appropriately?
3. What do they do if they have questions about the test?
4. Do personnel understand what “always,” “require,” “shall,” and “must” mean?
5. Are staff members trained and evaluated to ensure that they can provide accurate and reliable results?
6. Does staff know how to interpret quality control results and how to respond if the results appear inappropriate?
7. Does staff understand good laboratory practices?
8. Does staff routinely check incoming package inserts for changes in product or procedure?
9. Do personnel follow guidelines for storage and handling and use the proper expiration date for the storage method?

From CMS, CLIA waived/ppmp laboratory project, current activities, questions the surveyor uses.10

current manufacturer’s instructions, failure to perform quality control as required, failure to follow manufacturer’s storage and handling guidelines, and using expired tests or parts of previously used occult blood cards or urine dipsticks. The next part of this article focuses on these problems as they relate to compliance of the laboratory in general. Additionally, the expanded pilot study found that about one-fifth of personnel performing the tests were not trained or evaluated. The article then focuses on guidelines for staff members who perform the test.

Compliance as It Relates to the Laboratory in General

Survey questions relating to the testing process and testing center are found in Table 1. To meet requirements, the latest manufacturer’s guidelines (package insert) must be readily available and followed. The guidelines may be kept in the dipstick box or, better yet, in a 3-ring binder. Always use the guidelines from the current box. In the interest of quality control, included in the 3-ring binder should be a sheet containing the date the dipstick container was received, the copyright date on the package insert, and the expiration date and lot number on the container. The copyright date indicates when the instructions were last revised. A new copyright date signifies that changes may have been made in protocol. If procedures for the test are changed, all individuals who perform the test must be retrained. The facility may want to assign one individual, perhaps the person responsible for dipstick instruction, to monitor any
Table 3.
Good Laboratory Practices

1. Keep manufacturer’s product insert for the laboratory test in use and be sure it is available to the testing personnel. Use the manufacturer’s product for the kit currently in use; do not use old product inserts.
2. Follow the manufacturer’s instruction for specimen collection and handling.
   a. Are specimens stored at the proper temperature?
   b. Are the appropriate containers used?
3. Be sure to properly identify the patient.
   a. Does the name on the test requisition (or prescription) match the patient’s name?
   b. Does the name on the patient’s chart match the name on the patient’s identification?
   c. If more than one patient is present with the same first and last name, how do you determine which is the test patient? (Look for possible gender differences, social security number, patient identification number, birthday, different middle name, and relevance of the test to the patient’s history.)
4. Be sure to label the patient’s specimen for testing with an identifier unique to each patient.
5. Inform the patient of any test procedures such as fasting, clean catch urines, etc.
6. Read the product insert prior to performing the test.
   a. Become familiar with the test procedure.
   b. Study each step and perform them in the proper order.
   c. Know the time required for performing the test and achieving the optimal results.
   d. Be sure to have all the required reagents and equipment ready before actually performing the test.
   e. Be able to recognize when a test is finished. For example, will there be a blue plus or minus sign against a white background?
   f. Follow the manufacturer’s instructions and, when a new kit is opened, perform the quality control to be sure the kit works prior to testing patient samples.
7. Follow the storage requirements for the new test kit. If the kit can be stored at room temperature but this changes the expiration date, write the new expiration date on the kit.
8. Do not mix components from different kits.
9. Record the patients’ test results in the proper place, such as the patient’s chart or the laboratory test log, but not on unidentified Post-It notes or scraps of paper that can be misplaced.
   a. Record the results according to the instructions in the manufacturer’s product insert.
   b. If it is a qualitative test, spell out positive/negative or pos/neg because symbolic representations can be altered (the – can be altered to a +).
   c. Include the name of the test, the date the test was performed, and the initials of the testing personnel in the test record. Include the calendar year in the date.
   d. If the test is performed on a patient multiple times in 1 day, include the time of each test.

Glossary

Controls are materials with known values of the substance measured that help the laboratory achieve accurate and reliable testing by checking whether the test system is working. Controls, also known as quality control material, are external or internal. External controls are usually a liquid and are processed or tested in the same manner as a patient specimen. Internal or procedural controls are indicators that the test procedure was performed in the proper order. Quality control (QC) procedures help ensure the excellence of the patient testing. If the QC results are not within the prescribed range or the expected pattern, then the laboratory cannot be sure that the patient test results are accurate and reliable. (See Controls.) Quality assurance (QA) is the laboratory’s self-examination of the specimen collection, testing, and test-reporting processes. What does the laboratory do to assure accurate results?

Recommended QA questions to ask:
• Are the patients and specimens properly identified?
• Are the patients’ charts up-to-date with the proper patient test information?
• Is quality control performed and documented?
• Did the laboratory get the right answers for the quality control?
• Do the waived tests correlate with the patient’s history or symptoms?
• Are there any complaints about the laboratory testing?
• Are the testing personnel trained prior to performing laboratory testing?
• Are there periodic discussions about laboratory concerns?

From CMS, CLIA waived/ppmp laboratory project, current activities, good laboratory practices.9
changes in the copyright date. (Scott Wyatt, Health Provider Evaluator Specialist, Minnesota Department of Health, personal communication, May 24, 2004).

Following manufacturer’s instructions for the test procedure is important, and the language contained in the package insert determines what is required to meet CLIA standards. In the package insert, “require,” “shall,” and “must” indicate a command, something that is necessary, at all times.11 Directions such as “must be collected in a clean container” indicate the procedure be performed accordingly. Words such as “could,” “might,” or “should” indicate instructions are encouraged rather than mandatory (Scott Wyatt, personal communication, May 24, 2004). This can be confusing. The Chemstrip insert states, “all test pads should be read at one minute. If leukocytes pad indicates a trace result, it should be read again at two minutes.”12

This, then, appears to be a recommendation; however, the insert goes on to say “color changes after 2 minutes are not of clinical value.”12 Because, as improper timing is a reason for erroneous results, it is difficult to understand why “should” is used in the insert in this manner. The dipstick insert also states that “Each facility should establish its own goals for adequate standards of performance.”12 This leaves the LTCF with a great deal of freedom to determine protocol.

Quality control (QC), as listed in the package insert, requires good laboratory techniques.12 These techniques include the good laboratory practices listed in Table 3, proper storage of the dipstick container, proper area for analysis12,13 (Table 4), and following universal precaution methods for handling the specimen. The package insert also states that “Commercially prepared control solutions should be used on a regular basis, as established by the institution’s quality control protocols.”12 The word “should” leaves the use of controls to the discretion of the LTCF. (New York requires laboratories to follow instructions regardless of wording.2) Good laboratory practices standards as described by CMS (Table 3), however, stress the importance of using controls for quality assurance. Using external control material is important in establishing the accuracy of a test. Problems that can cause inaccurate dipstick test results include the following: 1) heat, light, moisture, or fumes may effect dipstick test accuracy; 2) infrequently an entire lot number of dipsticks may

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Table 4.
Proper Storage and Handling of the Dipstick

<table>
<thead>
<tr>
<th>Storage</th>
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<tbody>
<tr>
<td>● Store at temperature 15-30°C (59-86°F); do not refrigerate or freeze.</td>
</tr>
<tr>
<td>● Do not expose to moisture (such as might be near a sink), chemicals, fumes, direct sunlight, or excessive heat.</td>
</tr>
<tr>
<td>● Monitor dipsticks for proper appearance.</td>
</tr>
<tr>
<td>● Do not use dipsticks beyond their expiration date.</td>
</tr>
<tr>
<td>● Do not mix dipsticks from different bottles.</td>
</tr>
<tr>
<td>● Keep dipsticks in original container.</td>
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<table>
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<tr>
<th>Handling</th>
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<tr>
<td>● Observe universal precautions and use a separate space, the same as you would if working with body fluids.</td>
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<tr>
<td>● Perform analysis in a quiet, well-lit but not bright (500 lux or a 60-75-watt direct light source) room.</td>
</tr>
<tr>
<td>● Have a stopwatch or watch with second hand readily available for use in timing specific dipstick tests.</td>
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<tr>
<td>● Place paper towels on counter for placement of dipstick pads during the testing process.</td>
</tr>
<tr>
<td>● Remove only one dipstick at a time and immediately recap container.</td>
</tr>
<tr>
<td>● Do not use a dipstick if reagent areas are darkened or discolored.</td>
</tr>
<tr>
<td>● Do not touch test reagent areas with fingers.</td>
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</tbody>
</table>

Data from Chemstrip12 and Brigden and Leadbetter.13
be defective because of problems with transport or manufacturer error; and 3) the individual may perform the test incorrectly. Controls might appear to be time-consuming, expensive, and unnecessary because they are not written in the insert as something that “must” be done. However, reporting inaccurate dipstick test results can result in a missed diagnosis or a change in the patient’s treatment plan. This can affect the quality of patient care and is time-consuming and expensive. Unfortunately, the perception of controls not being necessary has affected how persons responsible for dipstick testing have used this important QC process. One study found that only 58% of facilities doing waived tests that required liquid controls actually used them. Evidence suggests that to ensure good laboratory practice, LTCF using dipsticks should include liquid controls in their protocol. Tables 5 and 6 contain information about implementing an external QC program using liquid control materials. Help is also available from companies that manufacture the control solutions.

Finally, an order from a physician, physician’s

### Table 5. Regarding the Use of Controls on Chemstrip Dipsticks

<table>
<thead>
<tr>
<th>1. Ordering Controls</th>
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<tbody>
<tr>
<td>● When ordering controls, request lots with the longest outdates available for longest use time and stability.</td>
</tr>
<tr>
<td>● Record the date when the control bottles are opened. Monitor closely for time of outdate because some controls are only good for 1 month after the bottle has been opened.</td>
</tr>
<tr>
<td>● Controls contain human urine and as such should be stored as a biohazard (Bio-Safety Level 2).</td>
</tr>
<tr>
<td>● Unless otherwise instructed in the manufacturer’s insert, refrigerate the control. If controls are kept unrefrigerated, keep them in a locked container with a biohazard sign to protect staff. Read the manufacturer’s insert for expiration date after the control bottle is opened. Often the control is only good for 1 month or less after it has been opened. Be sure the new outdate is written on the opened control bottle.</td>
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<tr>
<th>2. Monitoring and Frequency of Testing Controls</th>
</tr>
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<tbody>
<tr>
<td>● Both negative and positive controls should be run when a new container of reagent strips is used, then again daily or weekly depending on the QC protocol established by the testing center.</td>
</tr>
<tr>
<td>● Discard controls if there is any evidence of contamination, such as discoloration or unusual odor.</td>
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</tbody>
</table>

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<tr>
<th>3. Documentation of Following QC Protocol</th>
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<tbody>
<tr>
<td>● A quality control log sheet should be used to record date, results, lot number, and expiration date of the controls and initials of person performing the test.</td>
</tr>
<tr>
<td>● Place the control log in an easily accessible location such as a 3-ring binder.</td>
</tr>
<tr>
<td>● An example QC guide can be found on the Internet.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. What to Do If Control Monitoring Indicates a Problem</th>
</tr>
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<tbody>
<tr>
<td>● Proper protocol requires a policy in the event that the control does not have the expected results.</td>
</tr>
<tr>
<td>● If control results are not within appropriate range:</td>
</tr>
<tr>
<td>● Do not use dipsticks until problem is resolved.</td>
</tr>
<tr>
<td>● Check expiration date on controls and dipsticks.</td>
</tr>
<tr>
<td>● Be sure you are using the controls that correspond to the lot numbers on the QC log because analyte ranges vary with different lot numbers.</td>
</tr>
<tr>
<td>● Repeat controls (at this point, a second person may be useful to monitor your protocol). If still out of range, retest with dipstick from a new container. Discard old container. Use help line on package insert as needed.</td>
</tr>
</tbody>
</table>

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<tr>
<th>5. Other QC Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>● When using dropper-type controls, be careful not to contaminate the control with dipstick chemicals.</td>
</tr>
</tbody>
</table>

See Table 6 for other considerations when using controls. Data from Clinical diagnosis and management by laboratory methods, University of Texas Medical Branch Point of Care Testing Procedures Policy, University of Medicine and Dentistry New Jersey, Quantimetrix, and Biorad.

Geriatric Nursing, Volume 26, Number 5
assistant, or nurse practitioner is required to perform a urine dipstick analysis. This could be in either the form of a standing order or an individual order. If a standing order is used, the ordering physician, physician’s assistant, or nurse practitioner should provide ancillary conditions to make the dipstick analysis relevant to that patient. The order should contain a protocol for various possible results, also the type of urine to be used (Scott Wyatt, personal communication, May 24, 2004).

Compliance as It Relates to the Staff Performing the Test

Research found that only 26% of physician office laboratories supervised by nurses meet standards for QC compared with 70% of medical technologist–supervised laboratories. Therefore, in addition to using the survey questions, package insert and information found in Table 3, it may be helpful to request assistance from a reputable CLIA-certified laboratory in setting up

<table>
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<tr>
<th>Table 6. Important Factors to Take into Account for Various Control Solutions</th>
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<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Dipper urine dipstick Control Level 1 and 2. Quantimetrix Corporation (manufacturer), Technical support: (800) 624-8380; Fisher-Scientific (retailer) (800) 766-7000. Catalog #144001</td>
</tr>
<tr>
<td>Dropper urine dipstick Control Level 1 and 2. Quantimetrix Corporation (manufacturer), Technical support: (800) 624-8380; Fisher-Scientific (retailer) (800) 766-7000. Catalog #144002</td>
</tr>
</tbody>
</table>
the testing center’s QC program for dipstick analysis. For example, the standards for most reputable CLIA-approved laboratories include a test for color blindness (which can be downloaded from Internet), a requirement that initially individuals have read policy and been instructed in protocol, as well as training and validation of testing skills twice a year. The QC
policy is kept in an easily accessible, convenient location such as a 3-ring binder. Additional information found on the Internet may also be useful.18,19

Conclusions

Surveys of facilities performing waived tests have found many problems related to performing these tests. These results can be improved by thoughtful attention to CLIA guidelines and an understanding of the implications for the use of the urine dipstick as well as other waived tests in the LTCF.

References

12. Chemstrip 6, 7, 9, 10 with SG. Package Insert, Indianapolis: Roche Diagnostics; 1999.

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A Case Study: Inappropriate Use of Amitriptyline in the Elderly

Tonia K. Helton, BSN, RN, Alicia R. McGrain, BSN, RN, and Joshua K. Muliira, BSN, RN, MA

In 1999, nearly 7 million elderly persons were prescribed potentially inappropriate medications as identified by Beer’s Criteria. In the elderly population, interventions to educate prescribers on Beer’s Criteria are indicated to improve appropriate prescribing. Nurses also need to be aware of the potential adverse effects of these drugs when providing care to geriatric patients. (Geriatr Nurs 2005;26:317-320)

In 1999, nearly 7 million elderly persons were prescribed potentially inappropriate medications as identified by Beer’s Criteria. Developed in 1991 with updates in 1997 and 2003, Beer’s Criteria consist of medications for persons 65 and older that pose potential risks outweighing the benefits the drugs are expected to deliver. However, the criteria do not serve as a substitute for clinician’s judgment when prescribing. The Beer’s list provides a reference for practitioners to consider when prescribing to the elderly in order to choose medication that will decrease high or low risk adverse effects.

Several studies have examined the prevalence of inappropriate prescribing to the elderly based on Beer’s Criteria. The results of these studies vary from 21% to 23.5% of elderly persons receiving at least 1 inappropriately prescribed medication. Interventions to educate prescribers on Beer’s Criteria are indicated to improve appropriate prescribing to the elderly population. Nurses also need to be aware of the potential adverse effects of these drugs when providing care to geriatric patients.

The tricyclic antidepressant (TCA), amitriptyline, is among the most frequently inappropriately prescribed drugs according to Beer’s Criteria. Amitriptyline has a profile varying in degree from low severity to life-threatening adverse effects. The evidence concerning amitriptyline being inappropriate for the elderly person is vast. Despite this, prescribers continue to utilize amitriptyline in the elderly for depression and chronic pain management although other medications have been found to be equally effective with less severe side effects. This article discusses adverse effect profiles of amitriptyline along with better treatment options when prescribing to the elderly.

Clinical Presentation

The most common adverse occurrence of amitriptyline is the anticholinergic effects it displays. There is great variability in the effect profile. Drowsiness and dry mouth occur in approximately 1 of 3 patients, and 1 in 30 patients stop taking amitriptyline because of intolerable side effects. Blurred vision, urinary retention, and constipation may also occur. Constipation can be particularly problematic because this is often already an existing problem in many elderly people. Impaired thermoregulation may occur because of the inhibition of diaphoresis which places the elderly at risk for heat stroke with increased environmental temperatures.

Another study demonstrated that amitriptyline blocks responses to taste stimuli in both humans and gerbils. This could prove problematic for the elderly because the taste sense is often already diminished because of age.

More severe anticholinergic effects include postural hypotension and confusion. Hallucination and even delirium attacks have occurred in the elderly with the use of amitriptyline. Individuals with existing cardiac disease are at risk for developing dysrhythmias especially in the case of idiosyncratic reactions to amitriptyline. TCAs can slow intraventricular conduction, possibly causing heart blocks of varying degrees. The decline of renal function and hepatic enzyme activity with age leads to higher plasma drug concentrations of amitriptyline, which also promotes the adverse effects of the drug. One case report identified amitriptyline as the cause of fatal cholestatic jaundice in a 75-year-old person.

A study examined the use of amitriptyline in treating chronic pain and found that the incidence of drowsiness and dry mouth was signifi-
icantly higher with a 75-mg dose versus a 25-mg dose.10 Dosages of amitriptyline vary depending on the treatment. Chronic pain dosages of amitriptyline range from 75 mg to 150 mg daily. In the treatment of depression, dosages may vary from 25 mg to 100 mg daily with a maximum of 300 mg daily.

Case Study

Mr. Q is a 70-year-old retired veteran who was diagnosed with depression 4 years earlier. When first diagnosed, the depression was associated with difficulty sleeping and a lack of interest in daily activities. In the past, he was diagnosed with chronic obstructive pulmonary disease (COPD) and placed on an ipratroprium inhaler 2 puffs every 6 hours along with an albuterol inhaler 2 puffs every 4 hours as needed. Mr. Q continued to smoke despite smoking cessation classes.

A few months ago, Mr. Q had a COPD exacerbation. His new COPD treatment regimen included Spiriva inhalation 1 capsule daily and Advair 100/50 μg inhalation 1 puff 2 times daily. Mr. Q also had albuterol inhalation 2 puffs or aerosol 1 unit dose every 4 to 6 hours as needed. Since the COPD exacerbation, Mr. Q again developed depressive symptoms. The primary care provider (PCP) decided to place Mr. Q on amitriptyline 25 mg every night because it had helped him in the past. Mr. Q was instructed to increase the amitriptyline by 25 mg weekly until a dose of 75 mg daily was established. Within 3 weeks, Mr. Q demonstrated improvement both for the COPD and depressive symptoms. Mr. Q had resumed his baseline activities of daily living with interest and was also sleeping better at night. He also demonstrated improvement in exertional dyspnea and a decreased moist cough.

Recently Mr. Q placed a call to his primary care provider (PCP) to report that he had not had a bowel movement for 3 days and that his head “felt funny.” The PCP advised Mr. Q to increase his fluid and fiber intake and also to use stool softeners and a laxative as needed until his bowel regimen normalized. Mr. Q followed his PCP’s advice and had taken 2 stool softeners and a laxative that evening. The following afternoon, a neighbor found Mr. Q conscious on the floor next to his commode but unable to stand on his right leg. Mr. Q reported to emergency medical technician that he “must have fallen asleep when going to the bathroom, but I have felt so funny over the past few days that I really don’t know what happened.”

Clinical Management

Adverse drug reactions contribute from 6.1% to 18.6% of all hospital admissions.20 Falls are a major cause of these hospital admissions in the elderly.20 Mr. Q experienced a fall and a potentially fatal fracture, which could have been prevented if the PCP had considered the patient as an older adult and not just another patient with depression and constipation. This section presents a critical analysis and suggestions of safer approaches that should have been considered to prevent the outcomes Mr. Q experienced.

When Mr. Q suffered a COPD exacerbation and reported depressive symptoms, the PCP prescribed amitriptyline because it had helped him in the past. Managing depression in the elderly is a challenge not only because of the difficulties in diagnosing it but also because of the inappropriate use of antidepressants, especially TCAs, in this age group.16 Amitriptyline, which was prescribed to treat Mr. Q’s depression is a TCA.

Amitriptyline’s use in the treatment of depression is generally a good choice, but its use in the treatment of older adults has been considered inappropriate over the last decade.2 Amitriptyline in older adults has been shown to have decreased elimination, resulting in higher plasma drug levels and various anticholinergic adverse effects that include cardiac toxicity, complete heart block, orthostatic hypotension, confusion, sedation, seizures, increased intraocular pressure, blurred vision, decreased gut motility, constipation, urinary retention, and other side effects unique to individual older adults and their comorbidities.17,21,22 The adverse effects of amitriptyline and other TCAs can decrease an individual’s quality of life. They can also be fatal and therefore decrease the life expectancy in this age group. In retrospect, it is clear that the providers’ choice of medication for Mr. Q’s depression contributed to the patient’s constipa-
tion and most likely the other adverse effects that Mr. Q. experienced, such as confusion, sedation, and possibly orthostatic hypotension. All of these side effects synergistically contributed to Mr. Q’s fall.

Mr. Q was first diagnosed with depression when he was 66 years old. Mr. Q’s second episode of depression occurred at age 70. Although the patient benefited from amitriptyline at age 66, with increasing age there is increased sensitivity of the older person to adverse effects of medications in general. Safer management of Mr. Q’s depression should have included medications and interventions to achieve both symptom relief and minimal adverse effects. The selective serotonin reuptake inhibitors (SSRIs) provide comparable depressive symptom relief but with better tolerance and minimal adverse effects compared with amitriptyline. Most authorities on depression recommend SSRIs as the first-line antidepressant medication for older adults.\textsuperscript{15,23} The SSRIs such as citalopram (Cela-Xa), fluoxetine (Prozac, Sarafem), sertraline (Zoloft), paroxetine (Paxil), and fluvoxamine (Luvox) do not have anticholinergic-related adverse effects and provide a wide dosing range that accommodates the “start low—go slow” dosage principle that allows for dose flexibility for older adults.\textsuperscript{21,22} Another alternative to amitriptyline with better prospects for older adults is bupropion (Wellbutrin, Zyban), which has a broad therapeutic dose range and no sedating, hypotensive, or other anticholinergic adverse effects.\textsuperscript{21} Nonpharmacologic interventions and therapies such as psychotherapy, counseling, exercise, behavior change, and support groups should always be considered by providers as part of the care plan to support and augment treatment.\textsuperscript{24}

In 2004, Arean and colleagues\textsuperscript{25} examined the role of providers’ attitudes in prescribing antidepressants to older adults. The study found that attitudinal and experiential factors play an important role in the likelihood of treating older adults for depression with antidepressants more than knowledge about how to prescribe an antidepressant. These findings reaffirm that older adults are not only at higher risk for adverse drug effects and interactions but are also at higher risk for inappropriate prescribing practices by their providers. It is therefore important that this discussion reaffirm and contribute to the growing efforts to develop strategies that can achieve better prescribing practices among healthcare providers to older adults.\textsuperscript{2,3,26}

In addition to the existing Beer’s Criteria, we suggest the acronym HARVEST to assist health professionals in monitoring medications for older adults to prevent and minimize adverse effects. HARVEST comes from the memories of happiness during a field’s harvesting season as experienced by one of the authors, who was raised in Sub-Sahara Africa. This happiness is what the authors seek to promote in the elderly population. HARVEST, presented here, is suggested as a tool to facilitate better prescribing practices and prevent adverse drug effects in elderly persons.

**Harvest**

- **H** Have a list of commonly prescribed medications
- **A** Assess patient health status that may predispose to medication adverse effects
- **R** Review Beer’s Criteria before initiating medications
- **V** Verify new and existing medications
- **E** Ensure patient understanding of medication adverse effects
- **S** Safety through preventative and proactive monitoring of medications
- **T** Therapeutic goals established to minimize adverse effects

**Conclusion**

In 1999, nearly 7 million elderly persons were prescribed potentially inappropriate medications as identified by Beer’s Criteria.\textsuperscript{1} It is important for PCPs and nurses to recognize and understand the severity of adverse reactions of amitriptyline as well as other medications when prescribed to the elderly. From a more resolvable problem of constipation to a more life-threatening problem of cardiac toxicity, it is pertinent that PCPs review all adverse effects of medications and drug interactions before prescribing new medications. Nurses also need to be aware of the potential adverse effects of these medications when prescribed. The Beer’s Criteria is a reference for PCPs to consider when prescribing to the elderly, but it is not a substitute for clinical judgment. HARVEST is also a method to use in improving prescribing practices while caring for older adults. Continued education is needed for nurses and PCPs...
concerning inappropriately prescribed medications, adverse drug effects, and better prescribing practices for the elderly. This will help to decrease the frequency of prescribing inappropriate medications for the elderly person by the PCP. It will also assist nurses to recognize the side effects in an elderly person if on an inappropriate drug according to Beer’s Criteria, as presented in the case of Mr. Q.

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9. Lau DT, Kasper JD, Potter DEB, Lyles A. Potentially inappropriate medication prescriptions among elderly nursing home residents: their scope and associated resident and facility characteristics. Health Serv Res 2004;39:1257-76.

Tonia K. Helton, BSN, RN and Alicia R. McGrain, BSN, RN, are gerontological nurse practitioner students at the Frances Payne Bolton School of Nursing/Case Western Reserve University in Cleveland, Ohio and John A. Hartford and William Randolph Hearst Scholars. Joshua K. Mulhira, BSN, RN, MA is a gerontological nurse practitioner student at the Frances Payne Bolton School of Nursing/Case Western Reserve University in Cleveland, Ohio. 0197-4572/05/$ - see front matter © 2005 Mosby, Inc. All rights reserved. doi:10.1016/j.gerinurse.2005.08.010
A New Option in the Treatment of Skin Tears for the Institutionalized Resident: Formulated 2-Octylcyanoacrylate Topical Bandage

Catherine T. Milne, APRN, MSN, BC, CWOCN, and Lisa Q. Corbett, APRN, MSN, BC, CWOCN

Skin tears are a common phenomenon in elderly institutionalized adults (EIAs). Incidence ranges from 0.92 to 2.5 per person/year. Little supportive literature exists regarding optimal treatment with many regimens reported. A convenience sample of 20 patients with Payne-Martin Category II and III skin tears of less than 8 hours’ duration were prospectively evaluated with the use of a formulated 2-octylcyanoacrylate topical bandage. Patients were followed weekly until the tear healed. Complete healing occurred with 1 application of 2-OTB in 90% (18/20) of study subjects; 5% (n = 1) reported transient mild pain (less than 15 seconds), and 90% (n = 19) reported no pain. There were no incidents of cellulitis or infection. Shower and bathing routines were not interrupted. Cost averaged less than $1 per application. Clinician time averaged 1.5 minutes per application. Clinicians reported high satisfaction because repeated dressing changes were eliminated. (Geriatr Nurs 2005; 26:321-325)

Skin tears are a common, recurring condition in elderly institutionalized adults. Treatments vary from facility to facility and often lack a research-based rationale. Although this appears incredulous, there is little supportive literature regarding optimal treatment with many regimens reported. As the name suggests, skin tears are defined as laceration of the epidermis by a mechanical force that can extend into, but not through, the dermis. Friction and shear are the most frequent physical forces involved. As a result, there is a separation of the epidermis from the dermis and connective tissue below creating a jagged or angular flap of skin. Severe skin tears result in complete avulsion of the epidermis. More than 1.5 million skin tears occur each year in skilled nursing facilities with a reported incidence ranging from approximately 1 to 3 per person per year.

Although common causes of skin tears in elderly institutionalized patients include routine, often staff-assisted, daily activities (e.g., dressing and bathing), the specific incident resulting in a skin tear is not always known by nursing staff or even patients. Falls, bumping into objects, patient transfers, wheelchair activity, and the use of restraints also contribute to skin tears. Agitated or violent behavior associated with patients who have impaired mental status may also cause skin tears in the elderly.

Elderly skin appears paper thin, a result of an almost 20% loss in dermal thickness caused by the aging process. Aging and fragile skin are only a few of the risk factors associated with skin tears. Other factors include medications (e.g., steroids), compromised nutrition, use of assistive devices, previous skin tears, and cognitive or sensory impairment; patients dependent on others for total care are also at greater risk (see Table 1).

The frequency of skin tears may also serve as a reflection of the patients’ environment. They are often used as a measure of quality-of-care in hospitals, long-term care, and assisted-living facilities, with a higher frequency indicating a less safe and well-monitored environment. The recent changes in F-314 and F-309 tags in long-term care facilities require that preventative methods be employed to prevent a decline in the patient skin condition.

The treatment of skin tears, which most often occur in patients’ extremities, requires a great deal of staff members’ time. A health-economic study of 76 wounds conducted by Villasin et al.
compared two topical regimens in the treatment of skin tears and stage II skin ulcers, looking specifically at healing time and cost of treatment. The study, published in 1996, placed the cost of a saline and topical antibiotic ointment treatment as high as $323.23 per wound for the duration of treatment (including product and labor costs) with treatment lasting as long as 48.0 ± 25.3 days.8

Types of treatments vary as dictated by individual institutional protocol. A pilot 1998 study by Edwards et al.4 looked at 4 common methods used to treat skin tears in the elderly. These included occlusive dressings such as transparent films, hydrocolloids, and polyurethane foams and nonocclusive dressings such as steristrips and ointments in combination with traditional bandages. Although the early study of 30 patients found nonocclusive dressings to heal faster than occlusive dressings, this is contrary to the bulk of research in the field, suggesting that the findings were directly related to product ease-of-use and wastage. The products within the study all needed to be removed for wound monitoring and upon completion of healing.4 In attempting to heal skin tears, treatments such as adhesive bandages may further damage skin upon removal and may delay healing.3 The use of moist wound healing, achieved through the application of topical dressings in different categories, is the commonality among reported skin tear treatment studies. Moist wound healing is considered a research-based standard for wound treatment.

Skin tears are most commonly categorized by the Payne-Martin system of classification, which divides tears into 3 categories.9 Category I refers to a linear tear with no tissue loss or a flap-type tear where the epidermal flap covers the dermis, Category II shows 25% to 75% epidermal loss, and Category III tears have 100% tissue loss with no epidermal flap present9 (see Figures 1-4).

Given that skin tears play a major role in quality of life, care, costs, and staff time, a pilot study was conducted to determine the effective-

### Table 1. Skin Tear Risk Factors

- History of multiple skin tears
- Purpura on extremities, bruises on extremities
- Prolonged use of steroids, systemic and topical
- Dependency on staff for care, transferring, and repositioning
- Unsteady gait, lack of balance
- Wheelchair confinement, self-propulsion, or dependence on others to push chair
- Bed or chair confined
- Physical abusiveness/combative nature in reaction to hands-on care
- Agitation, flailing extremities, restlessness in bed
- Contractures of arms, legs, shoulders
- Hemiplegia/hemiparesis
- Pitting edema of lower or upper extremities
- Dry, scaly skin
- Aging, paper-thin skin
- Dressings with tape or adhesive backings
- Multiple actinic or seborrheic keratoses

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*Figure 1. Category I skin tear with linear presentation. Reprinted with permission of Frans Meuleneire, RN.*

*Figure 2. Category I skin tear with flap presentation. Reprinted with permission of Frans Meuleneire, RN.*
ness of formulated 2-octylcyanoacrylate topical bandage (2-OTB; Band-Aid Liquid Adhesive Bandage, Johnson and Johnson Consumer Products Division, Skillman, New Jersey) in treating skin tears in elderly institutionalized adults. This formulation of an octylcyanoacrylate tissue adhesive has a demonstrated hemostatic effect on the wound while providing an effective barrier to prevent bacteria from entering the wound bed.10,11 Davis et al.10 compared 2-OTB to standard occlusive moist wound healing dressings finding increased epithelialization, complete instantaneous hemostasis, and faster healing rates.10 Other studies support these findings as well, determining that 2-OTB provides a barrier to microbial contamination and superior pain reduction.12-14 2-OTB is an invisible dressing that provides moist wound healing properties to the site of injury. This study initiated treatment of partial thickness skin tears and other superficial skin injuries that result in the break of the skin to and including the epidermis and dermis using formulated 2-OTB.

Methods

Population

The study enrolled a convenience sample, prospective in nature, of 20 elderly institutionalized patients (mean 82.5 ± 11.2 years) including 3 men and 17 women, at 3 long-term care facilities. Facility A was a 10-bed facility (part of a long-term care chain comprising 23 homes) in western Connecticut with subacute and long-term skilled beds, Facility B was a 92-bed, non-profit, long-term care facility in western Connecticut, and Facility C was a 58-bed, privately owned facility in central Connecticut with both short- and long-term beds. All participants had Payne-Martin Category II and III skin tears that occurred within 8 hours before enrollment in the study. Both Payne-Martin Categories were chosen because these are the most frequently observed in the long-term care setting.

Treatments

Patients were treated by nursing staff following the study protocol and package insert guidelines for formulated 2-octylcyanoacrylate topical bandage (Table 2).15,16 Study subjects were followed weekly until the wounds healed. Healing was measured by considering scab formation and the sloughing off of the scab.

Results

Complete healing occurred with 1 application of 2-OTB in 90% (18/20) of study subjects (Figure 5) within 1 week. One patient needed a second application 6 days after the first because of a recurrence of drainage from the dry coagulum. Three applications were needed on day 1, day 5, and day 12 in 5% (n = 1) of participants because of drainage. Both patients requiring reapplication were women.

Side effects were minimal with only 5% (n = 1) of participants reporting transient mild pain upon application, which abated after 15 seconds, and the remaining 95% (n = 19) reporting no pain. Because of the product’s clear film effect, patients were easily assessed and were
found to have incidents of cellulitis or infection at the wound sites.

Cost of application averaged less than $1. Clinician time averaged 1.5 minutes per application and ranged from 1 to 3.5 minutes (Figure 6). Clinicians reported high satisfaction because the majority of subjects did not need repeated dressing changes and were able to shower and bathe as usual.

Discussion

The nature of formulated 2-OTB’s clear film formation allows for easy assessment and monitoring of skin tear healing progress. It also creates a seal that prevents bacteria and water from penetrating and further aggravating the wound. Without the need to change bandages daily, the amount of time devoted to treatment by nursing staff is significantly reduced, while allowing the patient to continue activities with little interruption.
Long-term care facility residents with dementia or agitation are traditionally observed trying to remove bulky dressings used to cover skin tears. Using formulated 2-OTB to treat skin tears eliminates this possibility of aggravating the dressing because there is no visible dressing to strip off. The product should not be applied to full-thickness wounds, characterized by exposed subcutaneous tissue and thick, jagged edges; it should also be avoided for bites and other puncture wounds. Its use over joints has not been studied, and it would be prudent to avoid application to these areas at this time.

With product cost averaging less than $1 per application, and with only 1 application needed per wound in 90% of study participants, the 2-OTB treatment for skin tears proved to be a cost-effective alternative to traditional treatments. As stated earlier, the study by Villasin et al. showed cost of a saline traditional treatments. As stated earlier, the product proved to be a cost-effective alternative to traditional treatments. There is also little wasting with the formulated 2-OTB because only the exact amount needed to cover the area is applied directly to the wound.

Common problems that can be associated with wound dressings such as pressure damage from tight bandages, patient noncompliance related to bandage-associated pain, further skin tears from adhesives, and drying and flaking of skin under the bandage are not a factor with formulated 2-OTB. The nature of the product, because it is applied directly to the wound area, does not interfere with surrounding skin and allows a moist environment for wound healing. Besides being an invisible moist wound-healing dressing, among the most distinct advantages of formulated 2-OTB is its ability to slough off as damaged skin cells are replaced by healthy cells without the need for manual removal. This ensures the treatment does not further injure the patient during the removal process.

Having formulated 2-OTB readily available for use by nursing staff represents a new option for the treatment of skin tears in the long-term care setting. Although this preliminary study shows the promising results of this potentially strong and practical treatment, additional research is recommended with a larger population and in comparison with traditional visible moist wound healing dressings.

References


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Ann Schmidt Luggen, PhD, GNP

Bipolar disorder (BPD), an affective mood disorder formerly called manic-depressive illness, is a diagnosis rarely seen in elders. It has components of major depression and sometimes mania or hypomania. Many elders previously diagnosed with schizophrenia in their past are now found to have the elements of BPD. The psychiatric community has become aware that bipolar disorder in elders is much more common than previously thought, and progress is being made in appropriate diagnosis and treatment of this condition. (Geriatr Nurs 2005; 26:326-329)

Bipolar disorder (BPD) is a diagnosis of an affective mood disorder formerly called manic-depressive illness and is a diagnosis rarely seen in elders. It has components of major depression and, less often, mania or hypomania. Many elders who have been diagnosed with schizophrenia in their past are now found to have the elements of BPD. This has resulted in misdiagnosis and inadequate treatment. The psychiatric community has become aware that BPD is much more common than previously thought, especially in elders, and health care practitioners are beginning to diagnose it and treat it more appropriately now.

Epidemiology

Bipolar disorder is more common than once thought. As many as 5%-19% of adult mood disorders meet the criteria for BPD. Nearly 10% of older bipolar patients are believed to develop the disorder in late life. However, most have had it for much of their lives—a fluctuating course of depression, normalcy, and mania. It is a lifelong illness often misdiagnosed as schizophrenia, especially in elderly minority patients—about twice the number compared with white elders or young minorities. In one report, researchers looked at age of onset and the characteristics of 2 groups divided by age at onset of BPD. Psychopathology was much lower in the late-onset group; that is, less mania and depression.

BPD is more common in men than women. However, the length of women’s symptom cycles is different from men’s. In general, the cycle length in women may vary from weeks to years and gradually accelerate over time so that the cycles come more frequently. In men, mania peaks in their 80s and 90s. In elders with BPD, in general, the “index” episode occurs in the early to mid-70s.

A striking finding associated with manic syndromes in late life is a high prevalence of neurologic disorders such as cerebrovascular diseases—as high as 35%. If the first affective episode occurs in late life and is mania, as many as 70% have a neurological problem. There is serious morbidity and mortality in this group due to cerebrovascular disease. Most elders have their first episode as depression, rather than mania. It can be as long as 15 years until the onset of a manic episode.

Nosology and Classification of BPD

The Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) recognizes 4 bipolar disorders. These are BPI, BPII, cyclothymia, and BPD—not otherwise specified. See Table I for descriptions of each type of BPD.

Signs and Symptoms of BPD

In general, the signs and symptoms of BPD include periods of depression, a period of “normalcy,” and mood swings to mania or hypomania. Elders may be depressed and manic at the same time, although symptoms usually occur sequentially. See Table 2 for signs and symptoms of depression, hypomania, and mania.
Pharmacologic Management of BPD in Elders

Pharmacologic management is essential in BPD. First-line treatments include the atypical antipsychotics and the anticonvulsants, carbamazepine and valproate.

Second-line therapy includes lithium, other anticonvulsants, conventional and other atypical antipsychotics, benzodiazepines, serotonergic agents, and beta-blockers (propanolol) and alpha-antagonists (clonidine). It is beyond the scope of this article to discuss medications in any length. However, it is important to know that treatment of depression alone when the elder has BPD is not successful.

Lithium has numerous side effects and is not a desirable drug to use in elders. The first-line treatments are basically mood stabilizers and are the best therapy for elderly patients because they have few side effects. Antipsychotics are used in acute mania with psychosis and the newer atypical antipsychotics have fewer problems than older antipsychotics in that they cause less tardive dyskinesia and are better tolerated by elders.

Antidepressants are commonly prescribed in BPD. Tricyclics are ineffective in BPD and may

<table>
<thead>
<tr>
<th>Table 1. Four Bipolar Disorder (BPD) Types and Characteristics</th>
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<tr>
<td><strong>Type</strong></td>
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<tr>
<td>BPD I</td>
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<tr>
<td>BPD II</td>
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<tr>
<td>Cyclo-Thymia</td>
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<td>BPD mixed</td>
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<th>Table 2. Signs and Symptoms of Cycles of Bipolar Disorder</th>
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<tr>
<td><strong>Cycle</strong></td>
</tr>
<tr>
<td>Depression</td>
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<td>Hypomania</td>
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<td>Mania</td>
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DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th edition.
arly signs of relapse (provocative dressing, irritability, enhanced self-confidence) into mania. Similarly, as the elder moves to a depressive phase, signs such as sleeping more, loss of interest, may signal the change so that the practitioner (general physician, nurse practitioner, or psychiatrist) may be alerted.

Psychosocial intervention such as interpersonal psychotherapy contributes significantly to prevent chronic depression and the disability that accompanies it. Stressful life events and problems in family and social support systems can affect the cycling of BPD. Adjunctive psychosocial interventions such as psychotherapy, regular primary care visits, and other methods of increasing social support can enhance and produce long-lasting effects. Combination treatment of therapy and treatment that includes medications is always preferable.

One of the important reasons for psychotherapy is to enhance compliance with medication-taking. Especially during “normal” phases, stopping medication is a common and problematic occurrence for the elder and family.

Electroconvulsive therapy (ECT) can also be useful for bipolar disorder. It is useful in treating mania as well as major depression. ECT can be unilateral or bilateral; bilateral causes more confusion and memory loss in elders.

Genetic counseling is also used in management of BPD. Because this is often an inherited disorder and many family members may have the illness, these family members may seek guidance in early recognition and management of the illness. Also, guilt may exist around being unable to manage the elder with BPD, and placement in a nursing care facility may be necessary.

Lastly, suicide is always a consideration in an illness of this nature. It is the most severe and frequent complication of BPD. Characteristics that have been identified to place a patient at risk include increased number of depression episodes, antidepressant-induced mania, alcohol use, male sex, and suicidal behaviors. Further-

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**Box 1. Conditions That Can Precipitate Mania**

- Hyperthyroidism
- Epilepsy
- Stroke
- Trauma—brain
- Vitamin B12 deficiency
- Uremia
- Sleep deprivation
- Stress
- Increased light exposure

*Data from Bowden C. and Singh V.*

**Box 2. Drugs That Can Precipitate Mania**

- Alcohol
- Caffeine
- Steroids
- Antidepressants, especially tricyclics
- Bronchodilators
- Dopamine agonists
- Pseudoephedrine

*Data from Bowden C. and Singh V.*
more, knowledge of family history of suicide behavior helps health professionals identify those at most risk in assessment of BPD.

References


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