Every minute of the day, three older adults are treated in the emergency department for a fall. Every hour, falls result in the death of two older adults. In 2000, falls cost the American health system $19.2 billion, and by 2020, this cost is expected to rise to $55 billion.

Each year, one in three persons over 75 years of age fall and 20% of these will have a moderate-to-severe injury. Persons who fall once are highly likely to have a second fall. Falls are even more common in frail nursing home residents and one in six who fall in the nursing home are liable to fracture.

Fatal falls occur more often in men than women. The highest fatal fall injury rates are in Minnesota and New Mexico; the lowest rates are in Alaska and Louisiana. Falls are inevitably associated with aging; thus, the role of health professionals is to try to reduce falls and the injuries associated with falls.

(continued on page 4)
Dr. Miriam Rodin Named Bander Center Fellow

Saint Louis University’s Bander Center for Medical Business Ethics has selected Miriam Rodin as a Bander Center fellow. In this role, she will dedicate time over the next 12 months to education and research activities centered on medical business ethics. She is expected to produce a publication in medical business ethics as well as educational materials for the Bander Center. Her work will help define the field of medical business ethics and further the Bander Center’s educational mission. As the fellowship program continues throughout the years, the Bander Center hopes to develop a network of medical business ethics professionals at SLU and in the broader national medical community.

Miguel A. Paniagua, MD, Appointed to Board, Named Teacher of the Year

Dr. Miguel A. Paniagua has been appointed to the National Board of Medical Examiners where he serves on the Standard Setting Committee and the Item Writing Committee for Chronic Care for the Step III Examinations.

Dr. Paniagua was also named the 2007-2008 Physician Excellence in Teaching Award by the Saint Louis University third year medical students.

Dr. Gammack Receives CMD

Dr. Julie K. Gammack was awarded the CMD designation and is now a Certified Medical Director in Long Term Care as of July 1, 2008.

Geriatric Nutrition Reviewed

Geriatric Nutrition, edited by David R. Thomas, MD, and John E. Morley, MB, BCh, has received glowing reviews from the Journal of the American Medical Association. “Exceptionally useful information... Offers the reader in-depth and extensive coverage of the more common nutrition issues... Goes beyond most geriatric/gerontology nutrition offerings... A great reference for nearly all health care professionals.”
U.S. News and World Report announced in its March 2008 issue - Medical Graduate School Rankings for 2008, that Saint Louis University’s Division of Geriatric Medicine is ranked #14 in the nation. And, in its July 2008 issue - Best Hospitals, Saint Louis University Hospital’s Geriatric Care is ranked #24 among hospitals in the nation by the hospital ratings (mortality rate, technology services, number of registered nurses to beds, discharge planning, service mix, geriatric services.) However, Saint Louis University Hospital is ranked the 10th best hospital in the United States for geriatric care by Reputation Score (votes from colleagues around the country).

Aging Male Conference a Great Success

The 6th World Congress on the Aging Male was held in Tampa in February 2008 and was attended by over 300 persons. Jointly sponsored by the International Society for the Study of the Aging Male (ISSAM) and the Veterans Administration (VA), the conference focused not only on the management of hypogonadism and erectile dysfunction, but covered a wide range of topics such as the metabolic syndrome, frailty, incontinence, diabetes mellitus, anemia, anti-aging medicine, DHEA, growth hormone, prostate cancer, benign prostate hypertrophy, anorexia, sarcopenia, nocturia, obesity, Alzheimer’s disease, and vitamin use. In addition, the new international guidelines for the management of late onset hypogonadism were presented for the first time. The organization committee included John Morley (St. Louis), Christina Wong (Los Angeles), and Al Morales (Quebec). More information is available at www.issam.ch.

A Celebration of 20 Years of Geriatric Education with Friends, Partners, and Affiliates

Join us on June 2nd as we celebrate 20 years of Geriatric Education! Saint Louis University’s Chaifetz Arena is the place to be! Chat with those who have been instrumental in reshaping geriatric education throughout America.
A recent study in Connecticut by Mary Tinetti and her colleagues showed that educating clinicians about interventions to reduce falls resulted in a decline in fall-related injuries. Serious fall-related injuries were reduced by 3.3 per thousand person years in the intervention group and increased by 0.2 in the usual care group. In addition, fall-related medical services were significantly less utilized in the intervention group. This study clearly showed that a fairly simple education program that is focused on medication reduction and balance and gait training can reduce falls in the community. (See www.fallprevention.org for more information.)

The Cochrane Collaboration examined 62 trials involving over 21,000 persons to determine which interventions reduce the risk of falls. They concluded that multidisciplinary, multifactorial programs reduce falls in community-dwelling older persons (RR 0.73; 0.63 to 0.85) and residential care facilities (RR 0.60; 0.50 to 0.73). Programs that were shown to specifically reduce falls were:

- Muscle strengthening and balance retraining
- Home hazard assessment and modifications
- Withdrawal of psychotropic medications
- Tai Chi exercise intervention
- Cardiac pacing for fallers with cardio-inhibitory carotid sinus hypersensitivity.

In epidemiological studies, the major factors identified as risk factors for falls include muscle weakness, gait and balance impairment, orthostasis, psychotropic drug use, poor vision, dementia, and depression. Drugs most commonly associated with falls include cardiovascular drugs (diuretics, nitrates, antihypertensives, and antiarrhythmics), anticonvulsants, antidepressants, sedative/hypnotics, NSAIDs, and propoxyphene. Diabetics are particularly prone to falling and recent studies have suggested that the risk is increased when the HbA1C is lowered below 7%.

Two medication-focused interventions have shown short-term reductions in falls. In a study in Holland, withdrawal or dosage reduction of fall-risk-increasing drugs in persons with previous falls resulted in a reduction in falls. In a rehabilitation center, a pharmacist intervention reduced the fall rate from 15% to 8%.

A drop in blood pressure on standing (orthostasis) is extremely common in older persons. This fall in blood pressure with standing is commonly associated with syncope, dizziness, and falls. For this reason, a standing blood pressure needs to be obtained in all older persons. Orthostasis is more common in the morning than in the evening. Common causes of orthostasis include excess medications, inadequate fluid or salt intake, and anemia. Adrenal insufficiency, protein energy malnutrition, diabetic autonomic neuropathy, and Parkinson’s disease also cause orthostasis. Treatment of orthostasis involves determining the cause and treating it, when possible. Other treatments are listed in Table I below.

Blood pressure falls after eating a meal in approximately one quarter of older persons. This is especially common in persons with diabetes. It is associated with falls, syncope, stroke, and myocardial infarction. A fall in blood pressure of greater than 20 mmHg is associated with increased death in nursing home residents.

### Table I. Treatment of Orthostasis

- Eliminate medications
- Adequate fluid and salt intake
- Treat anemia (if present, with erythropoietin)
- Elevate head of bed
- Bedside commode
- Avoid hot showers
- Get up slowly
- Orthostatic exercises
- Jobst stockings
- Two cups of coffee once daily in the morning
- Midodrine (alpha-1 adrenergic antagonist)
- Motrin or other NSAIDs
- Fludrocortisone
- DOPS (3,4 L-threo-dihydroxyphenylserine)
residents. The treatments for postprandial hypotension are outlined in Table II. At present, the most effective treatment appears to be with either of the alpha-1 glucosidase inhibitors, i.e., miglitol or acarbose. They appear to work by increasing glucagon-like peptide-1 and thus slowing gastric emptying.

In any older person who falls for the first time or has a cluster of falls, the possibility that this is due to delirium should be considered. The causes of delirium are listed in the Delirium(s) mnemonic below.

In all persons who fall, balance exercises (e.g., standing on one leg), lower leg resistance exercises, and walking (endurance) exercises should be begun under the supervision of a physical therapist. This supervision should last for at least six weeks. Training how to fall safely and how to get up after falling should be included. The presence of fear of falling should be assessed as this becomes a major reason for falls in older persons who are losing their executive function (frontal lobe).

In persons who are having repeated falls, the use of hip pads and/or helmets may be considered. The literature reports mixed benefits from the use of hip pads. Their use should be limited to frail frequent fallers. A major barrier is getting the person to wear them regularly. In addition, once the person has fallen on them once, they no longer function. Additionally, most hip pads need only two to three cycles in the dryer before they no longer contain water and, as such, no longer function.

All persons who fall due to a loss of consciousness (syncope), the most useful work-up is to look for orthostasis and postprandial hypotension. If these are not present, carotid sinus massage should be performed to see if there is an indication for a pacemaker. Other studies are only indicated if these are negative and there are symptoms suggesting other causes (e.g., dyspnea, chest pain, confusion, tonic clonic movements, incontinence, one-sided weakness) or if there are multiple episodes of syncope.

A simple approach to assessing a person with a fall is:
- How often have they fallen?
- Are there environmental causes (including poor lighting)?
- Are they confused (suggestive of delirium)?
- Are they orthostatic?
- Did the fall happen within two hours of the meal?
- Assess all medications.
- Do they have fear of falling?
- Was there a loss of consciousness (syncope), the most

### Table II. Management of Postprandial Hypotension

- Coffee before breakfast only
- Small meals
- Decrease carbohydrate in meals
- Fiber with meals
- Octreotide (somatostatin mimic)
- Alpha-1-glucosidase inhibitors (miglitol or acarbose)

### Delirium(s)

**D rugs**
- Yes, ears, emotional
- Low O2 states (MI, stroke, PE, anemia)
- Nfection
- Retention (of urine or stool)
- Convulsive (especially partial complex seizures)
- Underhydration/Undernutrition
- Metabolic (thyroid, vitamin B12)
- S ubdural

**Fragility Fractures**

Fractures are the number one cause of lawsuits in the nursing home. Most fractures are associated (continued on page 6)
with either osteopenia or osteoporosis. Osteopenia should be treated by physicians. Risk factors for osteoporosis are summarized by the OSTEO- POROSIS mnemonic. Recently, it has been recognized that depression and the thiazolidinediones (pioglitazone and rosiglitazone) increase the risk for osteoporosis. SSRIs increase falls, increase bone loss, and have a greater rate of hip fracture than tricyclic antidepressants.

The risk of an osteoporotic fracture over the next ten years can be estimated using the FRAX. (http://www.shef.ac.uk/FRAX/). This assessment should become routine for all older persons.

Prevention of fragility fractures includes adequate calcium intake. While this is classically stated as 1 to 1½ g daily, this is together with the diet. The average woman ingests 600 mg of calcium per day and the average male ingests 800 mg in the diet. Calcium should not be taken with food or with medicines because they interact with calcium to reduce the absorption of each other. One 8 oz. serving of low-fat yogurt contains 415 mg of calcium and a cup of calcium-fortified orange juice or an 8 oz. glass of milk contains 300 mg of calcium. These represent simple natural ways of ingesting adequate calcium. If the person is going to take calcium tablets, it is best to take them at night when they are not taking any other medicines.

A meta-analysis demonstrated that there was a 26% reduction in hip fracture with doses of vitamin D greater than 700 IU daily. The effect was greater in institutionalized individuals.

Bisphosphonates inhibit osteoclasts which break down bone. Bisphosphonates increase bone mineral density and decrease hip fracture. Recently, a once-a-year bisphosphonate, zoledronic acid, has become available. It improves bone mineral density, decreases both vertebral and non-vertebral fractures, and has been shown to decrease mortality.

Two drugs have been shown to enhance osteoblastic activity and, as such, increase bone mass. These are teriparatide (PTH 1-36) and strontium ranelate. Teriparatide should be given to persons with a bone mineral density <-3.0 or with hip fracture.

**Risk Factors for Osteoporosis**

- Low calcium intake
- Seizure medications (anticonvulsants)
- Thin build
- Alcohol (excess alcohol)
- Hypogonadism
- Prior fracture
- Thyroid excess
- Race (Caucasian/Asian)
- Other relatives with osteoporosis/fractures
- Steroids
- Inactivity
- Smoking

**Treatment of Osteoporosis**

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<th>FRAX</th>
<th>Diagnosis</th>
<th>Management</th>
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<td>&gt;-1.0</td>
<td>&lt;3%</td>
<td>Normal</td>
<td>Check 25(OH) Vitamin D</td>
</tr>
<tr>
<td>-1.1 to -2.4</td>
<td>&lt;3%</td>
<td>Osteopenia</td>
<td>Check and replace vitamin D, calcium replacement preferably with yogurt. Do not give with other medications.</td>
</tr>
<tr>
<td>-1.1 to -2.4</td>
<td>&gt;3%</td>
<td>Osteopenia</td>
<td>Add bisphosphonate</td>
</tr>
<tr>
<td>-2.5</td>
<td>&lt;5%</td>
<td>Osteoporosis</td>
<td>Bisphosphonate, Calcium, Vitamin D</td>
</tr>
<tr>
<td>-2.5</td>
<td>&lt;10%</td>
<td>Osteoporosis</td>
<td>Add teriparatide</td>
</tr>
<tr>
<td>-3.0 or hip fracture</td>
<td>Osteoporosis</td>
<td>Teriparatide, Calcium, Vitamin D</td>
<td></td>
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(continued on page 24)
On November 3-6, 2008, representatives from Saint Louis University’s Division of Geriatric Medicine visited Chengdu, China. This was Dr. John Morley’s first visit and Dr. Joseph Flaherty’s third visit to HuaXi (West China) Hospital. The hospital, which is under the auspices of Sichuan University, has 4,300 inpatient beds. It does over 2 million outpatient visits per year. The hospital is located in Chengdu, the capital of Sichuan province. Chengdu has a greater metropolitan population of over 13 million people (and, yes, this is near where the magnitude 7.9 earthquake occurred in May, 2008).

Dr. Morley gave a lecture on Aging Successfully to the Department of Geriatrics. Discussions about current and future collaborative projects went on for several days. Then the letter of agreement, which was previously signed by Saint Louis University, was formally signed by the President and Dean of the medical school of Sichuan University, Dr. Ying Kang Shi. The associate dean, Dr. Jing Qiu Cheng, as well as Dr. Birong Dong, were intricately involved in the discussions with Dr. Shi about the agreement.

The agreement allows for the development of cooperative research between the two universities in the area of geriatrics, and allows for exchange of faculty and medical students.

“Dr. Dong and her department have a strong track record of education, clinical care and especially research, because of their ongoing studies of over 800 nonagenarians and centenarians in nearby Dujiangyan,” said Dr. Morley at one of the dinner meetings. “I look forward to our future collaborations, especially our joint efforts towards research and funding of research.”

The letter of agreement is an important next step in a process that started as a friendship after a visit by Dr. Flaherty in 2006 during his sabbatical in China. Dr. Flaherty returned in the spring of 2007 to continue the relationships and to begin collaboration projects. In the spring of 2008, the first group of 4th year medical students from Saint Louis University spent one month at HuaXi Hospital as part of the growing relationship (read their stories of adventure and growth in Aging Successfully, Spring 2008; XVIII, No.1). Next year, Dr. Dong is expected to visit Saint Louis University.
10 Reasons to see a geriatrician

- Unexplained fatigue
- Memory problems
- Unexplained weight loss
- Incontinence not being treated
- Pain inadequately treated
- Sadness not being treated
- Falls
- Polypharmacy (9 or more medications)
- Unsatisfied with your physician’s explanation
- At age 70 to check for potential geriatric problems and advice on health promotion and disease prevention
Aristotle, in his Nicomachean Ethics, defined four different kinds of science: Episteme which is pure science such as mathematics or physics; Sophia which is wisdom that comes from the knowledge of the biological sciences; Techne which is the application of science to real life; and Phronesis which he defined as practical wisdom.

Phronesis is the application of science to everyday life. It requires an ethical approach to its application. In Aristotle’s mind, this was the highest form of science. In the modern concept, it is what physicians do every time they see a patient and have to apply the knowledge they have based on average outcomes, as obtained from pathophysiology, epidemiology, and controlled trials, to an individual.

As recently pointed out by Heng, “clinical therapies must be individualized, balancing the parts of the system and the response of the patient as a whole.” Unfortunately, in medicine, one is often faced not with an average person with an average response to a treatment but rather an “abaverage” situation. This is particularly true of nursing home residents. They are the “black swans” and “zebras” of modern medicine. Further, there is a paucity of evidence based medicine to guide the prudent physician in providing the appropriate therapy.

In management of many older patients common sense should prevail as so beautifully demonstrated in the article by Smith and Pell in the *British Medical Journal* where they performed a systematic review of randomized controlled trials of whether or not a parachute prevents death and major trauma related to gravitational challenge! As they pointed out in their introduction, the perception that parachutes are a successful intervention is based largely on anecdotal evidence and there is a small literature that has shown that failure to take or deploy a parachute does NOT always result in adverse outcomes. They then used QUORUM guidelines for their literature search and proposed an extensive meta-analysis utilizing odds ratio (95% confidence intervals), Mantel-Haenszel statistic for heterogeneity, and Funnel plots, and Egger’s and Begg’s test for bias. Unfortunately, their extensive literature search failed to unearth any randomized controlled trials of parachute use. Their conclusion was that ardent enthusiasts of evidence-based medicine should volunteer to participate in “The Broken-Arm Trial” which would be a double-blind randomized, placebo-controlled, crossover trial of the parachute. Alternatively, they could take the advice of the archangel, Gabriel, who said to another angel who was wearing a parachute, “Have a little faith, lose the parachute.” For those of us working in nursing homes, we often have to listen to “Captain Obvious” and apply our ethical beliefs of the correct approach rather than resorting to evidence-based medicine.

Of course, we always need to be suspicious of commonly held medical wisdom, as illustrated by G.W., a 67 year old patient who developed a cold and sore throat on Friday the thirteenth. As with so many males, he decided to ignore it, remarking to his wife, “You know I never take anything for a cold. I’ll let it go just as it came.” He worsened overnight, developing severe dyspnea. He was one of the first recipients of modern “boutique medicine” with his physicians making a series of home visits and providing medical treatment. Unfortunately, he died after his physicians removed 3 liters of his blood in under twenty-four hours. Clearly, doctors killed George Washington!

(continued on page 10)
On the day George Washington died (December 14, 1799), Benjamin Rush, “the Pennsylvania Hippocrates” and one of the signers of the Declaration of Independence, won a court verdict for the libel against William Cobbett. Cobbett, who wrote under the pen name “Peter Porcupine,” had pointed out in an article that Dr. Rush was killing his patients by bleeding them to death. He had done his research and found a high mortality rate in the patients bled by Rush, compared to that in physicians who were less enamored of bleeding. Despite his scientifically correct finding, Cobbett lost the case!

The first controlled trial on blood letting was completed in 1809 by a Scottish physician, Alexander Hamilton, during the Peninsular War in Portugal. He did a 2:1 trial of 366 soldiers. His conclusion was, “Neither Mr. Anderson nor I ever once employed the lancet. He lost two, I four cases; whilst out of the other, 35 patients died.” Pierre Louis, a French physician, published a similar controlled trial in 1828. Despite these findings, physicians were still employing blood letting in 1850.

The origins of evidence-based medicine can be traced to James Lind who, in 1747 on the HMS Salisbury, did a controlled trial of 7 treatments for scurvy. This trial proved that two oranges and a lemon were better for sailors with scurvy than 25 drops of sulfuric acid or a pint of seawater. Florence Nightingale was the pioneer in developing statistical and graphic approaches to demonstrate the benefit of a new therapeutic approach. She used her “Nightingrams” to prove to the generals in the Crimea War that clean hospitals dramatically reduced mortality.

Despite the increasing acceptance of evidence-based medicine, we still see the use of eminence-based medicine (I’m important, so I am right), eloquence-based medicine (just listen to my logic) and vehemence-based medicine (the classical surgical approach).

The modern era of evidence-based medicine was ushered in, in 1993, when scientists at Oxford University established the Cochrane Collaboration. This was named after Archie Cochrane, a physician who had repeatedly called for a critical summary of randomized controlled trials which were frequently updated. Today the Cochrane Collaboration is the ultimate source of well conducted meta-analyses. (www.cochrane.org).

With the Internet revolution, medical knowledge is becoming more rapidly available, whether it’s through “Pubmed” or net-based publications such as “UptoDate.” The next generation of knowledge is being pioneered by “Wikipedia.” The ability of multiple users to correct and update in real time moves us into a new generation of knowledge delivery. The quality of medical knowledge on “Wikipedia” is remarkably good and even more up to date than “UpToDate.” “MedPedia” is the “Wikipedia” for physicians. It has the potential to totally alter the delivery of medical knowledge and its evolution should be watched carefully by all of us.

Physicians who care for older persons often have to resort to phronesis in view of the lack of evidence in our elderly sick population. At times our practical wisdom leads to great outcomes, but equally it can lead to poor outcomes as exemplified by the death of George Washington. Adaptability and a careful consideration of the ethical needs of our patients are the hallmarks of the successful geriatrician.

C.S. Lewis suggested that all humans had 4 loves, namely storge (love of family), philia (love of friends), eros (sexual love), and agape (love of humanity). Pope Benedict XVI, in his first encyclical, exhorted us to focus our energies on loving all humanity and thus, provide high quality care for them. The Talmud points out that there is no greater behavior that a human can indulge in than when he/she does something for one who cannot repay him/her. For those of us who practice phronesis and care for older persons, the rewards of improving their quality of life and being their good shepherd at the end of life are greater than any fiscal reward. Truly the love and care of all humans is the greatest reward.

N.B. A longer version of this editorial, as it applies to caring for the nursing home patient, may be found in the January 2009 issue of the Journal of the American Medical Directors Association.
Services of the Division of Geriatric Medicine at Saint Louis University Medical Center include clinics in the following areas:

- Aging and Developmental Disabilities
- Bone Metabolism
- Falls: Assessment and Prevention
- General Geriatric Assessment
- Geriatric Diabetes
- Medication Reduction
- Menopause
- Nutrition
- Podiatry
- Rheumatology
- Sexual Dysfunction
- Urinary Incontinence

For an appointment call 314-977-6055 (at Saint Louis University) or 314-966-9313 (at Des Peres Hospital)

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**The Science of Staying Young**

Written by John E. Morley, MD, & Sheri R. Colberg, PhD, is available for purchase by visiting www.amazon.com or selected Barnes & Noble stores.

Highlights of the 2008 Summer Institute

Over 280 healthcare professionals attended the 19th Annual Summer Geriatric Institute on June 3 & 4, 2008. The theme of this year’s conference was Innovations in Geriatric Care. Highlights of the program included the Max K. Horwitt Memorial Lecture, “Exercise, Aging and Diabetes: The Importance of Exercise for Insulin Action” by Dr. Sheri Colberg of Old Dominion University in Virginia, and the Jim Flood Memorial Lecture, “Coming Demographic Changes in the Older Population: In What Ways Will They Change How We Care for Older People?” by Dr. Denis Evans from Rush University Medical Center. Monty Reed, Founder and Executive Director of They Shall Walk and Dr. Steven Steins of the Seattle Veterans Affairs Medical Center demonstrated the Lifesuit Exoskeleton, an intelligent robotic powered brace, that is a prototype of a device that they hope will one day allow paraplegics and elderly persons to freely walk again.

All participants received a copy of a DVD that contained videos of five geriatric assessments: the Confusion Assessment Method (CAM), the Simplified Nutritional Assessment Questionnaire (SNAQ), Dual Tasking, Dehydration, and the Veterans Affairs – Saint Louis University Mental Status Exam (VA SLUMS). Next year will be the 20th anniversary of our Summer Institute and we hope you can join us for all the fun on June 2 & 3, 2009.

In Memory

Alberta Slavin

This wonderful woman represents an example of an extraordinary ordinary person who made a difference throughout her life as she aged successfully. Early in her life, she was responsible for stopping supermarkets from charging higher prices in inner city neighborhoods. She also took on the telephone company’s practices causing one executive from Southwestern Bell to say “we were better for her actions.” She was the consumer advocate reporter for a local television channel. In her seventies, she was appointed president of the Missouri National Health Foundation. Two years before her death, she took on the energy companies for overcharging. Alberta was a compassionate fighter for the underdog. She is survived by her husband, Raymond (chief of allergy at Saint Louis University and still an active clinician-researcher in his late seventies), a daughter, and three sons, one of whom is Associate Dean for Education at Saint Louis University.

Barbara Grossberg

One day when he was a young boy, George Grossberg (now chief of psychiatry at Saint Louis University) came home to find an old woman sitting on the couch in his apartment. He asked his mom what she was doing there. She said, “Don’t worry. We’re just helping her out.” Then there was another and another. Eventually, the mayor and chief of police arrived at the door. “Mrs. Grossberg,” said the mayor, “we realize you are being helpful, but this area isn’t zoned for a nursing home.” Fortunately, he found help for Barbara and Henry Grossberg to start the nursing home which was the first of the Delmar Gardens nursing home chain. Her son Gabe, is now CEO of this highly successful nursing home chain which serves 3,800 residents in 18 locations. Barbara spent her whole life caring for older people. She was a role model for all of us, showing by example how to overcome the distractions that prevent us from enhancing the life of the older person.

Barbara Grossberg was born in Hungary in 1925, and during World War II she was sent to the Dachau concentration camp at age 13. During the Hungarian Revolution, she and her family walked out of Hungary and eventually came to St. Louis. She died at age 81 years.
FALLS in the elderly
A multi-disciplinary look at the effects of a fall in an elderly person

THE PHYSICIAN’S PERSPECTIVE
by Miguel Paniagua, M.D.

If during an evening game of Trivial Pursuit™ you were asked to determine what George Burns, Robert Atkins, Fidel Castro, and Billy Graham had in common, what might you guess as the answer? It might surprise you to know that each one of these very unique individuals has been the victim of an event that is unfortunately more common as we age—an injurious fall. The roster of the famous elderly persons affected by this geriatric syndrome may be surprising, but it might also shock you to know that falls are the leading cause of accidental death for those 65 and older in the United States. Despite this alarming statistic, the syndrome of falls has yet to have its celebrity champion like Alzheimer’s disease (Nancy Reagan) and Parkinson’s disease (Michael J. Fox).

DON’T ASK DON’T TELL?
Many patients and physicians alike may be unaware that falls occur in over a third of persons over age 65 each year, and in over half of persons over age 75. About one-third of the older population reports some difficulty with balance or ambulation, and this percentage also increases in frequency and severity after age 75. The most common causes of falls include environmental hazards (such as slippery floors and loose rugs - even house pets), weak muscles, unstable balance, dizziness, vision problems, and medication side effects (such as dizziness and confusion). If you have had a fall in the past year, it is important that you tell your healthcare provider.

AM I AT RISK?
If you have difficulty rising from a sitting position without use of hands to push off, need to walk slowly or with a wide base of support, you may have a strength and balance deficit that could increase your risk of falling. There may be certain medications than could increase your risk, most importantly certain blood pressure medications, sedatives, or anti-depressants. It is important to disclose both herbal and other over-the-counter medications to your doctor, as even some medi-(continued on page 16)
FALLS - THE SIXTH LEADING CAUSE

Falls are three times more common in nursing homes, equalling 1.5 falls per nursing home bed per year.

Causes of Falls:
- Extrinsic
  - Environmental
- Intrinsic
  - Measure 25(OH) vitamin D and replace if <30 ng/ml
  - Orthostasis
  - Postprandial hypotension
  - Medications
    - Diuretics
    - Antihypertensives
    - Nitrates
    - Anticoagulants
    - Antiarrhythmics
    - Sedatives/hypnotics
    - SSRIs
    - NSAIDs
    - Propoxyphene
  - Poor Vision
  - Poor Balance
  - Muscle Weakness
  - Gait Problems
  - Dementia (poor ability to “dual-task”)
  - Depression
  - Loss of consciousness
- Syncope
  - Carotid sinus massage
  - Arrhythmics
  - Valvular disease
  - Heart failure
- Seizures
  - Grand Mal
  - Petit Mal
  - Portia Complex

Falls produce:
- Head injury
- Lacerations
- Fractures
  - Hip
  - Vertebral
  - Other, e.g., Colles
- Soft tissue injuries
- Fear of falling
- Decreased activity and functional decline
- Cost $55 billion annually by 2020

Status Post Fall is a Delirium Equivalent
**Fragility Fracture Statistics**

1.5 million fractures occur per year in USA
Hip fractures are increasing out of proportion to aging population
Hip fractures are more common in southern USA
Men have greater mortality from fractures than women
20% of persons dead within one year of hip fracture
30% of persons have permanent disability
40% cannot walk independently
80% have lost one IADL

Osteopenia is not recognized or treated by many physicians.

**Risk Factors for Osteoporosis**

- Low calcium intake
- Seizure medications (anticonvulsants)
- Thin build
- Excess alcohol
- Hypogonadism
- Prior fracture
- Thyroid excess
- Race (Caucasian/Asian)
- Other relatives with osteoporosis/fractures
- Steroids
- Inactivity
- Smoking

**Screening for Osteoporosis**

WHO Fracture Risk Assessment (FRAX) www.shef.ac.uk/FRAX/

- Previous fracture
- Present fractured hip
- Current smoker
- Glucocortisol
- Secondary osteoporosis
- Alcohol >3 units/day
- Femoral neck BMD (bone mineral density)

<table>
<thead>
<tr>
<th>T-Score</th>
<th>BMD</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1.0</td>
<td>Normal</td>
<td>Check Vitamin D</td>
</tr>
<tr>
<td>-1.5 - 2.4</td>
<td>Osteopenia</td>
<td>Calcium/Vitamin D, ? Medications</td>
</tr>
<tr>
<td>-2.5 - 3.0</td>
<td>Osteoporosis</td>
<td>Bisphosphonates</td>
</tr>
<tr>
<td>-3.0 or fracture</td>
<td>Osteoporosis</td>
<td>Teriparatide</td>
</tr>
</tbody>
</table>

**Medications**

Calcium
- Approximately 1 to 1.5 g daily (from diet: female 600 mg; male 800 mg)
- 8 oz. yogurt = 415 mg; milk or Ca fortified orange juice = 300 mg
- Cannot take with other medications

Vitamin D
- Measure 25(OH) vitamin D. If less than 30 ng/ml, replace.

Estrogen
- Premature menopause or symptoms. Not more than 5 years (breast cancer)
- Increases BMD, 65% reduction breast cancer over 8 years

Bisphosphonates
- Alendronate or risendronate (weekly), ibandronate (monthly), and zoledronic acid (yearly). Inhibits osteoclasts. Side effects: esophagitis, uveitis, osteonecrosis of jaw.

Teriparatide
- Stimulates osteoblasts) Taken for maximum of 2 years (? osteosarcoma)

Denusomab
- Inhibits RANK ligand and therefore osteoclasts
Fall rates are higher in those who find it difficult to walk ¼ mile, stand for 2 hours, stoop, or climb 10 steps (National Health Interview Survey 2003). While physical declines at older ages have been well documented, declines can appear earlier in middle age (i.e., the fifties) and can produce pre-clinical disability (Fried, 1991) that forewarns of future disability. Often individuals do not perceive the declines because they use compensatory strategies such as altering a functional task, taking longer to do the task, or simply avoiding the task. For example, an individual who is experiencing difficulties with stair climbing may start to avoid stairs but claim he/she is “independent” on stairs. Or an individual may need to sit down to put on socks but claim that his/her balance is “fine.” These individuals may actually test “normal” on physical performance measures but, when observed over a longer period of time, difficulties become evident.

The challenge in physical therapy is to identify functional changes that predispose a fall and to analyze the compensations behind those changes. In falls, physical therapists focus especially on strength, range, and balance. Since falls are multifactorial it is important to assess all the underlying factors.

For example, strength loss in older adults prolongs the time muscles need to fully contract and then to relax. The loss of strength also involves a loss in power and is accelerated by a lifestyle of inactivity. It takes more of a maximum voluntary contraction in the muscles to perform a functional task. Weakness in hip and knee extensors causes difficulties in rising from a chair. Weakness in hip abductors and asymmetry in lateral stepping speed cause a tendency in older adults to fall to the side. Weakness in ankle dorsiflexors causes older adults to stumble because they cannot lift their feet sufficiently to clear the floor.

The following tests help physical therapists to identify functional declines. If individuals score below the norms, this serves as a forewarning for possible falls.

- Strength tests show inability of the muscles to take resistance. In the clinic this can be assessed with isokinetic equipment. A more practical assessment is to use free weights or elastic tubing. For falls, therapists will focus on hip abductors and extendors, knee extensors, and ankle dorsiflexers.
FALLS (continued from page 16)

- Sensory tests look at loss of touch and proprioception, particularly in the feet. An inability to detect a 2-3 degree change in big toe movement can be a warning sign for falls.
- Balance tests for both static balance (Rhomberg, One Leg Stance, Forward Reach) and dynamic balance (Four Squares, Dynamic Gait, Get Up and Go, and Berg Balance) are important. For example, a score less than 19/24 on the Dynamic Gait Index (Shumway-Cook 1997) or a time greater than 15 seconds on the Four Squares Test (Dite 2002) predicts risk of falls.
- Goniometric tests, especially for decreased ranges in the hip, knee, and ankle are also important. Ankles that lack dorsiflexion range or hips limited in extension forewarn of a fall risk.

Another concern for individuals at risk for falls is the inability to multitask. These are the individuals whose balance while walking deteriorates if they try to talk, change their pace, look around at their surroundings, carry an object, or participate in a focused mental task such as counting backwards. Individuals who walk with a slow, guarded pattern while needing to watch their feet are especially at risk.

Many of the above tests can be practiced as part of a fall intervention program. For example, the Four Squares Test requires two canes placed on the floor as a cross forming 4 open squares. Subjects are asked to step forward, sideways, and backwards in 15 seconds without hitting the canes. This requires cognitive recognition of the task as well as lower extremity strength and balance. This test identifies individuals beginning to show declines.

Another test used as an intervention is the single leg stance. Individuals are asked to practice near a piece of furniture that can be used for support when needed. The intent is to increase the balance time. Practice starts at 3 seconds then increases to 5, 10, 15, etc. seconds for each leg. The overall goal is one minute unsupported on each leg. Then the individual practices the same task with eyes closed. Lastly, the individual practices the task but also changes arm position or leans the trunk to the side.

A practical method of strengthening lower extremities is elasticized resistance bands (such as Therabands) that can be used at home with an illustrated book for directions. Just practicing sit-to-stand (especially slowly descending), standing and rising on toes/heels, standing and doing short squats, and side stepping can be very helpful to strengthen the lower extremities.

Lastly, gait practice should help older adults improve posture while walking and looking straight ahead; walk with altering the pace and direction; and walk by stepping around or over obstacles.

Older adults should keep a record of their exercises. This reminder provides incentive that, “Yes, it is possible to improve my balance. Maybe I can keep from falling!”

Margaret Herning PT, PhD, is an Associate Professor in the Department of Physical Therapy and Athletic Training, Saint Louis University, St. Louis, Missouri

(continued on page 18)
THE CLINIC-BASED PHARMACIST’S PERSPECTIVE

By Myra Belgeri, Pharm.D., CGP, BCPS, FASCP

The prevention of falls in older patients is important to preserving their health, mobility, quality of life, and confidence. A major risk factor that places a patient at a higher risk for falling is medication use. In general, the more medications (of any type) that a patient is taking, the greater his or her risk of falling. Patients who have had 2 or more falls tend to use a higher number of sedatives, hypnotics, and cardiovascular agents than do those who have not fallen or who fell only once.1 A pharmacist is able to assess polypharmacy. By determining which medications are inappropriate, the pharmacist can make recommendations about which medications should be discontinued for a specific patient.

Specific classes of drugs by themselves will increase a patient’s risk of falling. All medications with central nervous system effects may cause falls. However, psychotropic agents, which include antipsychotics, antidepressants, and benzodiazepines, have been implicated and studied the most.2-6 Long-acting benzodiazepines (e.g., diazepam, chlordiazepoxide) and the higher doses of these drugs are associated with a greater risk of falls and fractures as compared to the shorter-acting agents (e.g., alprazolam) and lower doses. The selective serotonin receptor inhibitors (SSRIs), such as fluoxetine, have been associated with a higher risk of falls than the tricyclic antidepressants (TCAs), such as amitriptyline. A study investigating inappropriate prescribing in elderly patients showed that almost 30% of psychotropic agents prescribed were inappropriate; the most common inappropriate agents were amitriptyline and long-acting benzodiazepines.7

Other classes of drugs have been investigated but many studies show conflicting results. Vasodilating agents have been shown to be associated with falls or recurrent falls.2,8 Other antihypertensive agents may be associated with postural hypotension, but many studies have found no association between these drugs and falls.2,5,6 In the SHEP study, the rate of falls was the same in the active treatment group and in the placebo treatment group.

Several studies have shown that an interdisciplinary team that uses multifactorial interventions to prevent falls is effective.3,9 An integral member of this interdisciplinary team is a pharmacist, ideally one that specializes in geriatric pharmacy. One study evaluated the impact of a pharmacist’s comprehensive review of patients’ medication regimens in a rehabilitation center. The pharmacist provided written recommendations for dosage adjustments or medication changes, with emphasis on those medications that caused a particular adverse effect or clinical condition that increased the patients’ risk of falling. As a result of these recommendations, there was a 47% reduction in falls at the end of the study, implying a cost savings of more than $300,000 per year. Additionally, they found that the numbers of falls decreased as the number of medications decreased.1 In a similar study involving a pharmacist conducting clinical medication reviews in care homes, the number of falls was significantly decreased as compared to the number of falls by those patients who did not receive the pharmacy intervention. In this study, about one-third of the medications stopped were central nervous system-acting drugs; and about 60% of the medications started were calcium and vitamin D preparations, which may have prevented some falls.10,11

Though there are many drugs that are used to maintain quality of life, there is a similar number of drugs that may deteriorate quality of life in our older patients. Inclusion of a pharmacist in the care of our elderly patients is beneficial in the prevention of falls. A pharmacist has...
FALLS
(continued from page 18)
the knowledge and training to critically review an individual patient’s medications, specifically assessing the appropriateness of each drug in the medication regimen.

References:

Myra Belgeri, PharmD., CGP, BCPS, FASCP, Associate Professor of Pharmacy Practice, St. Louis College of Pharmacy, and GRECC Pharmacist, St. Louis VAMC

THE COMMUNITY-BASED PHARMACIST’S PERSPECTIVE

By Hedva Barenholtz Levy, PharmD, BCPS, CGP

Medications are widely implicated in increasing falls and fall risk, especially among older adults. The relationship between medications and falls is based on an increased susceptibility of older adults to adverse drug effects (ADEs), as well as an exaggerated therapeutic response to some medications.

The nature of increased susceptibility among older adults to adverse events is multifold. First, older adults consume more medications compared to younger patients. One in five older adults take five or more medications regularly. Greater medication use increases the potential for ADEs. Second, older adults more commonly see two or more physicians, including specialists, to care for multiple medical conditions. Involvement of multiple physicians can increase the risk of medication-related problems because of poor communication or coordination of care. Third, age-related decreases in drug metabolism or renal elimination can lead to drug accumulation, e.g., if medications are not chosen carefully or dose adjusted. Finally, because of pharmacodynamic changes with age, older adults generally are more sensitive to the therapeutic and adverse effects of medications.

Drugs and drug classes that have been implicated in increasing fall risk among older adults are considered high-risk medications and are listed in Table 13-10 (see page 20). Fall risk increases with the number of medications a patient takes, especially if the patient takes one or more high-risk medications. Risk also is associated with higher dosages. Most high-risk medications cause central nervous system side effects, such as drowsiness, dizziness, confusion, and ataxia. Other high-risk medications contribute to postural hypotension, e.g., diuretics, nitrates, and tricyclic antidepressants. Data regarding antihypertensives are conflicting and have implicated most antihypertensive drug classes because of dizziness or hypotension potential. Increased sensitivity of older adults to ADEs is underscored by inclusion of beta-blocker eye drops and nonsteroidal anti-inflammatory drugs in the table. Medications known to have CNS side effects, even though they are not found in the table—such as anticholinergic medications for urinary incontinence and sedating antihistamines—also need to be considered for their fall-risk potential.

Interventional studies have documented the benefit of addressing medication use, i.e., dose reduction or discontinuing high-risk medications, in reducing falls. Thus, managing fall risk associated with polypharmacy begins with a careful review of a medication regimen, including herbal and nonprescription products. If high-risk medications are identified, the first step is to reduce dosages or discontinue them. Switch to an alternative agent whenever possible. Consider the risk versus benefit of each high-risk medication prescribed, knowing that it might not be possible to eliminate all implicated medications. Maximize non-drug (continued on page 20)
ways to manage medical conditions, e.g., sleep hygiene for insomnia; diet and exercise to reduce reliance on antihypertensive or diabetes medications. Discuss strategies to deal with side effects with patients who must continue taking medications known to affect fall risk, e.g., the need to rise slowly to avoid postural hypotension; know what medications are sedating; avoid alcohol. Bone health issues remain important because of the potential for a fracture resulting from a fall. Low levels of vitamin D independently are associated with muscle weakness and increased falls. Thus, ensure that older adults get 800 to 1000 units of vitamin D daily along with sufficient calcium through diet or supplements. Finally, continue vigilant monitoring of patients receiving high-risk medications for appropriate dose and continued need.

In summary, age-related changes impact medication use and contribute to fall risk. Medications remain an important modifiable risk factor for reducing this risk. Strategies to manage pharmacotherapy to reduce fall risk include optimizing medication regimens, educating patients regarding ADEs, ensuring adequate vitamin D and calcium intake, and carefully monitoring patients who must continue taking high-risk medications.

References

Table I. Medications Considered High-Risk for Falls

| Alcohol2, Analgesics, Narcotics4, Nonsteroidal anti-inflammatory drugs (NSAIDs), Propoxyphene5, Anticonvulsants4, Antidiabetic agents7, Antihypertensive agents, Beta blockers (eye drops for glaucoma)4, Nitrates7, Psychotropic medications10, Benzodiazepines9, Antidepressants, TCAs and SSRIs4, Antipsychotics, Sedatives3 |
| TCA=tricyclic antidepressant |
| SSRI=selective serotonin reuptake inhibitor |


Hedva Barenholtz Levy, PharmD, BCPS, CGP, Director, HbL PharmaConsulting, St. Louis, Missouri

THE CHIROPRACTOR’S PERSPECTIVE

By Kristan Giggey, DC, and Rodger Tepe, PhD

Chiropractic physicians view health and illness from a holistic perspective, emphasizing care for the whole person. They receive extensive education and training in wellness care as well as in the diagnosis and treatment of illness and musculoskeletal conditions. The primary objective of chiropractic care is to optimize wellness by restoring and maintaining the healthy function of the nervous system. This emphasis on wellness extends to falls prevention as well as recovery from injuries caused by falls.

For many people, the process of aging results in increased disability (continued on page 21)
Muscloskeletal pain syndromes also contribute to poor balance. For example, low back pain patients typically experience an impaired sense of balance and poorly coordinated movements. This is caused by impaired nerve signal transmission, lower extremity weakness and slowed reflex time, which are all risk factors for falls. Substantial evidence shows that spinal manipulation reduces low back pain and improves lower extremity strength and reflexes. Persons with cervical spine dysfunction and/or neck pain also have difficulty sensing body movement accurately due to the complex neurological relationship between cervical vertebra, neck muscles, inner ear balance mechanisms and eye reflexes. Research has shown that spinal manipulation to the cervical vertebra can improve balance. Karel Lewit, MD, one of the world’s foremost authorities on movement dysfunction and equilibrium has stated that, “It is important to stress that a cervical factor may be present in all forms of vertigo and dizziness … in no field is manipulation more effective than in the treatment of disturbances of equilibrium.”

Chiropractors are portal-of-entry physicians who provide safe, effective health care to older patients who are at risk for falling. Non-invasive balance assessments can be used to identify persons at risk for falling. Safe, effective chiropractic interventions relieve muscle stress and pain, allowing the older person to improve balance. The chiropractor is an integral partner in getting older patients back on their feet.

Kristan Giggey, DC, Instructor, Division of Research, and Rodger Tepe, PhD, Associate Professor and Dean of Research and Development, Division of Research, Logan College of Chiropractic, Chesterfield, Missouri

THE SOCIAL WORKER’S PERSPECTIVE

By Sue Tebb, PhD, LCSW

The National Safety Council report indicated that the mortality rate from unintentional falls for older Americans grew 39 percent between 1999 and 2005, making falls one of the most prevalent public health problems facing older people. Social workers do not often think of themselves as being in a position to help with fall prevention, but in reality they may be one of the first professionals to note when possible falling could be an issue. Social workers make home visits and talk with friends and family about the living situation and condition of a patient; therefore by reporting to the health care team what they observe and are told by family and friends, they may be able to help prevent the patient from falling.

“Falls and falls-related injuries are not normal consequences of growing old; there

(continued from page 20)
are evidence-based interventions that can help reduce older adults’ risk of falling and can affect the rate of falls and falls-related injuries and death,” Lynn Beattie, MPT, MHA, vice president for injury prevention at the National Council on Aging Center for Healthy Aging reported to the staff at *Gerontology News* (June, 2008, p. 1 & 8). Though falls may not be an expected or inevitable consequence of aging, they are a serious concern to the future health and independence of all older adults. A report in 2000 from the Centers for Disease Control and Prevention noted that one out of every three people in the US who are 65 years of age or older fall each year (NSASW, 2005). Though not life-threatening, falls can cause immobility, depression, lower quality of well-being, and increased rates of institutionalization. It is for these reasons that social workers should be aware and knowledgeable about the risk factors of falling in order to help prevent falls among older adults.

In information offered by the National Association of Social Workers, fall risk factors can be divided into two areas, environmental and personal. The environmental factors include being aware of the physical area in which the person lives, such as loose floor rugs, poor lighting, lack of railings on stairs and grab bars in bathrooms, and type of footwear one wears. The personal factors include response to medications, poor vision, balance issues, and lack of muscle strength.

When social workers encounter such personal factors in the older adults, they can refer the person or the family to a physician who then can offer the appropriate treatment or referral to other professionals such as a physical therapist or pharmacist. As environmental factors are noted in a home visit or in discussion with the patient and family member, the social worker can suggest correction of the factor (e.g., removing throw rugs or making a referral to another professional, such as an occupational therapist who could work with the family to make the home safe from falls. As social workers, our goal is to offer strategies for improving the quality of life for the older people with whom we work. Since falls are a leading cause of serious injuries and injury-related deaths, we must be aware and mindful of fall prevention.

**References**


*Sue Tebb, PhD, LCSW, is a Professor in the Saint Louis University School of Social Work in St. Louis, Missouri.*

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**THE NURSE’S PERSPECTIVE**

By Helen Lach, PhD, RN, CGNS-BC

Falls have always been an important topic for nurses, especially in hospitals and nursing homes. Nurses spend a lot of time worrying about and addressing safety problems. However, the incidence of falls in these settings remains high with nearly half of nursing home patients falling each year, and falls a common accident in the hospital (Rubenstein, 2006). Progress in solving the problem of falls has been slow, and integrating the latest research into nursing practice is always a challenge! However, nurses can make a difference in falls just by using the good old nursing process.

**Assessment.** Nurses must assess each individual patient to determine his/her risks for falling. The more risk factors patients have, the higher their likelihood of having a fall. We can address patients’ specific risk factors to increase their safety. For example, nurses don’t often assess common risks for falling including memory loss, gait and balance problems, and orthostatic hypotension. Too often, testing blood pressure both lying and standing for the tell-tale drop in pressure is not performed correctly or at all, even when patients report being dizzy upon arising. A good nursing assessment is a key first step to fall prevention. Brief, easy assessments are available for these three key fall risk factors and others.

**Intervention.** Fall interventions must be targeted to the pa...
Saint Louis University joined 28 other universities across the United States by establishing a local chapter of Global Medical Brigades (GMB). 26 undergraduate students, one SLU physician (Dr. Julie Gammack), one private physician, and one RN comprised the first brigade. GMB is a secular, international student-operated volunteer organization whose mission is to provide sustained health care relief to underserved communities. Local chapters recruit student volunteers and health professionals, collect donations for medicines and medical supplies, and transport those donations to Honduras. The group then runs and staffs a mobile health clinic for rural Hondurans with limited or no access to healthcare.

In preparation for the initial brigade, the SLU students collected donations in excess of $90,000. Students practiced medical Spanish, packed medications, and learned how to take vital signs. Upon arrival in Honduras, the group was headquartered one hour outside the capital city of Tegucigalpa in the village of Nuevo Paraiso, a community for single mothers and orphaned children.

Report on the Fourth International Cachexia Conference

This conference was held in St. Petersburg, Florida, in December 2007. Organized by Stefan Anker from Berlin, Bill Evans from the Little Rock VA GRECC, and John Morley from the St. Louis VA GRECC, the conference concentrated on the definition of cachexia and sarcopenia. Various causes of these conditions, including cancer, AIDS, renal failure, COPD, and heart failure, were discussed. There was a focus on the role of cytokines in the pathophysiology of cachexia including the effects of cytokines on the ubiquitin-proteasome pathway, and new treatments including the selective androgen receptor molecule, ositarine, myostatin antibodies and ghrelin agonists were highlighted.

The 5th Cachexia Conference will be held in Barcelona, Spain, on December 5-8, 2009. The Cachexia definition will be published in a forthcoming edition of *Clinical Nutrition*. More information may be obtained at www.cachexia.org.

- Cachexia (pronounced /kəˈkɛksɪə/) is loss of weight, muscle atrophy, fatigue, weakness and significant loss of appetite in someone who is not actively trying to lose weight.
tients’ specific risks for falling. For example, frequent rounds are important for patients with memory loss as they may not remember to call for assistance when they need to get up. Studies show that frequent rounds decrease fall rates. Physical therapy may be indicated to address problems with gait and balance or to provide walking aids. Steps can be taken to address medication problems or dehydration that may be causing orthostasis. Delirium rooms have been effective for those who have acute confusion and cannot follow directions (Flaherty, et al, 2003). The key is to address the patient’s own risks.

Evaluation. Monitoring falls and evaluating the root cause of fall incidents can help design safer nursing care. For example, one hospital identified a trend in falls related to their bedside commodes. They found a more secure product and replaced the old commodes, and that intervention resulted in fewer falls. A specific unit or institution may find they have falls from a particular problem that can be addressed with quality improvement approaches. Tracking falls can help identify if approaches are working.

Nurses can provide safer care for their patients by learning about risk factors for falls and the latest ways to address these risk factors.

The following are resources for more information on reducing falls:

- Hartford Institute for Geriatric Nursing – TRY This Assessment Series and resources for taking care of older adults http://www.hartfordign.org/
- Nursing references and protocols for taking care of older adults: http://www.ConsultGeriRN.org
- Veterans Administration Patient Safety Center of Inquiry: http://www.visn8.med.va.gov/patientsafetycenter/
- The American Geriatrics Society’s Health in Aging public education website: http://www.healthinaging.org/public_education/ provides a clearinghouse of information free of charge, including a link to multiple resources on falls and falls prevention.

References

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Falls and Fragility Factors
(continued from page 6)

Fragility Factors
fracture or who fail to respond to bisphosphonates. It should be taken for a maximum of one year.

Conclusion
Fall prevention programs can decrease injurious falls. Orthostasis should be measured in all older persons. All older persons should have their 25(OH) vitamin D levels measured, and when the level is below 30 ng/ml, aggressively replaced. Bisphosphonates are the drug of choice if the bone mineral density is <2.5 or if the fracture risk is high as determined by the FRAX. Teriparatide should be used in persons with a bone mineral density of <3.0 or with a hip fracture and osteoporosis.

References
“I think it’s fine. Oh, how pretty, oh yes it’s pretty” Martha murmurs to herself as she paces through the garden looking at each pot of flowers. She touches each petal in the flower pot and then moves on to the next flower pot. Her face, always with a smile on it, looks content from a distance but up close her eyes were anxiously searching for an answer to a question I didn’t know. As I gazed at Martha from the bench across the garden, someone tapped my shoulder.

“It’s getting weird,” said Dr. Savoi as he pointed to the gray clouds moving in the sky against a background of bright blue.

“How’s it getting weird Dr. Savoi?” I asked hoping he will be able to articulate some kind of answer. He looked at me and I saw him searching for the words but after a minute he gave up and succumbed to silence.

Dr. Savoi was the most interesting patient to me. Learning that there was a medical doctor at the special needs unit surprised me. For some reason, I never thought a doctor could suffer from dementia. Doctors are always in control of themselves and the situation surrounding them. It was strange seeing a doctor as a vulnerable patient who once could easily produce a diagnosis and now was unable to find the words to describe the sky. I related to Dr. Savoi more than the other patients because he was a doctor.

One morning, when I was helping a resident through her exercise session, Dr. Savoi grabbed my notebook and sat down at a table next to me. He perused through my notebook in the same manner a doctor looks through a medical chart. After I finished the exercise session, I asked Dr. Savoi for

(continued on page 26)
my notebook. He politely handed me the notebook, and I looked at his notes. What I was hoping for I didn’t see; he scribbled illegible words after my notes and tried to circle certain words. I could see how content he looked after he wrote in my notebook and I thanked Dr. Savoi for the notes. The nurses would later tell me that they made a fake medical chart that looks very similar to a real medical chart for Dr. Savoi. They would tell me that he would peruse through it and write notes. Dr. Savoi’s presence at the Special Needs Unit forced me to recognize the fragility of my own life. This helped me relate to the residents better because I could see myself in their position.

This was my second day of conducting an exercise program at the Special Needs Unit at NHC Healthcare- Town and Country. The program was designed to decrease the side effects of dementia, agitation, depression, and the decrease in activities of daily living, through three exercise sessions per week for three weeks. Each exercise session consisted of aerobic, resistance, and isometric exercises that each subject did for 30 minutes. The study was conducted at NHC-Town and Country and NHC-Maryland Heights.

The patients at both units suffer from dementia and some are schizophrenic or psychotic. Their memories are lost, and now the patients get through their days using routine and silence. Each resident’s behavior and personality is very different from the next, although each suffers from the same ailment; how close their personality is to what they once were only their family and friends know.

I was able to meet the family members of the subjects in the study during the three weeks and I learned that the dementia each patient suffered didn’t change certain aspects of their personality. I began to learn a different side of the residents after talking with their families which allowed me to understand the residents a little better. Mary, a resident at NHC-Town and Country who was never tired of exercising even when I was exhausted, was described by her son as “hard working and always on her feet.” I asked if she was always like that, and he responded with a smile and watery eyes “ever since I can remember she’s been working.” Mary’s personality began to make more sense to me after her son’s description.

Other than the scientific gains made by this summer research project, our preliminary results have shown a decrease in agitation amongst participants in the exercise program, I have learned something about myself from the residents. The residents have shown me the frailty of life and the importance of balance in life; something which can sometimes be lost during one’s medical training. As I sit reflecting on my experiences this summer, I feel guilty that I have personally gained so much, and I wish I could give back more to each of the residents at the Special Needs Units at NHC Town and Country and NHC Maryland Heights.
Upcoming Continuing Education Programs

Multi-Disciplinary Certificate Program in Geriatrics for Non-Physicians
► In Freeport, Illinois - Wednesdays
Mar. 4, 18, APR. 1, 15, 29, May 13, 2009
► In Carbondale, Illinois - Fridays
Mar. 13, 27, Apr. 10, 24, May 8, 22, 2009

Multi-Disciplinary Certificate Program in Dementia Assessment, Care, and Management
► In Chicago, Illinois - Thursdays
Feb. 26, Mar. 12, 26, Apr. 9, 23, May 7, 2009
► In Lombard, Illinois - Thursdays
Mar. 5, 19, Apr. 2, 16, 30, May 14, 2009
► In Fairview Heights, Illinois - Fridays
Mar. 6, 20, Apr. 3, 17, May 1, 15, 2009

Multi-Disciplinary Certificate Program in Addiction
► In Washington, Illinois - Wednesdays
Feb. 25, Mar. 11, 25, Apr. 8, 22, May 6, 2009

For more information on these conferences, call 217-443-8777.

For more information about upcoming conferences, contact 314-894-6560.
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