

JUAMS[®]

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES • FALL 2014

JOURNAL



PUTTING THE PIECES TOGETHER

Seeking Solutions for
Age-related Issues

About This Issue



Dear Readers,

We are all aging. This is a fact.

In the United States, the population showing the greatest growth on a percent basis is in individuals between the age of 80 and 90! Individuals of advanced age are no longer “put out to pasture” but instead are or wish to be vibrant contributing members of society. Our goal at UAMS, through a wide range of programs, initiatives and research is, put simply, to promote healthy aging.

Seniors, like all of us, need activities that strengthen their minds as well as their bones and muscles. They benefit from social interactions,

At UAMS, we have some of those answers and are dedicated to seeking solutions for other age-related issues.

good nutrition and healthy personal habits. They need resources to assist them in answering their health and wellness concerns.

At UAMS, we have some of those answers and are dedicated to seeking solutions for other age-related issues.

Our eight-story Donald W. Reynolds Institute on Aging anchors the work we are doing on campus. Our efforts include state-of-the-art clinical care, innovative translational research and top-ranked interprofessional biomedical education.

We provide care to seniors on our campus, but we also bring the care to where the seniors are with our regional Centers on Aging and the novel Schmieding Home Caregiver Training Program that empowers caregivers to help those wanting to age well at home.

We are working to reduce hospital admission and readmission rates, reduce falls, prevent frailty and help people maintain active lifestyles as long as possible. We are teaching our students and health care professionals about the nuances of caring for seniors and their special needs.

Our current research addresses key questions about Alzheimer’s disease, cardiovascular health, longevity, nutritional factors unique to older individuals and other age-related issues. We are also partnering with the Veterans Administration health system and communities around the state to bring services to those special populations.

We hope you will enjoy this snapshot of our exciting work, celebrate with us our successes and join us in our plans for a much healthier and brighter future for older adults.

Sincerely,

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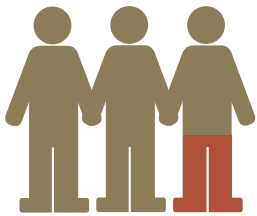
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Of the nearly 3 million people who live in Arkansas, almost 420,000 are 65 or older

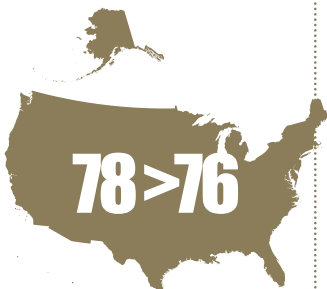
In 2030

26.1 % of Arkansans will be 60 or older

The state's poverty rate is

18%

the fifth highest in the United States



Life expectancy is 76 years, two years shorter than the U.S. life expectancy of 78 years.



45% of Arkansans live in rural areas compared to just 19% of people nationally.

AGING WELL:

Emerging Issues for Older Arkansans

By Elizabeth Caldwell

PEOPLE WANT TO AGE WELL. Most want to remain in their homes as long as possible. They want to stay active and contributing members of society.

In Arkansas, as with the rest of the nation, people are living longer. While the state's aging population faces some of the same challenges as the rest of the country — how to remain independent and active, for instance — special concerns and considerations also come into play for the Natural State.

Arkansas has a larger percentage of older adults than most other states. Ranked 31 of 50 states in the number of people age 65 or older by the U.S. Census Bureau, it is 10th in percentage of people in this age group.

Of the nearly 3 million people who live in Arkansas, almost 420,000 or 14.3 percent of the population is age 65 or older. That is higher than the national average of 12.9 percent.

By 2030, 26.1 percent of Arkansans will be 60 or older and the number of older Arkansans will almost equal the number of children.

The rapidly increasing number of older adults nationally is greatly raising the need for health and social services, says the Administration on Aging of the U.S. Department of Health & Human Services.

For one thing, older adults have more chronic health problems. And the already short supply of health professionals is exacerbated by the retirement of older health professionals.

The U.S. Census Bureau has other statistics that impact the health of aging Arkansans. The state's poverty rate is 18 percent — the fifth highest in the

United States. In a poor state, many older people's only income is Social Security leaving them more at risk of living in poverty.

Almost 45 percent of Arkansans live in rural areas compared to just 19 percent of people nationally. Access to health care may be limited in rural areas.

Living with disabilities is a risk factor for older adults. The group with the highest rate of disability

is those 65 or older. In Arkansas there are 180,000 adults in that age group, or 43 percent, with a disability.

The state ranks 48th in overall health. Life expectancy is 76 years, two years shorter than the U.S. life expectancy of 78 years.

As the state's only academic medical center, UAMS has long been aware of the challenges of the state's aging population and is continuing to address the issues with positive outcomes. With the establishment of the Donald W. Reynolds Institute on Aging in 2000, many patient care, research and education programs are helping seniors live healthier lives.

The Reynolds Department of Geriatrics in the College of Medicine is educating tomorrow's medical professionals. Other research, patient care and health care education initiatives from throughout the campus are joining forces to get ahead of the emerging health issues resulting from the largest generation of Arkansans to enter the latter stages of life.

At UAMS, it's about aging well and living better. ❖





Donald W. Reynolds Institute on Aging

By Lauren Farabough

WHEN THE UAMS Donald W. Reynolds Institute on Aging opened in 2000, it was heralded as one of the few freestanding institutions in the United States dedicated to serving the needs of an aging population through education, research and patient care.

Thirteen years later, the institute continues to be a leader in geriatrics for Arkansas as well as the nation.

Jeanne Wei, M.D., Ph.D., institute director since 2009, noted that the building and programs wouldn't exist without the generosity of the

Donald W. Reynolds Foundation, which also funded its namesake Reynolds Department of Geriatrics in the College of Medicine.

"We are so deeply grateful for the Reynolds Foundation's visionary generosity," Wei said. "It has made a huge impact in our ability to provide services to older Arkansans as well as do research and recruit physicians who want to specialize in geriatrics."

The four-story institute was established with an initial \$28.8 million Reynolds Foundation gift to UAMS in 1997. In 2009, another \$33.4 million



Photo: Dero Sanford

gift from the foundation enabled UAMS to add another four stories, which opened in 2012, plus establish a caregiver training program in regional Centers on Aging around the state.

The institute has developed a comprehensive, multidisciplinary approach to the treatment of seniors. The Thomas and Lyon Longevity Clinic offers primary care for seniors. Specialists and subspecialists will come to the clinic so that patients don't have to travel to multiple doctors' offices.

Available for patients and non-patients alike, the Ottenheimer Therapy and Fitness Center is designed for people age 50 and older. It offers

exercise equipment, weight machines, educational programs and exercise classes. Members of the fitness center have access to the Water Wellness program that can help with fitness goals or therapy for recovery.

The HouseCall program has doctors who will come to patients' homes when they are unable to come to the doctor's office.

The Palliative Care service focuses on pain management and end-of-life care through an outpatient clinic, home-based care and nursing home consultative services

The Pat and Willard Walker Family Memory Center houses research and treatment for Alzheimer's disease and other cognitive disorders. Clinical research involves working directly with patients to promote functional independence, deal with behavioral issues and encourage proper sleep hygiene.

Translational research from the laboratory bench to the bedside or the clinic is conducted as part of the Arkansas Claude D. Pepper Older Americans Independence Center at UAMS, funded by the National Institute on Aging. Its goal is innovation for maintaining and improving functional independence in seniors.

The institute oversees the Arkansas Aging Initiative and its nine satellite Centers on Aging, which puts adults age 65 and older in Arkansas within 60 miles of health care by a geriatrician. No other state offers a similar network of health care and educational services.

At each Center on Aging is a program to help seniors to be able to remain in their homes as they age. Called the Schmieding Home Caregiver Training Program, it is also funded by a Reynolds Foundation grant. The program is available for family members and for paid caregivers.

With the largest generation of Americans ever entering the latter stages of life, as well as people living longer than ever before, the Institute on Aging is an essential resource for Arkansas. ❖

The institute has developed a comprehensive, multidisciplinary approach to the treatment of seniors.



OUTPATIENT CLINIC

One Stop Shop Provides Primary and Specialty Care

By Holland Doran

SENIORS FIND that they can receive most of their primary and specialty care under one roof at the Thomas and Lyon Longevity Clinic in the UAMS Donald W. Reynolds Institute on Aging.

“We developed the clinic to be a one-stop shop,” said Ann Riggs, M.D., clinic medical director and professor in the Donald W. Reynolds Department of Geriatrics in the UAMS College of Medicine. “We offer the con-

venience of having most of your senior health care needs in one location, making it unnecessary for the patient to go to several doctors at different locations.”

The clinic receives about 25,000 visits a year and is the



Water wellness classes are part of services offered by the UAMS Institute on Aging.

physician assistant; and they can be seen by a dietitian,” Riggs said.

Even though a team of specialists sees each patient, care is personal.

“We sit at the table with our patients and their families every month,” said Mechele Taylor, clinic manager.

“This is one thing that makes our clinic stand apart from others.”

The clinic offers full-spectrum primary geriatric care, including regularly scheduled clinic visits and same day or urgent care appointments. Specialty and subspecialty services include renal, cardiology, physical medicine and rehabilitation services, pain management and palliative care as well as health education and disease prevention.

The clinic’s Walker Memory Center provides comprehensive evaluation and care for memory disorders. The team of specialists includes neurology, geriatric psychiatry, neuropsychology and social workers.

The team of physicians also provides consultations for inpatients, post-acute transitional care, home care, palliative care and nursing home care.

Patients and non-patients can join the Ottenheimer Therapy and Fitness Center, located in the same building as the clinic, for \$35 a month and participate in classes such as Zumba and Tai Chi. The fitness center membership includes access to a pool located

in the nearby UAMS Jackson T. Stephens Spine & Neurosciences Institute. The pool also offers a water wellness program.

Riggs said patients enjoy the

“Our geriatricians’ main goal is to help the elderly age in their own home and stay in the community.”

fitness center classes and the physical activity is good for building strength which, for many who live with the fear of falling, gives them

more freedom in their homes.

“Our geriatricians’ main goal is to help the elderly age in their own home and stay in the community, and so the physical therapy is very important,” she said. “They screen our patients for falls, weakness, safety — seeing if they need wheelchairs or walkers, etc.”

A pharmacist from the UAMS Anticoagulant/Coumadin Clinic also reviews all medications with patients to make sure they know how to take them and they are appropriate and effective. Social workers in the clinic help patients understand and select insurance or drug plans, resolve caregiving issues and offer advice about long-term care options.

With patients in mind, the clinic also enlisted the help of a patient advisory committee, which made recommendations on processes and significantly improved patient flow, Riggs said.

“We wouldn’t have as special a clinic if it wasn’t for them,” she said. ❖

Bringing Geriatric Care Close to Home

By Elizabeth Caldwell

SPECIALIZED GERIATRIC HEALTH CARE is not always readily available to many aging adults. And in a rural state like Arkansas, it can be even more difficult for seniors to have access to health care that takes into consideration their special needs.

Through the Arkansas Aging Initiative (AAI), which is part of the UAMS Donald W. Reynolds Institute on Aging, UAMS has made it a priority to bring

specialized interprofessional health care and education to where seniors are so they can have the best care closest to home.

With its network of nine Centers on Aging throughout the state, 98 percent of Arkansans 65 and older are within a 60-mile radius of quality health care.

“No other state in the country has a similar network of health care and educational services for seniors,” said Claudia Beverly, Ph.D., R.N., who directs the AAI and is a professor in the UAMS College of Nursing, College of Medicine and the Fay W. Boozman College of Public Health.

The AAI is a program of the UAMS Donald W. Reynolds Institute on Aging and partners with a community’s local hospitals, colleges and universities, and Area Agencies on Aging to improve the quality of life for older adults and their families.

“Our partnerships have made it possible to implement quality interprofessional clinical care,” said Beverly. “Additionally, our affiliation with the Arkansas Geriatric Education Center and

other community partners has allowed us to offer educational programs for health care professionals, students, older adults and families and the community at large.”

Ninety-eight percent of Arkansans 65 and older are within a 60-mile radius of quality health care.

The AAI was created in 2001 from a portion of the Tobacco Settlement. In addition to delivering health care to older people, conducting research on aging and age-related diseases, and providing educational

programs, it works to influence state and national public policy on aging issues.

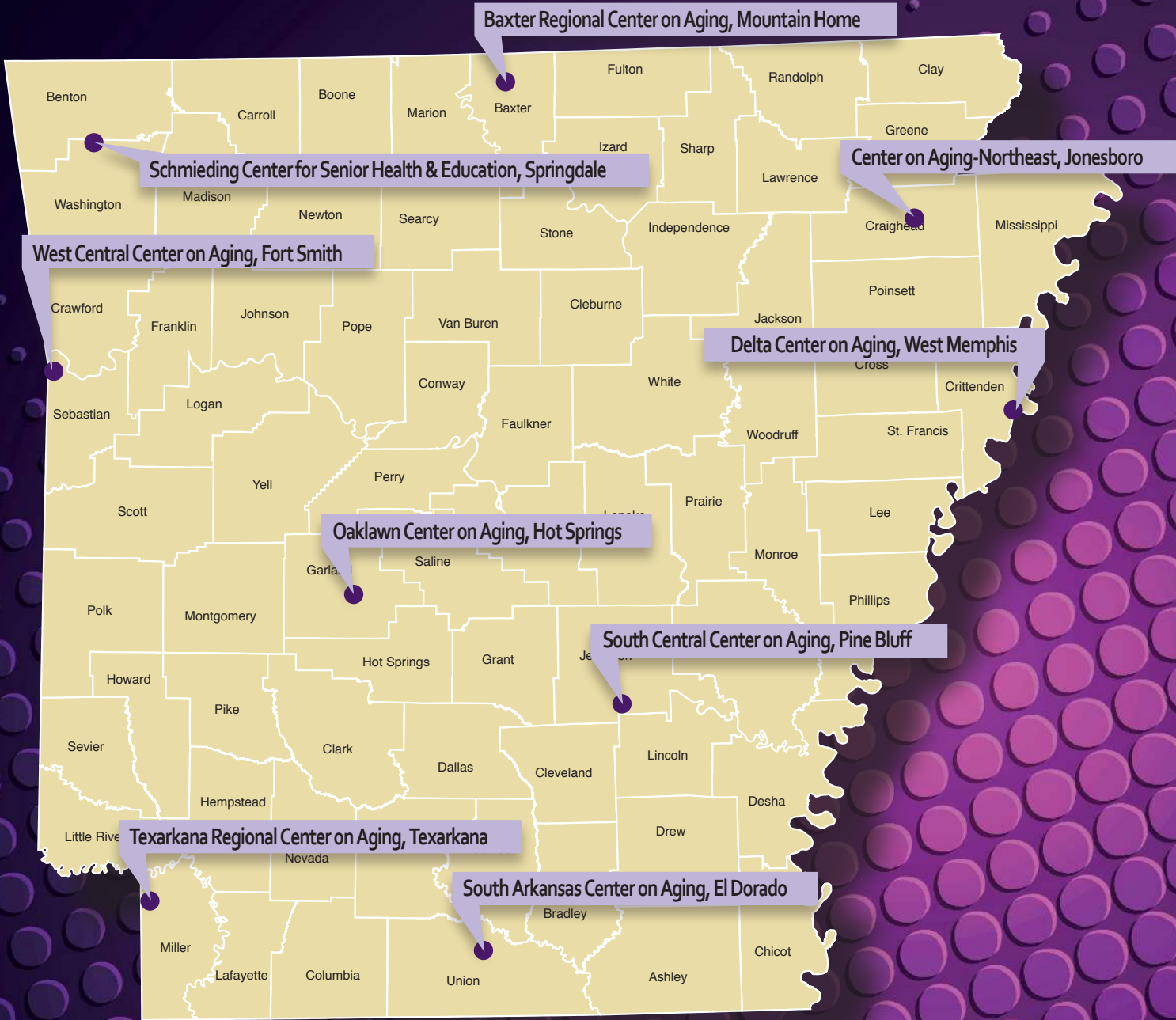
The AAI has opened nine UAMS Centers on Aging in El Dorado, Hot Springs, Jonesboro, Mountain Home, Pine Bluff, Springdale, Fort Smith, West Memphis and Texarkana. It is the clinics in eight of these centers that help put geriatric health care within a 60-mile radius of most older Arkansans.

The centers provide older Arkansans with specialized health care and education, including the Schmieding Home Caregiver Training Program for paid and family caregivers to allow seniors to remain in their homes as they age. The caregiver training is now in all nine Centers on Aging.

Each Center on Aging has acquired telehealth equipment and broadband technology that is used for health care professional continuing education and community presentations.

“The Centers on Aging have been leaders in clinical and educational programs,” said Beverly. “The number of older adults served continues to grow, and they enjoy a better quality of life.” ❖

UAMS Centers on Aging



SCHMIEDING HOME CAREGIVER TRAINING PROGRAM

Training Equips Caregivers with Skills By Ben Boulden

HARON WATKINS felt a little lost while caring for a family member with Alzheimer's disease. He didn't know what to do until he found the direction he needed through the UAMS Schmieding Home Caregiver Training Program.

Watkins recently completed 116 hours of coursework through the program.

"A lot of the guilt and anxiety is gone," Watkins said. "I look at the glass half full now, not half empty. Mid-stage Alzheimer's is much better than it could be and possibly will be. The program is

"The Schmieding program means seniors in Arkansas are more likely to have the option of aging at home."

an excellent opportunity to take advantage of the techniques we have now."

The Schmieding Home Caregiver Training Program was inspired by Lawrence H. Schmieding, who had struggled to find competent, compassionate home care for a brother with dementia. In 1998, the Schmieding Foundation donated \$15 million to UAMS to establish and construct the Schmieding Center for Senior Health and Education in Springdale. The center developed a unique, high-quality caregiver training program specifically for older adults living in their homes.

It now offers three levels of certification for paid caregivers and two workshops for those who provide care to their family members.

Getting the program to caregivers like Watkins, a Cabot resident, took expanding the program beyond northwest Arkansas.

Using the framework of the Arkansas Aging Initiative, part of the UAMS Donald W. Reynolds Institute on Aging, and a \$3.02 million grant from the Donald W. Reynolds Foundation in 2009, the caregiver program was extended from its Springdale location to other UAMS Centers on Aging in Jonesboro, Pine Bluff, Texarkana and West Memphis.

With a \$7.9 million grant again from the Reynolds Foundation, UAMS in 2013 made its Schmieding program available at four additional sites — Centers on Aging in Fort Smith, Hot Springs and El Dorado and the Reynolds Institute on Aging in Little Rock.

Larry Wright, M.D., director of the UAMS Schmieding Center in Springdale, said that when he finished his geriatric training 34 years ago, he heard the warnings about what would happen when baby boomers reached retirement age in the 21st century.

"Every day for the last two years, 10,000 baby boomers have turned 65," Wright said. "The implications are mindboggling. The number of retirees will double in the next decade."

The training and education of home caregivers through the Schmieding program means seniors in Arkansas are more likely to have the option of aging at home instead of in an assisted living or a skilled-nursing facility. That's an option most boomers will exercise whenever possible, Wright said.

The Schmieding curricula is also being used in California, Texas and Hawaii and will soon be offered in Oklahoma. Arkansas is the first to implement the program statewide though, and its impact extends outside the state's borders.

"We have several program centers in border cities where we're located — West Memphis, Texarkana, Fort Smith, even Springdale is close to Oklahoma and Missouri," said Robin McAtee, Ph.D., R.N., principal investigator for the Reynolds Foundation grant.

"We have students from those other states, so I think we're already having an impact outside Arkansas. We need to educate the public that this service is available. There are alternatives. We are a stepping stone. We are part of the long-term solution." ❖



UAMS
SCHMIEDING HOME
CAREGIVER TRAINING
UNIVERSITY OF ARKANSAS
FOR MEDICAL SCIENCES

Quintero Berkley and
Linda Willey role play
as they learn home
caregiving skills through
the Schmieding Home
Caregiver Training
Program.

Improving Quality of Life During Serious Illness

By Katrina Dupins

THERE'S MORE TO TREATING an illness than finding the cure. The UAMS palliative care program focuses on relieving suffering and improving a patient's quality of life.

UAMS began its palliative care program several years ago and was the first in the state to receive an accreditation from The Joint Commission, an honor recognized nationally as a symbol of quality and meeting the highest performance standards.

The program at UAMS is also instrumental in producing future palliative care professionals. It has the only fellowship program in the state for doctors and is the only entity in the state with a geriatric palliative care program.

Palliative care is a recent subspecialty in medicine that is available for patients no matter their stage of illness. It includes hospice care but is not limited to end-of-life care.

The supportive service also helps family members and caregivers who work closely with the patient. Jim Pickard takes care of his 90-year-old father who was diagnosed with squamous cell carcinoma, a form of skin cancer, in 2010. Pickard's father is a patient at the UAMS Donald W. Reynolds Institute on Aging.

"We didn't use palliative care for my mother," Pickard said. He took care of his mother while she was fighting lung cancer. She died in 2004. "With my father, I feel I have a lot more support. There are people to help answer questions, listen to our goals and give advice. I think, without a doubt, my father's quality of life has improved."

"You cannot provide good palliative care without an interdisciplinary team," said Masil

George, M.D., a clinician in geriatric palliative care at the Institute on Aging. "We're taking care of the whole patient. That takes a team approach. The team includes a palliative care geriatrician, social worker, pharmacist and nutritionist.

The UAMS palliative care program focuses on relieving suffering.

"We treat any issue the patient has, including pain, shortness of breath and nausea. We also pay attention to their spiritual and emotional needs," George said.

Palliative care treatment includes the welfare of the caregiver and family members.

"When someone gets sick, especially an older adult, it usually takes more than one person to get them the help they need," George said. "It can put a lot of stress on family members. We try to take care of our patients in every way possible, including making sure their families and caregivers are okay, too."

Pickard admires UAMS' dedication to his father's welfare. "I haven't met a doctor who gives me a cell phone number to reach them at any time," he said. "When we were concerned about my dad's staph infection one night around 9:45, we called our palliative care doctor, who answered and helped us."

"The care is very centered on the patient," George said. "When someone is first diagnosed with an illness, we tend to concentrate on treating that illness. In palliative care, it's about presenting options to patients, respecting the choices they make and trying to facilitate what their preferences are. Wherever the patient wants to go, we follow, as long as it's something that will not be detrimental to the patient." ♦



Jim Pickard (right) accompanies his father to his health care appointments at the UAMS Donald W. Reynolds Institute on Aging.

SUPPORT GROUPS

Sustaining the Caregivers

By Holland Doran

BEING A CAREGIVER for aging family members or loved ones can be extremely demanding — whether they have dementia or not.

The UAMS Donald W. Reynolds Institute on Aging is reaching out to both types of caregivers by offering monthly support groups for each.

For caregivers of seniors without dementia, a support group began in fall 2013 to educate them and provide a safe place to talk and find resources, led by Gohar Azhar, M.D. and Jasmine Brathwaite, M.D.

Azhar, associate professor of geriatrics in the Donald W. Reynolds Department of Geriatrics in the College of Medicine, is co-director of the Cardiovascular Aging Program in the College of Medicine and a physician-scientist at the Institute

“The best way of reducing stress in caregivers is by educating them.”

on Aging. Brathwaite is a second-year geriatrics fellow in the Department of Geriatrics.

“Some of the caregivers who attend the support group keep participating even after their loved one has died because they need someplace where they can talk about the pain that no one else can understand,” Azhar said.

“The physical and emotional burden of being a caregiver can significantly affect one’s health. Caregivers often do not have time to socialize or attend to their own well-being. They feel isolated and this can result in depression and negatively impact caregiving.”

The support group also provides an avenue to educate caregivers on conditions and problems such as diabetes, pain, cancer, heart failure, sleep problems, depression and fall prevention.

“Our patients have a minimum of five chronic



illnesses,” she said. “They have on average 10 medications and some of them are dangerous medications that can make them fall. The best way of reducing stress in caregivers is educating them. We cannot always educate the patients because of frailty and memory loss or because they are on medicines that make them forgetful. So we have to educate and empower the caregiver.”

Azhar said the group is unique because most other centers have dementia support groups but not general geriatric caregiver support groups.



Attending a caregiver support group led by UAMS social worker Beth Allen (second from right) are (from left) Jeri Fowler, Ann Hedge-Carruthers and Raymond Steverson.

For caregivers of those with dementia, the institute also offers a support group led by social workers Beth Allen and Paula Wright once a month.

“There are caregivers in the group who are taking care of loved ones from every stage of the disease,” Allen said. “Each one is there with their own outlook and stresses and they feel less isolated and more connected by coming to the group. Many have formed friendships

and provided support for each other.”

Ann Hedge-Carruthers, who recently lost her husband to Alzheimer’s disease, has built important relationships in the support group. She says that many caregivers struggle with feelings of guilt.

“When someone begins to express guilt about not doing things perfectly, there’s somebody in here to tell them ‘Stop it; let it go and forgive yourself and forgive yourself now,’” she said. ❖

OUTREACH

Wellness Program Open to the Community

By Lauren Farabough

Programs offered by the institute include:

LECTURES – including a free five-part Charlie Rose documentary series about the great mysteries of the human brain

SUPER NOGGIN – a classroom-based program with take-home workbooks that engages participants to help them keep their minds active and brains healthy

SILVERSNEAKERS – the nation's leading exercise program for active older adults that allows them to join a local gym, take classes and be guided by a program advisor

SENIORNET COMPUTER CLASSES – computer classes offered each month for seniors on various skills from beginners navigating the Internet to Microsoft Word

AARP DRIVING COURSE – four-hour driver safety class taught by an AARP volunteer that incorporates video segments, personal experience and group quizzes

TAI CHI – a motion exercise program offered through the Ottenheimer Fitness Center that helps senior adults by improving balance, posture and strength

AS ANN SMITH, of Little Rock, made her way through the streets of Dublin and around the Ring of Kerry in Ireland in September 2013, she was grateful to be healthy enough to revisit her grandmother's homeland, a place Smith last saw at age 16.

Only seven years before, the 71-year-old UAMS volunteer had been 40 pounds heavier and struggling to live an active lifestyle.

“We know that physical activity not only promotes physical health but cognitive health as well.”

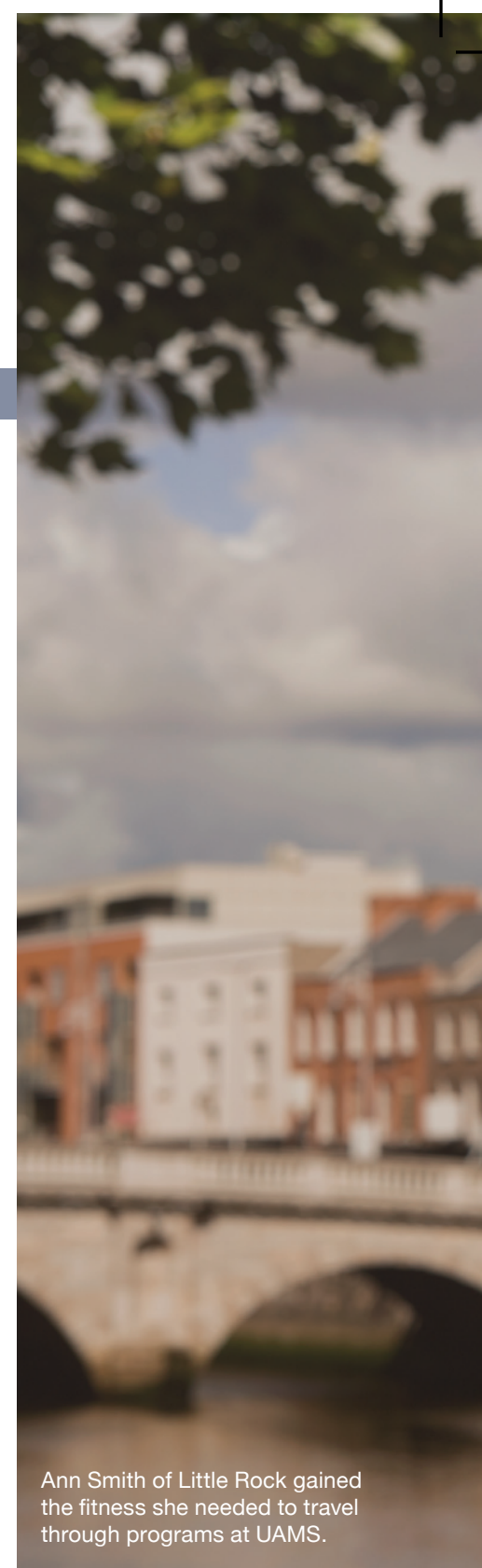
Her journey to become more energetic and healthy began with a trip to the UAMS Donald W. Reynolds Institute on Aging. She had attended fundraisers for the institute before it opened in 2000, but had never used its services until 2007 when she recognized her need to get fit.

As she began going to the

institute's Ottenheimer Therapy and Fitness Center to work out in the gym and attend water wellness classes at its pool, she developed a different lifestyle. “I have been able to do things I had not thought about before,” Smith said.

The fitness program is open to those 50 and older in the community whether or not they are a UAMS patient and offers classes including cardio dance, balance, strength and coordination and strength circuit. At the pool, located a block away, the water wellness program offers aqua arthritis, aqua Zumba, aqua dance, aqua strength and interval training. The institute encourages seniors to participate in dance competitions and National Tai Chi Day events.

“We have people who have sent me countless stories about how the fitness center has saved their lives, whether from chronic depression or by restoring mobility and function,” said M.J. Orellano, outpatient rehab program manager for the institute. “It serves not only as a



Ann Smith of Little Rock gained the fitness she needed to travel through programs at UAMS.

center for physical wellness but also as a center for social support and emotional well-being.”

The institute wants to help seniors sustain a vibrant lifestyle. “Our jobs are very rewarding because people often tell us how



much the program has improved their lives,” said Kellie Coleman, fitness coordinator at the institute.

“We know that physical activity not only promotes physical health but cognitive health as well,” Orellano said. “To

help someone who is a senior go hike the Grand Canyon or pick up their grandchildren or accomplish whatever their physical goals are is very rewarding.”

For Smith, she was able to revisit a land she thought she would only

see once in her lifetime, which was made possible by improving her health through the institute’s community outreach services. ❖



UAMS Northwest students (from left) Samantha Bolton, College of Nursing; Trenton Dunn, College of Pharmacy; and Jordan Griffin, College of Medicine help care for Larry Jundt, a U.S. veteran.

Keeping People in the Community as They Age

By Jon Parham

RECOGNIZING NORTHWEST Arkansas' reputation as a popular retirement destination, UAMS Northwest is assembling an array of programs that support healthy aging.

In planning the Fayetteville regional campus that in 2009 welcomed its first students, a main goal was expanding the number of health care professionals produced in the state. Peter Kohler, M.D., UAMS Northwest vice chancellor, saw an opportunity for these programs — along with existing UAMS resources in the area — to promote healthy living for older adults.

“Caring for the growing population of older Arkansans here is a logical role for UAMS Northwest,” Kohler said. “While we educate and train physicians, nurses, pharmacists and allied health professionals, our programs can improve access to care for older patients — extending health and improving the quality of life.”

A new physical therapy doctoral degree program is the first UAMS program housed solely on the Fayetteville campus. When its first students arrive in fall 2015, they will gain clinical experience in a physical therapy clinic slated to open by the end of 2014.

“Even in normal aging, adults will begin to lose muscle mass or bone density and see an increase in fat along with decreases in fitness and flexibility,” said John Jefferson, Ph.D., chair of the Department of Physical Therapy in the UAMS College of Health Professions. “Physical therapists specialize in prescribing the best course of exercise that can help slow or even stop those changes.

“We strive to find the most effective exercise, regardless of aging or physical condition.”

The physical therapy program could lay the foundation for an occupational therapy program, Jefferson said, further expanding the range of services for older adults through UAMS Northwest.

An educational affiliation agreement with the Veterans Home already on the UAMS Northwest

campus, makes it a teaching site for team-based care by interprofessional teams of UAMS students, Kohler said. Those residing in the home may also benefit from the physical therapy program's services if the affiliation is expanded.

UAMS Northwest is addressing shortages of primary care physicians by developing a community-based, internal medicine residency program. This postgraduate training, required before a physician can practice, will ultimately have resident physicians serving in three local hospital systems.

“We intend to take advantage of the UAMS resources already in place, such as the UAMS Schmieding Center for Senior Health and Education in Springdale, which is a nationally recognized source of caregiver training to help the elderly stay at home longer,” Kohler said.

UAMS Regional Programs has been a hub for medical and continuing education programs in the area for many years. This includes two primary care clinics on the UAMS Northwest campus and community education programs.

Access to mental health in the region improved in 2009 when the state, area health care organizations and mental health providers joined with UAMS to open a 28-bed adult mental health unit at Northwest Medical Center.

Kohler hopes to soon see extended access to genetics testing and counseling with physicians from the UAMS Division of Genetics making regular visits to the multi-specialty clinic at UAMS Northwest. That could be the first of several regular specialty clinics geared toward patient needs.

“Every program and resource we have has potential to improve the quality of life for our older population, which doesn't just benefit our region but the entire state,” he said. ❖

“We strive to find the most effective exercise, regardless of aging or physical condition.”

HOSPITAL READMISSION

Reducing Readmission Rates for the Medically Fragile By Nate Hinkel

WHEN MEDICALLY FRAGILE patients are discharged after a hospital stay, there's a high likelihood they will need to be readmitted within 30 days. But it doesn't have to be that way.

The Donald W. Reynolds Institute on Aging at UAMS is working to reduce those rates that cost \$18 billion a year nationally. With a 2010 federal grant, UAMS used advance practice nurses to follow up with older patients discharged to their homes, reducing readmission rates from 19 percent to 2 percent.

"We feel like it made a very powerful statement that we didn't have to accept the fact that readmission rates were so high and that there are

"Empowering the patients to take charge of their health care is the primary function."

cost-effective ways to drastically lower them," said Ann Riggs, M.D., professor and vice chair of clinical affairs in the Donald W. Reynolds Department of Geriatrics in the UAMS College of Medicine.

During the study, initial contact was made with patients in the hospital, and then an advanced practice nurse was sent to the patient's home shortly after they were discharged, ideally within 24-to-48 hours.

The nurse made a follow-up call two days later and then once a week for two weeks to help coach patients through the transition.

"Empowering the patients to take charge of their health care is the primary function during this period," Riggs said. "When patients take charge of their medications and know how to contact their provider, many problems that result in readmission can be eliminated."

Teaching patients to recognize symptoms early and let their provider know often results in simple solutions, like a medication or dosage change, which ultimately prevents another hospitalization.

The UAMS Donald W. Reynolds Institute on Aging also contributes to lowering readmission rates with a home care program and a nursing home program within eight area nursing homes, where UAMS provides the medical director.

Rehabilitation programs within those nursing homes serve as a transition facility for elderly people leaving the hospital, with the average length of stay in the program lasting about six weeks.

The institute, through its HouseCall program, also is working to lower hospital readmission rates through a home medical visit to frail, chronically ill and non-ambulatory elderly patients who are unable to visit the doctor's office and who generally would go straight to the hospital if ill.

The UAMS Center for Distance Health is gearing up for a pilot program with Riggs in one of the eight area UAMS-affiliated nursing homes to lower the number of unnecessary hospital visits.

Donna Ussery, R.N., a nurse project manager in the Center for Distance Health, said training has begun to use telemedicine technology there to connect patients in need with a physician for a video assessment.

"Nurses at the nursing homes will make a call to physicians who have the technology available on their iPads all the time," Ussery said. "A handheld camera will not only show the patient, but has a high-definition lens that can perform a routine ear, nose or throat scan and see many other things externally."

A Bluetooth-enabled stethoscope available for the nurse to use on the patient gives the remote physician access to hear what the nurse is hearing.

"Just the peace of mind alone of having these patients able to speak to a physician at any time will dramatically decrease unnecessary hospital visits," Ussery said. ❖



Ann Riggs, M.D., is helping to reduce the need for medically fragile patients to be rehospitalized.

Preventing Physical and Mental Decline

By Susan Van Dusen

HOSPITALS are intended to be places of healing. But for the elderly, hospital stays often result in unintended consequences.

Among the oldest and most vulnerable patients, these consequences may result in additional treatments, such as physical or occupational therapy. They also may limit a patient's ability to care for themselves when and if they are able to return home.

"No two people age in exactly the same way," said Paula M. Podrazik, M.D., associate professor in the UAMS College of Medicine Department of Geriatrics. "However, the older we become, the more vulnerable we are to the risks involved with hospitalization."

The most common hazards of hospitalization include dehydration, inflammation and deconditioning due to a lack of activity. Most patients age 85 and older — and many starting at a younger age — become physically deconditioned during hospitalization. About a third of these will lose their ability to perform basic self-care functions and have difficulty simply getting out of bed, Podrazik said.

Poor outcomes for the hospitalized patient center on three areas: severity of illness,

overall health and the types of procedures they receive. Because many older adults already have multiple illnesses and take an average of five prescription medications, their susceptibility to the hazards of hospitalization is higher than for a younger person with better overall health.

For many elderly patients, particularly those already

"UAMS is developing a nursing unit model to prevent physical and cognitive decline in older patients."

experiencing dementia, the risk of developing delirium is a common risk associated with hospitalization.

Delirium is a temporary state of confusion and can be dangerous for patients in the unfamiliar setting of a hospital. Patients may become fearful of their surroundings and attempt to pull out IV tubes, catheters or drains. Those with dementia or Alzheimer's disease may also experience agitation and confusion as the sun sets, known as sun downing.

Factors most often contributing to delirium include medications, infections, dehydration and general anesthesia. "Delirium has underlying causes



we try to prevent and treat as quickly as possible," said Lisa Hutchison, Pharm.D., a professor who specializes in geriatrics within the UAMS College of Pharmacy's Pharmacy Practice Department.

Hutchison is working with the American Geriatric Society to develop guidelines for the prevention and treatment of delirium in post-operative patients. Once complete, the



Support from a loved one is essential for seniors who are hospitalized.

guidelines will be presented to the American College of Surgeons Clinical Congress and published in various academic journals.

Among the strategies to prevent delirium is having a family member present with the patient to keep them oriented and ensure they have essentials such as eyeglasses, hearing aids and plenty of hydration. Displaying photos, discussing current events

and keeping patients aware of the time of day also are ways family members play an important role in preventing delirium, Hutchison said.

On a larger scale, UAMS is developing an Acute Care for the Elderly (ACE) nursing unit model to prevent physical and cognitive decline in older patients. The unit, which is a collaboration between the Department of Geriatrics and

Department of Nursing, has a goal of ensuring that patients can safely return home following discharge, rather than moving to a skilled nursing or acute care rehab facility.

“If we put preventative measures in place with one group of vulnerable patients and see success, this expertise could be used throughout the hospital for patients in many different circumstances,” Podrazik said. ❖



FALLS AND FRAILTY

Finding Who's at Risk and Keeping Them Safe

By Katrina Dupins

FALLING IS THE NO. 1 REASON for hospitalization of those 65 years old or older. About one third of those over age 65 will fall annually. Half the people over 80 will fall, according to the Centers for Disease Control and Prevention.

Falls are the most common and costly of all adverse events

reported in hospitals. In 2010, the number of falls and injuries related to falls at UAMS caught the attention of Amy Hester, R.N., clinical services manager and Dees Davis, R.N., advanced practice partner.

“We began looking at the way we assess falls and the risk each of our patients had for falling,” Davis said. “We realized that’s

what we needed to change. We needed a better tool to be able to pick out the patients who were at risk to fall.”

Their research produced a risk assessment tool to identify a patient’s risk of falling and comprehensive approach to care to prevent the falls from occurring. Known as the Hester-Davis scale, the model reduced



Dees Davis, R.N., (left) and Amy Hester, R.N., have developed a scale used to predict and prevent falls.

to reduce falls and injury even further.

“We don’t want to just keep patients safe while they’re in the hospital,” Hester said. “We want to lower their risk to fall as much as we can before they go home so that they can be safe after they’re discharged.”

“We were looking to create a better way to predict fall risk to better care for our patients.”

HD Nursing is working on a new prediction model — the first of its kind — that will identify which patients are most likely to injure themselves if they were to fall.

Learning more about who is at risk for injury and who is not will help clinicians make evidence-based decisions about treatment and care.

The fall management and injury management program HD Nursing has available now is for hospitals, but Hester and Davis expect the new model for injury prediction to be offered to the community and across care settings.

“This new model can be used in homes, assisted living facilities and anywhere else,” Hester said. “We’re working very hard with leading industry vendors to develop a methodology to bring fall and injury prevention to people in the community in a meaningful way.”

They hope to make the model available through smartphone applications, kiosks in the community and health care providers. ❖

fall rates at UAMS by 11 percent. Fall-related injuries dropped 60 percent and have continued to decline – saving the hospital \$1.27 million in falls-related costs and \$330,000 in savings as a result of the elimination of patient sitters for falls management. A recent article in Becker’s Hospital review ranked UAMS at the top of the list for hospitals that saved money in innovative ways.

“When we started, we weren’t looking to create some big

marketable product on the back end,” Hester said, “We were looking to create a better way to predict fall risk to better care for our patients.”

The Hester-Davis Scale is a part of HD Nursing, a business they began through UAMS BioVentures as a vehicle to take their work to the health care industry. While the Hester-Davis scale has been successful for UAMS and many other hospitals around the country, Hester and Davis are looking

Researching and Treating Serious Eye Diseases

By Holland Doran

AGE IS ONE of the biggest risk factors for developing glaucoma and age-related macular degeneration, eye diseases that can lead to permanent blindness. As the population is aging at a faster rate, research is offering new less-invasive, cost-effective treatments to restrict these diseases.

“Globally, glaucoma is a very hot area for research right now, and I believe we are due for a major breakthrough in how we treat glaucoma in the coming years,” said R. Grant Morshedi, M.D., assistant professor in the Department of Ophthalmology in the UAMS College of Medicine and glaucoma specialist at the UAMS Harvey & Bernice Jones Eye Institute.

The goal of treating glaucoma is to lower the eye pressure to prevent ongoing damage to the optic nerve, and many patients can be successfully treated with eye drops or laser procedures performed in a doctor’s office.

“Traditionally glaucoma surgery was reserved for patients with advanced glaucoma or pressures that are very high,” Morshedi said. “That is certainly still the case for some types of glaucoma surgery. However, several newer surgical procedures have been developed in recent years that are less-invasive and more appropriate for patients with earlier stages of the disease – mild to moderate glaucoma.”

Two of these newer surgical procedures are called Trabectome and iStent, and are offered by Morshedi. They help control eye pressure, which is important to reduce vision loss for glaucoma patients. They can also easily be combined with cataract surgery to reduce dependence on eye drops for pressure control.

A new treatment for age-related macular degeneration (AMD) is being developed at the institute under the direction of Nalini Bora, Ph.D., director of research for the institute’s Pat & Willard Walker Eye Research Center and professor and vice chair for research of the Department of Ophthalmology; and Puran Bora, Ph.D., professor of ophthalmology, as they look for better ways to treat AMD.

The treatment contains anti-inflammatory peptides that can prevent AMD by almost 70 percent. They are making this into an eye drop that they hope will be a better alternative than the painful and expensive injections used now.

“Although there are some treatments, and clinicians are treating patients with injections in the eyes, there are several side effects,” Nalini Bora said. “Nobody likes to have injections in the eye and these injections can have many problems. Also, about 25 percent of AMD patients do not respond to the treatment. So there is a need for more research. And, new reports show that after a while, there is damage to the retina.”

The eye drop treatment could change things for both patients and physicians, Puran Bora said.

“Patients can put the drop in themselves and they don’t have to go the doctor,” he said. “That’s the good thing about the eye drop – it won’t cost that much because it can be delivered by the patients themselves.”

The Boras are also working with gene therapy that involves replacing the particular defective gene causing the AMD with a fully functional gene directly in the patient’s eye.

“The advantage of using gene therapy is that there is a slow release of the agent in the eye so it lasts for a long time,” Nalini Bora said. ❖

“I believe we are due for a major breakthrough in how we treat glaucoma in the coming years.”



Puran Bora, Ph.D., (left) and Nalini Bora, Ph.D., are making strides in new treatments for age-related macular degeneration.



Lisa Hutchison, Pharm.D., works with a student learning to care for geriatric patients.

Equipping Students in Geriatric Health Care

By Jon Parham

RECOGNIZING the complexity often encountered in treating older patients, UAMS students are equipped with a more in-depth and increasingly interprofessional exposure to geriatric health care than many of their peers elsewhere.

Students draw on the nationally known resources of the UAMS Donald W. Reynolds Institute on Aging and the Donald W. Reynolds Department of Geriatrics in the UAMS College of Medicine. It's the kind of expertise that ranks the educational program regularly among the best in the country in *U.S. News & World Report*.

Fourth-year medical students serve a required month-long clerkship in geriatrics where they see patients in outpatient clinics, inpatient settings and long-term care facilities. In addition to honing their clinical skills, students learn the roles of pharmacists, nurses, social workers, physical therapists and other members of the health care team in caring for elderly patients.

The month-long student rotation in geriatrics and the fact it is required for all 165 UAMS senior medical students is uncommon nationally. Credit the presence of the Institute on Aging, alongside the state's aging population, said Paula Podrazik, M.D., an associate professor who works with the medical students and resident physicians and is the geriatrics fellowship program director.

"We can offer our students more depth and breadth of focus around the skills for taking care of older, more medically complex patients," Podrazik said. "Older adults may be dealing with lots of chronic problems, whether it's diabetes or high blood pressure, at the same time they are becoming frail and have declining systems."

The four-week rotation allows students to see patients with different conditions and in different settings. Faculty members are able to spend more time with the students, including one-on-one, bedside teaching moments.

But it's not just about medical students. Internal

medicine and family medicine interns and some internal medicine residents rotate in geriatrics for two weeks to a month. In addition, a geriatric pharmacy rotation is available for upper-level College of Pharmacy students.

"Almost anywhere a pharmacist practices, the majority of patients they will see will be elderly," said Lisa Hutchison, Pharm.D., M.P.H., a professor in the Colleges of Pharmacy and Medicine who works with students in clinical rotations.

Nursing students and those in other programs also have opportunities to work with older patients. The first students in the physician assistant program of the College of Health Professions just began required clinical rotations in geriatrics.

The Department of Geriatrics also offers an accredited 12-month Geriatrics Fellowship Program that allows practicing physicians to return for more specialization and increased skills in geriatrics. Upon completion, the physician may take the exam to become board certified in geriatrics.

"This program focuses on growing our specialty and keeping these fellowship-trained physicians in our state," Podrazik said.

The medical, nursing, and pharmacy students along with the interns, residents and fellows, have many opportunities to work and learn together and to discuss cases in weekly clinical case conferences, the monthly neuropsychological case conferences, and weekly geriatrics grand rounds.

"Interprofessional education is an increasing focus in academic health care. It's hard to provide the best care if you don't know how to function as part of a health care team," Hutchison said. "Interprofessional experiences let students learn what the other professions do and understand the expertise each brings to delivering patient- and family-centered care." ❖

"We can offer our students more depth and breadth of focus for taking care of older, more medically complex patients."

Preparing Nurses to Meet Mental Health Needs By Nate Hinkel

AS LIFE SPANS continue to increase, the UAMS College of Nursing is responding to a fresh challenge by preparing the next generation of nurses to meet the needs of older adults with mental health conditions.

“There is a whole side to aging that people don’t think about. People are living longer, but we need to know how their mental health care will transition,” said Melodee Harris, Ph.D., R.N., assistant professor and specialty coordinator of the adult gerontology nurse practitioner program in the College of Nursing.

“It’s imperative that we train more nurses to respond to mental health care needs of seniors.”

About one in five adults over 65 in the United States are diagnosed with at least one mental health or substance abuse condition. And with the number of older adults projected to soar to 72.1 million

by 2030, the answer is clear. “We must train more health care providers with the expertise to care for older adults,” Harris said.

Less than 1 percent of the nation’s 2.2 million registered nurses are certified in gerontology. Few undergraduate and graduate nursing programs focus on geropsychiatric nursing.

UAMS graduate nursing students are exposed to geropsychiatric nursing through a required course called Adult-Gerontology Primary Care Psychiatric Nursing for Advanced Practice Nursing students.

“It’s a great introduction to pique the interest of students and hopefully set them in a direction that will be a rewarding career path for them,” said Harris, who teaches the course.

Harris also is leading development of three geropsychiatric nursing online learning

opportunities in master’s, doctor of nursing practice and Ph.D. programs through the Geropsychiatric Nursing Initiative.

The project is in partnership with the National Hartford Centers of Gerontological Nursing Excellence, Hartford Institute for Geriatric Nursing and the American Association of Colleges of Nursing.

Harris is responsible for developing content and producing online learning tools, identifying and contracting authors and reviewers, and overseeing the implementation of the continuing education programs.

“Many people may not realize the mental health and substance use challenges associated with the aging population,” Harris said. “They might think as long as they’ve been treated or have their conditions under control at middle age, what could change as they age?”

Undiagnosed and untreated geropsychiatric conditions have a wide range of negative effects, including emotional distress, functional disability, reduced physical health, increased mortality, suicide, and high rates of hospitalization and nursing home placement, all of which equal higher health care costs.

In 2012, the Institute of Medicine (IOM) formed a committee to study geropsychiatric workforce issues. The IOM Committee on Mental Health Workforce for Geriatric Populations identified 27 mental health conditions that can have substantial negative effects on a person’s emotional well-being, functional and self-care abilities, and quality of life.

“Depressive disorders and dementia-related behavioral and psychiatric symptoms are the most



Melodee Harris, Ph.D., R.N., is training the next generation of nurses to care for the mental health needs of seniors.

common,” Harris said. “Serious mental illness such as schizophrenia and bipolar disorder are less common but have significant implications for caregivers.”

Health care providers must understand the way alcohol and prescription drugs are metabolized differently as people age. Even people who have used alcohol and taken medications at the same

dose and frequency for many years may be at risk for serious side effects as they age. In addition, seniors experience significant losses including loss of loved ones, as well as loss of independence.

“It’s imperative that we train more nurses to respond to mental health care needs of seniors,” Harris said. ❖

CLAUDE D. PEPPER OLDER AMERICANS INDEPENDENCE CENTER

Training New Researchers on Aging By Ben Boulden

FOR RESEARCH ON AGING to continue to advance, scientists dedicated to understanding the aging process have to be around to do the research.

Among the main goals of the Arkansas Claude D. Pepper Older Americans Independence Center at UAMS is training new geriatricians and gerontologists to find the answers that will result in the continued independence and improved function of older Arkansans.

Because monetary compensation during a career in geriatrics may be somewhat lower than that in some other medical specialties, and because of the increasing cost of a medical education, recruiting

“The Pepper Center allows us to have the biostatistical, technical and laboratory support for junior faculty.”

new junior faculty and research fellows can sometimes be a challenge, said Jeanne Wei, M.D., Ph.D., director of the UAMS Donald

W. Reynolds Institute on Aging, which is home to the center.

“Geriatrics won’t reward you with the highest salary, but it will reward you richly otherwise,” Wei said. “The people who choose geriatrics are very happy because they are highly rewarded in terms of the amazing patients who are in their care and from whom

they learn so much. Geriatricians rank first in terms of professional happiness.”

In 2011, the institute received a five-year \$5.5 million grant from the National Institute on Aging to fund the Pepper Center. Its focus is on developing new interventions for the maintenance of functional independence and the prevention and treatment of skeletal and heart muscle weakness.

Gohar Azhar, M.D., and Robert Wolfe, Ph.D., both have made advances in these areas. Along with Wei, they have mentored and cultivated younger scientists interested in the field.

“We are very pleased with our research scientists, fellows and junior faculty who have come through the Pepper Center,” Wei said. “This will hopefully be a longtime pursuit for them once they become academic faculty and/or choose to practice geriatrics.”

Wolfe said the Pepper Center’s effort in training new geriatricians extends beyond the Little Rock campus of UAMS to central and northwest Arkansas and to Oklahoma.

The trainees also receive guidance on how to write a research protocol, prepare a grant application and other aspects of research training.

“The Pepper Center allows us

to have the biostatistical, technical and laboratory support for junior faculty who wish to pursue a relevant geriatrics question that interests them and to find the answers,” Wei said.

For example, Wei and Suzanne Klimberg, M.D., are working with Valentina Todorova, Ph.D., an assistant professor in the UAMS College of Medicine Department of Surgery, on developing new ways to screen cancer patients to determine if they are at increased risk for developing heart failure if they receive chemotherapy. Klimberg is director of the Winthrop P. Rockefeller Cancer Institute Breast Cancer Program and a UAMS professor of surgery and pathology.

The No. 1 risk factor for most cases of both cancer and heart failure is advancing age, Wei said.

It may be possible to develop a better therapeutic regimen that is specific to that patient’s condition if clinicians could know the patient’s specific risk factors in advance.

Researchers like Todorova as well as other young scientists in the Pepper Center are pursuing grants, getting research reports published and obtaining additional funding. They are working to ensure that Americans and Arkansans with long pasts will continue to have bright futures. ❖



Valentina Todorova, Ph.D., receives support for her research from the Claude D. Pepper Older Americans Independence Center.

Griffin Pioneers Role of Neuroinflammation

By David Robinson

BACK IN THE MID-1980s Sue Griffin, Ph.D., was having a hard time attracting interest in her radical theory about Alzheimer's disease.

Then she visited UAMS, where she presented her ideas about the role of inflammation in causing the brain's neurons to self-destruct. Among those listening was the late Robert Fiser, M.D., then-chair of the Department of Pediatrics in the College of Medicine.

"He said, 'If you can't get support from anywhere else, I will support you,'" said Griffin, who was at the University of Texas Southwestern in Dallas. "I was enchanted by that."

Also, collaborators at UAMS generously offered her the resources to study Down syndrome pathology, which helped prove a key part of her Alzheimer's theory.

Griffin, who sealed her legacy with her breakthrough discovery about Alzheimer's disease, is a pioneer in the field of neuroinflammation. After joining UAMS in 1986, she published a landmark study in 1989 describing how inflammation in the brain's neurons can provoke an out-of-control immune

response. During such a response, neurons continue to release a molecule identified by Griffin (Interleukin-1) that ultimately leads to the creation of plaque that kills off more and more brain cells.

"The response has a purpose which is good, but sometimes it's like turning a knob too far in the right direction – you break the connection," she said.

Ten years later, the mechanisms that keep the

"It's like turning a knob too far in the right direction – you break the connection."

cycle going were discovered by UAMS' Steve Barger, Ph.D., her collaborator since 1995.

After joining UAMS, Griffin had more hurdles to overcome. Although she was an established National Institutes of Health (NIH)-funded brain/Alzheimer's researcher, her Alzheimer's discovery was rejected by some established Alzheimer's researchers who had their own theories about the disease and its causes.

She also had to overcome doubt that UAMS was capable of

leading her proposed Alzheimer's research program. To earn the first two years of NIH funding, she had to submit her application through a collaborator at New York University.

Griffin and her chief collaborator at the time, Robert E. Mraz, M.D., Ph.D., proved they were up to the task. The Alzheimer's program at UAMS has earned NIH grant awards continuously since 1991. In 2004, Griffin and Mraz again had to convince critics of their legitimacy when they were among the first to start an open-source scientific publication: the *Journal of Neuroinflammation*. Today the journal is an international success.

Many scientists have since confirmed her findings, and today most in the field accept her theory. In fact, several studies have found that regular use of anti-inflammatory drugs like ibuprofen (Advil) and naproxen for other conditions sharply reduces chances of developing Alzheimer's.

Today Griffin is working with a number of collaborators to find ways to prevent Alzheimer's. They include UAMS' Peter Crooks, Ph.D., a world-renowned drug



Sue Griffin, Ph.D., displays a scan of brain inflammation.

developer, who is studying drugs that may inhibit inflammation.

About 10-12 percent of people are genetically predisposed to experience the out-of-control Alzheimer's-inducing cycle as their neurons detect inflammation

– usually later in life. Still, Griffin believes it's possible through lifestyle choices to prevent or delay the inflammatory responses that develops into Alzheimer's.

“Don't get fat,” she said. “Belly fat, type II diabetes,

no exercise – all are associated with inflammation. Even if you are genetically predisposed to Alzheimer's, you can delay it with a healthy, active lifestyle, and keeping your brain active and challenged.” ❖

Shedding Weight Without Losing Muscle Strength By Ben Boulden

FOR OLDER PEOPLE, a shrinking waistline soon may not mean any loss in physical vitality, mobility or muscular strength.

When an older person loses fat through dieting or ill health, it also involves a loss of muscle tissue. That loss in turn means physical weakness, a great tendency to fall and a general reduction in mobility.

The research of Robert Wolfe, Ph.D., director of the Center for Translational Research in Aging and

“The maintenance of muscle mass and function actually improves mobility and function.”

Longevity in the UAMS Donald W. Reynolds Institute on Aging, has found that certain naturally occurring amino acids can stimulate protein synthesis and prevent protein and muscle breakdown.

“In the case of weight loss, the maintenance of muscle mass and function actually improves mobility and function because if they actually have weight loss, then they have less weight to move, and they are maintaining that strength,” Wolfe said. “In that case, mobility is improved. That’s a principal target in a lot of the things we are doing because maintaining mobility is really the key to independent living for most elderly. That’s the main target we have.”

Creating safe nutritional products with new formulations of naturally occurring amino acids means their use does not require physician oversight. Wolfe said they also outperform any intact or high-quality protein.

Elisabet Børsheim, Ph.D., associate professor in the UAMS College of Medicine Department of Pediatrics, also is working on formulations of amino acids that are more potent than any pharmaceutical in reducing liver fat and circulating

triglycerides. Wolfe said the only comparable drug adversely affects the liver in 15 percent of cases, so it is seldom used.

Wolfe and his research team additionally are investigating other amino acid formulations to help patients with cancer, prolonged inactivity or catabolic states where muscle is lost at an accelerated rate. The research has targeted vascular control, matching blood flow to tissue demand and even immune function.

“The general, overall focus here is to try to develop products that will translate to people being able to take nutritional formulations on a daily basis that target specific metabolic problems,” Wolfe said.

Much of Wolfe’s research has been done through the Claude D. Pepper Older Americans Independence Center at the Reynolds Institute, which is fitting because its application to the elderly started at another Claude Pepper center at another university. There, he was looking first at helping improve the metabolic function of children who were burn victims. The survival rate of third-degree burn victims, with better nutritional metabolic control, went from 40 percent to 98 percent.

Wolfe also has worked with the U.S. Swimming Team and Olympic Committee for many years on promoting muscle function in highly performing athletes.

“Nutritional research now is focused on everything from debilitated elderly to elderly doing exercise to elite athletes, and improving their performance through natural, nutritional products,” he said. “Our chief goal is to improve the everyday life of the elderly.” ❖



Emil Mackey exercises to maintain fitness at the Institute on Aging's Ottenheimer Therapy and Fitness Center.

Constructing a Younger-performing Heart

By Ben Boulden

GOHAR AZHAR, M.D., is exploring the consequences of having a young heart in an old body, and that's not a metaphor.

By changing one protein in the cardiac muscle of the heart, Azhar and her colleagues have been able to make the heart perform in an old mouse as though its chronological age was much less. The team has also been able to do the reverse — age a heart at an accelerated rate faster than the body around it.

“We were the first ones to do these experiments in Dr. Jeanne Wei’s laboratory. It’s a slight change of a single protein that’s changing the entire organ,

“Our objective is not to prolong life. It’s to make people as independent and functional as we can.”

but not the rest of the body” Azhar said. “That’s exciting, and later on we discovered even more important things about this transcription factor, which is called SRF — Serum Response Factor.”

Azhar is an associate professor in the UAMS College of Medicine’s Department of Geriatrics and director of the Cardiovascular Aging Program in the UAMS Donald W. Reynolds Institute on Aging.

The heart usually gets stiffer as it ages, and the old cardiac tissue doesn’t relax as well or as rapidly as it once did. That greater rigidity means it doesn’t have the capacity to dilate and hold all the blood in the heart that it could, even if its ability to pump blood out might be equally as good as that of young adults. Having less flexibility and less tolerance for stress also raises the risk for heart attacks and heart failure.

Effectively making the heart younger by modulating the level of SRF, Azhar and her research team can give it a greater capacity to



tolerate stress. However, much work remains to be done to perfect it.

“If you inhibit SRF too much, it results in dilated cardiomyopathy and death,” she said. “A very mild reduction results in a better-functioning old heart. A mild increase results in accelerated aging. It’s very interesting that there is a small window within which a mild increase or a mild decrease of SRF can effectively produce an old heart in a young body or a young heart in an old body. However, moderate reductions or moderate increases of SRF can be lethal.”



The team is now endeavoring to better define that window and understand the SRF protein mechanism more precisely. They also are testing drugs in cells that inhibit it and researching ways to minimize the effect of SRF manipulation on the rest of the body.

SRF plays an important role in skeletal muscle as well as cardiac muscle, so Azhar also works closely with Robert Wolfe, Ph.D., director of the Center for Translational Research in the Institute on Aging. Their focus is on possible nutritional interventions that can improve the health of both cardiac and

skeletal muscle. Azhar and Wolfe both conduct their research through the Claude D. Pepper Older Americans Independence Center.

“Our objective is not to prolong life,” Azhar said. “It’s to make people as independent and functional as we can, and to have a better quality of life, for as long as possible. We want them to have good cognition and be able to engage in work or hobbies, participate in society and enjoy life to the fullest. They have so much to give in wisdom and experience in return.” ❖

Gohar Azhar, M.D., explores proteins affecting the heart.



Robert J.S. Reis, D.Phil., is studying the processes that contribute to aging.

LONGEVITY

Gene-Mapping Gives Glimpse into Life Span

By Susan Van Dusen

WHAT DO HUMANS have in common with a millimeter-long, translucent roundworm? Based on the findings of Robert J. S. Reis, D.Phil., more than you would imagine.

For more than 30 years, Reis has mapped the genes of these roundworms, known as *C. elegans*, in an effort to understand the genetics of why we age. They are, he said, “a wonderful model for studying longevity.”

After earning his doctorate degree in Britain under the mentorship of the late John Maynard Smith, one of the world’s leading evolutionary biologists, Reis worked in the U.K. and Canada before coming to UAMS in 1980. Ten years later, Tom Johnson, Ph.D., a scientist and friend at the University of Colorado, invited him for a sabbatical to study aging in nematodes, also known as roundworms.



for tuning lifespan in worms, yeast and whales.

Most genes that make up key pathways in development and aging are so critical that they have maintained similar structures and functions from worms to humans. The nematode insulin-like pathway, for example, corresponds gene-for-gene to human insulin and insulin-like growth factor response pathways.

“We pursued a gene that encodes the class-I PI3K enzyme, which lies at the crossroads between insulin-like signaling and other pathways for stress, innate immunity and nutrient signaling,” he said. Reis and his colleague, Srinivas Ayyadevara, Ph.D., found that inactivating mutations in that gene extend worm life span 10-fold, a record for any organism.

Reis also serves as senior research career scientist at the Central Arkansas Veterans Healthcare System.

Reis is now collaborating with Peter Crooks, Ph.D., chairman of the Department of Pharmaceutical Sciences in the UAMS College of Pharmacy, to develop a novel drug to inhibit PI3K. Other drugs developed by Crooks also are being tested in Reis’ lab for ability to alleviate or delay the onset of neurodegenerative conditions such as Alzheimer’s, Huntington’s and Parkinson’s diseases.

“Some of these drugs work remarkably well in nematode models of these diseases, to delay symptoms and reduce nerve damage,” he said.

But while many of these studies look promising, it’s a long road before that translates into a drug for humans. That’s one reason Reis also has begun looking at biomarkers of longevity and age to help determine a person’s molecular youthfulness. These discoveries could allow us to see much more rapidly whether lifestyle changes or specific drugs are able to set back the biological clock, he said.

“We have made huge strides in understanding the processes that contribute to aging,” he said. “Now we are beginning to use that knowledge to find new ways to reduce the burden of age-related diseases. I can’t tell you yet what will work – only that biology is full of surprises.” ❖

“We have made huge strides in understanding the processes that contribute to aging.”



Roundworms, *C. elegans*

“That gave me a jump-start for a project I had been considering for years,” said Reis, a professor in the UAMS Departments of Geriatrics, Biochemistry/Molecular Biology and Pharmacology/Toxicology. “I had devised a way to find the genes that allow longevity to evolve, by mapping those genes on chromosomes and studying their interactions. The nematode provided an ideal model system for that study.”

At the time, there were no gene mapping procedures in animal biology, but Reis used his own protocols to map 13 genes in the nematode that strongly determined lifespan. Recently, one of those genes was identified; it encodes a protein that stabilizes the genome of germline cells, important

COMMUNITY RESEARCH

Connecting the Underserved Saves Money

By David Robinson

A FEW YEARS AGO, UAMS researchers found that significant Medicaid savings were resulting from a unique effort to help people in three underserved counties receive in-home long-term care.

The savings – \$2.6 million over three years – were accruing from a Community Connector

“The key is getting people the appropriate services so they can stay at home and prevent major health events.”

Program based in Phillips, Lee and Monroe counties.

The outcome of that UAMS Fay W. Boozman College of Public Health study by Holly Felix, Ph.D., M.P.A., has led Medicaid to expand the Community Connector program from three counties to 15. The National Institutes of Health (NIH) through the College of Public Health’s Arkansas Center for Health Disparities is now supporting Felix’s analysis of the expanded program and its potential savings.

“It may seem counterintuitive that improving access to these

services results in savings, but when you consider the high cost of nursing home care, it really makes a difference,” said Kate Stewart, M.D., M.P.H., a College of Public Health researcher and director of the UAMS Translational Research Institute’s Community Engagement program.

“The key is getting people the appropriate services so they can stay at home and prevent major health events that land them in the hospital or a nursing home.”

The Community Connector Program employs community health workers called Community Connectors who are selected from within the medically underserved communities targeted by the program. Their strong ties with neighbors, church leaders, schools, current and former co-workers, and employers and other organizations make them ideally suited for locating elderly and disabled people who need home and community-based services.

In the first known study of its



kind, Stewart has been delving into how the community health workers find people who need services. The work is being done in collaboration with the Tri-County Rural Health Network, which manages the Community Connector Program.

With pilot funding from the UAMS Translational Research Institute through the National Center for Advancing



Community Connector Wanda Kirkwood (right) assists Eva Mayfield in finding services that will allow her to remain at home as she ages.

Translational Sciences, she has examined the individual networks of five community health workers. Called social network analysis, the study also looked at the connections among each of the worker's network contacts, determining whether they knew each other.

Though the study was small and couldn't make definitive conclusions, Stewart said some

social networks appeared to be more effective at finding people who need services. For example, those who did the best job of finding new cases were those who had more network contacts who didn't know each other.

She hopes to publish the pilot study data and that it will lead to a larger study that validates the findings. The information could guide training of community

health workers, helping them become even better at finding people who need care. Potentially it could have national health policy implications.

"From a policy standpoint, we may be focused on cost-effective use of services," Stewart said. "But for the individuals involved, it also means independence and better quality of life." ❖

Prasad Padala, M.D., treats a patient for depression using a magnetic stimulator.



UAMS/VA Work to Improve Veterans' Health

By David Robinson

PRASAD PADALA, M.D., who is searching for novel ways to improve health in aging veterans, leads a visitor into a clinic room with the only magnetic stimulator of its kind in Arkansas that's known for its effective treatment of depression.

The Neuronetics Transcranial Magnetic Stimulator was purchased to help entice Padala, a research psychiatrist specializing in geriatrics, to UAMS from the University of Nebraska Medical Center. The device, still relatively new to psychiatric medicine, creates magnetic fields that safely stimulate nerve cells in the brain.

"It is effective up to 90 percent of the time treating depression, and it could potentially benefit patients with other psychiatric conditions," Padala said.

A Psychiatric Research Institute and Donald W. Reynolds Department of Geriatrics researcher in the UAMS College of Medicine, Padala conducts clinical research and is associate director of clinical programs at the Geriatric Research Education and Clinical Center (GRECC) at the Central Arkansas Veterans Healthcare System (CAVHS) in North Little Rock.

In addition to depression, Padala sees patients with dementia, known to cause behavioral problems including a profound loss of motivation. By stimulating a certain area of the brain, Padala hopes to improve motivation in dementia patients who consent to the research. He also hopes to use the device to stimulate memory areas of the brain to improve memory.

"I've seen some preliminary results and it's very exciting," he said.

In addition to addressing behavioral problems in dementia, the GRECC is involved in numerous projects related to exercise and nutrition.

The GRECC's cutting-edge geriatrics research for both UAMS and the U.S. Department of Veteran's Affairs is an example of the fruit that's bearing from the vision of Eugene Towbin, M.D., who in 1968 became chief of staff of the then-Little Rock VA

Hospital (now CAVHS) and associate dean of the UAMS College of Medicine.

At the time, Towbin saw the coming wave of aging WWII veterans, and he led the establishment of the country's first Geriatric Research and Education Center at the Little Rock VA in 1972.

The geriatrics medical specialty was born, and medical schools across the country began to establish departments of geriatrics. Towbin was one of the founders of UAMS' nationally leading geriatrics program.

"Dr. Towbin was among the first to realize the tremendous opportunity for improving geriatric care by linking the VA with research medical centers like UAMS," said Dennis Sullivan, M.D., director of the GRECC and vice chair for clinical research at the UAMS Donald W. Reynolds Department of Geriatrics.

"We now have 20 GRECCs nationwide, and all of them are partnered with academic medical institutions."

Each GRECC has a research, education and clinical component. They're meant to attract scientists and health science students to the field of geriatrics to expand the knowledge of aging, disseminate discoveries and innovations to providers, and improve the quality of care.

Since Towbin's vision was realized, many of the geriatric clinical programs at UAMS have their roots in evidence-based programs developed at the GRECC, including the use of home-based primary care and adult foster care.

"These programs started at the VA and have been adopted by UAMS and others around the country," Padala said. "We can help the elderly remain in their homes and prevent health crises that would land them in the hospital or costly long-term care programs." ❖

"We can help prevent health crises that would land them in the hospital or costly long-term care programs."

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