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The Garrison Institute on Aging

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Cover image: Line dancers from UMC Seniors are Special practice a dance routine.
Over the next decade, the nation’s aging population will profoundly affect all aspects of individual, community, and national life. Because of this, the Garrison Institute on Aging (GIA) has formed partnerships for clinical and research expertise, as well as healthcare and education excellence.

GIA scientists have discovered new knowledge and advances in the realm of Alzheimer’s. In addition, the Research Division has studied issues of practical importance to the health and well-being of the geriatric community. This annual report highlights these endeavors by nationally-recognized aging researchers at TTUHSC. Collectively their work seeks to develop interventions that can directly improve the day-to-day lives of older adults.

The Education Division has advanced aging education and training through various programs to assist healthcare professionals, students, and seniors. The Geriatric Education and Training Academy promotes high standards of excellence in geriatric care by providing training for nurses in long-term care.

Discover the opportunities to learn about healthy living and caring for older adults made available by GIA programs and services. Realize the possibilities of improving models of care and better understanding Alzheimer’s disease and other future challenges in aging.
Research

Paula Grammas, PhD, Executive Director, and Debjany Tripathy, PhD, Post Doctoral Research Associate
QUESTIONS FOR BETTER TREATMENT

The Research Division at the Garrison Institute on Aging is focused on asking and answering some important questions about age-related diseases, especially Alzheimer’s disease. Some of these questions include:

- Why do nerve cells die and what role, if any, do blood vessels play in the development or progression of Alzheimer’s disease? *(Grammas Research Group)*

- Does the loss of testosterone in men contribute to Alzheimer’s disease? What are the mechanisms that lead to testosterone decline in aging males? *(Wang Research Group)*


- Can antipsychotic drugs, which are used to treat Alzheimer’s disease, affect antibiotic treatment of urinary tract infections? *(Lyte Research Group)*

- Does rural community residence or Hispanic/Latino heritage influence the development of Alzheimer’s disease and other chronic conditions of aging? *(Cochran County Aging Study)*

Contributions from GIA researchers may lead to new, unexplored drug therapy treatments and improved care for the elderly.

Under the leadership of executive director Paula Grammas, PhD, the Garrison Institute on Aging is paving the way for increased research and collaborative opportunities in the study of aging issues with emphasis on Alzheimer’s disease (AD).

Collaborative Teams in Research. The interdisciplinary Alzheimer’s Study Group monitors progress on current investigations and scientific developments and seeks ideas for new studies. The group, representing TTUHSC and selected disciplines from Texas Tech University, has developed two new studies: a translational project aimed at understanding decreasing testosterone loss in aging males and the Cochran County Aging Study (both herein described in greater detail).

The contributions of the research groups described in this report are evidence of GIA’s commitment to recruiting and supporting an expanding cadre of scientists interested in age-related pathologies (diseases). Efforts to expand resources (including facilities, equipment, and operational support) and recruit top-notch scientists into the GIA continued this past year.
**Understanding Alzheimer’s Disease.** Paula Grammas, PhD and professor, leads her research group on several projects focused on understanding the mechanisms that contribute to the development of Alzheimer’s disease and other age-related neurodegenerative diseases.

**New Funding.** In the past year the Grammas laboratory received new funding from the National Institute of Aging (over 1 million dollars) to study the aging brain over the next five years. The project, *Vascular Inflammation in the Aging Brain*, aims to utilize a microvessel isolation procedure developed by the Grammas laboratory to obtain microvessels from male rats of varying ages to determine the expression of inflammatory proteins. Advances in our understanding of vascular inflammation have resulted in radical change in the approach to vascular diseases. Using animal microvessels, Grammas is trying to determine whether lipid or oxidative injury affects expression of vascular inflammatory proteins and release of neurotoxic factors from the cerebral microvasculature of aged rats.

Grammas received another new award of $75,000 from McNeil Pharmaceuticals in the last year for the project, *Vascular Mediated Neurodegeneration: A Novel Target for Acetaminophen*. Acetaminophen (Tylenol) continues to be one of the leading, international over-the-counter pain relievers. Brain blood vessels affected by Alzheimer’s disease release factors that kill nerve cells or neurons. The aim of this project is to test the hypothesis that the administration of acetaminophen prevents the release of neurotoxins from injured blood vessels within the aged brain.

**Links Between Heart Disease and Alzheimer’s.** In the National Institutes of Health project, *Is There a Link between Alzheimer’s Disease and Atherosclerosis*, Grammas is testing two hypotheses to determine if there is a common link between these diseases. One aim examines whether vascular risk factors control expression and/or release of neurotoxic proteins from brain blood vessels, a possible mechanism of neuronal cell death. The other aim examines whether the vascular release of thrombin, a clot promoter, and vascular-mediated neurotoxicity are regulated by the apoE isoform expression, which increases the risk of Alzheimer’s disease and memory impairment. This study also investigates whether the release of thrombin and vascular-mediated neurotoxicity are affected by lipids’ oxidative stress. Oxidative damage is implicated as a primary cause of various diseases and aging.

The Grammas Research Group is in the third year of five on this project and has published new work showing a connection between the expression of specific proteins (angiogenic proteins) in brain blood vessels and Alzheimer’s disease. This ongoing work provides the basis for novel therapeutic approaches to this devastating disease. Listed below are six publications relevant to these studies published in the last year.

Understanding Male Aging. Xingjia Wang, PhD and assistant professor, leads his research group on the project, *Cyclooxygenase-2 Regulation of Testosterone Biosynthesis in Male Aging*, with funding from the National Institutes of Health. This is important and timely aging research because blood testosterone concentration declines progressively as men age and is associated with a decrease in bone mineral density, muscle mass and strength, sexual function, and other physiological functions. Recent studies also suggest that low blood testosterone is a possible risk factor for development of Alzheimer’s disease.

Testosterone in the Body. Testosterone is a steroid hormone created by cholesterol in the body. How or why the hormone declines is not fully understood at present; although previous studies indicate that the primary site for this age-related decline of testosterone biosynthesis is in testicular Leydig cells and that the levels of steroidogenic acute regulatory (StAR) protein within these cells significantly affect testosterone production. Wang’s group found that COX2 protein in rat Leydig cells increased during aging and the increased COX2 depressed StAR gene expression and testosterone production. Thus, the discovery leads researchers to recognize that understanding the mechanism for the decrease in StAR gene expression becomes an important consideration in explaining the age-related decline in testosterone biosynthesis.

Delaying Aging Effects. Wang’s funded project aims to understand the molecular mechanism for the inhibitory effect of COX2 in StAR gene expression and testosterone biosynthesis in aging Leydig cells and to study the possibility of delaying the age-related decline in blood testosterone during male aging. His investigations from the last year suggest that the levels of COX2 and its subsequent enzymes in arachidonic acid metabolism greatly affect StAR gene expression and testosterone biosynthesis. Listed below are six publications relevant to these studies published in the last year.

**Microbial Endocrinology.** Mark Lyte, PhD, MS, MT(ASCP) is a professor and leading scientist credited with the discovery that bacteria which can infect people can actually respond to the very same hormones that are part of the body’s stress response. This discovery has led to a number of findings about bacteria and the body’s response to infections from common medical devices used in patients (such as intravenous lines and hip replacements) and a new field of study known as microbial endocrinology. Founded by Lyte, this field of researchers seeks to understand how bacteria can infect humans by utilizing stress hormones and was funded by the National Institutes of Health under the project *Stress-Bacterial Interactions in Infectious Disease* for which Dr. Lyte was also awarded a Research Scientist Award.

**Bacteria Influencing Behavior.** Further work by Lyte and his colleagues on the project *Gut-to-Brain Pathways for Infection-Induced Anxiety* has shown that bacteria in the intestinal gut can directly interact with the nerves in the gut lining to influence behavior. By using a mouse model that mimics inflammatory bowel disease (IBD), Lyte and his group were able to show that the animals became anxious (one of the well recognized problems in IBD patients is frequent changes in mood especially anxious behavior). This work has the potential to show that mood changes are not just in the head but also can come from the gut which would suggest new therapeutic interventions.

**Drugs and Microbial Sensitivity.** Over the last year, Lyte has also developed a new laboratory project in collaboration with Rebecca Sleeper, PharmD, *Psychoactive Drugs and Microbial Sensitivity Among Aged Long-term Care Residents*, to examine if the antipsychotic drugs which are used to treat Alzheimer’s disease have a role in the treatment of urinary tract infections. Urinary tract infections are common in the nursing home setting and it is unknown whether drugs which are excreted out of the body in the urine can also change the way that infecting bacteria can respond to antibiotics. Lyte’s group will be combining antipsychotic drugs and bacteria in the laboratory to see if they change the way that bacteria respond to the antibiotics that are commonly used to treat urinary tract infections. This research may provide new evidence that may lead to a change in antibiotic usage. Listed below are three recent publications relevant to these studies.


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Mark Lyte, PhD
Director of Translational Research Development
DISCOVERING OPPORTUNITIES FOR COMMUNITY-RESEARCHER COLLABORATIONS: Highlights from the Cochran County Aging Study

Aging in Rural America. The wide-open spaces of West Texas provide a unique opportunity for researchers to investigate the influence of rural community residence and Hispanic/Latino heritage on the development of Alzheimer’s disease and other chronic conditions of aging. This type of research is vital if we are to address the healthcare issues facing people who live in rural communities. With this in mind, a team of TTUHSC researchers initiated the Cochran County Aging Study in November 2005 to (1) investigate the prevalence of cognitive decline and dementia syndromes in this rural community, and (2) establish a large cohort of rural dwelling individuals to follow over many years and study the development and progression of Alzheimer’s disease, dementia, and the overall aging process. Initial funding for the project was provided by the Carl B. and Florence E. King Foundation as well as from TTUHSC Garrison Institute on Aging, Department of Neuropsychiatry, and School of Nursing. Support and cooperation from the Cochran County community has also been a key resource to ensure the success of this study.

Community Research Team. Individuals who agree to enroll in this study participate in a one-on-one interview designed to assess their current cognitive functioning and gather background information about where one grew up, one’s careers, and one’s medical history. To date, the research team, consisting of Barbara Cherry, DNSc, RN, MBA; Sid O’Bryant, PhD; and Donna Owen, RN, PhD has:

- Established a community advisory board composed of the county judge, community physician, local nurses, and other community members; this board meets monthly with the research team in a collaborative exchange about strategies to ensure success of the study.
- Trained nurses within the community to conduct the study assessments.
- Enrolled many individuals aged 55 and over in the study and completed their assessments.
- Hired a life-long resident of the community to recruit people to participate in the study.

DISCOVERING OPPORTUNITIES FOR IMPROVING THE HEALTH OF AGING MALES WITH AD: Development of New Translational Studies

Basic Science to Clinical Research. In addition to the Wang Research Group’s basic research of testosterone biosynthesis in male aging, Wang has collaborated with Joanne Link, MD, in the Department of Neuropsychiatry and Behavioral Sciences to develop the translational project, Effects of Dietary COX2 Inhibitors on Blood Testosterone and Cytokine Concentrations in Aged Males. Project findings will hopefully add to the body of research on the role of steroid hormones in inflammation and Alzheimer’s disease.

Testosterone and Alzheimer’s. It has been reported that blood testosterone concentrations are lower in male patients suffering from Alzheimer’s disease. Animal studies have similarly linked two biological markers of Alzheimer’s disease, thus suggesting low blood testosterone as a possible risk factor for development of the disease. While blood testosterone decreases during the aging process, inflammatory cytokines increase (cytokines are small secreted proteins which mediate and regulate immunity, inflammation, and the formation of blood vessels). In Alzheimer’s disease, an unbalanced cytokine network leads to an altered immunoregulation; thus cytokines play a role in the inflammatory events seen in Alzheimer’s disease.

Dietary Protein Inhibitors. Wang’s animal studies on testosterone biosynthesis have indicated that inhibition of COX2 activity using non-steroidal anti-inflammatory drugs (NSAIDs) reversed the decrease in blood testosterone concentrations in aged rats. Based on these observations, GIA investigators plan to study whether natural COX2 inhibitors from food could reverse the age-related changes in blood testosterone and cytokine concentrations in Alzheimer’s disease patients. This project will screen dietary COX2 inhibitors and test their effects on testosterone biosynthesis and cytokine production in Alzheimer’s patients.
Education

Student Scholars conduct health assessments: This page, Sheldon Sonnenberg. Next page (bottom-left to top-right), Collins Kowino, Shea Hudson, Ashley Hayes, and Renee Buchanan.
Discovering Opportunities for HSC Students

HIGHLIGHTS FROM THE STUDENT SCHOLARS IN GERIATRICS

Education is a key component of the GIA mission. The education division has a diverse range of programs to educate the long-term care workforce, health professionals, students, and the community. Program goals are to advance excellence in geriatric healthcare and educate students, seniors and their families, and legislative constituents about health issues and healthy lifestyles.

Inspiring Commitment to Geriatrics. The inaugural group of eight students from the Schools of Allied Health Sciences, Medicine, Nursing, and Pharmacy met regularly from September through May (every 2-4 weeks) with faculty experts in geriatrics for article reviews, discussions and geriatric-related presentations. These gifted students gained valuable work experience from the Student Scholars program that will have a long lasting impact on their healthcare careers in both their commitment to geriatrics and their ability to function effectively in interdisciplinary teams.

Programs by Students. Creating leaders in geriatrics is key to the long-term success of this program; therefore the students were charged with developing learning activities for themselves and their fellow students. The students conducted:

- Grand rounds for over 75 TTUHSC students entitled, “The Boomerang Effect: It’s Our Turn,” and used a case study format to educate their fellow students about the importance of geriatrics and utilizing an interdisciplinary approach to health care.
- Interdisciplinary Health Assessments for Community Dwelling Seniors in which students performed assessments relevant to their discipline and then met as a group to compare their findings and make recommendations. Nineteen adult seniors from the Grand Court Senior Living campus participated in the health assessment program which included a medical evaluation, blood pressure and blood glucose screening, balance and gait assessment, home safety assessment and a medication review.

Interdisciplinary Care. The program allowed the students to gain positive, hands-on experience in geriatric care and to understand how other disciplines function. Based on the program evaluation, the students felt that they are very likely to work in geriatrics at some point in their medical career. Here are some comments from the students about the program:

- “I realized the need of specialized health care professionals and interdisciplinary teams in geriatrics.”
- “I have a better understanding of how difficult it can be to meet the overall demand of the geriatric population.”
- “I learned that interdisciplinary teamwork had a profound impact on patient care and gave more meaning to our profession.”
- “I hope that doctors who get together and use teamwork will become the standard of care, which allows for optimal healthcare and idea sharing.”
- “I learned that, professionally, the old adage, ‘the whole is greater than the sum of its parts’, is very true and most beneficial.”
The Geriatric Education and Training Academy (The Academy) continues to promote the highest standards of excellence and leadership in geriatric care through its training programs for the Long-Term Care workforce. In 2005, an advisory committee of home health and nursing home administrators, community workforce leaders, and academicians from various health disciplines was formed: 1) to provide guidance in establishing goals and specific activities to achieve the Academy’s mission, and 2) to approve a three-year strategic plan.

Training Frontline Workers. The Academy provides training for all levels of nurses, nurse aides, and nurse managers. Highlights of the program are presented on the next page including a chart which describes the number of certified nurse aides (CNAs) trained since the program’s inception. Cheryl Cummins, the director of nursing in a long-term care facility said the following about her staff who attended Academy programs last year: “Wonderful seminar! We greatly appreciate education for the LVNs and CNAs. They all return excited and ready to implement the things they have learned.”

Retention and Growth. An important objective for the Academy is to create opportunities for certified nurse aides who work in long-term care to grow both personally and professionally. Career ladders are an established means for advancing the careers of CNAs, improving both recruitment and retention ratios in nursing facilities, and advancing best practices in resident care. A career ladder pilot project has been developed for CNAs. The Academy will begin recruiting facilities in the West Texas region to participate in 2007.

Reaching Texas Communities. In the past year, several Academy training sessions were conducted “on the road” in response to requests from facilities in the South Plains and other parts of the Health Sciences Center service area. Since its inception in 2003, almost 1,400 individuals have participated in Academy training. As the map on this page illustrates, attendees from more than 38 rural counties and from as far away as Mission, Texas, (over 600 miles from Lubbock) have participated in Advanced CNA or LVN classes.
Realizing Possibilities in CNA Training

UNIQUE HIGHLIGHTS FROM THE CERTIFIED NURSE AIDE PROGRAM

Inspiring Commitment to Direct Care. Nursing assistants, home health and personal care aides are in short supply, yet they provide the most direct care for seniors. While each Academy class usually has a large number of inquiries, the selection process and background check pare the number down substantially. Students are chosen through an interview process in which they are asked to verbalize their reasons for wanting to become a CNA and to write an essay about their career aspirations. This process allows the program coordinator to screen applicants thoroughly and select those who are most suited to become direct care staff.

Enhancing Geriatric Training. Although the state mandates 75 hours of training to certify a nurse aide, the Academy curriculum is 80-hours. In the five hours of extra geriatric instruction, a number of additional topics are incorporated. Time is spent focusing on the care of geriatric residents in long-term care facilities as well as on life skills, such as earning respect as an employee and co-worker, and investing in yourself and your future through continuing education.

Utilizing Our Teaching Nursing Home. CNA students gain exposure to the teaching environment through their clinical experiences at our teaching nursing home, the Mildred & Shirley Garrison Geriatric Education and Care Center. There they are mentored by CNAs who are on staff, thus giving each student the opportunity to observe and participate in patient care. There they also encounter students from other Health Sciences Center disciplines: medicine, nursing, pharmacy and allied health. Each class is limited to approximately 20 students so that the clinical experiences and testing process do not interfere with resident care at the teaching nursing home.

Employment in Long-Term Care. Employment opportunities are presented throughout the 2-week course by local businesses seeking CNAs. Since implementing and scheduling employers to speak to the students, the rate of students employed at the state examination time has increased to 75%. A recent class was 100% employed when they presented to take the state examination. The high demand for students trained by the Academy emphasizes to the new CNAs their value as future employees.

Graduating High Quality Students. The pass rate for Academy certification classes is 97%. Employers polled about the quality of the training received by CNAs who have completed the Academy’s program have been consistent. Ninety-seven percent of employers agreed that graduates of the program were either “above average” or “well above average” in their on-the-job performance.
Realizing Possibilities in Our Community

EDUCATING SENIORS AND FAMILIES

West Texas Cares Program. This collaboration with six Area Agencies on Aging in the West Texas region serves families who are caring for an elderly loved one. In 2005, the Garrison Institute on Aging led the development of a long-distance education program for family caregivers in four rural towns (Morton, Plainview, Floydada and Spur) to be implemented and evaluated in the fall of 2006 and spring of 2007.

Lecture Series on Healthy Aging. This program celebrated its second year with a host of interesting speakers on healthy aging, innovative research, and caregiving needs (see chart on next page). With an average attendance of 81, the audiences were mostly made up of retired seniors, but many other health professionals, HSC students, and researchers also attended.

Discovering Opportunities in Research and Care

EXCHANGING IDEAS AND DISSEMINATING VALUABLE INFORMATION

Annual Aging Symposium. The GIA held its third annual symposium, From Science to Interventions: Understanding Memory Disorders in Aging, on March 31, 2006. As the chart on the right describes, the GIA trained over 100 healthcare providers, researchers, students, and administrators. Guest speakers included Stuart Zola, PhD, from Emory University on the science of memory, Randolph Schiffer, MD, from TTUHSC on diagnosing memory disorders, Lisa Hutchison, PharmD, MPH, BCPS, from the University of Arkansas on drug therapy interventions, and Marianne Matzo, PhD, APRN-BC, FAAN, from Oklahoma Health Sciences Center on non-pharmacological interventions. Health Sciences Center researchers also presented 15 scientific posters at the day long event. Audience feedback was very positive, with an average survey rating of 4.75 on a scale of 5.

NIH Aging Research Meeting. The GIA co-hosted a Directors Regional Meeting on Aging Research with the National Institute on Aging (NIA) National Center of Complementary and Alternative Medicine (NCCAM) on February 13, 2006. The meeting educated researchers from Texas, New Mexico, and Colorado on the NIA extramural research programs, complementary and alternative medicine, and funding options for new investigators.

Guest Lecture on Long-Term Care Delivery. The GIA co-hosted a guest lecture with the Texas Tech University Rawls Business School MBA & MD/MBA Program in Health Organization Management on April 20, 2006. Jane Banaszak-Holl, PhD, from the University of Michigan, spoke to an audience of faculty healthcare providers, students, and long-term care administrators on the topic, “A Strategic Perspective on Delivering High Quality Long-Term Care.”
Fall 2005 and Spring 2006 lecture topics included:

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<tr>
<th>Lecture Topic</th>
<th>Speaker(s)</th>
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<tr>
<td>Alzheimer’s Research Updates</td>
<td>Paula Grammas, PhD</td>
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<td>Healthy Heart</td>
<td>LeAnn Lawson, BSN, ACLS</td>
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<td>February 22, 2006</td>
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<td>Eyes: Macular Degeneration</td>
<td>Kelly Mitchell, MD</td>
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<td>TTUHSC School of Medicine</td>
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<td>October 26, 2005</td>
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<td>Family Dynamics in Aging</td>
<td>Jean Scott, PhD</td>
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<td>Texas Tech University</td>
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<td>Senior Caregivers: Managing Stress</td>
<td>Howard Gruetzner, M.Ed</td>
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<td>Alzheimer’s Association Educator</td>
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<td>November 16, 2005</td>
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<td>Male Menopause</td>
<td>Bernhard Mittemeyer, MD</td>
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<td>TTUHSC School of Medicine</td>
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<td>April 26, 2006</td>
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<td>Prevention of Falls</td>
<td>Kathy Felts, BS, PT</td>
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<td>November 30, 2005</td>
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<td>Project SERVE</td>
<td>Dominick Casadonte, PhD</td>
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<td>Texas Tech University</td>
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<td>May 24, 2006</td>
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<td>Wellness for Life</td>
<td>Kristin Sava</td>
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NATIONAL PRESENTATIONS

Cyclin D1 and cdk4 mediate thrombin-induced apoptosis in cultured neurons by H. Vittal Rao, L. Thirumangalakudi, L. Hamdheydari, T. Ottman, and P. Grammas. Accepted poster at the Society for Neuroscience Fall 2005 Meeting, Washington, DC.

IL-8 induces metalloproteinase expression and apoptosis in cerebral cortical cultures by L. Thirumangalakudi, L. Yin, H. Vittal Rao, L. Hamdheydari and P. Grammas. Accepted poster at the Society for Neuroscience Fall 2005 Meeting, Washington, DC.

Real Businesses Accomplishing Business and Care Strategies by Barbara Cherry, DNSc, RN, MBA. Invited panel presentation at the National Convention of the American Health Care Association/National Association for the Support of Long-Term Care, Las Vegas, Nevada – October, 2005.


Student Scholars in Geriatrics: Promoting Interdisciplinary Geriatric Care Among Health Professional Students by Barbara Cherry, DNSc, RN, MBA. Accepted for Resource Exchange Presentation at the 32nd Annual Meeting and Educational Leadership Conference: Association for Gerontology in Higher Education, Indianapolis, Indiana. February, 2006.


REGIONAL PRESENTATIONS


Health Information Technology in Institutional Long-Term Care by Barbara Cherry, DNSc, RN, MBA. Invited podium presentation at the Texas Health Institute’s Texas Health Workforce/Health Information Summit in Austin, Texas - May 8, 2006.

The Long-Term Care Workforce: Implications for Our Future by Barbara Cherry, DNSc, RN, MBA. Invited podium presentation for the Texas Health Institute Long-Term Care Regional Forum in Lubbock, Texas. August 25, 2006.

Healthy Aging by Paula Grammas, PhD. Invited podium presentation at the Texas Women’s Leadership Conference, Lubbock, Texas. August 2006.

Creating Positive Work Environments: Improve Interpersonal Skills in the Workplace by Barbara Cherry, DNSc, RN, MBA. Texas Tech University Health Sciences Center School of Nursing Continuing Nursing Education Program presented to staff at the McCreary Nursing Home in McCarney, Texas. May 25, 2006.

LOCAL PRESENTATIONS


Becoming a More Effective Leader and Manager in Nursing Practice by Barbara Cherry, DNSc, RN, MBA. Texas Tech University Health Sciences Center School of Nursing Continuing Nursing Education Program presented to nursing staff at the Lubbock State School - February 21, 2006.


Using Conflict Management Strategies to Become a More Effective Supervisor by Barbara Cherry, DNSc, RN, MBA. Texas Tech University Health Sciences Center School of Nursing Continuing Nursing Education Program presented to nursing staff at the Lubbock State School. July 11, 2006.


Discovering Opportunities for Improving Quality

CENTER FOR THE ADVANCEMENT OF QUALITY IN LONG-TERM CARE (LTC)

Major Outcomes. The major outcomes for 2006 in the Center for the Advancement of Quality in LTC are:

- Conducted a study to identify barriers and facilitators to technology adoption in nursing homes; this study has significant implications for LTC leaders and policy makers to improve nursing home quality through technology.
- Hosted a Regional Long-Term Care Forum in collaboration with the Texas Health Institute for the purposes of designing the state-wide strategic plan for LTC in Texas.
- Presented educational programs to promote best practices in resident care and supervisory and management methods in nursing homes.

Health Information Technology Research.
Health information technology has been a primary focus of this year’s quality improvement work. Current research overwhelmingly supports the idea that information technology and electronic health records (EHR) hold tremendous value for the healthcare system by improving the quality and efficiency of care. Unfortunately, the long-term care industry lags far behind other healthcare settings in EHR adoption.

With funding from the Texas Department of Aging and Disability Services, the Center developed a study to identify factors that hinder and factors that facilitate implementation of EHRs in LTC facilities. The study involved an extensive review of current studies about EHRs as well as interviews with directors of nursing, facility administrators, and corporate executives/owners from LTC facilities throughout Texas. This study has provided insight into the issues that hinder and facilitate EHR adoption in LTC facilities and offers a framework for action for health policy makers, LTC industry leaders, and researchers.

State-Wide Awareness of Issues Affecting LTC. The GIA worked with the Texas Health Institute to host a Regional Long-Term Care Forum in August 2006. The purpose of the forum was to gather key LTC stakeholders from across the region to discuss the pressing issues affecting care for older adults and create a plan to protect and enhance the future of LTC in Texas. Over 60 people attended the forum and participated in discussions about critical workforce, regulatory, education, and technology needs to advance LTC. Information gleaned from participants was incorporated into the state-wide strategic health plan that will be shared with the 80th Texas Legislature scheduled to commence in January 2007.

Education About Best Practices. GIA faculty have developed and presented programs about advancing quality improvement in nursing homes by incorporating best practice guidelines into resident care. The Center has also focused on advancing best practices in supervisory and management methods by presenting educational workshops about reducing toxic behaviors in the workplace and promoting positive ways to motivate staff towards excellence in resident care.
Realizing Possibilities in Advanced Geriatric Care

GERIATRIC HEALTHCARE SERVICES

School of Medicine Receives Major Funding. After many years of dedicated work, the Health Sciences Center’s focus on geriatrics is now earning national recognition as demonstrated by a $2 million award from the Donald W. Reynolds Foundation to the School of Medicine to strengthen physician training in geriatrics. Lynn Bickley, MD, serves as the principle investigator for this prestigious award which will allow the School of Medicine to make significant advances in how medical students, medical residents, and faculty and community physicians are trained to care for older adults. The GIA will help coordinate programs supported by this grant for the purpose of preparing future geriatric specialists. Programs include:

- Healthy Ager Interviews: connecting community elders with medical students for life-history interviews to promote positive perceptions of aging.
- Healthy Horizons: establishing a student chapter of the American Geriatrics Society whose goal will be to educate TTUHSC students about geriatric careers, aging issues, and the latest research about healthcare for seniors.
- Summer Research Program in Geriatrics: connecting medical students with research opportunities at TTUHSC and other national research centers.

Integrated Geriatrics Clinic. A component of the Reynolds grant will be to establish an Integrated Geriatrics Clinic coordinated by Michael Ragain, MD, Chair of the Department of Family and Community Medicine, and Lynn Bickley, MD, Project Director for the Reynolds Grant. This clinic is designed to bring together medical residents from family medicine, internal medicine, and neuropsychiatry to assess geriatric patients with complex medical problems and, as a group, to develop an interdisciplinary plan of care for the patient. Other participants in the clinic will include a geriatric pharmacist, family nurse practitioner, and a medical social worker. The clinic will be operational in September 2006.

Strong Foundation of Geriatric Care. The new Reynolds Programs are being built on a strong foundation of geriatric care currently in place at TTUHSC in the departments of Family and Community Medicine, Internal Medicine, and Neuropsychiatry and Behavioral Sciences. The Department of Family and Community Medicine has a strong focus on meeting the needs of the geriatric population through primary care.

Several Family Medicine physicians serve as medical directors for nursing homes and maintain active practices in geriatrics. Family Medicine physicians also provide the medical oversight for the School of Nursing’s Senior House Calls program. Family Medicine is focused on expanding its cadre of certified geriatricians and has been actively engaged in recruiting geriatricians to grow the current clinical and educational geriatric programs.

The Department of Internal Medicine provides specialized care for geriatric patients in the areas of internal medicine, cardiology, nephrology, rheumatology, pulmonology, and oncology. The Department of Neuropsychiatry focuses on excellence in the care of older adults with memory impairments through the Memory Disorders Clinic and the Memory Shoppe.

TTUHSC nursing students provide free blood pressure checks at the first-ever Texercise Event for community seniors.
Sritulasi Karri, PhD, research assistant professor, explains her research study to Donna McKinnerney, Garrison Center nurse, at the GIA annual aging symposium.

Randolph B. Schiffer, MD (left) receives the inaugural “Randolph B. Schiffer Award for Advancement of Science in Aging” granted to a distinguished researcher/scientist who contributes to scientific discovery in the field of neuroscience and aging. Glen Provost, JD (right) receives the inaugural “Glen Provost Visionary Award” granted to leaders exemplifying an exceptional commitment to improving aging education and innovating models of care for seniors. Paula Grammas, PhD (center) presented the awards at the 2006 annual aging symposium to recognize their significant contributions to the early development of the Garrison Institute on Aging.
Discovering Opportunities for Growth

HIGHLIGHTS FROM THE MAJOR DEVELOPMENT INITIATIVES

Support for Innovation. With financial and leadership support from TTUHSC, the GIA has grown from an innovative concept for interdisciplinary aging programs to a successful and thriving administrative unit—the cornerstone for comprehensive programs and strategic direction to increase much needed aging research, geriatric training, and community service programs to ultimately benefit the seniors in our West Texas region and the nation.

Major development initiatives to advance GIA programs and services this year have included the following:

- **Research Leadership.** Expanding aging research leadership to provide resources, guidance and mentoring: 1) junior faculty who demonstrate potential for successful careers in the aging sciences, and 2) existing senior investigators in mentoring and program implementation to interest and cultivate more aging scientists.
- **Grant Development.** Routinely identifying and writing competitive grants to support and expand current programs by GIA faculty and staff. More than half of the GIA’s revenue is reliant on support provided by federal, state, and local funding agencies or foundations.
- **Invested Friendships.** Forming new relationships with donors and volunteers who are committed to helping the GIA grow its programs and services while investing in the long-term sustainability of the Institute.

“When it comes to aging it should not be about the quantity of years in a person’s life but the quality of those years.” - Paula Grammas, PhD, Executive Director

Ribbon Cutting of New GIA Administrative Suite. Over 250 Lubbock seniors and local officials participated in the GIA Ribbon Cutting and Health Fair for the opening of the new GIA administrative offices at the Texas Tech University Health Sciences Center Southwest Campus. The Health Fair featured over 15 exhibitors of information for seniors and caregivers. Seniors participated in tai chi, exercise demonstrations and free health screenings during the event. Mark McDougal, then Mayor of Lubbock, proclaimed May 4th “Mildred and Shirley Garrison Day” in Lubbock, in hopes of urging seniors, health care professionals, and West Texans to show their commitment to supporting the Garrison Institute on Aging and its efforts to create a promising, healthy future for the aged.

GIA Ribbon Cutting Ceremony: (left to right) Kay Cash; Don Cash; Paula Grammas, PhD; Pam Carrothers; Shirley Garrison; Former TTUHSC President M. Roy Wilson, MD; Former TTU System Interim Chancellor Donald Harrigan, PhD; Lea Wright
Discovering Opportunities in Aging Research and Training

2005 – 2006 NEW FUNDED GRANTS

**HSC Aging Projects.** The following are all of the HSC’s grant-funded aging projects:


**Aging Strategy.** Aging is one of the strategic priorities for TTUHSC. The overarching goal of the GIA is to increase the number of junior and senior researchers in aging. In addition to other researchers with ongoing grants, we congratulate all the above mentioned investigators on their new awards.
Realizing Possibilities in Long-Term Sustainability

OPERATIONAL COSTS AND DEVELOPMENT ACTIVITIES

2006 Revenues. Revenue sources continue to include institutional support, endowment funds, private donations, and grants from federal, state, and local agencies and foundations. The chart on the right describes our total revenue and revenue sources. In addition to more support by TTUHSC, there was an 8% increase in support provided by grants and a 42% increase in support provided by endowments and gifts in FY2006 compared to the previous fiscal year.

2006 Expenses. As the chart below describes, our total expenses grew by 18% in the 2006 Fiscal Year (September 1, 2005 – August 31, 2006), especially in the education division’s community outreach and Academy programming. Administrative costs rose slightly to account for the added costs of maintaining two offices (the Research Division is housed at the Health Sciences Center and the GIA Administrative Office is at the SW Campus in Lubbock).

Growing Donations. In 2005 the GIA formed the Advancement Committee of volunteers, GIA staff, and Health Sciences Center Development officers. The committee is charged with increasing the Garrison Institute Endowment for Operations from $5 million to $15 million by 2008. Efforts in the last year raised $50,000 in large gifts and increased the number of individual donors in the Friends of the Garrison program. The Friends of the Garrison is a new program for individuals and businesses to support the GIA on an annual membership basis or through memorial or honorarium gifts. In the last fiscal year, donations through the Friends of the Garrison increased by 468%.
Discovering Possibilities with Partners and Friends

GARRISON INSTITUTE ON AGING FACULTY AND STAFF

Growing Faculty and Staff. The GIA employed a staff of 25 last year to manage its comprehensive aging research and education programs and maintain relationships with faculty members and researchers across all Health Sciences Center schools and campuses.

Faculty and Staff

Paula Grammas, PhD
Executive Director
Mildred and Shirley Garrison Chair in Aging
Professor of Neuropsychiatry

Brad Bachetti, BA
Graduate Research Assistant

Diane Botello, RN
CNA Nurse Educator and Training Program Coordinator

Jessica Bowley, RN, BSN
CNA and LVN Nurse Educator

Graham Brown
Student Assistant

Jenni Brunelle, MS
Graduate Student Assistant

Barbara Cherry, DNSc, RN, MBA
Assistant Professor, School of Nursing
Director of Operations and Interdisciplinary Programs in Aging

Kevin Cole
Student Assistant

Paula Desmond, PhD
Postdoctoral Research Associate

Ruben Gonzalez, BBA
Senior Director of Research

Kuladip Jana, PhD
Postdoctoral Research Associate

Ann Laurence, MS
Director of Education & Training Programs
Director, Geriatric Education & Training Academy

Mark Lyte, PhD, MS, MT(ASCP)
Professor of Pharmacy Practice
Director of Translational Research

Sophie McDougal, BBA
Senior Accountant

Annette Nichols Boles, MS
Assistant Director

Sheilah Patridge, BS, CHES
Associate Director, Operations & Development

Kristina Rios
Graduate Assistant

Alma Sanchez, PhD
Postdoctoral Research Associate

Jinous Saremian, MD
Medical Research Assistant

Denise Smith
Business Assistant

Terri Stahl
Research Unit Manager

Yupin Sun
Medical Research Assistant

Lakshmi Thirumangalakudi, PhD
Postdoctoral Research Associate

Debjany Tripathy, PhD
Post Doctoral Research Associate

Haripriya Vittal Rao, MS
Medical Research Assistant

Xingjia Wang, PhD
Assistant Professor of Neuropsychiatry
Director of Trainee Development
### Donation Form

Your financial support to the Garrison Fund for Excellence will be used for the needs of the Garrison Institute on Aging. Among these needs are program and research operating funds, technology and research equipment upgrades, and training and community outreach support.

To donate, please complete the form below:

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- Please include me in the Garrison Institute Mailing List.

### Annual Membership

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*If you give $25 or more a year, you will become an active **Friend of the Garrison Institute** and will receive our *Bridges to Healthy Aging* newsletter and lapel pin.

**If you give at $250 or more you will receive special invites to Garrison Institute donor events and other benefits.

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- Please contact me about volunteering for development initiatives or specific sponsoring opportunities

To show our appreciation, we will prominently display your name (or that of a designee) and level of contribution in the Garrison Institute office and in our publications. If you prefer your gift to remain anonymous, just let us know and we will honor that wish. Thank you for your vital support.

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**You Can Make a Difference**

- Support teams of scientists to expand research discovery in the detection, prevention, and treatment of Alzheimer’s, Parkinson’s, and cerebrovascular diseases and stroke.

- Support training programs for family caregivers of aging loved ones.

- Support programs to prepare the future healthcare work force (today’s students) for the growing demands of geriatric and long-term care.

- Support specialized geriatric education for practicing health professionals (community physicians, nurses, pharmacists, counselors, social workers, etc).

- Support community outreach efforts to educate seniors about healthy aging.

- Support Texas Tech as a scientific and educational leader in aging.
**Making a Difference.** Thanks to the generous support by our Friends of the Garrison and those who remembered us after a loss of a loved one. Memorials were made in memory of the following individuals this past year: Arline Blandford, Elozia Bradley, Melba Burleson, Garon Cagle, Mildred Garrison, Jake Harrel, S. Chris Johnson, George Thomas Moore, Lillian Nelder, Mitz Riley, Charles V. Scott, and Mildred Wilkinson.

With their help we were able to purchase new equipment to aid in our Alzheimer’s disease research including a new 24.4 Cubic Feet Ultralow Freezer (-86°C) to store valuable biological tissue samples. In addition, donations supported the activities of the Geriatric Scholars Program described earlier in this report.

### MEMORIAL OR HONORARIA GIFTS
- Mr. Terry D. Barnes
- Dr. Mike Bennett and Sharon Bennett
- Mr. Bronson A. Blodgett
- Mr. and Mrs. Robert W. Brasher
- Mr. Frank and Hazel Britt
- Mr. Richard L. Butler
- Mr. Don and Kay Cash
- Mr. Mike and Barbara Cherry
- Ms. Marlene Drake
- Mr. and Mrs. Gary Finch
- Mr. Howard and Patricia Fleming
- Mr. Jerry and Joann Garrison
- Mr. and Mrs. Shirley L. Garrison
- Mr. and Mrs. Clint Gregory, Jr.
- Ms. Beverly Grimes
- Ms. Connie Cannon Holbrook
- Ms. Sandra Lehman
- Mr. Mark and Deb Lindemood
- Mr. Bradley and Stacy Martin
- Mr. Rick Martin
- Mr. Mike and Bitsy Mayberry
- Ms. Beverly McDuff
- Ms. D’Lynn McGinty
- Mr. and Mrs. Aleen T. McInnes
- Ms. Leigh K. McPhaul
- Mr. Stirling S. Miller
- Mr. Lance and Sheliah Patridge
- Mr. and Mrs. Daniel A. Rich
- Mr. Thomas and Nelda Rollins
- Mr. Nick Rose and Penny Rose
- Mr. Adam and Mary Jane Scott
- Mr. Max and Doris Swinburn
- Mr. Mike and D’Lynn Terry
- The Area Agency on Aging of the South Plains

### INDIVIDUAL AND CORPORATE GIFTS
- The Don Kay Clay Cash Foundation
- The Girl Scouts of America, San Francisco Bay Area
- The National Association for the Support of Long-Term Care
- The Sun Health Foundation
- The Wright Family: Charles, Paula, Bill, Brax, Beth, Steve, and Lea

### KEY PARTNERS
- Allegiance Behavioral Health Center
- Amarillo Area Foundation
- Area Agency on Aging: South Plains, Concho Valley, Panhandle, Permian Basin, North Texas, and West Central Texas
- Area Health Education Center of the Plains and West Central Texas
- Calvert Home Health
- Carillon House
- Carl B. and Florence E. King Foundation of Dallas, Texas
- Craig-Methodist Retirement Community

- D.W. Reynolds Foundation of Las Vegas, Nevada
- Don, Clay and Kay Cash Foundation of Texas
- Grand Court of Lubbock
- GreyMatters
- Holloway Foundation, Dallas
- HomeCare Solutions
- HomeInstead Senior Care
- Hospice of Lubbock
- LIFE-RUN
- Lubbock Family Chiropractic
- Mary E. Bivens Foundation, Amarillo
- Mildred and Shirley L. Garrison Geriatric Education and Care Center
- Ms. Glenn Roberts
- National Institutes on Health
- Odesssey
- Region XVII Education Service Center
- Rolling Plains Educational Consortium
- Sears-Methodist Retirement System
- SouthHaven Inc.
- South Plains Association of Governments
- Texas Department of Aging and Disability Services
- The CH Foundation
- TTU Life Long Learning
- TTU Rawls Graduate Business School, Health Organization Management Program
- TTUHSC Senior Trails Project
- UMC Health Systems, Seniors Are Special, and HealthPoint
- US Department of Education
- US Department of Health & Human Services - Health Resources & Services Administration
- VistaCare