Alzheimer’s research cannot happen without brilliant scientists or generous donors, but another virtue is needed for real breakthroughs – the selflessness of Alzheimer’s patients and their families who step forward to participate in trials and make research meaningful.

Jeff Rushing is one of those people. The 59-year-old Denton County resident was diagnosed with Alzheimer’s disease two years ago. He frequently participates in research at UT Southwestern and says he will volunteer for any research that helps.

“I want to be part of fixing the problem, and research is where it comes from. If you don’t have willing participants who have the disease, it’s going to slow the research down,” he said. “When I meet people that have the disease, I ask them, ‘Are you going to help? I want you to participate. You’re the people who can help. You know what’s happening to you. You can help others by helping the doctors.’” Rushing said his participation in the research has been rewarded with a sense of contributing – and with compassionate treatment by UT Southwestern doctors and staff.

“They’re a lot of fun. They’re not the typical stick-in-the-mud doctor. They’re real. You ask a question, and you get an answer; they don’t put you off. They understand what I am going through,” he said.

Mr. Rushing’s wife, Jules, said the compassionate, respectful treatment given by Dr. Mary Quiceno, Assistant Professor of Neurology and Neurotherapeutics, and Physician Assistant Natalie Martinez has helped make the Alzheimer’s diagnosis a little less painful.

Dr. Quiceno said the participation of people like Mr. Rushing is crucial in making progress against the disease.

“We need people to be involved in research because that’s how we’re going to learn more about the disease,” she said. “That’s how eventually we’re going to put an end to this.”

As a student, Jeff Rushing studied economics at Texas Christian University and later worked as a Vice President of Sales for an air conditioning company for 30 years.

“I was the phone book for the company. Before we had smart phones, they would say, ‘What is so-and-so’s number?’ and I would spit it out. I could remember a job I did 20 years ago and every detail about it,” he said.

But after many years witnessing his solid work, co-workers became puzzled by changes in Mr. Rushing’s performance.

“I couldn’t bring stuff back from my memory, and then I couldn’t

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We are excited about what spring 2014 has in store for the UT Southwestern Alzheimer’s Disease Center. First, the Spring Public Forum on March 25 will feature Sid O’Bryant, Ph.D., Interim Director of the University of North Texas Health Science Center’s Institute on Aging and Alzheimer’s Disease Research. Dr. O’Bryant is an expert on thinking and behavior during the aging process and will discuss his innovative research into the development of new therapies for treating and preventing Alzheimer’s disease. I invite all of you to join us at the Forum.

Then, on March 28, the Center will host its annual symposium, which will feature presentations and discussions about “Emerging New Therapies for Neurodegenerative Diseases” from some of the best minds in our field. The symposium’s keynote speaker is Dr. Beth Levine, Professor of Internal Medicine and Microbiology at UT Southwestern and a member of the National Academy of Sciences. Her ongoing research focuses on the emerging field of autophagy, a natural process in which cells metabolize and remove damaged proteins and organelles. Dr. Levine will discuss its role in neurodegenerative diseases, which provide the basis for considering potential new therapeutic approaches for Alzheimer’s disease.

Other speakers at the symposium will cover various topics, including the use of genetic biomarkers called endophenotypes in the development of new therapeutic approaches; immunotherapies; the effects of sildenafil, commonly known as Viagra, on brain blood flow; APOE and A 42 lipidation states; and dietary-dependent therapeutics. The symposium will also share some information about the Food and Drug Administration-approved clinical trials at our Center.
TRIALS AND TRIUMPH
UT Southwestern at the forefront of promising clinical trials

UT Southwestern Medical Center is part of important drug trials for Alzheimer’s disease that may eventually lead to effective treatment or even a vaccine for people likely to develop it. The two trials build on lessons from past research and make use of new technologies for medicine delivery and brain scans to monitor progress. Both trials target one of the main instigators of Alzheimer’s disease — a protein buildup that interferes with brain function.

“Our Alzheimer’s Disease Center is at the forefront of developing these two potential therapies, and it is hoped that significant positive results will be obtained in less than two years,” said Dr. Roger Rosenberg, Director of the Center and Professor of Neurology and Neurotherapeutics and Physiology.

It is estimated that more than 5 million Americans have Alzheimer’s disease, according to the Alzheimer’s Foundation of America, and the number of cases is expected to more than double to 12 million by 2030. More than $200 billion is spent on care for Alzheimer’s patients annually, far more than what is spent on research.

New gains against the disease may be made with these drug trials, which are focused on sophisticated, pinpoint strikes at what Alzheimer’s researchers see as one of the main culprits: amyloid. Amyloid is a protein crucial to making memories and learning. But for people with Alzheimer’s, there’s far too much amyloid accumulation, and the buildup disrupts connections between brain cells. The Expedition 3 trial will evaluate whether monthly infusions of antibodies can help clear excessive amyloid. The drug under investigation is from Eli Lilly, a pharmaceutical company based in Indianapolis.

The SNIFF trial is so named because it involves an insulin nasal spray that researchers speculate may spur a process to clear amyloid buildup. SNIFF stands for Study of Nasal Insulin to Fight Forgetfulness. Twenty-nine other sites are involved in the SNIFF trial, which is led by the Alzheimer’s Disease Cooperative Study, a partnership with the National Institute on Aging and research institutions studying Alzheimer’s. UT Southwestern’s participation in the trial shows its prominence as one of the NIA’s Alzheimer’s Disease Centers.

The Expedition 3 trial as an ambitious strike at amyloid buildup.

“I hope this will eventually lead to primary prevention in which we will help people never develop any signs or symptoms,” she said.

The clinical trials break new ground by taking advantage of new technologies and important lessons from past trials. In 2012, the Food and Drug Administration approved the first amyloid imaging agent that enables scientists to see amyloid buildup in the brain in Positron Emission Tomography scans, which are similar to the better known CAT scans. Using amyloid buildup as a biomarker is so new it is not yet covered by Medicare, Dr. Quiceno said.

She and Dr. Rosenberg said they hope an additional benefit of this study will be proof that amyloid buildup is a major factor in developing Alzheimer’s.

The SNIFF trial evaluates the effectiveness of a nasal spray that delivers insulin straight to patients’ brains without affecting insulin blood levels. The UT Southwestern section of the trial is led by Dr. Kyle Womack, Assistant Professor of Neurology and Neurotherapeutics and Psychiatry.

He said insulin in the brain — which is very low in Alzheimer’s patients — increases an insulin-degrading enzyme that also clears amyloid. Scientists hope to conjure up this enzyme as an ally to chip away at amyloid.

Dr. Womack described the delivery mechanism as a clever maneuver to breech the blood-brain barrier that has proved insurmountable for many other drugs. He said molecules can pass through tiny openings around the nerve twigs and vessels at the top of the nose directly into the brain, and the nasal spray has been designed for exactly that.

“Molecules of a certain size will actually track up those little tiny spaces and get directly into the spinal fluid that the brain is bathed in so it doesn’t have to cross the blood-brain barrier. They actually have some really interesting special technology that’s been developed especially for this trial in the applicators,” Dr. Womack said. “It’s a carefully engineered delivery system that makes very precisely sized droplets that will reliably track right up that part of the nose, giving consistent delivery of its insulin to the central nervous system.”

Dr. Quiceno said family members of Alzheimer’s patients often express their fear to her that they, too, will someday get the disease. She said these trials are a hope that they might not.

“They don’t want this to happen to them. Research will stop this from happening to them,” she said.

“A group of UT Southwestern researchers led by Dr. James Bibb has discovered a brain mechanism that can be targeted to enhance memory.

The findings of their study, published in the March online edition of Neuron, may provide a new path for treating cognitive disorders. Dr. Bibb and his colleagues first determined that the mechanism in the brain critical for memory formation involved the control of a neurotransmitter receptor called NR2B. They then found that its movement to the surface of the cell was controlled by a protein kinase called Cdk5. The researchers developed a small drug-like peptide that specifically disrupted Cdk5 and NR2B interactions so that more NR2B found its way to the surface of synapses. The delivery of this peptide to a part of the brain associated with learning and memory dramatically enhanced cognitive function in adult and aged mouse models.

“This exciting new finding shows that synaptic remodeling mechanisms may be specifically targeted to develop novel therapeutic drugs for patients with cognitive impairments such as Alzheimer’s disease.”
found that her mother, who had been diagnosed with Alzheimer’s disease, was experiencing memory loss and difficulty with daily tasks. This led her to dedicate herself to learning more about the disease and finding ways to help others affected by it.

She decided to get involved with the Alzheimer’s Association of Greater Dallas. The organization provided her with information about Alzheimer’s and how to support those with it. She also joined the Alzheimer’s Association of America, which gave her access to research and policy information.

Mrs. Rushing’s involvement with the Alzheimer’s Association grew, and she eventually became a board member. In this role, she was able to help shape the organization’s programs and initiatives. She also spoke at events about her experiences with Alzheimer’s and how to support those affected by it.

Mrs. Rushing’s dedication to learning more about Alzheimer’s disease led her to participate in clinical trials. She was part of a study that involved taking a drug called Aduhelm, which was approved by the FDA in 2021 to treat early-stage Alzheimer’s disease. The drug aims to help slow down the disease by reducing amyloid plaques in the brain.

Mrs. Rushing’s experience with Alzheimer’s disease and her commitment to learning more about it led her to become an advocate for research and education. She continues to speak at events and share her story to raise awareness about Alzheimer’s disease and the importance of support and care for those affected by it.

Q: What achievement of the Friends do you consider to be the most valuable?
A: The most valuable achievement of the Friends is helping to fund research that has led to a better understanding of Alzheimer’s disease. Over the years, the Friends have raised over $20 million to support research and education efforts related to Alzheimer’s.

Q: What would you like to see in the future?
A: I would like to see more people educated about the importance of early diagnosis and treatment for Alzheimer’s disease. It is crucial to catch the disease early to improve outcomes and quality of life for those affected by it. I am also hopeful for continued advancements in research and potential treatments in the future.

Mrs. Rushing’s story is a testament to the power of advocacy and the impact one person can have on finding a cure for Alzheimer’s disease. By dedicating her time and resources to the Alzheimer’s Association and participating in clinical trials, she has made a significant contribution to the fight against Alzheimer’s.

Mrs. Rushing (right) is shown with her husband, Mr. Rushing (left). They met at a local hunting resort and have been married for over 50 years. Mr. Rushing is a retired physiologist who worked for 35 years at the University of Texas Southwestern Medical Center. They have six children and 12 grandchildren.

Mrs. Rushing’s journey with Alzheimer’s disease has inspired her to become a voice for those affected by the disease. She is a speaker and advocate for the Alzheimer’s Association and continues to share her story to raise awareness about the disease and the importance of research and education.
JOIN THE FRIENDS OF THE ALZHEIMER’S DISEASE CENTER

The Friends of the Alzheimer’s Disease Center provides crucial support to UT Southwestern Medical Center’s most promising and passionate researchers working to unlock the mysteries of Alzheimer’s disease.

In addition to funding research through generous annual grants, the Friends sponsor a community-wide public forum every fall and spring, where the latest breakthroughs and best information on Alzheimer’s disease are presented by leading experts from UT Southwestern and major medical centers nationwide.

Membership begins at $500 per year, per individual or couple. Your donation is tax deductible and truly makes a difference in the fight against Alzheimer’s disease.

To join the Friends of the Alzheimer’s Disease Center, call 214-648-2344. Your support safeguards vital research into enhancing quality of life through early detection and improving the lives of patients and their families who live courageously each day with Alzheimer’s disease.

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