Dr. Anne Murray’s extraordinary journey into gerontology has led her to remarkable discoveries that may help older adults tremendously.

It would be an understatement to call Dr. Anne Murray an overachiever. From early on, she was drawn to helping people. But her path from tiny Wells, Minn., to becoming a widely admired physician and an internationally recognized medical researcher, took a meandering route.
When Murray was young, her family moved from Wells to Minneapolis. Her father was a dentist and her mother was a medical records librarian, so it wasn’t surprising that she developed an early interest in biology.

**Germany and Colombia**

After high school, Murray headed to college at the University of Minnesota, and in her senior year, accepted a scholarship at the Goethe Institute at the University of Freiburg, learning German and studying German history. After a year in Germany, Murray was back at the University of Minnesota, graduating with a bachelor’s in physiology.

“I was deciding between medical school and public health, but to get accepted as a public health grad student, I needed to do a year of volunteer work,” she said.

So she ended up in Pereira, a city in Colombia’s western mountains, helping out a group of nuns at a local orphanage.

“I enjoyed the work and was hoping to stay the year — until an earthquake destroyed the orphanage,” Murray said.

They were able to get all the kids out safely. But her visa was in jeopardy with the orphanage in ruins. She loved the country — and speaking Spanish — and wanted to stay.

A friend, a priest, gave her some advice on how to handle the local bureaucracy in order to extend her visa.

“I brought a bottle of Scotch and an envelope with a few dollars in it to a meeting with the city’s mayor,” she said. “It worked.”

Murray stayed, teaching English before returning to the University of Minnesota Medical School, graduating in 1984.

**Harvard and back again**

From the U, Murray headed to Mayo Clinic to finish her residency in internal medicine and then on to a three-year fellowship in geriatrics at Harvard, following her husband George, a radiologist, who was there on his own fellowship in interventional radiology.
While there, she received a master’s in epidemiology and gained experience in dementia research, which included collecting data for the landmark East Boston study of Alzheimer’s, one of the first community-based studies of dementia in the U.S.

“Harvard gave me excellent training and experience researching delirium and Alzheimer’s disease,” Murray said.

But amid Harvard’s cutthroat culture, the couple — who had two sons during their time in Boston — found themselves yearning for the Midwest.

They landed next in Wausau, Wis., where Murray worked at a chronic-care facility and also taught geriatrics to residents in family medicine.

She enjoyed the work, but missed the academic stimulation.

So Murray signed on to Chicago’s Rush Institute to work on the renowned Religious Orders Study, which followed more than a thousand Catholic nuns, priests and brothers, examining changes in the brain that could cause dementia and Alzheimer’s disease.

Participants in the study agreed to clinical and cognitive testing and to donate their brains after death. The study turned out to be a blueprint for other dementia and Alzheimer’s studies.

“I was always interested in dementia,” Murray said, adding that working with the Religious Orders Study reminded her of something important: “You can’t do real dementia research without seeing the patients.”

And so, from then on, Murray vowed to one day start her own study of dementia.

But first, she returned to the Twin Cities.

In 1997, she began working as a geriatrician at the Hennepin County Medical Center’s Senior Care Clinic at the Augustana Health Care Center of Minneapolis.
Both Mpls St Paul Magazine and Minnesota Monthly have honored Dr. Anne Murray for her extraordinary skills as a clinician over the years. Murray is known for her warm demeanor with patients and research subjects. Photo by Tracy Walsh
Named ‘Best Doctor’

Murray soon gained a following and was named one of *Mpls St Paul Magazine’s* top doctors in multiple years and recently landed on *Minnesota Monthly’s Best Doctor* lists in 2014 and 2015, too.

Lois Eid, one of Murray’s many patients, was struck by Murray’s exceptionally kind bedside manner.

“She is the most incredibly warm and loving [physician],” Eid said. “When you’re with her, you’re upper most in her attention.”

Dr. Murray also began working as a geriatric epidemiologist at HCMC for the U.S. Renal Data System in 2003, studying how common dementia and disability were in patients who were on dialysis.

Murray had noticed that many patients on dialysis seemed to have significant mental impairment, but it was rarely mentioned in their medical charts. Their kidney doctors (nephrologists) hadn’t seemed to recognize the problem.

“But, the nurses knew,” she said. “The nurses noticed.”

So Murray decided research on the problem was needed and began her first clinical study of dementia in 374 patients in 14 dialysis units in the Twin Cities.

Murray’s study showed that about two-thirds of the studied hemodialysis patients — age 55 and older — had dementia-level cognitive impairment. But only 5 percent had memory problems recorded on their medical charts.

It was a significant finding, given the fact that there are currently about 500,000 dialysis patients in the U.S.

In 2009, Murray began her next study, the BRINK study — short for The Brain In Kidney Disease — investigating cognitive impairment in elderly patients with advanced kidney disease, anemia and diabetes.

At the same time, Murray became the lead geriatrician researcher for the NIH-funded ASPREE study — Aspirin in Reducing Events in the Elderly — set up to see if low-dose daily aspirin
would reduce the risk of dementia, disability and death in 19,000 healthy seniors age 70 and older in the U.S. and Australia.

The ASPREE study is now in its sixth year and Murray is now the principal U.S. investigator.

In 2016, Murray became director and head researcher at the Berman Center for Clinical Outcomes and Research in Minneapolis, home of the BRINK study and a division of the Minneapolis Medical Research Foundation, the research arm of HCMC.

**Kidney function and memory loss**

The aim of the BRINK study, originally funded by the National Institute on Aging, was to learn why advanced kidney disease patients — those who have lost about half or more of their kidney function, but who aren’t yet on dialysis — also suffer from memory problems and dementia.

She recruited 574 volunteers, some with kidney problems and some who were study controls, for blood draws, MRIs and cognitive tests. Subjects came in every three months for repeat tests and brain games to keep track of their cognition.

“What I and others have found is that as kidney function declines, so does brain function,” Murray said. “Patients with advanced kidney disease have a 50 to 60 percent increased risk of dementia. Our results could end up changing the way kidney patients are treated for memory loss and could give doctors a better understanding of the causes of various kinds of dementia, influencing care and treatment of patients with the disease.”

These are important results for the 3 million people with advanced chronic kidney disease in the U.S. — and another 5 million with a mild form of the disease.

One of Murray’s patients, a 90-year-old woman named June, said that when Murray asked her to take part in the study as a control subject, she jumped at the chance.

“I’ve been part of the project since the beginning and enjoy doing this,” she said. “As an elderly lady myself, it’s a way I can do volunteer work. I was curious. Each time I’m called in to do memory tests using the words, numbers and shapes, I get to test my own memory. And it’s fun.”

David Knopman, a neurologist and professor of neurology at Mayo Clinic in Rochester, has been working on the study with Murray, who he’s known for nearly 20 years.
“Murray is trained in gerontology, but she’s acquired extraordinary knowledge of neurology, especially in regards to cognitive impairment,” Knopman said. “There probably aren’t more than a dozen people in the world with this combination of knowledge for whom research is their focus.”

A graduate of the University of Minnesota Medical School, Mayo Clinic and Harvard University, Dr. Anne Murray is an admired physician and an internationally recognized medical researcher. Photo by Tracy Walsh

**Struggles with funding**

In November, Murray and her team presented some of the results of the BRINK study at a Chicago meeting of the American Society of Nephrology, including a finding that increased inflammation in kidney disease may contribute to dementia and that anemia also appears to increase the risk.

Still more research is needed, Murray said, and the hope is that the study can continue for several years.

Unfortunately, that may not happen.
Major funding for the study ran out in October and the research is currently funded by bridge grants and donations.

“I love my research, but it’s a struggle to keep the funding coming,” Murray said. “I always have to push for it, and it drains me.”

During the past few years, there’s been a push for dementia and Alzheimer’s-related research, but government funding is on the decline and there’s heightened competition, said Sarah Pederson, the project manager for the Minneapolis Medical Research Foundation, who has worked with Murray for the past 15 years.

“We continue to pursue long-term funding sources,” Pederson said. “But we will need to rely on donations and bridge funding to keep the BRINK study going in the interim.”

In 2016, Congress voted to give the National Institutes of Health more than $33 billion in funding for various projects.

“The headliner is Alzheimer’s,” Knopman said. “Alzheimer’s funding has bipartisan support. But it’s the related disorders, including other cognitive disorders in the elderly, that get ignored.”

Murray would like to continue her research for another five years at least. But without guaranteed funding, it’s hard to keep the study going and pay staff and researchers.

“We’ve got the only collection of patients like this in the country,” she said. “We are the only research group with MRIs and blood tests.”

**Hugs and all**

Meanwhile, Murray isn’t losing touch with patients.

She still helps out at the Augustana clinic and teaches geriatric fellows (young doctors doing further training after their residencies).

“I love geriatrics,” she said. “I love taking care of older people because of how much I learn from them. They have wonderful stories and an appreciation of life you don’t see elsewhere.”

Her former patients miss her, including Lois Eid.
“When she left the practice, after my husband’s first check up with another doctor, I asked my husband what he thought. ‘She’s good,’ he told me, ‘But she doesn’t give hugs like Dr. Murray.’”

Stephanie Fox is a freelance journalist who lives in Minneapolis.

Donate

Anyone who would like to donate to Dr. Anne Murray’s dementia and aging research fund at the Minneapolis Medical Research Foundation at the HCMC, can contact Amy Carlson at 612-873-9250 or amy.carlson@hcmed.org. Go to mmrf.org/donate-to-mmrf to learn more.

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