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Focused on a cause

Foundation raising
money to speed
adoption of medical
technology

Neurosurgeon
Dr. Neal Kassell
created the Focused
Ultrasound Foundation

Moving the needle

Focused Ultrasound Foundation raising money to speed adoption of medical technology

by Robert Burke

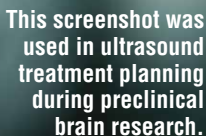
A patient undergoes focused ultrasound treatment at the University of Virginia Medical Center.



There are two things Dr. Neal Kassell is sure of. First, that the technology called focused ultrasound has huge potential to improve the practice of medicine and save lives. And secondly, that it's going to take a lot of money to make that happen.

In the nine years since he created the Charlottesville-based Focused Ultrasound Foundation, Kassell, a neurosurgeon, has raised \$58 million, helped fund scores of research efforts around the world, and persuaded some of this country's brightest and wealthiest people to join his cause.

But that's still not enough. Kassell wants to ramp up the foundation's fundraising, bringing in \$20 million more this year to fund research efforts through 2017. That's because the early-stage research is ending and the next phase demands more money. Everything about the process needs to be bigger and go faster, he says. "Every day that goes by that a therapeutic technology is not available translates into unnecessary death and disability and suffering."



proton beams as a virtual knife. It was invented in 1950 by Swedish researchers.

Kassell first saw the gamma knife in the 1970s while visiting a Swedish hospital. “A neurosurgeon took me down the hall and showed me this gamma knife, which was then just a research device. I got really excited and went back to the hospital director in Iowa and said, ‘This is the future; we need to get one of these.’”

The gamma knife, however, didn’t become widely used until the mid-1990s, and U.Va. was only the second U.S. site for gamma-knife treatments. It was a needlessly long wait, Kassell says.

About 10 years ago, he was studying ways to treat patients with certain brain tumors that couldn’t be treated by available therapies, including gamma knife. At the time he already was doing research on using ultrasound to measure blood flow in the brain. On a drive home from the hospital one day, he suddenly realized that ultrasound also could be used to treat the tumors. “With the gamma knife, I immediately appreciated” its potential, he says. “But focused ultrasound is 10 times, a hundred times more important.”

Kassell, however, did not want focused ultrasound to go through the same sort of slow, agonizing development that he had seen with the acceptance of the gamma knife. “I had scars on my back from that experience, and I said, ‘There’s got to be a better way.’”

A board with ‘fire power’

His better way was to create the foundation, which now employs two dozen people in a modest office building off of U.S. 250 in Charlottesville. Its 11-member board of directors, says Kassell, “has a lot of fire power. This board could go toe-to-toe with any Fortune 500 company.”

Members include Dr. Andrew von Eschenbach, a former commissioner of the Food and Drug Administration and former director of the National Cancer Institute, both presidential appointments. Also on the board is best-selling author John Grisham, and Dorothy Batten, a former director of Landmark Communications and daughter of the late Frank Batten Sr.

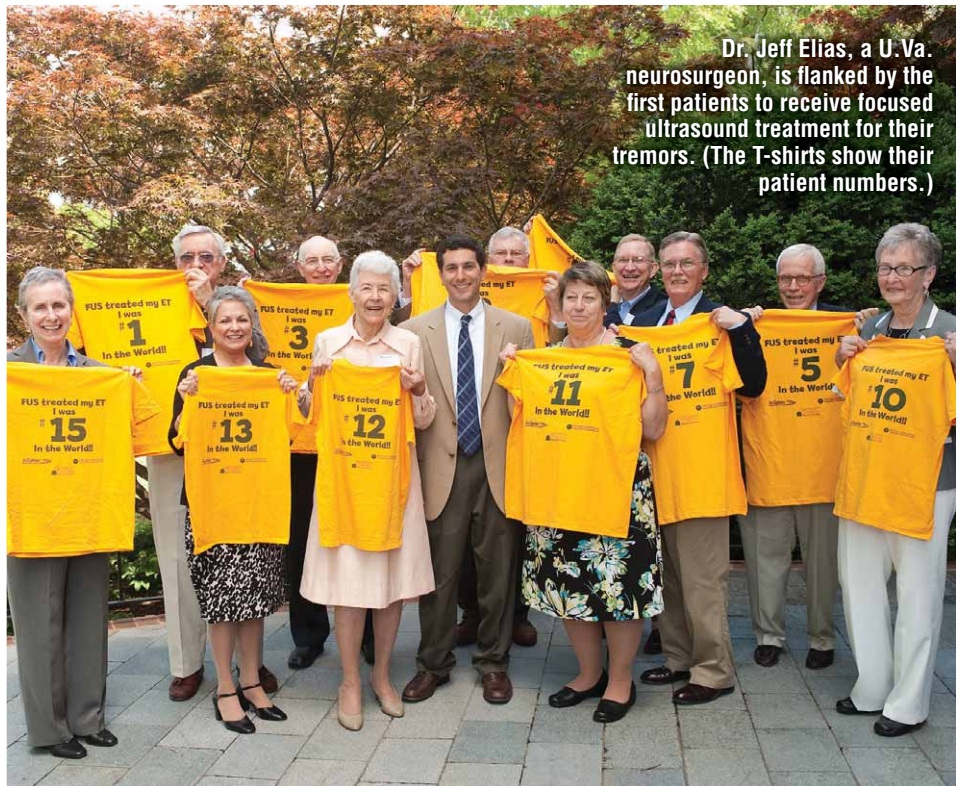
The foundation also has a 29-member council, which Kassell calls “our goodwill SWAT team” that does a lot of the networking in finding new donors



Tony Lightfoot celebrates after being treated for essential tremor at Sunnybrook Health Sciences Centre in Toronto.

and “people of influence who need to hear the story and who can support the cause.” Council members include Thomas Chewning, retired CFO of Dominion Resources, and his wife, Nancy Jones Chewning, as well as Michael Milken,

the former financier. Others are Cecelia Howell, wife of Bill Howell, speaker of the Virginia House of Delegates, and Meredith Jung-En Woo, former dean of the U.Va. College and Graduate School of Arts and Sciences.



Dr. Jeff Elias, a U.Va. neurosurgeon, is flanked by the first patients to receive focused ultrasound treatment for their tremors. (The T-shirts show their patient numbers.)

Treatment sites

Below are the U.S. sites for focused ultrasound commercial treatment and clinical trials.

Treatment site	Commercial treatment	Clinical trial	Location
Artann Laboratories		✓	Lambertville, N.J.
Brigham and Women's Hospital (BWH)	✓	✓	Boston
BURL Concepts Inc.		✓	San Diego
CHI St. Luke's Health		✓	Houston
Children's National Medical Center		✓	Washington, D.C.
Cincinnati Children's Hospital Medical Center		✓	Cincinnati
City of Hope	✓	✓	Duarte, Calif.
Cleveland Clinic		✓	Cleveland
Duke Health Center at Southpoint	✓		Durham, N.C.
Duke University		✓	Durham, N.C.
Focused Ultrasound Northwest	✓		Seattle
Fox Chase Cancer Center	✓		Philadelphia
Grand Strand Urology		✓	Myrtle Beach, S.C.
Indiana University Health, University Hospital		✓	Indianapolis
Johns Hopkins University School of Medicine		✓	Baltimore
Long Beach Eye Care Associates		✓	Long Beach, Calif.
Mayo Clinic - Minnesota	✓	✓	Rochester, Minn.
Memorial Sloan-Kettering Cancer Center	✓	✓	New York
Metropolitan Urology		✓	Jefferson, Ind.
Montefiore Medical Center		✓	Bronx, N.Y.
National Institutes of Health (NIH)		✓	Bethesda, Md.
New York University (NYU) Langone Medical Center and School of Medicine		✓	New York
NYP - Weill Cornell Medical Center		✓	New York
Oregon Health and Science University		✓	Portland, Ore.
ProMedica Toledo Hospital		✓	Toledo, Ohio
Riverside Methodist Hospital	✓		Columbus, Ohio
Southeast Urology Network		✓	Memphis, Tenn.
Stanford University Medical Center	✓		Stanford, Calif.
Stanford University School of Medicine		✓	Stanford, Calif.
Swedish Neuroscience Institute		✓	Seattle
Tulane University		✓	New Orleans
UCLA Ronald Reagan Medical Center	✓	✓	Los Angeles
University Hospitals of Cleveland Case Medical Center		✓	Cleveland
University MRI & Diagnostic Imaging Centers - South	✓	✓	Boca Raton, Fla.
University of California Los Angeles (UCLA)		✓	Los Angeles
University of California San Diego (UCSD) Thornton Hospital	✓	✓	La Jolla, Calif.
University of California San Francisco (UCSF)	✓	✓	San Francisco
University of Chicago		✓	Chicago
University of Cincinnati		✓	Cincinnati
University of Houston		✓	Houston
University of Maryland School of Medicine		✓	Baltimore
University of Texas MD Anderson Cancer Center		✓	Houston
University of Virginia (UVA) Health System	✓	✓	Charlottesville
University of Wisconsin Carbone Cancer Center		✓	Madison, Wis.
Urologic Consultants of Southeastern Pennsylvania		✓	Bala Cynwyd, Pa.
Urology Centers of Alabama		✓	Homewood, Ala.
Urology of San Antonio		✓	San Antonio, Texas
UT Southwestern		✓	Dallas
Vanderbilt University		✓	Nashville, Tenn.
Walter Reed National Military Medical Center		✓	Bethesda, Md.
William Beaumont Health Systems		✓	Royal Oak, Mich.
Winthrop University Hospital		✓	Mineola, N.Y.

Source: Focused Ultrasound Foundation

Dwindling NIH support

Philanthropic giving is more essential now than ever, Kassell says. Federal funding from the National Institutes of Health, traditionally one of the key sources for dollars to support research across a broad range of fields, has been declining in recent years, and overall industry support has decreased, too. The adoption of focused ultrasound is accelerating but could still take another decade for it to be in widespread use, given the pace of research, Kassell says.

From the very start Kassell has had success finding financial supporters. When he was looking into launching the foundation 10 years ago he sought advice from Ted Weschler, who is now a portfolio manager for Berkshire Hathaway, Warren Buffett's company. "He and I were friends, and I had this presentation about focused ultrasound, and I showed it to him, and he got excited and said, 'I want to back this.' He said, 'I'm going to give you a bunch of money.' I didn't even ask him to." Kassell won't say how much. "It was a lot. It was a lot."

Another early supporter was the late David Heller, founder of a Chicago-based securities firm, Advisory Research Inc. Heller and his wife, Diane, met Kassell and learned about focused ultrasound technology when their daughter was being treated at U.Va. with a gamma knife system for a benign brain tumor. Over a few years they made donations to the foundation totaling \$8 million.

The foundation also draws a significant amount of its support from people with a connection to U.Va. A key donor, for example, is John G. Macfarlane III, a graduate of Darden School of Business and who served on Darden's board for 13 years. He's a managing partner of Arrochar Management LLC, an investment management firm, and a member of the U.Va. board of visitors. He and his wife, Dudley, a 1977 graduate of Hollins University in Roanoke and a member of that school's board of trustees, divide their time between homes in Darien, Conn., and a farm in Albemarle County.

Macfarlane met Kassell about six years ago at the behest of Jessica Nagle, a co-founder of SNL Financial, which is based in Charlottesville. He and Kassell met in John Grisham's downtown office where

Kassell made a presentation on focused ultrasound. Macfarlane became a believer. He says Kassell and the potential the technology holds won him over. "What I try and look for is something that is going to move the needle. It has to make a difference," he says. "The other criterion for me is the quality of the leadership. Neal ... has bet with his feet on a technology that he thinks will have a significant impact. If you can deliver this technology sooner ... you can save a lot of lives."

When Kassell talks to potential donors, he acknowledges the other places they might want to send money, be it an alma mater or a historic site like Monticello. Then he tells them why the foundation is different. "This is a once-in-a-lifetime opportunity to make an investment

with an extraordinary return measured in social rather than economic values," he says. "Lives saved instead of dollars or profit. An opportunity to use your money in a way that can potentially help millions of people truly comes around only once in a generation."

Seeking treatment

Focused ultrasound treatments are more restricted in the U.S. than they are overseas, depending on the condition being treated, because of regulatory requirements. For example, Mark Nemschoff, 69, a Tempe, Ariz. resident, flew to Switzerland in 2013 to seek treatment for a nervous system condition called essential tremor. His sister, Joan Alschuler, had the condition, too, which is not unusual, given

the condition's genetic link.

Nemschoff says the condition left him unable to hold a glass or use a knife and fork. And, it was getting worse. "I really did not know what to do," he says. He learned through a relative of a doctor in Switzerland who could help using focused ultrasound. "I was really pushing to get my procedure done here in the United States, but the trials were just beginning," he said in a phone interview in April. "I didn't want to wonder whether I was getting the procedure or just getting a placebo."

After contacting that doctor, Nemschoff flew to Switzerland and underwent treatment. It was five hours in an MRI machine "with your head strapped into a helmet so you feel like you're going to Mars," he says. The ultrasound beam was

Focused Ultrasound Foundation board of directors

Dorothy Batten



Batten is a former director of Landmark Communications Inc., a company that operated the Weather Channel and other media and information businesses.

Lodewijk J.R. De Vink



De Vink is founding partner of Blackstone Health Care Partners and was formerly chairman, president and CEO of Warner-Lambert Co. and president of Schering International.

Eugene V. Fife



Fife is the founding principal of Vawter Capital LLC, a private family office and investment company. A former partner of Goldman Sachs, he served on the management committee and as chairman of Goldman Sachs International.

John Grisham



Grisham is an internationally known author whose books include several No. 1 best sellers. Nine of his books have been made into motion pictures.

Daniel P. Jordan



Jordan is a founding partner of Bryan and Jordan Consulting LLC and president emeritus of the Thomas Jefferson Foundation, which owns and operates Monticello.

Dr. Neal F. Kassell



Kassell is the founder and chairman of the Focused Ultrasound Foundation and a professor of neurosurgery at the University of Virginia, where he was co-chair of the department for 22 years.

Dr. Edward D. Miller



Miller retired in 2012 as CEO and chief fundraiser of John Hopkins Medicine, dean of The John Hopkins University School of Medicine and the university's vice president for medicine.

Dr. Frederic H. Moll



Moll is a leader in the development and commercialization of medical devices. His ventures have included Intuitive Surgical Inc., manufacturer of the da Vinci Surgical System.

Steve Rusckowski



Rusckowski is president and CEO of Quest Diagnostics. From 2006 to 2012, he was executive vice president and CEO of Philips Healthcare.

Dr. Andrew Von Eschenbach



Von Eschenbach is president of Samaritan Health Initiatives, senior advisor with Greenleaf Health LLC and senior director for strategic initiatives at the Center for Health Transformation. He is a former FDA commissioner and former director of the National Cancer Institute at the National Institutes of Health.

Carl P. Zeithaml



Zeithaml is in his fourth term as the dean and F.S. Cornell Professor of Free Enterprise in the McIntire School of Commerce at the University of Virginia.

used to sever a neural pathway in his brain to stop the tremor. It worked almost immediately. His sister went later to the same clinic for the same procedure. "It's something that is so unbelievable. You can't say enough good things about it," he says. "It was everything that I expected."

In the U.S., ultrasound is approved for treating uterine fibroids, a painful condition that has traditionally been treated with a range of therapies, including surgery. Gloria Twesigye, a 30-year-old woman who just finished work as a consultant for a project for the Washington, D.C.-based World Bank, underwent the treatment in January 2014 at the U.Va. Medical Center. The hospital does more than 50 ultrasound procedures a year now, which include treatments for Parkinson's, breast fibroadeno-

mas and essential tremor.

Her decision to go with focused ultrasound treatment came after she compared it with more invasive options. Her doctor at Riverside Methodist Hospital in Ohio suggested she explore the option. Twesigye says it worked well. The bleeding and pain she had experienced is gone, she says. "For me it's really improved my quality of life." She knows the fibroids could come back, that ultrasound is necessarily not a cure for the condition. But that made her more sure she did the right thing. "Why would I want to have surgery if it's going to come back?"

Kassell, meanwhile, says the pace of growth in knowledge about how to use ultrasound technology is increasing. Ahead lies more research hurdles and bureaucratic hassles. Besides winning regulatory

approval from the FDA, there are equipment manufacturers who eventually will have to come on board and of course the insurers, who "are not fun to deal with," he says.

But if the funding can be found and spent wisely, then one day, he hopes, focused ultrasound technology will be widely used because it works well and costs less. A hysterectomy, for example, costs about \$25,000, Kassell says, while focused ultrasound therapy is about \$10,000. "This is one of those magic technologies that everyone's looking for that improves quality of care and decreases cost," he says. And then the foundation can close its doors. "The ultimate indication of the success of our vision is if we could go away, if we were no longer needed," he says. **VB**

The Focused Ultrasound Foundation is a unique medical research, education and advocacy organization, created to improve the lives of millions of people worldwide by acting as the catalyst to accelerate the development and adoption of focused ultrasound. We work to clear the path to ensure that focused ultrasound finds its place as a mainstream therapy for many serious medical conditions within years, not decades.

Learn more about what you can do to support the Foundation's efforts at www.fusfoundation.org



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