

New Thinking

ABOUT THINKING

Spring 2017
keepmemoryalive.org
clevelandclinic.org/brainhealth

A Publication by Cleveland Clinic Lou Ruvo Center for Brain Health



Researching, treating and educating patients and families living with brain disorders
Alzheimer's • Huntington's • Parkinson's • Frontotemporal Dementia • Multiple Sclerosis • Multiple System Atrophy

New Technology, Talented Scientists, New Discoveries

In October, we inaugurated our new magnetic resonance imaging (MRI) brain scanning technology. This advanced technology represents progress in terms of our ability to diagnose patients with neurological disease and make discoveries with regard to brain structure, function and the treatment of neurological disorders. The advanced imaging capability offered by the new Skyra MRI device allows us to image white matter tracks, brain connectivity and circuitry relevant to normal and abnormal cognition in ways impossible with previous MRIs.

Technology by itself cannot advance science or develop new therapies. People drive science.

In concert with the acquisition and initiation of the new technologies, we have made two Keep Memory Alive Scholar Awards to members of our imaging group (Xiaowei Zhuang and Virendra Mishra, PhD), led by Dietmar Cordes, PhD. This remarkable group of physicists, mathematicians and engineers will use the new technology to enhance understanding of all types of brain disorders studied at Cleveland Clinic Lou Ruvo Center for Brain Health — Alzheimer's disease, Parkinson's disease, multiple sclerosis — and will serve the clinical trials program to advance new therapies for these disorders.

New technologies and young scientists are advancing together to solve the neurological problems of today and tomorrow.

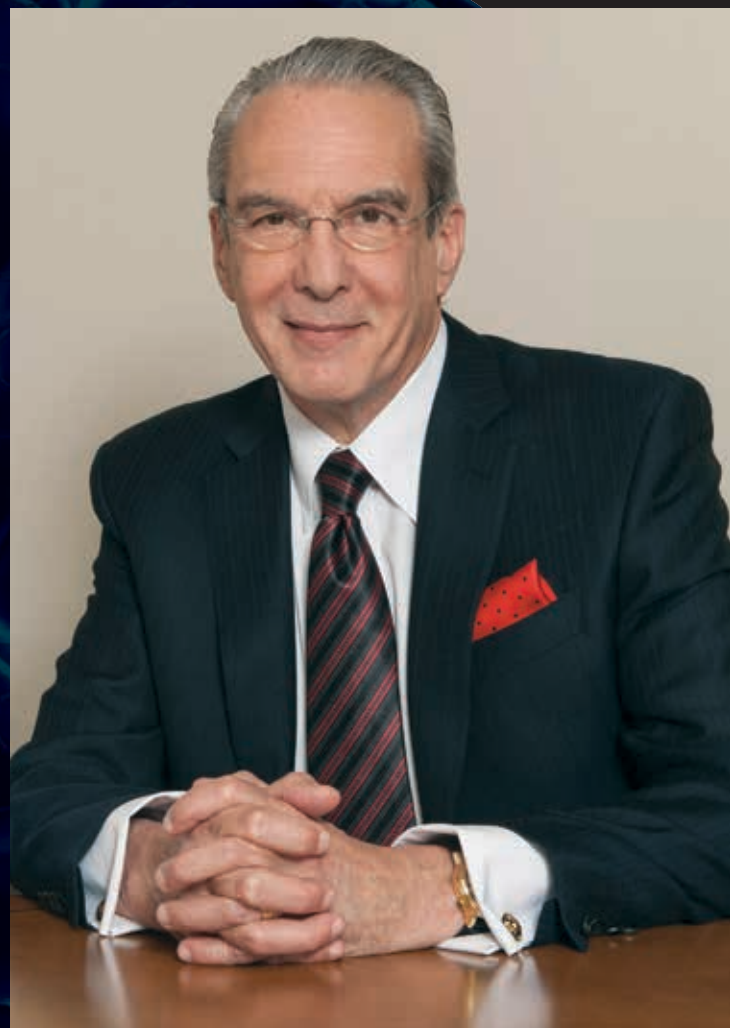
Jeffrey L. Cummings, MD, ScD

Camille and Larry Ruvo Chair for Brain Health

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Translational Neuroscience*

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NEW THINKING ABOUT THINKING

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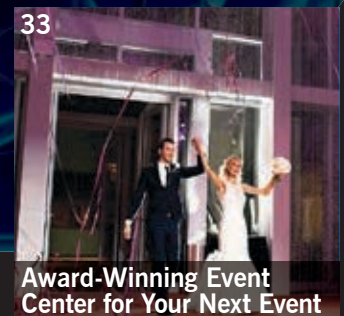
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Cleveland Clinic Lou Ruvo Center for Brain Health
Frank Gehry-designed headquarters

21st Annual Power of Love[®] Gala

On Thursday, April 27, we'll be celebrating Keep Memory Alive's 21st annual fundraising gala, the Power of Love[®]. It will take a lot to top last year's celebration of the legendary Tony Bennett's 90th birthday, but we won't disappoint: We'll be honoring philanthropist Ronald O. Perelman and tennis legend Andre Agassi. Jon Bon Jovi will perform. So will other special guests.

If you haven't yet attended the Power of Love, imagine an evening of first-rate headliner entertainment, food prepared by celebrity chefs and wine chosen by master sommeliers. Now imagine that same evening in the entertainment capital of the world.

Keep Memory Alive's Power of Love gala has become one of Las Vegas' signature celebrity events that attracts a national audience. Chefs represent a culinary

who's who: José Andrés, Mario Batali, Daniel Boulud, Tom Colicchio, Scott Conant, Douglas Dale, Alain Ducasse, Todd English, Thomas Keller, Emeril Lagasse, Steve Martorano, Nobu Matsuhisa, Michael Mina, Rick Moonen, Masaharu Morimoto, Charlie Palmer, Wolfgang Puck, Gordon Ramsay, Joël Robuchon, Alex Stratta, Buddy Valastro, Jean-Georges-Vongerichten, and more. Following a reception replete with Dom Pérignon, master sommeliers hand-select world-class wine pairings to accompany each chef's preparation.

Then, entertainment kicks into high gear. Guests have been entertained by legends, A-listers and Grammy Award

Jordin Sparks and Dan Orlando



Receive information on the gala and all of our events.

Interested in attending the Power of Love gala this spring? Please contact 702.263.9797 or events@keepmemoryalive.org. More information about this year's event, as well as other ways to support Keep Memory Alive, is online at keepmemoryalive.org.

Siegfried & Roy



Céline Dion and Andrea Bocelli





Tony Bennett



Steven Tyler



Gloria Estefan and Martina McBride

winners: Tony Bennett, Andrea Bocelli, Bono, Michael Bublé, James Corden, Celine Dion, Snoop Dogg, Gloria Estefan, Cee Lo Green, Herbie Hancock, Enrique Iglesias, Carole King, LL Cool J, Lenny Kravitz, Queen Latifah, Barry Manilow, Ricky Martin, Melissa McBride, Rita Moreno, Lionel Richie, Siegfried & Roy, Steven Tyler, Stevie Wonder and many other luminaries.

But this gala is much more than a party. It's an annual celebration of life that exists to raise money for Cleveland Clinic Lou Ruvo Center for Brain Health's programs, services and research. It reaffirms the critical role of generous donors, all of whom share the mission of eradicating devastating brain afflictions forever.

Please join us on Thursday, April 27 to raise funds for better treatments — and, perhaps one day, a cure — for these diseases that pose an unacceptable threat to our future.



THURSDAY, APRIL 27, 2017
MGM GRAND GARDEN ARENA
LAS VEGAS, NEVADA

HONOR
RONALD O. PERELMAN



AND CELEBRATE OUR 2017 KEEP MEMORY ALIVE
COMMUNITY LEADERSHIP AWARD RECIPIENT
ANDRE AGASSI



FEATURING
CHEFS MICHAEL MINA & WOLFGANG PUCK

SPECIAL PERFORMANCES BY
JON BON JOVI
AND SURPRISE GUESTS

(Read about our honorees on page 39)

New MRI Scanner Advances Patient Care and Probes Brain's Mysteries

In September, Cleveland Clinic Lou Ruvo Center for Brain Health installed a new, state-of-the-art clinical magnetic resonance imaging (MRI) scanner. After weeks of careful calibration and testing, the machine scanned its first patient in October.

For patients undergoing MRI, the new scanner means a quicker, more comfortable experience.

For the center, the scanner's updated software will bolster exceptional clinical and research capabilities. Superior-contrast imaging should result in improved image quality, which should, in turn, increase the accuracy of diagnoses, open a wider window on disease progression and patient response to treatment, and enhance researchers' understanding of how the brain functions.

Engaging our supporters in science

Brain imaging is a tool used to explore every disease treated at the Lou Ruvo Center for Brain Health, where one of our guiding principles is to pursue excellence in science in the service of care. With the support of philanthropy, we continue to invest in scientists and technologies that are penetrating the



Le Hua, MD, Eric and Sheila Samson Chair for Multiple Sclerosis, explains the use of brain imaging in her work in MS

secrets of the brain. Our donors are essential collaborators as we move closer every day to understanding one of the body's most mysterious organs.

Generous donors have contributed more than \$2 million to help Cleveland Clinic Lou Ruvo Center for Brain Health upgrade its imaging capabilities.

On November 10, the Lou Ruvo Center for Brain Health's director, Jeffrey Cummings, MD, ScD, and the philanthropy team welcomed those who supported the new scanner to see their contribution in action at the center. While guests celebrated with hors d'oeuvre and champagne, the center's scientists presented an overview of their research.

HONORING EXCELLENCE: KEEP MEMORY ALIVE SCHOLARS

Three of our scientists — Xiaowei Zhuang, MS, Virendra Mishra, PhD, and Justin Miller, PhD (L to R, pictured here with Lou Ruvo Center for Brain Health Director Jeffrey Cummings, MD, ScD) — were surprised during the evening's festivities with an unexpected honor: They were named to the first cohort of Keep Memory Alive Scholars. Each received an award of \$75,000 a year for three years to further fund his or her respective research projects. Funds were pledged at the 2016 Summer Social and Rodeo in Lake Tahoe.

Inspired to fund science? Please contact our philanthropy team at 702.331.7055.



MEET RESEARCH ENGINEER XIAOWEI ZHUANG

A native of Nanjing, China, Xiaowei Zhuang, MS, aspired from a young age to become a scientist, focusing her high school studies on math, physics and chemistry. In September 2008, she packed her suitcase and took the 1,000-kilometer train ride to enroll as a biomedical engineering major at Beijing Jiaotong University, arriving just as the Beijing Olympic Games wrapped up.



At university, she studied the electronics and engineering behind the design and maintenance of medical equipment, as well as the anatomy and physiology of the human body.

“If you want to learn about cutting-edge science, you have to come to the United States,” says Ms. Zhuang. “I often saw Los Angeles in movies and thought it would be fun to live and study there. So, I chose the University of Southern California for a master’s in biomedical engineering. I learned a lot by observing the comfort American students have in throwing original ideas out to the group for discussion.”

When it came time to apply for her first job, Ms. Zhuang knew she wanted to stay in the United States and build upon her experience in USC’s neuroimaging

lab. A research engineer at Cleveland Clinic Lou Ruvo Center for Brain Health since October 2014, Ms. Zhuang says she enjoys approaching brain research from “the perspective of the final objective, and the steps to get there.”

Over the past two years, Ms. Zhuang has participated in two types of projects: applications, which build on other researchers’ work, and methods development, which examines what didn’t work for others and uses mathematical models to approach the problem differently and validate the newly proposed method.

One example of an application project used functional MRI (fMRI) to compare how the brain functions during a resting state in those with Parkinson’s disease versus those without the disorder. Ms. Zhuang and her team wondered whether the Parkinson’s group might manifest some reduced dynamic in the brain networks related to motor skills; they have submitted a paper for publication that details their findings.

Fulfilling the mission of the Lou Ruvo Center for Brain Health’s COBRE project (see page 12), the team plans to expand its scope to incorporate an Alzheimer’s disease population. They’re also considering a task-based project for people with Parkinson’s disease, in which researchers are keen to observe which brain networks activate as study participants watch videos of people carrying out daily activities and imagine themselves performing these same activities.

“Although I utilize the building blocks I learned during my graduate work,” says Ms. Zhuang, “the research we’re doing at the Lou Ruvo Center for Brain Health is so cutting edge that I continue to learn every day.”

Thank you to our MRI Project Donors

Camille and Larry Ruvo
Ruvo Family Foundation
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Fertitta Foundation
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General Mills
Nicole and Jon Tafler

Kale and Crosswords:

HEALTHYBRAINS.ORG ADVOCATE LEARNS NEW WAYS TO STAY SHARP

Laura Mengel-Crespo is determined to do everything she can to prevent Alzheimer's disease from befalling her the way it did her father and grandfather. She has been an advocate for Alzheimer's awareness and education since her father was diagnosed 14 years ago. For the better part of the past year, she has been promoting and helping people log on to Cleveland Clinic's HealthyBrains.org website through a volunteer program called Caesars HEROs that her employer, Caesars Entertainment, Inc., provides.

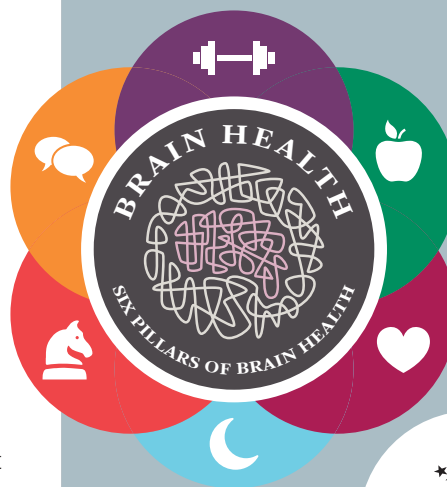
Mrs. Mengel-Crespo uses HealthyBrains.org (see sidebar) herself, and has seen a marked improvement in her health since she signed up and completed the brain health self-assessment six months ago. Her personalized brain health index score, dashboard and report gave her insight into lifestyle choices that she needed to improve to support better brain health.

"It only takes a couple of minutes to complete the assessment," she says. "We all go to our doctor and dentist appoint-

ments. Why not make this a part of taking care of yourself?"

Having scored lowest in the areas of physical activity and nutrition, Mrs. Mengel-Crespo has made changes that include drinking protein shakes with kale every day and increasing her intake of nuts and berries. As a result, she improved her nutrition score by about 17 points. She doubled her physical activity score when she began walking more, bowling and making simple changes such as parking her car farther away from her destination. She also does crossword puzzles on her iPad when she travels, a tip she learned from the HealthyBrains.org monthly e-newsletter.

Ms. Mengel-Crespo urges people to utilize the site because "you can't have enough information" about brain disease. She encourages them to follow up by retaking the assessment at least every year on their birthday, if not every six months, to see how their scores have improved.



WHAT IS HEALTHYBRAINS.ORG?

This tool, designed by Cleveland Clinic Lou Ruvo Center for Brain Health with generous support from the Caesars Foundation, was created to engage, educate and empower all who are eager to maximize brain health, minimize risk of brain disorders and participate in the discovery of new treatments for Alzheimer's disease, Parkinson's disease and multiple sclerosis.

On the HealthyBrains.org website or app, you can:

- Take a free, self-administered brain checkup
- Get your Brain Health Index (BHI) score and report
- Use your personal dashboard to track progress and get tips
- Test your memory as often as you'd like
- Elect to receive news trends in brain health
- Choose to learn about clinical trials participation

Visit HealthyBrains.org for your free brain health self-assessment.



Laura Mengel-Crespo demonstrates HealthyBrains.org

Cooking for Cognition:

MAKING A MEAL IS GOOD FOR YOUR BRAIN

If you feel at home in the kitchen, planning and preparing nutritious meals, congratulations. You're not only refueling your body; you're stimulating your brain with the type of workout it needs to remain healthy.



"A nourishing, home-cooked meal, shared with friends or family, touches on three of the six pillars of brain health," says Jeffrey Cummings, MD, ScD, Director of Cleveland Clinic Lou Ruvo Center for Brain Health. "This familiar activity exercises the brain, provides the nutrition our bodies crave and encourages social interaction, all of which are critical to preserving cognitive fitness."

Dr. Cummings notes that many brain processes involved in getting dinner on the table are classified as executive functions, which help us plan and control goal-directed thoughts and actions.

"Executive functions test our ability to organize, prioritize, sustain focus, solve problems, retrieve memories and multitask," he explains. They are located principally in the prefrontal regions of the brain's frontal lobe, with connections to other brain regions.

Producing a holiday dinner with all the trimmings will surely tax your executive functioning, but smaller-scale meals demand equivalent skills:

- Formulating a meal plan, perhaps by researching recipes online or in cookbooks, compels you to anticipate and organize.
- Factoring details into your planning – your brother hates green beans, you served an Italian dish the last time he came over – requires you to remember and to solve problems as you strive to design a menu that will make everyone happy.

- Making a list and shopping for groceries draws on memory and focus. If all the ingredients you need are not available, you may have to improvise, which also benefits your brain.
- Multitasking and organizing come into play as you prepare the meal to ensure that everything you're serving is ready at the same time.

Executive function applies to another dimension: managing frustration and controlling emotions. You may have to draw on these cognitive resources if your meal preparation goes awry or your dinner falls flat, despite your best efforts. Don't despair. Grace under pressure is just one more sign of a healthy brain!

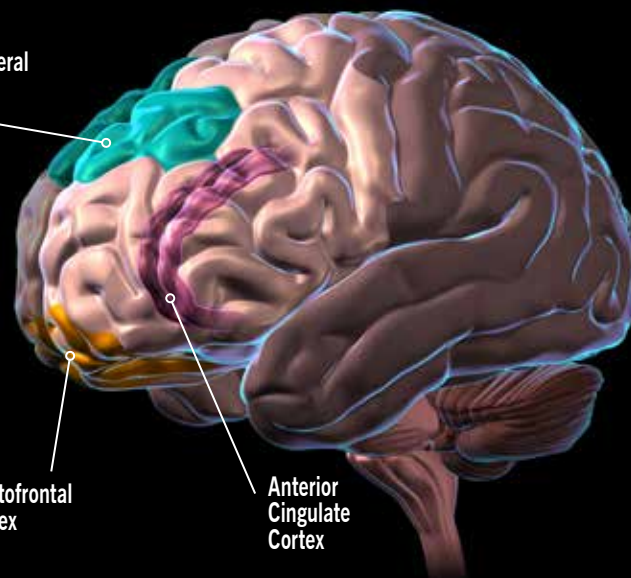
For more information on how you can keep your brain engaged and reduce risk for brain decline, visit HealthyBrains.org (see page 7).

Frontal lobe and prefrontal cortex

Dorsolateral Prefrontal Cortex

Orbitofrontal Cortex

Anterior Cingulate Cortex



Many parts of the brain are engaged when cooking, eating and socializing

As Lifespan Lengthens, Researchers Race to Reduce the Burden of Brain Disease

By Aaron Ritter, MD

As people all over the world are living longer, finding better treatments for brain diseases like Alzheimer's disease and Parkinson's disease has become one of the great challenges of the 21st century. While new research has begun to unlock some of the reasons these complex diseases occur, drug development for brain disease lags far behind that in other areas of medicine.

It has been more than 13 years since the last Alzheimer's medication was approved but, during that period, more than 100 new cancer drugs have been brought to market. Drug development for brain diseases is complicated and expensive; with a failure rate approaching 99 percent, it is understandable that many drug

companies have turned their focus away from brain diseases. Yet, with an expected explosion in the number of people developing Alzheimer's disease in the next decade, it is crucial that we find more effective treatments.

The solution to the world's brain disease epidemic is to find what are called disease-modifying therapies. Unlike treatments that alleviate the symptoms associated with a disease, disease-modifying therapies slow or delay the onset of a disease. The only way to test whether these therapies are effective is through clinical trials. Clinical trials test new drugs in participants who have or are at high risk of developing a disease, and monitor how these participants do

compared with those who receive a placebo. Strict regulations are followed to ensure that these new drugs are safe.

Cleveland Clinic Lou Ruvo Center for Brain Health is committed to finding more effective treatments for brain disease through clinical trials. Our clinical research program has grown into one of the largest in the country, conducting more than 65 research studies and clinical trials since its inception in 2010. The program has attacked brain disease from a variety of angles and, in the process, has contributed greatly to our understanding of Alzheimer's disease, Parkinson's disease and multiple sclerosis. Through partnerships with the National Institutes of Health, academic institutions and pharmaceutical companies, new candidate agents are being tested every day at the Lou Ruvo Center for Brain Health.

Here are just a few examples of the exciting research our team is pursuing:

- A study of whether antibodies directed against amyloid, a biomarker of Alzheimer's disease, will slow the progress of the disease in the early stages
- A first-of-its-kind study to determine if early immunotherapy in people at high risk for multiple sclerosis reduces the risk of developing the disease

If you or a loved one is interested in learning more about the clinical research program at the Lou Ruvo Center for Brain Health, visit clevelandclinic.org/brainhealthtrials for a list of active trials or call 855.LOU.RUVO.

Aaron Ritter, MD



Study	Participant	Study Type	Duration
Disinhibition	All Neurodegenerative Disorders 50 – 90 years of age Exhibit disinhibition symptoms	Nuedexta™ or placebo Oral medications	14 weeks
IDEAS	MCI or dementia Medicare recipients	amyloid PET scan	3 study visits
EMERGE®	Alzheimer's Disease Mild Cognitive 50 – 85 years of age	IV administration of Aducanumab or placebo	36-48 months
Rasagiline®	Mild to Moderate Alzheimer's Disease 50 – 90 years old	Daily Oral Tablet (Rasagiline)	6 months
COBRE	Mild cognitive impairment Alzheimer's Disease Parkinson's Disease 50 – 90 years old	MRI, neuropsych testing, and lab work No investigative agent	60 months
ENROLL-HD®	Huntington's Disease 18 and older	Prospective registry study for patients with Huntington's Disease	No end date
PROFESSIONAL FIGHTER STUDY	Active and Retired Professional Fighters	Observational Study	4 years

- A first-of-its-kind investigation of the effects of a powerful antioxidant on brain function in people with Alzheimer's disease
- A study of whether an antioxidant given in early Parkinson's disease affects the disease course

New research and technological advances have made this an exciting time for brain research. We are now closer than ever in our search for better treatments for brain diseases. Determining whether these new therapies are effective, however, will depend on having enough patients willing to participate in clinical trials.

ABOUT THE AUTHOR

Aaron Ritter, MD, received his Bachelor of Arts at the University of Wisconsin-Madison and obtained his medical degree from the University of Colorado. He completed an internship in pediatrics and residency training in psychiatry at the University of Arizona in Tucson, followed by a fellowship in behavioral neurology and neuropsychiatry at Cleveland Clinic Lou Ruvo Center for Brain Health, where he is now Director, Clinical Trials Program.



Path to 2025: A COORDINATED EFFORT TO ACCELERATE DEMENTIA DRUG DEVELOPMENT

Alzheimer's disease (AD) is a fatal illness that causes progressive decline in memory and other aspects of cognition. By 2030, an estimated 75 million people around the world will have AD, and the cost of caring for people with dementia worldwide could rise to \$2 trillion USD. The economic and social impact of such a public health disaster is overwhelming. Fortunately, researchers are working busily to find new therapies for AD.

During the 2013 G8 Dementia Summit held in London, member nations established a goal to identify a disease-modifying therapy for dementia by 2025, setting the stage for coordinated global action.

Meeting this goal requires great innovation, commitment and a change from "business as usual," according to a paper led by Jeffrey L. Cummings, MD, ScD, Director, Cleveland Clinic Lou Ruvo Center for Brain Health, and published in *Alzheimer's Research & Therapy* in September 2016. Only a limited number of disease-modifying therapies are on track to be approved and available to patients by 2025. This paper, "Drug Development in Alzheimer's Disease: The Path to 2025," offers solutions to stimulate progress.

"In order to have disease-modifying therapies available by 2025, significant changes need to be made in the areas of research and clinical development," writes Dr. Cummings. "If we do not take immediate action to address the way we approach Alzheimer's disease, we will be doing a disservice not only to the many people around the world who are or will be impacted by this devastating disease, but also to our healthcare systems."



*Jeffrey Cummings, MD, ScD,
with Research Coordinator
Monica Guerra*

"Drug Development in Alzheimer's Disease: The Path to 2025" is a call to action. Dr. Cummings' rallying cry suggests:

- Drug development be accelerated by shortening the length of time it takes to recruit patients
- Investment from the National Institutes of Health is critical to advancing the AD research agenda

- It is critical that individuals with risk for AD participate in clinical trials
- Medical enterprises such as Cleveland Clinic meet to support the efficient prosecution of clinical trials

Given the bright minds at the helm of Alzheimer's disease research and the increasing societal pressure to change the trajectory of AD's impact on our world, we have reason for hope.

For information on research being conducted at Cleveland Clinic Lou Ruvo Center for Brain Health, contact 855.LOU.RUVO or brainhealth@ccf.org. To support our efforts, contact DonateNevada@ccf.org or 702.263.9797.



Study Is Among First to Jointly Examine Alzheimer's and Parkinson's

The first annual Nevada COBRE meeting, held in October, offered a unique opportunity for the southern and northern Nevada COBRE groups (pictured above) to network and share scientific information. Due in part to the success of the meeting, the group plans to meet again in fall 2017.

With an \$11.1 million federal grant awarded in 2015, researchers at Cleveland Clinic Lou Ruvo Center for Brain Health and the University of Nevada, Las Vegas (UNLV) have embarked on collaborative efforts to further understand the progression of Parkinson's and Alzheimer's diseases and, ultimately, to advance patient care. This is the first time the two diseases have been studied together.

"The ways that Alzheimer's and Parkinson's diseases affect the brain can sometimes overlap," says Aaron Ritter, MD, Director, Clinical Trials Program, at the Lou Ruvo Center for Brain Health. "Collecting data at the same time can magnify differences and similarities between the two."

The five-year grant from the National Institutes of Health established southern Nevada's first Institutional Development Award (IDeA) and Center of Biomedical Research Excellence (COBRE), known as the Center for Neurodegeneration and Translational Neuroscience (CNTN).

Dr. Ritter is the leader of the Clinical and Translational Research Core within the CNTN. The work of Dr. Ritter and his staff focuses on improving the translation of laboratory research to humans.

This team will study findings regarding inflammation and genetic markers to be gathered from a cohort of patients over five years through functional MRIs, PET scans and blood samples. Dr. Ritter hopes to recruit about 180 patients. The group's demographics will match those of the state of Nevada, except that participants will be 55 and older and have a diagnosis of early-stage Alzheimer's or Parkinson's disease. A group of participants with mild cognitive impairment and a group without symptoms will also be recruited to serve as comparisons.

Observations from this study will be tied back to observations of mice being studied in a UNLV lab in an effort to ensure that predictions seen in animal models will translate to human disease.

"Oftentimes, when we test new drugs in mice we see very promising findings, but these results have not followed in clinical trials with humans," says Dr. Ritter.

The strength of these animal model predictions also will be tested through the use of a virtual Morris water maze developed by Sarah Banks, PhD, ABPP/CN, Head of Neuropsychology at the Lou Ruvo Center for Brain Health. The Morris water maze has been used for more than 25 years to assess spatial learning and memory in mice. The virtual version enables researchers to apply the same mouse maze challenges to humans on a computer in order to test their memory dysfunction and compare with results from the mouse model.

For a full list of research studies being conducted at the Lou Ruvo Center for Brain Health, visit clevelandclinic.org/brainhealth.

Novel Brain Scans in Fighter Study Draw International Interest

At the October Lancet Neurology Conference in London, Cleveland Clinic Lou Ruvo Center for Brain Health's Head of Neuropsychology, Sarah Banks, PhD, ABPP/CN, presented important new findings from the center's Professional Fighters' Brain Health Study.

Since 2011, 700 boxers and mixed martial arts fighters have undergone neurological evaluations in the Professional Fighters' Brain Health Study to identify the earliest signs of brain injury in those exposed to head trauma.

To learn more about possible abnormalities in fighters' brains, positron emission tomography (PET) scans using a chemical marker called FDDNP were performed on 34 fighters from the study. Developed to detect brain abnormalities in Alzheimer's disease, FDDNP PET scans can identify proteins thought to accumulate in the brains of people with neurodegenerative diseases. Buildup of the tau protein is associated with chronic traumatic encephalopathy (CTE), a neurodegenerative disease found in athletes engaged in contact sports.

Previous studies of FDDNP PET imaging in professional football players showed elevated levels of FDDNP (which indicates the presence of proteins) in the amygdala and subcortical regions of the brain, which are responsible for mood, fear, stress and cognition.

"We wanted to see how the brains of the fighters in our study compared to football players," says Dr. Banks.

The study group of 34 fighters ranged in age from 19 to 66, representing a wide span of experience, from fighters just beginning their careers to retired fighters who had sustained many blows to the head. Elevated FDDNP levels were present mainly in older fighters in the same areas of the brain as seen before in football players.

Sarah Banks, PhD, ABPP/CN



To determine whether the presence of proteins is due to aging or head trauma, FDDNP PET scans will be performed for comparison on a group of older men who are non-athletes.

"We are trying to discover whether fighting leads to an unusual buildup of tau in the brain and whether fighters are at a higher risk of developing CTE," says Dr. Banks.

The Lou Ruvo Center for Brain Health presentation at the Lancet conference, a major international gathering of neurologists, attracted considerable attention.

"We are the only ones who are studying the fighter population, and our peers at other academic health centers are very interested in our findings," says Dr. Banks.

For information on all clinical research studies at the Lou Ruvo Center for Brain Health, visit clevelandclinic.org/brainhealthtrials.

Study Finds Gender Differences in Mild Cognitive Impairment

By Jessica Z.K. Caldwell, PhD

Women are more likely than men to get Alzheimer's disease, and often show worse symptoms. On the other hand, women perform better than men on measures of memory that are often used to detect Alzheimer's disease, such as learning a list of words. The reasons for this discrepancy are unclear, and the answers may be key to developing disease treatments.

A study conducted at Cleveland Clinic Lou Ruvo Center for Brain Health examined gender differences in people with Mild Cognitive Impairment (MCI). MCI is a pre-dementia stage during which memory difficulties exist, but have not yet made a major impact on daily life. Focusing on MCI allows us to examine early disease symptoms, which may be most responsive to new treatments.

Our study looked at more than 700 men and women participating in a large national project called the Alzheimer's Disease Neuroimaging Initiative (ADNI). ADNI includes several types of brain scans. One type, called amyloid imaging, can show whether a person has buildup of a substance called amyloid in the brain. The presence of amyloid buildup is a biomarker — or biological signature — of Alzheimer's disease. In other words, if amyloid is present, an individual has MCI due to Alzheimer's disease.

We looked at memory performance in men and women with MCI due to Alzheimer's disease or other causes, based on their amyloid brain imaging.

Jessica Z.K. Caldwell, PhD



We found that in MCI due to Alzheimer's disease, both men and women showed poor memory for a list of words. However, in MCI not due to Alzheimer's disease, women showed better memory than men. This effect could not be explained by age.

This finding is important because it shows that Alzheimer's disease may remove the memory advantage that women typically have over men, even before the dementia stage. While more studies are needed, this finding might begin to explain how women are more vulnerable to the effects of Alzheimer's disease.

Our neuropsychology team at the Lou Ruvo Center for Brain Health will continue to study ways that Alzheimer's disease impacts men's and women's brains differently. A generous donation from The Women's Alzheimer's Movement, headed by Maria Shriver, will help us with our goals, and also will contribute to her foundation's goal of more completely understanding why Alzheimer's disease disproportionately affects women.

For more information on research studies at the Lou Ruvo Center for Brain Health, visit clevelandclinic.org/brainhealth.



ABOUT THE AUTHOR

Jessica Z.K. Caldwell, PhD, completed her graduate training at the University of Wisconsin, Madison, where she focused on behavioral correlates of function and structure of medial temporal lobe brain regions. She completed an internship at Harvard Medical School and a fellowship at Brown University, where she assessed a wide variety of neuropsychological conditions, including neurodegenerative disease, HIV-related cognitive disorders, head injuries, epilepsy and delirium. Dr. Caldwell is now a staff neuropsychologist at the Lou Ruvo Center for Brain Health.

IDEAS Study Aims to Pinpoint Causes of Cognitive Decline

Cleveland Clinic Lou Ruvo Center for Brain Health is part of a major new study that will evaluate whether amyloid PET scans can improve diagnosis and treatment of cognitive impairment and dementia.

Amyloid positron emission tomography (PET) scans are a type of brain scan that can detect the presence of amyloid, a protein that accumulates in the brains of people with Alzheimer's disease. An amyloid PET scan is the only test that allows a doctor to see amyloid plaques in the brain.

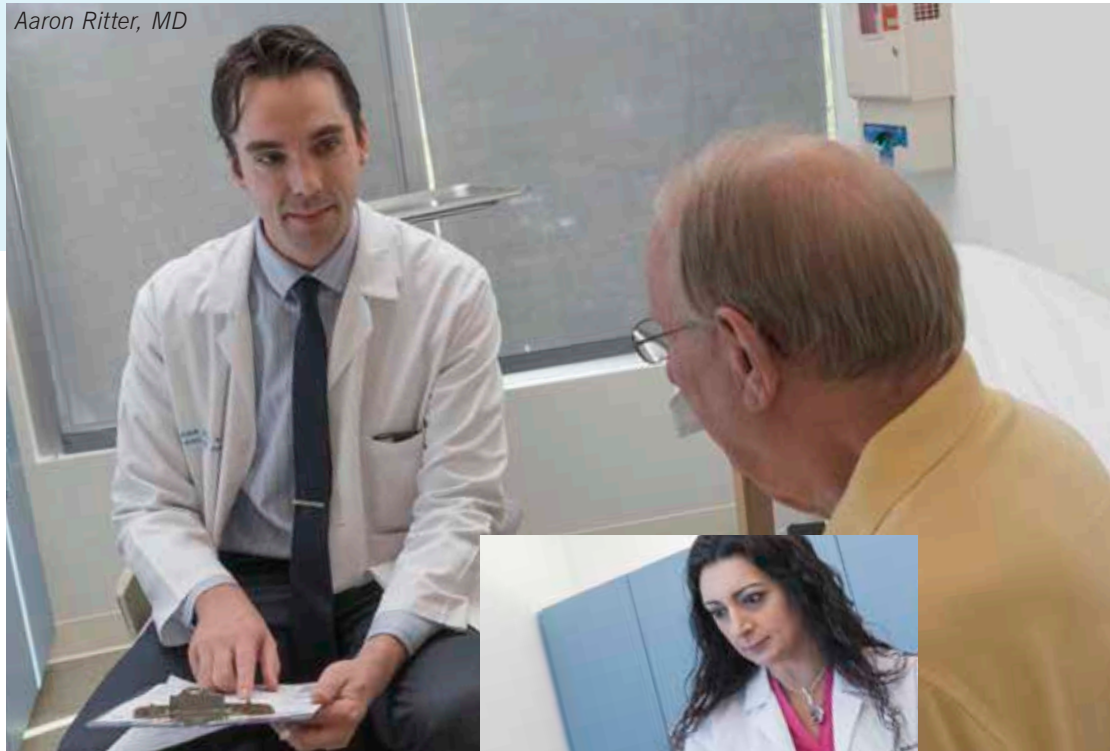
"If a patient has dementia and the scan shows the presence of amyloid in the brain, this confirms the diagnosis of Alzheimer's disease," says Aaron Ritter, MD, Director of the Clinical Trials Program at the Lou Ruvo Center for Brain Health, who is an investigator on the study.

Currently, amyloid PET scans are not covered by Medicare and other insurers, so they have been used mainly in clinical trials.

The Imaging Dementia – Evidence for Amyloid Scanning (IDEAS) study, supported by the Centers for Medicare & Medicaid Services and the Alzheimer's Association, is the largest study to date of amyloid PET scans and cognitive decline. More than 18,000 people older than 65, with symptoms of mild cognitive impairment (MCI) or dementia, will undergo an amyloid PET scan. These subjects will have been evaluated by a dementia specialist, but lack a definitive diagnosis. They include patients from the Lou Ruvo for Brain Health in Las Vegas and in Cleveland.

People with MCI have cognitive difficulties that are noticeable to family members, but are not severe enough to interfere with

Aaron Ritter, MD



independent living. Identifying the cause of cognitive decline can be difficult. Possible causes include Alzheimer's disease, Parkinson's disease, Lewy body dementia, stroke, depression, vitamin or endocrine imbalances, medications with side effects and medical conditions, such as infection.

Yet, "It is crucial to determine the cause of cognitive impairment because this will determine whether a person with MCI will improve, stay the same or eventually progress to dementia," says Dr. Ritter.

Having a PET scan will clarify whether participants have Alzheimer's disease so they can get appropriate treatment. Participants with positive scans can take medications, join clinical trials and learn about the progression of the disease to help with future planning. If the scan is negative, "we can be more aggressive in looking for other causes of cognitive impairment," says Dr. Ritter.



Yolande Mucharbach, Research Coordinator, IDEAS study

The study will follow participants' progress and assess whether more accurate diagnosis leads to improved outcomes, including better treatment and fewer unnecessary tests and procedures. Such positive results could lead to coverage of amyloid PET scans by health insurers and Medicare, which is supporting the study.

To inquire about participation in this or any other clinical research study at the Lou Ruvo Center for Brain Health, contact us at 855.LOU.RUVO or brainhealth@ccf.org.

Meet Alana Burns, a True Team Player

A tactic often used to motivate an athlete is to issue a seemingly insurmountable challenge, but fourth-grader Alana Burns didn't yet know she was an athlete when one of the high school boys at the neighborhood basketball court in Elkhart, Indiana, challenged her to sink a free throw.

She made the shot, the first one she'd ever attempted. She immediately became obsessed with basketball, playing in all her free moments. She issued the next challenge to herself, declaring to her dad in sixth grade that she was going to land a full college scholarship to play basketball at a Division 1 school. He, in turn, promised her the car of her choice if she met her goal.

Alana Burns received her first college recruitment letter in seventh grade, became a high school and county Hall of Famer, earned All-State honors in basketball and All-Conference honors in volleyball, and was a member of the women's basketball team that won Michigan State's first Big 10 championship title. Goal accomplished (and yes, she is grateful to her dad for the car).



Alana Burns, playing for Michigan State



Alana Burns

Fast forward to 2015, when Ms. Burns became Research Program Manager at Cleveland Clinic Lou Ruvo Center for Brain Health, where she leads her team based on principles learned in her basketball career. She is responsible for all clinical research operations, from hiring, to budgets, to contract negotiations with pharmaceutical sponsors, to compliance with external regulatory agencies, to collaboration with research administration at Cleveland Clinic's Main Campus.

Ms. Burns had numerous encounters with science that inspired her to major in physiology as an undergraduate and complete a master's degree in bioethics: There was her pediatric endocrinologist, who advised her she could control her Type 1 diabetes, it didn't have to control her; her father, a research scientist at the time, who brought experimental mice home over the weekends; and the four surgeries she had while playing college basketball, for a total of 16 orthopaedic surgeries to date.

Her first paid job in research involved work in brain health. It was a longitudinal study at Chicago's Rush University Medical Center on cognition during life and post-mortem brain autopsies involving members of religious orders.

Long familiar with Cleveland Clinic, Ms. Burns was inspired to move to Las Vegas by the opportunity to focus on team interplay among the 19 members of the Lou Ruvo Center for Brain Health's research team. She believes building a team is about focusing on each individual's strengths, defining individual roles and enhancing professional relationships to help motivate a group to achieve a common objective.

"Persistence pays off," Ms. Burns says, harkening back to that first free throw on the neighborhood court. "From that point on, I've been keenly focused on proving skeptics wrong."



Carrie Hersh, DO, MS

Charting a New Path to Improve MS Outcomes

People with multiple sclerosis (MS) who are treated at Cleveland Clinic Lou Ruvo Center for Brain Health have an imminent opportunity to advance MS research, even as they learn more about their individual disease status — all in the course of a regular office visit.

This opportunity is unfolding because Cleveland Clinic Mellen Center for Multiple Sclerosis Treatment and Research is a charter member of a new, collaborative network of MS centers known as Multiple Sclerosis Partners Advancing Technology and Health Solutions (MS PATHS). With funding from Biogen and Siemens Healthcare, the collaborating academic healthcare institutions aim to create an integrated patient data collection system to conduct research and improve clinical care.

What It Means for Patients

Spearheading MS PATHS at the Lou Ruvo Center for Brain Health is staff neurologist Carrie Hersh, DO, MS, Assistant Program Director, Multiple Sclerosis Health and Wellness Initiative. With a specialty in MS outcomes-based research, Dr. Hersh welcomes the promise inherent in standardized, objective clinical and imaging data acquired from a large population of persons with MS treated at Cleveland Clinic.

“Until recently, we have been limited by the amount and quality of objective findings available to us in clinical practice in making important treatment decisions for our patients,” Dr. Hersh explains. “Now, we will have access to meaningful, real-world data to help us make clinical decisions long term and assess whether our treatment strategies are working effectively.”

For example, she says, “One of the most common and disabling symptoms of MS is cognitive loss. To gather these new data, we will have a very sensitive cognitive performance test that will allow healthcare providers to measure and track cognition across routine office visits.”

To accommodate data collection, patients will see a change in the structure of their routine medical appointments, which will now comprise three stages:

- In a 20-minute assessment, a medical assistant will take their vital signs and review their medications.
- A 30-minute Multiple Sclerosis Performance Test (MSPT) will include

the familiar walking speed test, a manual dexterity test and a suite of self-administered, iPad-based assessments developed at Cleveland Clinic. These quantitative tests measure cognition and vision, along with questionnaires that gauge variables such as quality of life, fatigue level, mood and functional ability.

- Finally, in a 45-minute visit, patients will review the results of the just-completed tests with their care provider, who will also examine trends over time. This information could help physicians discern subtle changes in vision, gait or cognition even before the patient notices them.

Another important component of MS PATHS is imaging. Radiologists have developed standardized magnetic resonance imaging (MRI) sequences so that comparable MRI data from all patients can be shared.

For the Greater Good

Robert Bermel, MD, Medical Director of the Mellen Center, has been at the

forefront in the development of MS PATHS and, at its heart, the MSPT. Dr. Bermel recently visited the Lou Ruvo Center for Brain Health to review implementation of the MSPT in Las Vegas. Medical assistants have been trained on the iPad and patient enrollment is proceeding.

Given the expected benefits for individuals, every patient will experience the three-stage medical appointment that includes the MSPT. However, patients will need to give informed consent for their information to be anonymously aggregated in a centralized health information exchange database.

By giving consent, patients will enlist in a global effort to fill a gap in available outcomes data from clinical research, which traditionally is conducted in small patient groups that generate findings not easily extrapolated to all patients across the healthcare system.

Dr. Hersh expects a critical role and contribution from patients with all forms of MS, including the relapsing-remitting, secondary progressive and primary progressive forms. Dr. Bermel hopes that insights gained from MS PATHS can be applied to help manage all forms of MS.

Dr. Hersh's enthusiasm shines through when she discusses MS PATHS.

"The standardized approaches to clinical and MRI data acquisition across multiple centers could lead to more rapid and reliable treatment decisions," she says. "We may even be able to predict who will do best on which therapy and how well persons with MS will do long term."

"This initiative will revolutionize how we care for patients in the real world, while providing them the confidence that they are helping to advance this rapidly growing field. I am so excited to be involved."

To make an appointment with an MS specialist or inquire about research at the Lou Ruvo Center for Brain Health, call 702.483.6000.

SAMSON DONATION TO CREATE SAMSON CHAIR FOR MS RESEARCH

A generous gift from longtime Cleveland Clinic supporters Eric and Sheila Samson has recently established the Eric and Sheila Samson Chair for Multiple Sclerosis Research, allowing Cleveland Clinic Lou Ruvo Center for Brain Health to accelerate its investigation of the disease.



Le Hua, MD, Director of the Mellen Program for MS at the Lou Ruvo Center for Brain Health, Las Vegas, is the first holder of the Samson Chair. Among her research interests is advanced magnetic resonance imaging (MRI) techniques.

"MS is the most common cause of non-traumatic disability among young adults," Dr. Hua says. "One of the difficulties in caring for MS patients is that our field lacks a robust imaging biomarker to help us truly understand the disease. Traditional MRI techniques have aided in diagnosis, but do not correlate well with future disability level. We need better tools to see what is currently invisible."

In addition to Dr. Hua's study of a promising approach known as macromolecular tissue characterization, the Samsons' gift will help fund other areas of inquiry at the Lou Ruvo Center for Brain Health, including the impact of aging and MS, health and wellness in MS care, and comparative outcomes of newer medications.

"Mr. and Mrs. Samson's philanthropy will elevate all these pursuits and lead to meaningful treatments for this life-robbing disease," Dr. Hua says. "We are deeply grateful to them."

Recognized for Excellence

In recent months, Cleveland Clinic employees have been honored by their community, peers and professional associations for clinical excellence and leadership in their fields.

We celebrate their accomplishments.

Keep Memory Alive Scholars

(Keep Memory Alive, November 2016)

Each scientist received \$75,000 to further fund research.

Justin Miller, PhD

Virendra Mishra, PhD

Xiaowei Zhuang

(See article on page 5)

Inspired Excellence in Healthcare Award

(Las Vegas Heals, October 2016)

Charles Bernick, MD, MPH

Top Doctors

(VegasINC, summer)

Scott Slavis, MD

Top Doctors *(KNPR's Desert*

Companion, August 2016)

Jeffrey Cummings, MD, ScD

Women to Watch

(Nevada Business Magazine,

August 2016)

Sarah Banks, PhD, ABPP/CN

Physician Assistant Profession Celebrates 50th Anniversary

At Cleveland Clinic Lou Ruvo Center for Brain Health, the brain disorders we treat are progressive. As our experts in ongoing disease management, the team's advanced practice providers (both physician assistants and nurse practitioners) are trained to detect subtle changes in brain health and adjust treatment plans accordingly. Leveraging their background in primary care, our advanced practice providers are astute overseers and strong communicators of the relationship between overall health and neurological conditions.

While today's healthcare consumers are accustomed to being treated by physician assistants (PAs), the common perception is that the PA profession is new — perhaps because of current trends in healthcare reform. In fact, 2017 marks the 50th anniversary of the PA profession, which has been enjoying recognition from several national media outlets, including Forbes and USA Today, as one of the fastest-growing professions in America.

More than 108,500 strong in the United States, PAs are vital to today's healthcare delivery, making a positive impact in combating physician shortages across the country. PAs study general medicine at accredited PA programs and must pass a certification exam to become nationally certified and licensed to practice. PAs are required to complete extensive continuing medical education throughout their careers.

According to the American Academy of Physician Assistants (AAPA)'s website, in the mid-1960s, physicians and educators recognized there was a shortage of primary care physicians: "To help remedy this, Eugene A. Stead Jr., MD, of the Duke University Medical Center, put together the first class of PAs in 1965. He selected four Navy hospital corpsmen who had received consider-



Susan Morgan, MS, PA-C

able medical training during their military service. Dr. Stead based the curriculum of the PA program on his knowledge of the fast-track training of doctors during World War II."

The first PA class graduated from Duke University in 1967.

Fifty years later, physician assistants and nurse practitioners play a critical role in the care teams at the Lou Ruvo Center for Brain Health.

To make an appointment with one of our physicians or physician assistants, please call 702.483.6000.

Meet Susan Morgan, MS, PA-C Manager, Advanced Practice Providers

Susan Morgan is a board-certified physician assistant with more than 30 years of experience in internal medicine, neurosurgery and neurology in both inpatient and outpatient settings. She completed her bachelor's degree in physician assistant studies, and subsequently her Master of Science at Alderson Broaddus College in her native West Virginia. Ms. Morgan is a past president of the Nevada Academy of Physician Assistants. She joined the Lou Ruvo Center for Brain Health in 2016 as manager of the advanced practice providers (nurse practitioners and physician assistants). She also treats patients with multiple sclerosis.

Outside of work, Ms. Morgan indulges her passion for adventure with SCUBA, downhill skiing, body building, agility training with her Sheltie and championship duplicate bridge.



NOW ON VIDEO:

The Doctor Is In

In her hometown of Wells, Nevada, Diane Moore, 65, is 400 miles from Las Vegas and 350 miles from Reno. Even the closest healthcare hub, Salt Lake City, Utah, is 187 miles away. As Ms. Moore knows, “During the winter, especially, it can be difficult getting through the mountain pass to any of those cities.”

When her primary care provider in Elko, Nevada, suggested she could skip the drive and instead go to the Cleveland Clinic office down the hall and see a Cleveland Clinic Lou Ruvo Center for Brain Health neurologist from Las Vegas via videoconference, Ms. Moore says, “I was curious.”

Ms. Moore, who had been suffering from shakes and tremors, had done some research online and suspected these symptoms to be hallmarks of the “essential tremors” (also known as benign tremors) that affect other members of her family. Nonetheless, she feared she might have Parkinson’s disease, and she knew she would have a better outcome and live with less stress if she could receive an accurate diagnosis from a specialized neurologist.

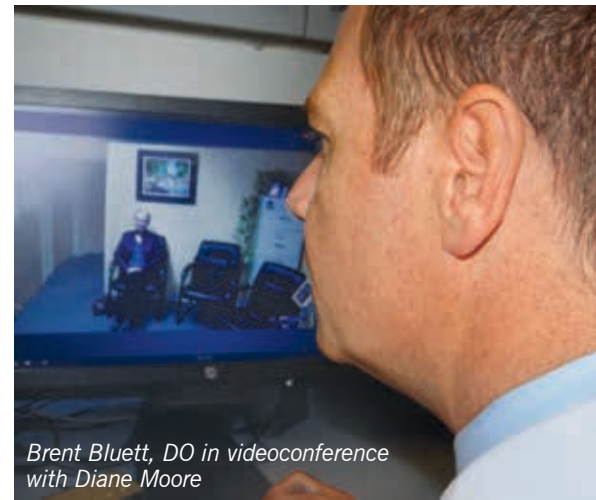
“When I walked into Cleveland Clinic’s office in Elko, Medical Assistant Tami Charters immediately put me at ease,” Ms. Moore recalls. “She sat me down and took my vitals. So far, it was just like a typical visit to a doctor’s office.”

Then, Brent Bluett, DO, a movement disorders specialist, appeared on the television screen in front of the two women.

“Dr. Bluett is very professional, has a great sense of humor, and I relaxed immediately,” says Ms. Moore. “I interacted with him pretty much as I would if we were in the same room. He watched me walk toward the monitor and then away; asked me to touch my nose, and then hold my hands parallel to the ground and keep them still.”

Dr. Bluett established a medication treatment plan that helps control the hand tremors and enables Ms. Moore to write more easily, which is critical to her job as a court clerk. She says the medicine also helps manage the stress caused by the tremors.

“I’m perfectly content with seeing Dr. Bluett via videoconference,” she says. “I’d hate to take time off work to travel to see the doctor, and besides, with today’s technology, I think it’s becoming the norm. People should at least give it a try to see if it meets their needs.”



Telemedicine Bridges Geography

Without leaving their communities, individuals in remote areas of northern Nevada are being diagnosed and treated for Alzheimer’s and Parkinson’s diseases, multiple sclerosis and other brain disorders via teleconference from an office in Elko by Cleveland Clinic Lou Ruvo Center for Brain Health neurologists in Las Vegas.

Prior to the face-to-face meeting with the physician over the teleconference system, a telemedicine facilitator administers pre-visit assessments and performs services the doctor or advanced practice provider requires for the evaluation, such as assisting a patient in walking and managing equipment and assuring follow-up appointments.

Cleveland Clinic’s electronic medical records system allows a telemedicine physician in Las Vegas to electronically transmit a prescription directly to a pharmacy anywhere in Nevada.

To make an appointment at our Elko office, please call 775.738.0100.

The telehealth technology also brings Patient and Family Services programs, such as weekly Lunch & Learn conferences, to patients in these remote communities. A calendar of upcoming events throughout Nevada, as well as video archives of past programs, is available at keepmemoryalive.org/EducationCalendar.

At the Lou Ruvo Center for Brain Health, we strive to improve access and care through patient-centric innovations that use technology and novel approaches to information sharing and communication.

Progressive Loss of Language: Aphasia as a Brain Disease

A 72-year-old corporate executive who regularly addressed large groups began struggling to speak and express his ideas. He came to Cleveland Clinic Lou Ruvo Center for Brain Health, where neurologist Gabriel Léger, MD, diagnosed primary progressive aphasia (PPA).

PPA is a language disorder associated with either frontotemporal dementia (FTD) or Alzheimer's disease. However, it can appear years before the underlying disease spreads to other parts of the brain and affects other cognitive functions.

PPA can impair language ability in two ways. The most common form, non-fluent agrammatic, affects ability to articulate words and express thoughts.

"Speech is slow and deliberate, with many pauses," says Dr. Léger, Director of the Frontotemporal and Young-onset Dementias Program. In the less common semantic form, people can speak easily but can no longer comprehend the meaning of words.

"When asked to draw a clock, one patient didn't even know what a clock was," says Dr. Léger.

Speech therapy can help those with PPA learn tools and compensatory strategies that can improve communication, but not speaking ability. Eventually, patients may lose their ability to speak or understand language. PPA differs from more common aphasias, which are usually caused by brain damage from a stroke or injury, and can improve with speech therapy.

Dr. Léger has patients with the non-fluent agrammatic form who, like the executive, have jobs that require the ability to communicate clearly, such as airline pilot, surgeon and salesperson.



Gabriel Léger, MD

"They are very aware of their difficulties and become frustrated and depressed," he says. Some lose their jobs or choose to retire, as did the executive. One famous example is former Monty Python comedy group member Terry Jones, who recently revealed that he has PPA.

"It's particularly unfortunate and poignant when someone who used language so artfully develops this condition," Dr. Léger says.

Accurate diagnosis of the cause of PPA is important in prescribing treatment and educating patients and families about the

potential course of the disease: With Alzheimer's disease, it's memory loss and other cognitive deficits and with FTD, it's behavioral changes such as lack of self-control, empathy and judgment. People with either disease may benefit from taking medications such as cognitive enhancers and antidepressants.

To make an appointment with a neurologist, contact the Lou Ruvo Center for Brain Health at 702.483.6000.

Steady on Your Feet?

IT MATTERS FOR YOUR BRAIN

If you're an older adult, even minor changes in the way you walk may point to an increased risk of cognitive deficits. Early gait instability is a red flag associated not only with falls, but with progression to dementia.

That's why Cleveland Clinic Lou Ruvo Center for Brain Health has invested in technology and training for its neuroreha-

bilitation team, which works on gait exercises with patients experiencing cognitive decline.

Know Where You Stand

"We now know that gait disturbances can be present years before mild cognitive impairment becomes apparent," says Christy Ross, PT, DPT, GCS, CDP, MSCS. "Assessments of both motor and

cognitive function should be part of every comprehensive physical therapy evaluation of older adults."

Dr. Ross is a certified dementia practitioner (CDP) and trainer. In October, she trained the physical therapy and occupational therapy staffs at the Lou Ruvo Center for Brain Health, "and now we have five additional CDPs," she says proudly.

These professionals have a very cool tool for putting patients with gait impairments through their paces.

The "Virtual Reality Machine"

The huge C-Mill is no ordinary treadmill. It can perform quantitative analysis of every possible gait parameter change, including speed, stride length and cadence. It can project visual cues on the walking surface to help patients lengthen their stride. Or, they can navigate a virtual obstacle course, such as a beach scene with scattered starfish that they must avoid.

"Using a virtual reality treadmill, we can enhance gait training, often combined with a cognitive task, in real-world scenarios with added safety precautions," Dr. Ross says.

Completing a cognitive task during gait training requires attention and processing. Dr. Ross and her colleagues often use the Stroop test: A screen on the treadmill displays a word in a color different from the color it names; for example, the word "red" may appear in green type. The "Stroop effect" posits that people find it easier to read the word than to name the conflicting color.

Such multitasking is good for the brain. It also promotes exercise — and, as Dr. Ross notes, "Exercise is among the six pillars of brain health, essential to stave off functional decline and memory loss." If your walking has deteriorated, a gait analysis should be your next step.

Christy Ross, PT, DPT, GCS, CDP, MSCS



An appointment with the Lou Ruvo Center for Brain Health's physical therapy team can be made following an evaluation from one of the center's neurologists. For more information, call 702.483.6000.

New Administrative Director for Cleveland Clinic Nevada Has an Adventurous Past

On a medical mission to Honduras during his junior year in college, Erick Vidmar had a formative experience that changed his career trajectory.

“The American doctors on the trip were complaining about how stressed they were at their practices back home, and how challenging it was to prioritize family,” he says. “And yet, while in a very poor area of Honduras, I witnessed

family after family living 12 or 15 people in a small hut, yet smiling ear to ear as they greeted us.”

Closer to home, he discovered his best college friend never learned how to ride a bike or throw a baseball because both parents were busy working professionals, while Mr. Vidmar’s own parents attended most of his soccer, basketball and baseball games. The friend has since become a pediatric urologist; Mr. Vidmar chose a different path that he hoped would be more family-friendly, yet still allow him to indulge his passion for healthcare.

After receiving a Master’s in Healthcare Administration, he secured a prestigious administrative fellow role at Cleveland Clinic’s Main Campus in Cleveland. When it came time to interview for a post-fellowship position, Cleveland Clinic had just signed a contract to build a facility in Abu Dhabi, and Mr. Vidmar agreed to fly over for three days and help out. Three days turned into three months; then he signed a contract for a year; then he stayed four more years.

Outside of work, Mr. Vidmar traveled extensively around Europe, Africa, Southeast Asia and the Middle East. A winemaking trip to Georgia in the former Soviet Union was a particular highlight, as was Nepal, where he flew over Mt. Everest and soaked up the urban vibe in Kathmandu.

Mr. Vidmar’s return to the United States in 2012 was prompted by an interesting aphorism he learned from others in Abu Dhabi’s expatriate community: Assume America is a country of circles; Abu Dhabi is a country of squares. After being there a while, you become a hybrid of

sorts: a triangle. You never really fit in there and, if you stay too long, you might never again fit in back home. However, if you have a child who’s living that life with you, that child becomes a star.

While in Abu Dhabi, Mr. Vidmar met his wife, Natashah, a Canadian, and they now have a son, Noah, who is nearly 2. Noah is already becoming a world traveler: Rome on his first birthday, and Tokyo is planned for his second.

Erick Vidmar



Mr. Vidmar’s career is on the rise. After four years overseeing Cleveland Clinic regional facilities in Northeast Ohio, in November 2016 he was named Administrative Director, Cleveland Clinic Nevada. He hopes to leverage his entrepreneurial and pioneering experiences beyond Cleveland Clinic’s Main Campus to help expand the Nevada presence, be it through additional service lines or new approaches to patient care.

His mantra? Try to find a way to get to “yes.” His hope for Cleveland Clinic Nevada? To be a model for best practices throughout Cleveland Clinic.

Don't Let Urinary Incontinence Restrict Your Life

It's a problem millions of women experience, but are often embarrassed to mention to their physician: urinary incontinence, or loss of bladder control. Urinary incontinence (UI) affects about 40 percent of women.

"Women often wait years to discuss the condition with their physician. But with more advertising of incontinence products, women are becoming more comfortable seeking medical attention," says Laurie Larsen, MD, a urologist at Cleveland Clinic Urology, Las Vegas, which shares many patients with Cleveland Clinic Lou Ruvo Center for Brain Health.

What Is UI?

There are three main types of UI:

- **Stress incontinence** is urine leakage that results from pressure on the bladder by an activity such as exercise, sneezing or coughing. It can also occur during pregnancy.
- **Urge incontinence**, also known as overactive bladder, is a sudden, intense need to urinate, followed by urine loss. It is associated with aging, which weakens the bladder muscles, and menopause, which affects the health of the bladder and urethra.
- **Passive incontinence**, the involuntary loss of urine, occurs mostly in the elderly.

Incontinence also results from neurological diseases such as Parkinson's disease and multiple sclerosis.

Managing Your UI

Fortunately, a wide range of effective treatments exists for incontinence. For stress incontinence, Dr. Larsen suggests practicing Kegel exercises, which strengthen the pelvic floor muscles that help control urination. For more severe cases, surgical placement of a sling around the urethra addresses the problem.

For urge UI, there are many medication options. Dr. Larsen also recommends hormone creams, botulinum toxin injections to constrict the bladder muscles and bulking agents to close the urethra.

Passive incontinence can be treated with low-dose hormone creams and collagen injections. Electrical stimulation to strengthen the pelvic floor muscles is effective for stress and urge UI.

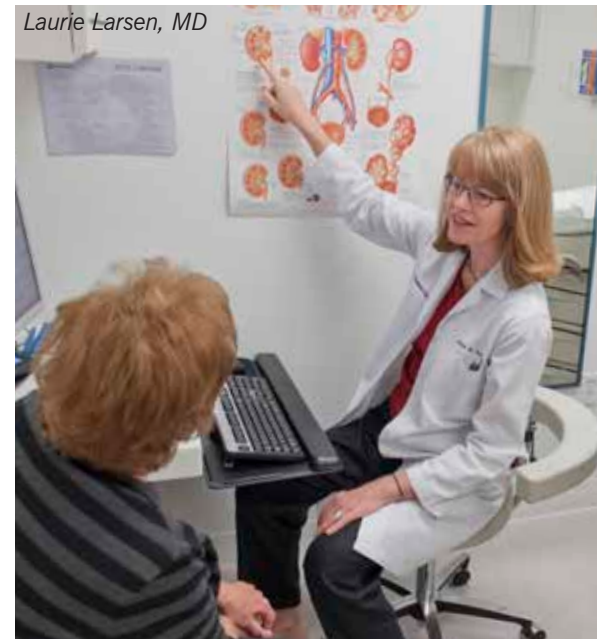
Lifestyle approaches can also help. They include:

- Limiting beverages and foods such as caffeinated drinks that increase urination
- Losing weight – excess weight increases bladder pressure
- Emptying the bladder regularly, especially before physical activity
- Scheduling urination every few hours, rather than waiting for the urge

Sometimes, women with UI will limit their water intake, but "It's important to get enough fluids to avoid dehydration, which happens to some of my patients," says Dr. Larsen.

She advises seeing a urologist "if urinary incontinence is impacting your quality of life and you are avoiding activities for fear of leakage. My goal is to help my

Laurie Larsen, MD



patients feel confident doing the things they enjoy," she says.

To make an appointment with Dr. Larsen or another member of the Cleveland Clinic Urology, Las Vegas, team, call 702.796.8669 or visit clevelandclinic.org/Nevada.

Urinary Incontinence in Women With Dementia

Many women with Alzheimer's disease or another form of dementia also have urinary incontinence, as these conditions are most prevalent in the aging population. Patients with cognitive impairment can be difficult to treat.

"I tailor treatment specifically to each patient's level of awareness and willingness to undergo treatment and determine which medicines or treatments they can handle or understand," says Laurie Larsen, MD.

She finds hormone cream to be a good option for these patients, along with ensuring they drink enough water, have regular bowel movements and practice good personal hygiene. Caregivers play a critical role in patient care for this problem.

"You need to figure out what caregivers can do and whether the patient's situation supports treatment," Dr. Larsen says.

SPRING INTO HEALTH 'FARE' SENIOR HEALTH EXPO

WEDNESDAY, MARCH 22
10 A.M. – 4 P.M.

Take control of your health and improve your quality of life.

- Interact with medical professionals from Cleveland Clinic Lou Ruvo Center for Brain Health and throughout the Las Vegas community.
- Enjoy cooking and exercise demonstrations. Get a free dental screening, nutritional analysis, vaccination, and much more.

Registration and information on this free event is available at keepmemoryalive.org/SHF17 or 702.778.6702



LYNNE RUFFIN-SMITH LIBRARY



Enjoy the guidance of our librarian as you peruse more than 1,500 books, DVDs and pamphlets.

Monday – Friday
8:30 a.m. – 4:30 p.m.

LouRuvoLibrary@ccf.org
702.483.6033

Or browse at your convenience from home, 24/7, via our e-Library: keepmemoryalive.org/library

Art Programs Inspire Creative Thinking and Doing

Modeled after the New York Museum of Modern Art's "Meet Me at MoMA" program, Cleveland Clinic Lou Ruvo Center for Brain Health's "Art in the Afternoon" fosters interesting conversation, creative thinking and memories among individuals experiencing cognitive impairment and their caregivers.

Facilitated by volunteer docents trained by the Institute of Art and Medicine at Cleveland Clinic's main campus in Ohio, these lively, interactive lectures offer a warm environment where concerns over "forgetting the answer" melt away.

"Art Explorations – Art Therapy" is held on the second Monday of each month from 4 to 5:30 p.m.

"Art in the Afternoon" takes place on the fourth Monday of the month from 11 a.m. to 12:15 p.m.

Both programs are offered at no charge and are open to anyone living with memory loss. An RSVP is appreciated: 702.483.6702 or by email at louruvosocialserv@ccf.org.

The conversation is focused around the experience with the art piece (for example, *an image of flowers*) and the memory associated with it (*Did your mother have a garden?*) The memories elicited allow for delightful reminiscence.

"Art Explorations – Art Therapy" is yet another recreational outlet that offers an opportunity for cognitive stimulation and self-expression for patients accompanied by a family member or friend.

Participants are welcomed by a board-certified art therapist who plans a unique assignment for each class. The room fills with friendly chatter and bursts of laughter from people seated at tables covered with art supplies. At the conclusion of the art-making, participants share thoughts on their inspiration and how it felt to make their art.

Post-session surveys indicate that most participants find their levels of stress and anxiety have decreased, and they are eager to return the next month:

"The sessions and the presenters are such a gift to the community. I love it and look forward to the sessions each month!"

"I need time out. I'm a 24/7 caregiver and, although I'm here with [patient name], I feel I can escape in my thoughts through this. Thank you!"

"I love the easygoing, friendly atmosphere. I'll be back."

"It's a treat to experience each month!"

"I have always loved art and feel it is good for the mind."



Anita Daus, Volunteer Docent

Comfort for Patient and Family Alike

"I can't believe I'm making this comparison," says Dayvid Figler, "but coming to Cleveland Clinic Lou Ruvo Center for Brain Health is like being at a spa."

It started with the warm greeting at the front door by a volunteer, who identified herself as Barbara. Mr. Figler's mother, also named Barbara, had been anxious about meeting a new doctor, but she was immediately at ease and commented to the volunteer, "But I've had the name a little longer."

Volunteer Barbara quickly rallied: "I don't know. ... I'm 80."

Mrs. Figler responded, "I'm 81."

"From the moment we made the appointment with Dr. Dylan Wint, it was as if the sky opened and a light shone on our situation," recalls Dayvid Figler.

It wasn't that way before. He tells of long waits in crowded waiting rooms and other unpleasant experiences that had

made his mother refuse any more doctor's appointments or tests. Several doctors had asked her to draw a picture of a clock, which made her feel they were "looking for a reason to put her away." For Mr. Figler, a litigator, arguing with his own mother was a contention and stressor he didn't need.

Yet, he needed answers: Why was his mother — who had always been so social and vibrant — starting to retreat and decline? She still lived independently, drove a car and seemed physically healthy. A general neurologist hadn't detected anything unusual for a person her age, but had prescribed a medication for memory loss.

Nonetheless, Mrs. Figler's behavioral quirks had been getting more pronounced, including panic attacks, bursts of anger and obsessive calls to her son 30 to 40 times a day, which she forgot just after making them.

"My chief regret is that I didn't reach out to the Lou Ruvo Center for Brain Health sooner," says Mr. Figler. From the bottles of water he and his mom were offered, to the exam room with comforting natural light, to limited paperwork to fill out, the spa-like tone was set before Dylan Wint, MD, NV Energy Chair for Brain Health, greeted them.

"Dr. Wint came in, accompanied by a student," Mr. Figler says. "He interacted with Mom in ways that immediately diffused all her anxiety. I hadn't seen her smile for a long time, and certainly not in a doctor's office."

"When Dr. Wint pulled out the dreaded 'clock test' and noticed my mom bristle, he immediately crumpled up the paper and threw it aside, saying lightly, 'Who needs to know what time it is anyway?'"



“...coming to Cleveland Clinic Lou Ruvo Center for Brain Health is like being at a spa.”



Barbara Figler in 2016

Dayvid and Barbara Figler in 1973

“Mom smiled again and said, ‘I like this guy.’ ”

Dr. Wint showed them the brain scans from magnetic resonance imaging (MRI) illustrating shrinkage, and explained it was caused by plaques in the brain. He gave them a printout of the diagnosis: Alzheimer’s disease. Then he introduced social worker Samuel Hickson, LSW, MSSA.

Fast forward to today. While Mrs. Figler’s condition has declined — from needing adult day care, to one shift of in-home care, to the safety of a group home with round-the-clock care — Mr. Figler attributes his own ability to manage these transitions to three critical pieces of advice he received from Samuel Hickson and the social work team:

1. Take care of yourself, the caregiver
2. Go to a support group as often as you can
3. Use MyChart, Cleveland Clinic’s electronic medical record system, to email providers regarding any concerns or changes in condition

At the Lou Ruvo Center for Brain Health’s weekly support group facilitated by Donna Munic-Miller, PhD, Mr. Figler enjoys a warm welcome, but adds that the group quickly gets down to business. “There’s no sugarcoating” as members jump in and share advice freely and confidentially. The group has provided many of the community resources on which he relies today.

“Group and individual support has given me the solace I need to focus on my day job and not stress about my mom, allowing me to deal with it the best I possibly can,” concludes Mr. Figler.

How Can Patient and Family Services Programs Help?

Cleveland Clinic Lou Ruvo Center for Brain Health’s social services offerings are designed to reduce stress by increasing knowledge, coping skills and a sense of well-being for patients, family members and caregivers managing an array of new and ongoing challenges. We care not only for patients, but for their entire support system.

Open to the Community

Disease Education to enhance understanding of what to expect

Community Resource Introductions to help identify services available in the community, from transportation, to in-home care, to guardianship, to financial and estate planning

Support Groups

Caregivers:

- Memory loss
- Frontotemporal dementia

Patients and Caregivers:

- Huntington’s disease
- Parkinson’s disease

For Lou Ruvo Center for Brain Health Patients and Their Families Only

- *Case management*
- *Psychotherapy*

Don’t Wait. Ask for Help.

Our social workers are trained to help you make the best decisions for your or a loved one’s care by providing information and tools you need to reduce stress levels and understand your options. We understand that asking for help is never easy, particularly when it comes to recognizing you need help to care for the ones you love.

But we encourage you to take the first step.
Call 702.483.6000.

PROFILE IN VOLUNTEERISM:

Lisa Naves

When Lisa Naves tells people she has multiple sclerosis and that she, too, is a patient at Cleveland Clinic Lou Ruvo Center for Brain Health, “they don’t believe me. I guess they expect to see someone who’s really ill. But as with diabetes or any other chronic disease, it doesn’t have to consume your life,” says this volunteer who has filled that role at the center since 2014.

Diagnosed with multiple sclerosis (MS) in 2008, and a patient at the center since 2012, Ms. Naves attributes some of her optimism to advances she has seen in

medicine that have improved her quality of life. She had been giving herself a daily injection until an oral MS medication became available: “Now, I simply take a pill twice a day. I have more energy, less fatigue and it’s much easier to travel without having to worry about whether my injectable medication is being properly refrigerated.”

As a patient, she appreciates that “the Lou Ruvo Center for Brain Health is at the forefront of modern medicine. It’s the best of the best.”

In addition to accessing the newest medicines, she has received education on how to manage her MS, starting with exercise.

“It’s hard to push yourself physically when you’re in chronic pain because you’ll be in pain either way,” Ms. Naves admits. But when Le Hua, MD, told her exercise would help, she began yoga, Pilates and swimming, and was pleased to find herself feeling better, despite her initial reservations.

It’s not just the science that helps her. “Dr. Hua is so compassionate. The entire team is courteous and patient, accepting my symptoms as valid and understanding what I’m going through.”

Ms. Naves notes that right from the greeting at the Lou Ruvo Center for Brain Health’s front door, “You see people smiling.” In fact, those smiles inspired her to volunteer as a greeter in the lobby: “We get to smile at people. How hard is that? People smile back and you know you’ve done your job.”

She connects with patients across a spectrum of brain diseases, and wishes the Lou Ruvo Center for Brain Health had existed back when her father was battling Parkinson’s disease.

“I don’t go around thinking, ‘Oh, poor me, I have MS.’ I just go about my business,” says Ms. Naves. She enjoys travel, shows and dancing at concerts — all while wearing her ubiquitous scarf, which she says is actually a specialized cooling tool commonly used among individuals with MS, rather than a fashion statement: “I’m in a constant fight against MS, and I’m determined to win!”



“I don’t go around thinking, ‘Oh, poor me, I have MS.’”

Join one of the largest Alzheimer's clinical trials programs in the country, right here in Las Vegas.

Having conducted more than 65 trials in **memory loss, Alzheimer's, Huntington's, Parkinson's** and **multiple sclerosis**, we may have one just right for someone you know.

Clinical trials are the only pathway leading to new drug treatments and the only way to access promising experimental agents.

At Cleveland Clinic Lou Ruvo Center for Brain Health, clinical trials complement our patients-first clinical care and no-cost social services for individuals and their families. Clinical trials are available to families regardless of where they receive their neurological care.



Contact us at **855.LOU.RUVO (855.568.7886)** or **brainhealth@ccf.org**

A complete list of trials is online at **clevelandclinic.org/brainhealthtrials**

Remembering a Woman Who Lived Life to the Fullest

Throughout her life, Deon Johnson learned enough not just to get by, but to become an expert, according to Libby Jones, her close companion of more than 40 years. And so it was when Ms. Johnson developed Alzheimer's disease.

"She was a very bright lady who compensated so well for her memory loss that for many years, only those closest to her suspected any changes," Ms. Jones recalls.

Yet, for 20 years before her death in December 2015, Ms. Johnson was cared for by Alzheimer's disease specialist Charles Bernick, MD, MPH, now Associate Medical Director at Cleveland Clinic Lou Ruvo Center for Brain Health, whom Ms. Jones describes as "a very kind and attentive man who treats his patients and their caregivers as people first."

Armed with a master's degree in education from Brigham Young University, Deon Johnson began her career teaching physical education and home economics. She asked her mother to teach her needlepoint and sewing: two skills she needed to learn in order to teach her students. Years later, Ms. Johnson's home was decorated with her own needlepoints of the works of Thomas Kinkade and other artists. She also excelled at woodworking, from creating small handcrafts to building two decks on her and Ms. Jones' summer home. Not knowing how to swim, she learned as an adult, advancing to water safety instructor to train the next generation of lifeguards.



Libby Jones with Deon Johnson, seated

“ Her friends say she rose to meet every challenge and they laugh, imagining how at 6 feet tall, the first basewoman for the 1960s traveling softball team, the Las Vegas Belles, must have intimidated her opponents. ”

As a 32-year veteran of the Clark County School District who served in many leadership roles, helping the next generation was Deon Johnson’s lifelong passion. She mentored countless female educators in the workplace. Her friends say she rose to meet every challenge and they laugh, imagining how at 6 feet tall, the first basewoman for the 1960s traveling softball team, the Las Vegas Belles, must have intimidated her opponents.

Ms. Johnson became knowledgeable about Alzheimer’s disease when she watched it progress in her mother — so knowledgeable that years later, she recognized signs of the disease as she herself became forgetful and began misplacing things. She obsessively completed word-finding puzzles, took supplements and vitamins, kept her own calendar and checkbook, and developed ways to log items to supplement her memory. She participated in every

clinical research study for which she was eligible in the hope that down the road, researchers might find a cure. Following Ms. Johnson’s death, Libby Jones chose to pay tribute to her friend on the Honor Wall at the Lou Ruvo Center for Brain Health — a gift she hopes will inspire those who knew Deon Johnson to join her battle to eradicate Alzheimer’s disease.

What Is the Honor Wall?
The Honor Wall is a three-dimensional visual centerpiece of Cleveland Clinic Lou Ruvo Center for Brain Health’s entrance. You or someone of your choice can be recognized on a stainless steel mural of plaques artfully integrated into Frank Gehry’s landmark building.
The Honor Wall is just one of the naming opportunities we offer. Keep Memory Alive and the Lou Ruvo Center for Brain Health are pleased to acknowledge our generous supporters with appropriate signage throughout our campus, from a bench plaque or walkway paver to recognition opportunities in patient care areas, imaging rooms and research offices.
Become a lasting part of the center's daily activities. Contact us at 702.331.7052 or DonateNevada@ccf.org.



The Change That Makes a Difference

A Penny for Your Thoughts® is a community-based, grassroots fundraising program conceived by Keep Memory Alive to encourage all levels of giving. One hundred percent of funds raised further Cleveland Clinic Lou Ruvo Center for Brain Health's mission to support the family caregivers.

In November, three Las Vegas middle schools — Sig Rogich, Victoria Fertitta and Ernest Becker — engaged in a challenge to see which school could collect the most spare change to fight brain disease. The second annual such event, it was a rematch for the first two schools, with the latter joining the friendly competition for the first time in 2016.

To educate the students on brain health and inspire them to participate, in the weeks leading up to the fundraiser the Lou Ruvo Center for Brain Health's Dylan Wint, MD, NV Energy Chair for Brain Health; Samuel Hickson, LSW, MSSA; and HealthyBrains.org team members Kat Hartley and Brook Hurd spoke at each school.

"The Miracle Minute" fundraiser November 10 was a wild success, with students at the three schools collecting spare change from the couch, the car seat, friends and family, to deliver \$8,000 in change in a single minute. Cannery Casino Resorts conducted an official count, and then generously stepped in with a penny-for-penny

match, making the total contribution to Keep Memory Alive from the day's event an impressive \$16,000.

For the second year in a row, Sig Rogich Middle School students won the challenge, thereby obligating Cailin Ellis, Principal of Victoria Fertitta Middle School, and Amy Smith, Principal of Ernest Becker Middle School, to wear the Sig Rogich school colors of teal and purple for an entire day.

"Our students and community have really come forward and embraced A Penny for Your Thoughts," says Suzie Harrison-Rollins, Principal of Sig Rogich. "We owe part of their enthusiasm to Cleveland Clinic sending Dr. Wint out. He aligned his remarks with what our students were studying in health, which enhanced their understanding of the diseases treated at the Lou Ruvo Center for Brain Health."

Students at all three schools embraced A Penny for Your Thoughts and have made a huge difference for those suffering from brain disease.

L - R: Camille Ruvo, Rogich Middle School Student Body President Jack Bridges and Principal Suzie Harrison-Rollins





Victoria Fertitta Middle School

Here's How You Can Help: Partnership Options

We offer our community partners employee engagement and education about the fundraising program they choose to support and about Lou Ruvo Center for Brain Health services so they can rally behind the cause. Program partners receive promotional materials and signage, and media outreach around the partnership.

- **Casino and Retail Program:** Place donation boxes on the sales floor to encourage guests to donate spare change to a worthy cause.
- **Restaurant Program:** Allow guests to round up their check and donate the extra funds to Keep Memory Alive.
- **Employee-to-Employee Initiative:** Issue a challenge to business owners to engage employees through a company-wide employee giving campaign.
- **School-Based Program:** Issue a challenge to students to contribute spare change to the school's collection box.



Sig Rogich Middle School



HAVE A PENNY? GIVE A PENNY

Do you know a workplace, business or school that would like to help? Ask them to contact us at 702.263.9797 or penny@keepmemoryalive.org.

You can participate in A Penny for Your Thoughts anywhere, anytime. Give online at keepmemoryalive.org/penny.

With the support of our community friends and partners, we can all Keep Memory Alive.

KEEP MEMORY ALIVE EVENT CENTER: A Perfect Setting for Your Special Day

An iconic landmark designed by legendary architect Frank Gehry, the show-stopping Keep Memory Alive Event Center is a one-of-a-kind venue for a once-in-a-lifetime celebration.

Each event is customized and tailored to clients' unique style and vision, with uncompromising focus on detail and unparalleled personalized attention. Accommodating up to 450 seated guests, 700 standing and more than 1,500 when incorporating the breeze-way and lush outdoor garden, the venue offers different setups for a ceremony, cocktail hour and reception.

Walking into Frank Gehry's modern architectural achievement, guests are drawn to the undulating canopy of stainless steel dotted with 199 windows — no two of the same shape, size or plane.

This award-winning wedding location is replete with luxurious amenities — all included in the venue facility fee — spanning custom Narumi bone china, sparkling Riedel glassware, textured linens, Frank Gehry-designed furniture and an innovative LED lighting system that illuminates the room in complementary colors, creating a breathtaking effect.

To view the space and inquire about availability on your special day, visit KMAEventCenterLasVegas.com.

With proceeds benefiting the research, treatment and prevention of neurological disorders, your memorable event helps to preserve the memory of others.

The Keep Memory Alive Event Center has been awarded the Wedding International Professionals Association's "Venue of Excellence" for two years in a row, as well as "Best Architecture" from WeddingWire's editors, and was one of three national finalists for BizBash's "Best Event and Wedding Venue."



photo: altF photography



Event Hosts Help Raise Funds and Awareness for Keep Memory Alive

Throughout 2016, the Keep Memory Alive special events team was busy collaborating with enthusiastic third-party event hosts who selected Keep Memory Alive as their charity of choice. Here are but a few examples.

DJ STEVE AOKI LENDS HIS CELEBRITY TO BRAIN HEALTH

Doctors and fundraisers alike find that one of the greatest challenges in raising awareness and funds around brain health is reaching a young audience and changing its perception that brain health is a concern only for the elderly. Keep Memory Alive is continually making strides toward engaging this younger audience (see *article on page 33 about A Penny for Your Thoughts*), so we were delighted when DJ Steve Aoki, a leader in the global nightclub scene, decided to share his commitment to brain health and Keep Memory Alive with his 8 million followers on Facebook.

“Learning about these diseases,” Steve Aoki explains, “you realize we all have a high likelihood of having a personal connection to them. I have friends and family members who are struggling with some of these diseases in one way or another. It impacts so many people in so many different ways.”

Upon moving to Las Vegas, he recognized that supporting Keep Memory

Alive was a great way to contribute to his new community through a cause about which he was already passionate: “When I toured Cleveland Clinic Lou Ruvo Center for Brain Health and met Dr. Cummings, I was so impressed with not only the work being done but the way it’s being done. The focus on the patients and the family members, the innovative research and science, all made an impact on me.”

On Nov. 15, Steve Aoki collaborated with Keep Memory Alive to attack brain disease. More than 150 guests attended the Aoki Foundation’s inaugural “Bowling for Brains” event at the Brooklyn Bowl. In addition to enjoying great food and an opportunity to throw some strikes to ward off brain disorders, bowlers were entertained by DJ Steve spinning some tunes. A live auction emceed by Keep Memory Alive enthusiast Robin Leach raised \$150,000 by selling “behind the velvet rope” packages, including a visit to Steve Aoki’s Las Vegas play house and recording studio.

Steve Aoki of the Aoki Foundation



Thoughts on Brain Health

By Steve Aoki

I want young people to care about brain health because the brain controls everything we do — from walking to talking to experiencing emotions and thoughts to hearing great music. And if you take it for granted when you’re young, you’ll regret it when you get older.

We all want to be able to remember the amazing experiences of our lives and share those stories with our kids and grandkids. The statistics indicate how many of us will be affected by one of these diseases, so taking care of your brain health when you’re young is one of the best investments you can make.

When I’m on the road, I challenge my friends and my team with push-up challenges and other exercise bets. I help raise money for the Steve Aoki Foundation in that way: Whoever loses a push-up challenge has to make a donation.

We all know music has a very positive impact on the brain. I know my creative process in making music helps stimulate my brain. My personal commitment to brain health includes regular meditation and eating a pretty healthy diet. I don’t drink or smoke. And although I don’t get a lot of sleep, I try to balance that with other healthy habits that I know help my overall health and my brain health.

In the short term, I want to prevent these degenerative brain diseases from destroying people’s memories and their ability to live long, healthy lives. In the long term, I want to unlock the mysteries of the brain. I want to expand creativity and turn imagination into reality. I want us to become immortal.

Event Hosts Help Raise Funds and Awareness for Keep Memory Alive

Photo: Ray Alamo



VEGAS GIVES

Congratulations to Kate Zhong, MD, honored on Nov. 15 at Vegas Gives as one of Las Vegas' most charitable women. Each of the honorees selected a favorite charity, and then competed to raise the most funds for that nonprofit. Dr. Zhong (second from right) was near the top of the group, raising more than \$15,000 for Keep Memory Alive to support research efforts at the Lou Ruvo Center for Brain Health. Thank you for your support, Dr. Zhong!

MERCEDES-BENZ

Thank you to Mercedes-Benz of Henderson for once again selecting Keep Memory Alive as the beneficiary of its annual golf tournament in October.

Congratulations to Keep Memory Alive supporter Ted Quirk and his tournament partner, Ed Fryatt, who advanced to the sectional championships at Pinehurst.

Their winning package included four nights at the iconic Pinehurst Resort, a practice round and two tournament rounds. The top three teams from Pinehurst will advance to the National Final in April 2017 at the West Lake Country Club in Augusta, Georgia, where the teams will compete in a single-round event.

According to Gus Hoppel, General Manager of Mercedes-Benz of Henderson, "We know Quirk and Fryatt are outstanding golfers, and nothing would make us more proud than to see them advance to the Masters next year. They have a very good chance of it, too."

Most importantly, tournament entry fees benefited Keep Memory Alive. That makes Keep Memory Alive and patients at the Lou Ruvo Center for Brain Health winners, too.

L – R: Ted Quirk, Gus Hoppel and Ed Fryatt



SIP & SAVOR

Thank you to long-time Keep Memory Alive supporter Chef Wolfgang Puck and Spago at the Forum Shops in Las Vegas for once again hosting Sip & Savor to benefit Keep Memory Alive. This annual dine-around event featured tastes from each of the Wolfgang Puck Fine Dining Group restaurants in Las Vegas, accompanied by acclaimed wines and the musical stylings of Michael Shulman.

The September event also celebrated Spago's outgoing Executive Chef Eric Klein, who has cooked at many of Keep Memory Alive's annual Power of Love® galas, and has accepted a new role overseeing catering for the Wolfgang Puck Fine Dining Group corporate office in Los Angeles.

L – R: Wolfgang Puck, David Robins and Eric Klein



Wolfgang Puck Chef Team



Photos: Josh Dahl

SPECIAL RECOGNITION AT THE 2017 POWER OF LOVE®: Ronald O. Perelman and Andre Agassi

Each year at our Power of Love® gala, Keep Memory Alive recognizes individuals renowned for their philanthropy, innovation and community impact. We are proud to recognize Ronald O. Perelman and Andre Agassi at this year's gala on April 27.

To join the celebration: 702.263.9797 or keepmemoryalive.org/PoL



Ronald O. Perelman, Power of Love Honoree

Ronald O. Perelman is Chairman and Chief Executive Officer of MacAndrews & Forbes Incorporated, a company with interests in a diversified portfolio of public and private companies. MacAndrews & Forbes' businesses span a wide range of industries, from global leaders in cosmetics, digital entertainment and gaming to biotechnology and military equipment.

Over the past four decades, Mr. Perelman has become known as an accomplished industrialist and generous philanthropist. He is recognized as an innovative leader and major supporter of the arts, medical research, education and humanitarian causes.

Andre Agassi, 2017 Keep Memory Alive Community Leadership Award Recipient

After turning pro at 16, tennis prodigy Andre Agassi rose to international fame, earning 60 men's singles titles, including eight Grand Slam singles championships, over a 20-year career. Agassi is the only American to win all four Grand Slam titles and an Olympic Gold medal.

Although his tennis career took him all over the world, Mr. Agassi stayed connected to his hometown of Las Vegas. In 1994, he created the Andre Agassi Foundation for Education, which has raised \$185 million toward the mission of transforming public education. In 2001, the Andre Agassi College Preparatory Academy opened in historic West Las Vegas. Agassi Prep graduated its first senior class in June 2009 with a 100 percent college acceptance rate, a success repeated in 2010 and 2011.

In June 2011, Mr. Agassi partnered with Turner Impact Capital to create the Turner–Agassi Charter School Facilities Fund, which promotes the success and growth of best-in-class charter schools in urban communities across the United States. The fund has developed 75 schools serving 35,000 students.

Andre Agassi is married to tennis superstar, philanthropist and businesswoman Stefanie Graf. They have supported Keep Memory Alive since its inception, attending the annual Power of Love gala and donating private tennis lessons and other auction items. The couple resides in Las Vegas with their children, Jaden Gil and Jaz Elle.



TICKETS ON SALE NOW!

KEEP MEMORY ALIVE AND  Cleveland Clinic
Supporting the Mission of Cleveland Clinic Lou Ruvo Center for Brain Health Lou Ruvo Center for Brain Health
PRESENT



Frank Gehry-designed Cleveland Clinic Lou Ruvo Center for Brain Health
Las Vegas, Nevada

Photo Credit: Danny Ortega

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CELEBRATING THE 2017 KEEP MEMORY ALIVE
COMMUNITY LEADERSHIP AWARD RECIPIENT

ANDRE AGASSI

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JON BON JOVI

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THURSDAY, APRIL 27, 2017
MGM GRAND GARDEN ARENA, LAS VEGAS, NEVADA

Make plans to partake in this extraordinary celebration • Many more musical surprises and guest appearances to be announced • Luxury auctions • Exquisite wines selected by master sommeliers • Tantalizing cocktails created by master mixologists

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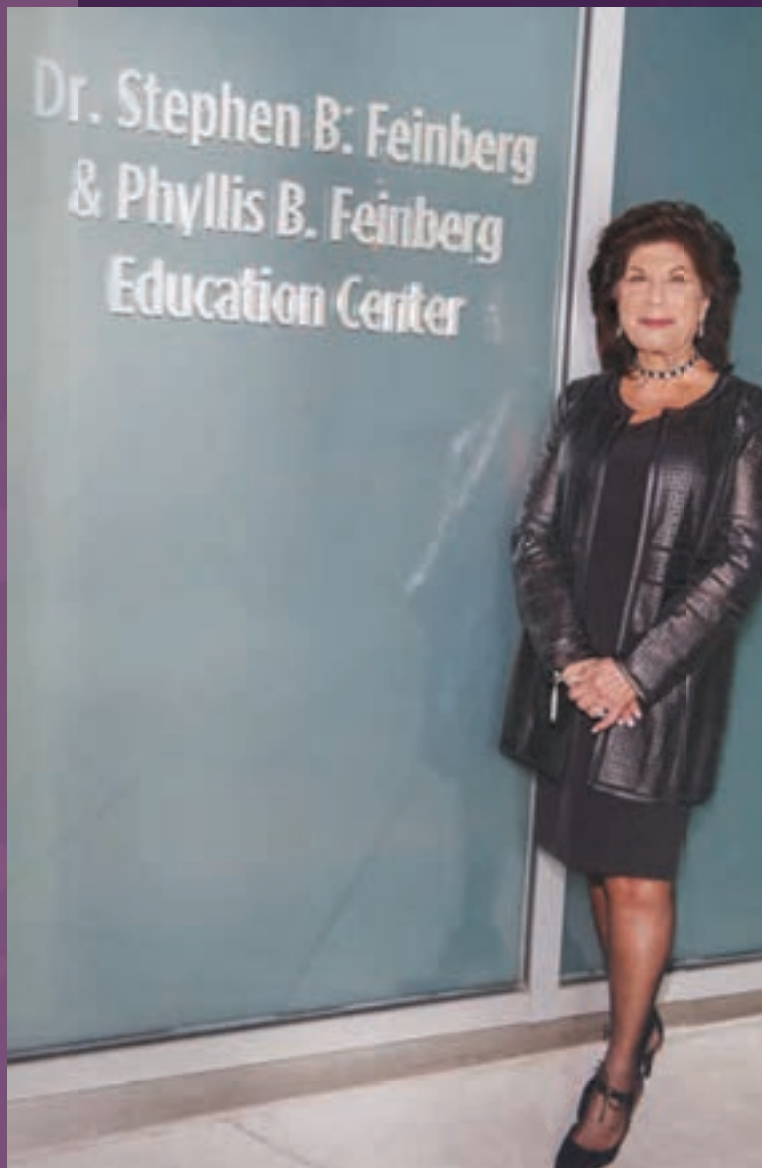
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Proceeds benefit Cleveland Clinic Lou Ruvo Center for Brain Health
Alzheimer's • Huntington's • Parkinson's • Multiple System Atrophy • Multiple Sclerosis • Brain-related Disorders



Visitor Photo Gallery

L – R: Susie and Bill Lurtz with Norma and Daniel Oldani



Phyllis Feinberg unveils signage on her family education center

Larry Ruvo, left, welcomes Agata and Rainer Becker





Welcome to Chaîne des Rôtisseurs members visiting from Denmark.
 L – R: Niels Wendelboe Jensen, Kirsten Jensen, Jens Steffen Hansen,
 Winnie Hansen, John Stroustrup Henriksen and Lise-Lotte Henriksen



Paul Husdon, left, and Evan Meyer



Shaping a Dementia-Friendly Society Throughout Southern Nevada

Alzheimer's disease and related dementias are equal opportunity heartbreakers. They afflict the rich and the poor, the influential and the humble. This hard truth was on full display at the Dementia Friendly Nevada (DFN) kickoff at Cleveland Clinic Lou Ruvo Center for Brain Health on September 21, World Alzheimer's Day.

In a room filled with more than 70 supporters of this southern Nevada initiative, senators and judges, assistants to congressmen and mayors, and our own Jeffrey Cummings, MD, ScD, Director, the Lou Ruvo Center for Brain Health, told personal stories of the effects of Alzheimer's disease. Guests were riveted by the heavy toll that it and other dementias levy on patients and their care partners.

The DFN initiative aims to lighten these burdens by fostering a dementia-friendly community, effectively supporting the capacity of those affected to sustain the best quality of life possible. This goal represents a fundamental shift from simply focusing on meeting the core physical and health needs of the person with dementia.



LeeAnn Mandarino, right, District Court Judge Eric Johnson and District Court Judge Susan Johnson



Senator Valerie Wiener (Retired)



Only recently have we begun to understand the possibility of a better, more fulfilling life for people with dementia and their families and care partners. It is the everyday things that matter if these individuals are to retain their self-respect and quality of life, and to possess the resources and confidence to continue with the hobbies and activities they have always enjoyed.

DFN intends to create awareness throughout our community — at banks, hotels, retail establishments, restaurants, hair salons and government offices — so that individuals with dementia can access services without shame, stigma or exploitation. DFN leaders have engaged a small army of activists who are now going into various sectors of society to find out what communities understand about dementia and which weaknesses exist in southern Nevada. Armed with accurate information, DFN can create action plans and organize the programs and activities that will make southern Nevada dementia-friendly.



Jeffrey Cummings, MD, ScD

Photos: Maria Schmidt

To become involved in the Dementia Friendly Nevada initiative, contact Isaac Santa Ana at 702.685.7072 or santai@ccf.org.

Welcome Dr. Zoltan Mari

Zoltan Mari, MD, a highly acclaimed and respected expert in Parkinson's disease and other movement disorders, will join Cleveland Clinic this spring as Director of the Center for Neurological Restoration, Nevada, at the Lou Ruvo Center for Brain Health.

After finishing first in his medical school class in his native Hungary, Dr. Mari continued his training in the United States. As Chief Neurology Resident at the State University of New York, Brooklyn, he was one of only two SUNY staff members elected to Alpha Omega Alpha, one of the most highly regarded medical honor societies in the world.

Following consecutive fellowships in movement disorders and neurophysiology at the National Institutes of Health, Dr. Mari joined Johns Hopkins University in 2006 as Assistant Professor of Neurology, ultimately rising to Director of the Parkinson's and Movement Disorder Center. He was the youngest among 13 directors within the Department of Neurology. Under his leadership, the center grew significantly thanks to Dr. Mari's many strategic and successful hires, achieving impressive clinical productivity and numerous grants.

Among other milestones at Johns Hopkins, Dr. Mari established the Deep Brain Stimulation (DBS) Center — a multidisciplinary program with a defined protocol for care — and served as Director of the National Parkinson Foundation Center of Excellence and the Dystonia Center. Dedicated to humanistic care, he helped establish both the Atypical Parkinsonism Center and the Center for Music & Medicine at Johns Hopkins.

Committed to training the next generation, Dr. Mari developed a clinical fellowship program in movement disorders and trained 10 fellows and mentored many

more. He won numerous awards for teaching excellence, with medical students twice voting him best clinic attending physician among the dozens of members of Johns Hopkins' outpatient teaching faculty. Dr. Mari is a nationally renowned educator in movement disorders, having chaired and directed a number of popular continuing medical education programs across the United States.

Additionally, Dr. Mari is a highly regarded clinical trialist in the area of movement disorders and has served as principal investigator on more than a dozen clinical trials. He is a member of the Parkinson Study Group, serves on its important credentialing committee, and has served on National Institutes of Health and National Science Foundation study sections. He has published more than 60 peer-reviewed articles.



To make an appointment with Dr. Mari or another member of the movement disorder team, call 702.483.6000.

At the Lou Ruvo Center for Brain Health, Dr. Mari plans to focus on a few key areas:

- 1. Remote care/telemedicine:** Combining technology — such as remote sensors that monitor a patient's symptoms during daily activity — with education and care by family members, Dr. Mari envisions a collaborative effort that could improve quality of life through in-home care while reducing nursing home placement and hospital visits.
- 2. DBS:** Through enhanced collaboration between Nevada providers and Cleveland Clinic's main campus in Ohio, Dr. Mari intends to develop a unified clinical protocol for improving DBS care for Parkinson's disease, essential tremor and dystonia.
- 3. Clinical trials for Parkinson's disease:** Dr. Mari intends to bring many high-impact clinical trials for Parkinson's disease to Las Vegas. With no currently approved disease-modifying therapies for Parkinson's disease, Dr. Mari proposes testing a promising new molecule to do just that. His goal is to alter the course of the disease by leveraging the center's state-of-the-art imaging capabilities, clinical trial infrastructure and robust patient population to conduct cutting-edge clinical research.

Dr. Mari's leadership takes the Lou Ruvo Center for Brain Health's Parkinson's Disease and Movement Disorder Program to the next level, bringing additional services to Southern Nevada.

KEEP MEMORY ALIVE

Supporting the Mission of Cleveland Clinic Lou Ruvo Center for Brain Health



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THURSDAY, APRIL 27, 2017
MGM GRAND GARDEN ARENA, LAS VEGAS, NEVADA

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COMMUNITY LEADERSHIP AWARD RECIPIENT

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JON BON JOVI
AND SURPRISE GUESTS

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