What’s New at the Michigan Alzheimer’s Disease Center?
2018
Henry Paulson, MD, PhD
Director, Michigan Alzheimer’s Disease Center
Lucile Groff Professor of Neurology
THANK YOU!
We’ve grown tremendously this year!
2nd year as a federally-funded Alzheimer’s Disease Center

External Advisory Board review in August: “Outstanding job!”
Newly Funded Projects

★ • Detroit Outreach and Community Advisory Boards (P30 Administrative Supplement)

★ • THRIVE Network: Educating Dementia Caregivers on Wellness and Self-Care (Laura Rice-Oeschger, Joan Ilardo)

★ • Health and Retirement Neuroimaging Pilot Study (Ken Langa, Alzheimer’s Association)

★ • Treating mild cognitive impairment with high definition transcranial direct current stimulation (Ben Hampstead)

★ • Community-based approach to early identification of transitions to mild cognitive impairment and Alzheimer’s disease in African Americans (Voyko Kavcic, Bruno Giordani)

★ • Impact of Disclosing Amyloid Imaging Results to Cognitively Normal Individuals (Scott Roberts, REVEAL-SCAN)

★ • Advancing Reliable Measurement in Alzheimer’s Disease and Cognitive Aging (Bruno Giordani, ARMADA)

★ • Conversational Engagement as a means to delay onset of Alzheimer’s disease (Hiroko Dodge, I-CONECT)

★ • Web-enabled social interaction to delay cognitive decline among seniors with mild cognitive impairment (Hiroko Dodge, I-CONECT)

★ • Alzheimer’s Disease – Resource Centers for Minor Aging Research (AD-RCMAR)

★ • Pilot mobile research site in Port Huron for U-M Memory & Aging Project (The Dementia & Alzheimer’s Resource Committee)
2018 Funded Pilot Projects

**Characterization of faster onset of Alzheimer’s disease within mild cognitive impairment patients by brain functional connectivity and genetic variants**

Eunjee Lee, PhD, University of Michigan
Chandra Sripada, PhD, University of Michigan

**Cortical Microstructural Changes in African-Americans with Alzheimer’s Disease**

Navid Seraji-Bozorgzad, MD, University of Michigan
Rohit Marawar, MD, Wayne State University

**RNA binding protein sequestration in Non-Amyloid Dementia**

Peter Todd, MD, PhD, University of Michigan

**Inflammation, social stress, and racial disparities in cognitive aging**

Laura Zahodne, PhD, University of Michigan
And One of MANY New Publications…

**Mutant UBQLN2 promotes toxicity by modulating intrinsic self-assembly**

UBQLN2 monomer

UBA-mediated binding of poly-ubiquitinated proteins

UBL-mediated delivery to proteasome

Ub-mediated oligomerization

homo-oligomerization

“membraneless organelle”

fibril

WT

normal function

P506T

disease

Brain in mice expressing mutant protein

Model of how UBQLN2 protein normally functions, and “misbehaves” in disease

With thanks to the Connie Amick Research Fund which helped make this possible!
Rinne Lewy Body Dementia Initiative

• 3rd annual LBD presentations to community and professionals by Dr. Bradley Boeve of the Mayo Clinic
• Launched a monthly e-newsletter
  • Contact Erin Fox if you’d like to receive it!
• We chair the Community Education and Support workgroup for the Lewy Body Dementia Association Research Center of Excellence network
• To come in 2019: Print newsletter,
• full-day conference
Launched September 2018

Dementia for Scientists
An online curriculum by the Michigan Alzheimer's Disease Center

Module 1: Dementia Definition & Evaluation

Module 2: Dementia Pathology & Pathogenesis

Module 3: Dementia Genetics

Module 4: Dementia Imaging

Module 5: Therapy Development in Dementias

Module 6: Health Services & Policy Dementia Research

Module 7: Research Performance in Ethnically Diverse Populations

To access, search for the Michigan Alzheimer's Disease Center on YouTube.
For questions or feedback, please contact Erin Fox at eefox@med.umich.edu
None of this would be possible without our research participants, wellness program participants, volunteers, donors and partners.

Thank you!
Other ways to get involved with the Center
The Center launches a Campaign

If you’d like more information on the campaign, please see a member of our team.

alzheimers.med.umich.edu/supportus
Participate in other Center-Supported Research Studies

In addition to participating in the U-M Memory & Aging Project, please consider participating in the other studies that our Center supports.

Supported studies include:

- Developing treatments -- new drugs, combinations of drugs, or new ways to use existing treatments.
- Filling out a questionnaire or answering interview questions.
- Receiving a brain scan.
- Completing memory tests.
- Taking part in walking or balance tests.
- Donating blood, saliva, and cerebrospinal fluid.
- Participating in quality of life/wellbeing studies.

Handout in your folder!
Participate in the Brain Donation Program

• Brain donation is the ultimate “Gift of Knowledge”

• It helps researchers to learn more about the brain, different types of dementia, and advance knowledge of the disease

• Brain donation is free to the donor and their family – we cover all associated costs

• It could help find a cure!

If you're interested, pick up more information in the lobby!

Matthew Perkins, BS
Michigan Brain Bank Coordinator
2018 Champion Awards
Rev. Dr. Edward Duckworth has been instrumental in assisting the Center in opening doors to the Detroit-Metro faith based community. He holds positions as Co-chair of the “Health & Human Services Committee of the Council of Baptist Ministers” as well a Vice President of the “Baptist Pastors of Detroit and Vicinity” and 2nd Vice Moderator of the “Michigan District Baptist Association”. He has created a platform in his church, Gethsemane Missionary Baptist Church for four Alzheimer’s Disease Health Fairs and workshops over the last four years. He has introduced our Minority Outreach Coordinator, Edna Rose, to the multiple alliances he holds which has led to hundreds of research participants and a myriad of educational opportunities throughout the Detroit metro faith based communities.
The Fraternal Order of Eagles has been a generous contributor to the Center since 1975! Various chapters have donated over the years, but Cindy Marshall and Linda Day have stood out.

Cindy Marshall’s contributions to the Center started back in 2014 on behalf of the Burton Eagles. The group’s donations have totaled $28,000!

Linda Day is Madam President of the Michigan State Auxiliary, and has generously selected our Center as her philanthropy for the 2018-2019 year.

We are so grateful for our continued relations with the Michigan Fraternal Order of Eagles.
Introducing
Laura Rice-Oeschger, LMSW

THRIVE’ing Together:
A Spotlight on the Center’s Wellness Initiative
THRIVE ’ing Together

Laura Rice-Oeschger, LMSW
MADC Wellness Initiative
MADC Wellness Initiative

Putting Wellness into Practice

Outreach       Programs       Research
Easing the stress associated with care-partnering and living with memory loss through the provision of wellness information, programming, practice and direct support throughout the entire care journey.

- **Care Partner Stress Resilience Practice**
  - Catching Your Breath – monthly @ Matthaei BG
  - Wellness Day Retreats – Spring & Fall

- **Mindfulness Training Programs & Classes**
  - Mindfulness-based Dementia Care (MBDC)
  - Mindfulness-based Stress Reduction (MBSR)
  - Mindfulness retreats

- **Educational Events**
  - Well-being, Stress Resilience & Care-Partnering

- **Research Programs**
  - Mind ‘n Motion – Balance Training and Mindfulness Study (UM Geriatrics Mobility Research Center)
What really brings you here today?

- Relationships
- Connections
- Participating in solutions
- Participating in a cure!
- Making life better for another person, *right now*
- Taking care of one another…. as best we can, with what we have to offer and doing what we can to learn and improve
- History, a reason & personal motivation

Research volunteers, Study partners, Community partners, Colleagues - clinical & research staff and faculty at UM, MSU & WSU
Donors, student interns, friends
There are only four kinds of people in the world –

Those who have been caregivers,
Those who currently are caregivers,
Those who will be caregivers and,
Those who will need caregivers.

- Rosalynn Carter

Ileana Ludae Bolea & Joseph (Junitza) Bolea
Detroit, MI
We are Care Partners
Collaborative grant to support THRIVE Network:
Educating Dementia Caregivers on Wellness and Self-Care

2 Year Pilot
$500,000
Collaborating, Cross-Training & Creating New Pathways for Caregivers in Michigan to THRIVE

Dawn Contreras, PhD
Joan Ilardo, PhD & Angela Zell, MPH
Laura Rice-Oeschger, LMSW
Renee Gadwa, MBA

Donna MacDonald, MA
Vanessa Rorai, LMSW
Kathi Tobey
Hanna Hotchkiss
Holly Tiret, MA
Georgina Perry, MSW

THRIVE
no barriers • no boundaries
Collaborative grant to support THRIVE Network: Educating Dementia Caregivers on Wellness and Self-Care

Tailoring Healthy Resources for In-Person & Virtual Education

- **Formalize a network** of existing agencies to meet the needs of caregivers in Michigan

- **Establish wellness programming** to connect caregivers throughout their journey

- **Sustain and expand wellness education** through MSU extension services which operates in all 83 counties in Michigan
1. Formalize a network of existing agencies to meet the needs of caregivers in Michigan
Caregivers & Care Partners frequently report feeling uncertain about
1. what is available,
2. where to find what they need
3. at the time they need it,
4. while anticipating what may be the best next step.

It’s hard to feel confident when we don’t know our next step.
2. **Establish wellness programming** to connect caregivers throughout their journey.
Care Partners are at risk of becoming isolated

<table>
<thead>
<tr>
<th>Others</th>
<th>Self</th>
<th>Health</th>
<th>Wellbeing</th>
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</thead>
<tbody>
<tr>
<td>Gradual</td>
<td>Painful</td>
<td>Harmful</td>
<td>&amp; Preventable</td>
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[Image of birds on a wire with one bird separate from the rest, symbolizing isolation.]
The Value of Self Care
Caregiver Stress

American Association of Retired People (AARP) & National Caregiving Alliance (NCA)

• Nine in ten caregivers who provide 21 or more hours of care are in a high burden situation (92 percent).

• 42 percent of caregivers expressed a strong need and desire to learn about managing their own stress.

• Only 16 percent of family caregivers reported having a health care provider ask what they need to take care of themselves.
Sustain and expand wellness education through MSU extension services which operates in all 83 counties in Michigan
The well-being of individuals with a dementia is intimately tied to the well-being of their care partner.

Caregivers & Care Partners (outside of Ann Arbor) do not currently have access to continuous wellness programming created solely for their own well-being, sustained resilience and confidence throughout the entire care journey.
Stepping Stones
Dementia Caregivers: Juggling, Delaying, and Looking Forward

Family caregivers play a vital role in providing support to older adults living with dementia and other cognitive impairments. This report focuses on unpaid dementia caregivers, family and friends who help people with memory problems manage health issues and provide personal care. The University of Michigan National Poll on Healthy Aging asked
Challenges for Dementia Caregivers

14% believe their physical or mental health is not good enough to provide care

27% delayed or did not do things for their health

66% said caregiving interferes with their ability to take care of themselves or their daily activities
Use of Caregiving Resources

In the past year...

27% of caregivers used caregiving resources

Among those who did not...

41% expressed an interest in using caregiving resources

*Caregiving resources include self-help resources, family therapy, classes or trainings, support groups, or respite care.
We can all help caregivers THRIVE.

Please share and spread the word.....

Website COMING SOON!

www.thrivem'i.org

★ Information is in your folder ★

THANK YOU!
Lunch

Entertainment provided by:
Community High School Jazz Band
Directed by Jack Wagner
How Can I Reduce My Risk for Dementia? Update on Recent Evidence

Kenneth M. Langa, MD, PhD

Division of General Medicine
Institute for Social Research
Institute for Healthcare Policy and Innovation
Ann Arbor Veterans Affairs Healthcare System

University of Michigan

UM Alzheimer’s Disease Ctr Appreciation Luncheon
Ann Arbor, MI
November 13, 2018
No Conflicts of Interest
Overview

• Causes of Dementia
• Recent Trends Important to “Brain Health”
• Review of Prevention Strategies
• Conclusions
Causes of Dementia

• Alzheimer’s Disease (~ 60 - 70% of cases)
• Vascular Dementia (~ 20 - 30% of cases)
• Other (~10% of cases)
  – Parkinson’s Disease
  – Frontotemporal Dementia
  – Dementia with Lewy Bodies
  – Reversible Causes

• Mixed Dementia
  – Overlapping AD and vascular pathology is likely most common, especially in oldest-old
  – Overlapping AD and TDP-43 also common

Overlap / Interaction of Cardiovascular disease and AD

• Anatomy / Physiology
  – Brain is 2% of body mass, but gets 20% of blood flow and uses 20% of the body’s oxygen

• Risk Factors
  – Hypertension, Diabetes, Hyperlipidemia, Obesity, Physical inactivity, Smoking, Alcohol, Inflammation, Apo E e4 genotype
  – More vascular risk factors in mid-life associated with more amyloid protein in the brain in later life

• Clinical
  – For a given level of AD pathology, the more cerebrovascular lesions, the greater the likelihood of CI / dementia

Recent Trends Important to “Brain Health”
Dementia and the Family
Informal Caregiving Time and Cost, USA

- Dementia: 30%
- Stroke: 10%
- Depression: 15%
- Incontinence: 8%
- Diabetes: 10%
- Cancer: 3%
- COPD: 3%
- Other: 21%

Dementia Annual Cost Per Case
United States, 2010

- Informal Care: 49%
- Nursing Homes: 25%
- Out of Pocket: 11%
- Home Care: 10%
- Medicare: 5%

Total: $50,000 per case; $200 billion nationwide

Demographic Imperative

World Population, Age 65+ and Age <5

Source: Population Reference Bureau
Recent Trends Important to Brain Health

• Cardiovascular risk factors and treatment:
  – Increasing prevalence of obesity, diabetes, and hypertension

**BUT:**

– More wide-spread and intensive treatment of diabetes, hypertension, and high cholesterol
Trends Important to Brain Health: Diabetes Complications, US, 1990 to 2010

Source: Gregg et al, NEJM, 2014.
SES Disparities in CV Risk in the US

Physical Activity and the Brain

A. Hippocampus

B. Caudate Nucleus

C. Thalamus

“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
Exercise and the Brain

“I’ve been working out for six months, but all my gains have been in cognitive function.”
Education and the Brain
Trends Important to Brain Health: The Worldwide Education Boom

Fraction of 30-34 Year-olds with College Education

Education and Brain Health

• Adults are now reaching older age having had significantly more formal schooling earlier in life:
  – 53% of age 65+ in US finished HS in 1990; 84% in 2015
  – 11% of age 65+ finished college in 1990; 27% in 2015

• Education is protective against dementia, likely through multiple pathways, including cognitive reserve, health behaviors, occupation, leisure activities, social network, and wealth

Sources: Older Americans 2016: Key Indicators of Well-Being; Meng and D’Arcy, PLoS One, 2012.
The Brains of London Taxi Drivers
Lifelong Learning and the Brain

- London taxi drivers spend up to 4 years learning the map of the city and how to navigate it.
- The hippocampus is the area in the brain which “stores” our learned maps of the outside world.

Research question:
- What happens to the hippocampus of a London taxi driver while learning “The Knowledge”? 

Hippocampus Growth in London Taxi Drivers

Sources: Woollett and Maguire, *Current Biology*, 2011.
Hippocampus Growth in London Taxi Drivers

Sources: Maguire et al, PNAS, 2000
Hippocampus Growth in London Taxi Drivers

Sources: Maguire et al, PNAS, 2000
Generational Transmission of Education’s Benefits?

• Does your parents’ level of education influence your own risk of dementia?

• Using HRS data, Rogers et al found:
  – Having a mother with $\geq 8$ years of education was associated with a DECREASED risk of dementia, even after controlling for father’s education, one’s own education, and other important factors
  – Causal pathways?: In utero?; Early mother-child interactions?; Influence on future education / occupation / wealth of the child?

Trends in Dementia Incidence and Prevalence
HRS: Dementia Prevalence, Age 65+

Dementia Prevalence

Studies of Population Trends

- **Declining Prevalence / Incidence of Cog impairment / Dementia**:
  - US NLTCS (Manton et al, 2005)
  - UK CFAS / ELSA (Llewellyn and Matthews, 2009)
  - US Mayo Clinic Study on Aging (Rocca, 2011)
  - Rotterdam Study (Schrivjers et al, 2012)
  - Swedish Kungsholmen Project (Qiu et al, 2013)
  - Danish Cohorts Study (Christensen et al, 2013)
  - UK Cognitive Function and Ageing Study (Matthews et al, 2013, 2016)
  - US MoVIES Cohort (Dodge et al, 2014, 2016)
  - US Framingham Heart Study (Satizabal et al, 2016)
  - Indianapolis-Ibadan Project (Gao et al, 2016; Hendrie et al, 2018)
  - US NLTCS (Stallard and Yashin, 2016)
  - US Einstein Aging Study (Derby et al, 2017)
  - US NHATS (Freedman et al, 2018)
# Recent Studies Suggesting Declining Dementia Risk in High-Income Countries

<table>
<thead>
<tr>
<th>Study</th>
<th>Outcome</th>
<th>Data Source</th>
<th>Key Findings</th>
<th>Factors</th>
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<tbody>
<tr>
<td>Manton et al. (United States)</td>
<td>Prevalence of severe cognitive impairment</td>
<td>National long-term care survey interviews, 1982–1999</td>
<td>Decline in dementia prevalence among people ≥65 yr of age (5.7% to 2.9%)</td>
<td>Higher educational level, decline in stroke incidence</td>
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<tr>
<td>Langa et al. (United States)</td>
<td>Prevalence of cognitive impairment</td>
<td>Ongoing population-based survey of people ≥51 yr of age</td>
<td>Prevalence of cognitive impairment among people ≥70 yr of age (12.2% in 1993 vs. 8.7% in 2002)</td>
<td>Higher educational level; combination of medical, lifestyle, demographic, and social factors</td>
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<tr>
<td>Schrijvers et al. (Rotterdam)</td>
<td>Incidence of dementia</td>
<td>Population-based cohort ≥55 yr of age in 1990, extended in 2000</td>
<td>Incidence rate ratios (6.56 per 1000 person-yr in 1990 vs. 4.92 per 1000 person-yr in 2000)</td>
<td>Higher educational level, reduction in vascular risk, decline in stroke incidence</td>
</tr>
<tr>
<td>Qiu et al. (Stockholm)</td>
<td>Prevalence of DSM-III-R dementia*</td>
<td>Cross-sectional survey of people ≥75 yr of age, 1987–1989 and 2001–2004</td>
<td>Age- and sex-standardized dementia prevalence (17.5% in 1987–1989 vs. 17.9% in 2001–2004); lower hazard ratio for death in later cohort suggests decreased dementia incidence</td>
<td>Favorable changes in risk factors, especially vascular risk; healthier lifestyles</td>
</tr>
<tr>
<td>Matthews et al. (England)†</td>
<td>Prevalence of dementia in 3 regions</td>
<td>Survey interviews of people ≥65 yr of age, 1989–1994 (in CFAS I) and 2008–2011 (in CFAS II)</td>
<td>Dementia prevalence (8.3% in CFAS I vs. 6.5% in CFAS II)</td>
<td>Higher educational level, better prevention of vascular disease</td>
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Dementia Prevention Reports

• US National Academy of Sciences, 2017
  – Encouraging, but inconclusive, evidence for:
    o Increased physical activity
    o Hypertension control
    o Cognitive training

• The Lancet Commission, 2017
  – Considered a wider range of interventions:
    o Educational attainment
    o Smoking, hypertension control, diabetes, physical activity
    o Hearing loss
    o Depression, Social Isolation

Potential Mechanisms for Dementia Prevention

Conclusions

• Dementia is common and has wide-ranging impact on patients, families, and public programs

• Recent trends suggest that dementia risk likely has declined in high-income countries due to increases in education, wealth, and perhaps better control of CV risks

• Even with declining individual risk, the number of dementia cases will likely increase significantly due to the large growth in the elderly population

• Individual risk for dementia is a function of complex interactions among the brain, the body (especially the CV system), health behaviors, and the environment
To Reduce Your Risk of Alzheimer’s Disease / Dementia:

- Die young
- Choose educated parents
  - Wealth is probably good, too
- Walk
  - Physical activity may be our only “silver bullet” in medicine
- Talk
  - Stay connected to family, friends, organizations
- Read, Read, Read, Learn, Learn, Learn
  - Consider becoming a London cab driver?
- Control your blood pressure (and other CV risks)
Funding

• National Institute on Aging
  – Health and Retirement Study
  – UM Alzheimer’s Disease Center
  – UM Pepper Center

• Social Security Administration

• Alzheimer’s Association

• Paul Beeson Physician Faculty Scholars Program
Thanks for your attention.
Panel Q&A

Introducing our panel moderator, Scott Roberts, PhD
Scott Roberts, PhD

Scott Roberts is a Professor of Health Behavior and Health Education at the U-M School of Public Health, where he directs its certificate program in Public Health Genetics and co-directs a dual master’s degree program in Public Health and Genetic Counseling. Dr. Roberts conducts research related to health education and support services in AD and has served since 2001 as Co-PI of the NIH-funded REVEAL Study, a NIH-funded series of randomized clinical trials evaluating the impact of disclosing genetic risk information to individuals with a family history of AD. Prior to coming to U-M, Dr. Roberts served as Co-Director of the Education Core in the NIA-funded Boston University Alzheimer’s Disease Center. He now directs the MADC Outreach, Recruitment and Education Core.
Kenneth Langa, MD, PhD

Dr. Langa is the Cyrus Sturgis Professor in the Department of Internal Medicine and Institute for Social Research, a Research Scientist in the Veterans Affairs Center for Clinical Management Research, and an Associate Director of the Institute of Gerontology, all at the University of Michigan. He is also Associate Director of the Health and Retirement Study, a National Institute on Aging funded longitudinal study of 20,000 adults in the United States. Dr. Langa received an MD and PhD in Public Policy at the University of Chicago as a Fellow in the Pew Program for Medicine, Arts, and the Social Sciences. Dr. Langa’s research focuses on the epidemiology and costs of chronic disease in older adults, with an emphasis on Alzheimer’s disease and other dementias. He is currently studying population trends in dementia prevalence, and the relationship of common cardiovascular risk factors, as well as acute illnesses such as sepsis and stroke, to cognitive decline and dementia.
Laura Rice-Oeschger, LMSW

Since 2012, Laura has lead the Wellness Initiative for the MADC where she designs, implements and evaluates well-being and mindfulness-based programming for caregivers and adults living with dementia. Moved by family experiences with long-term illness and memory loss, Laura has worked in dementia care since 1994 in a variety of capacities. She was the first Director of the University of Michigan Geriatrics Center Silver Club Memory Loss Programs prior to serving as clinical manager of the Early Stage Initiative for the Los Angeles regional Alzheimer’s Association. She is a national and state presenter on memory loss and caregiver well-being and holds advanced professional certifications in aging, dementia and contemplative clinical care. Laura received her MSW from the University of Michigan School of Social Work.
Dr. Heidebrink is a Richard D. and Katherine M. O’Connor Research Professor and has been affiliated with the Michigan Alzheimer’s Disease Center since 1995, when she began her fellowship training in Geriatric Neurology. Her clinical and research interests focus on improving the diagnosis and treatment of Alzheimer’s disease and related disorders. Dr. Heidebrink leads the University of Michigan’s participation in the Alzheimer’s Disease Neuroimaging Initiative (ADNI). This landmark study uses brain imaging and other biomarkers to evaluate the onset and progression of Alzheimer’s disease. Dr. Heidebrink is also the director of the Cognitive Disorders Program at the University of Michigan. Judy attended medical school at the University of Texas Southwestern and received her Neurology training at the University of Michigan.
Dr. Jones is an Assistant Professor within the Department of Health Behavior and Biological Sciences at the University of Michigan School of Nursing. Dr. Jones’ research is focused on uncovering the mechanisms – biological, psychological, social, and physical – of self-management interventions. She uses neuroimaging (fMRI) to explore the neuroprocesses associated with self-management behaviors, such as diet, exercise, and medication-taking. She also examines how health information behavior (seeking, sharing, and use) can be enhanced to support blood pressure self-management. In her current studies, Dr. Jones is designing and pilot-testing interventions to improve self-management of blood pressure among African American women. Dr. Jones received her BS, MS, and PhD in Nursing from the University of Michigan.
Navid Seraji-Bozorgzad, MD

Dr. Seraji-Bozorgzad is an Assistant Professor within the Department of Neurology at the University of Michigan. Dr. Seraji-Bozorgzad joins us from Detroit, having worked for several years at the Detroit Medical Center. He is now a clinician within Cognitive Disorders Program in Ann Arbor, as well as a clinician-researcher with our Center. Dr. Seraji-Bozorgzad’s research is focused on developments in MRI for early detection of brain tissue injury. He hopes these discoveries will help the development of new medications to alter the course of dementia progression. His research also looks at the tissue changes over time between Whites and African Americans in hopes of better understanding the different rates of disease progression between the two ethnicities. Dr. Seraji-Bozorgzad received his medical degree from the Wayne State University School of Medicine.
Panel Q&A
Thank you!
Please turn in your evaluation forms.