Institute on Aging
University of Pennsylvania

2024- 2025

INSTITUTE ON AGING ANNUAL REPORT

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A MESSAGE FROM THE CO-DIRECTORS

It has been an extraordinary year for the Institute on Aging (IOA). Together with our colleagues across the University of Pennsylvania, we have advanced our mission to improve the health and well-being of older adults through groundbreaking research, innovative clinical programs, and meaningful collaborations.

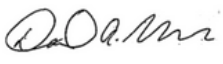
We are especially proud of the momentum generated by our strategic plan for Alzheimer's disease and related dementias, which continues to guide our work. Over the past year, we have secured more than $1.4 million in new philanthropic commitments, launched pioneering research initiatives, and recruited outstanding new faculty members whose expertise strengthens our scientific community. Notably, philanthropic donations have made it possible to accelerate precision medicine approaches, expand cutting-edge imaging and tissue processing, and foster the next generation of Alzheimer's therapeutics.

Our four divisions—spanning basic and clinical neurodegenerative research, geroscience and geriatrics, and epidemiology and policy—continue to drive discovery from the laboratory to the clinic and into the community. Our progress this year was marked by the steady growth of the IOA Members Program, the funding of new Alzheimer's Disease Therapeutics Accelerator projects, and the accomplishments of our scholars and trainees who will lead the next generation of discoveries.

The IOA also thrived as a hub for education and collaboration. We hosted a vibrant slate of events, including the Sylvan M. Cohen Annual Retreat, the Mary and Joseph A. Pignolo, Sr. Lectureship, and the Penn Neurodegenerative Disease Grand Rounds, which bring together researchers, clinicians, and trainees from across disciplines. Our communications efforts – from our digital and print resources to the new Age of Aging Podcast — are helping us share discoveries and stories with patients, families, and colleagues around the world.

As we reflect on these accomplishments, we are deeply grateful to our community of members, donors, and partners. Your commitment fuels our mission and accelerates progress toward a future where effective interventions can prevent, treat, and ultimately cure Alzheimer's disease and other aging-related conditions. We look forward with optimism to the coming year, inspired by the dedication of our colleagues and energized by the possibilities that lie ahead. Together, we are building a world where aging is met with science, compassion, and hope.

With gratitude,



David A. Wolk, MD

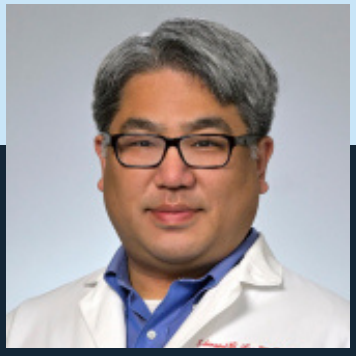
Edward B. Lee, MD, PhD

MEET OUR TEAM

LEADERSHIP

David A. Wolk, MD

Co-Director



Edward Lee, MD, PhD

Co-Director

Kathy Jedrziewski, PhD

Deputy Director

STAFF

Ebony Fenderson
Financial Administrative Coordinator

Nicolette Calcavecchia
Director of Communications

Paige O'Malley
Penn Medicine Development

IOA ORGANIZATIONAL STRUCTURE

IOA DIVISIONS

In alignment with its mission to improve the health of older adults by increasing the quality and quantity of clinical and basic research as well as educational programs focusing on normal aging and aging-related diseases across the entire Penn campus, the IOA focuses its efforts in four main areas known as "IOA Divisions."

Divisions & Division Leaders

Edward Lee, MD, PhD

Division of Basic Neurodegenerative Disease Research

This division focuses on basic, mechanistic research into the pathophysiology of neurodegenerative diseases including Alzheimer's disease and related dementias (frontotemporal degeneration, dementia with Lewy bodies), movement disorders, and motor neuron diseases. The key strengths and focus of this division have been in biochemistry, genetics, and pathology.

David Wolk, MD

Division of Clinical and Translational Neurodegenerative Disease Research

This division focuses on translational and clinical research on neurodegenerative diseases including Alzheimer's disease and related dementias (frontotemporal degeneration, dementia with Lewy bodies), movement disorders, and motor neuron diseases. The key strengths and focus of this division include biomarker development and validation (biofluid, neuroimaging, multimodal integration), studies on the structure and function of the aging brain (neuropsychology, clinical outcomes, neuroimaging), and the development of care models. This division encourages an emphasis on translating basic research into clinical trials and practice.

Anne R. Cappola, MD, ScM

Division of Geroscience, Gerontology, and Geriatrics

This division focuses on basic, translational, and clinical research on human aging including basic molecular alterations (telomere biology, epigenetics, metabolism) and clinical phenotypes (frailty, integrated care models, metabolism).

F. Bradley Johnson, MD, PhD

Norma Coe, PhD

Division of Epidemiology, Social Science, and Policy

This division focuses on social, ethical, and legal scholarship in addition to population science and epidemiology as it relates to neurodegenerative diseases and aging. These include research on understudied populations (global, underrepresented), the social impact of aging-related diseases, ethical and health economics considerations in aging and neurodegenerative disease and their interface with policy and legal frameworks.

IOA MEMBERS PROGRAM

The IOA Members program is open to all Penn faculty with research interests in aging and/or neurodegenerative disease.

Benefits of IOA Membership:

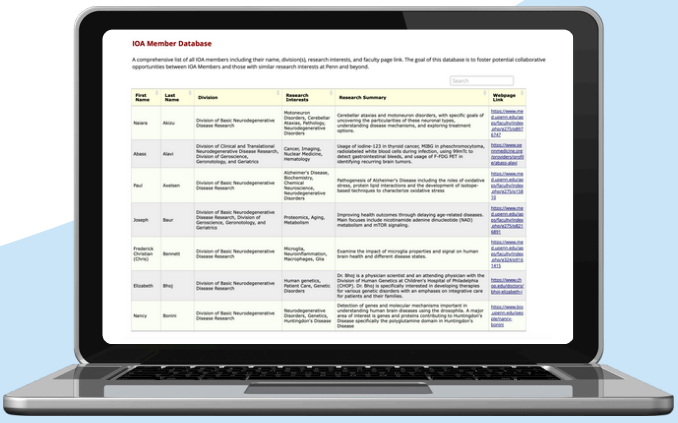
- Potential funding of IOA Post-doctoral fellows
- Potential funding of IOA PennPREP Scholar(s)
- Identification of potential invited speakers to present at the IOA Seminar Series
- Priority for scheduled meetings with IOA Seminar Series speakers
- Trainees eligible to present at IOA-sponsored trainee seminars
- Trainees eligible to attend IOA-sponsored career development activities
- Participate in shaping the future of aging research at Penn
- Each IOA Member must identify with at least one of the four IOA Divisions.

114 IOA MEMBERS

FROM OVER 20 DIFFERENT SCHOOLS, CENTERS, DEPARTMENTS, & DIVISIONS AT PENN.

- *Department of Neurology*
- *Penn School of Nursing*
- *Department of Pathology and Laboratory Medicine*
- *Department of Radiology*
- *Penn School of Arts and Sciences*
- *Department of Sleep Medicine*
- *Department of Chemistry*
- *Department of Psychiatry*
- *Department of Orthopaedic Surgery*
- *Department of Genetics*
- *Department of Systems Pharmacology and Translational Therapeutics*

and more!



The IOA Member Research Database is a searchable database of expertise with the goal of fostering potential collaborative opportunities between IOA Members and those with similar research interests not only at Penn but at institutions nationwide.

GRANTS, GIFTS, & FUNDRAISING

IOA FUNDING

In FY25, the IOA received generous philanthropic support, with total commitments exceeding $1.4 million.

Support from the Shanahan Family Foundation

A $1 million gift from the Shanahan Family Foundation (to be paid over two years) will support two crucial projects:

- Project 1: Anti-amyloid Therapy Monitoring Protocol

  Continuing support from the Shanahan Family Foundation has been instrumental in advancing Penn's efforts to develop precision-based approaches to Alzheimer's disease treatment, particularly in the context of emerging anti-amyloid therapies. Their generous gift enabled the creation of critical infrastructure for molecular profiling and the launch of innovative protocols that integrate clinical care with cutting-edge biomarker collection and imaging. This foundational work is not only enhancing our understanding of individual treatment responses but is also positioning Penn as a leader in the next generation of Alzheimer's therapeutics.

- Project 2: Advancing and Expediting Brain Tissue Processing

  Building on prior support from the Shanahan Family Foundation, this project will leverage cutting-edge cryoelectron microscopy and advanced tissue processing techniques to generate ultra-high-resolution, three-dimensional images of Alzheimer's disease brain tissue. By avoiding traditional methods that distort tissue structure, researchers at Penn will achieve unprecedented nanoscale views of neuropathologic inclusions, offering new insights into the structural underpinnings of neurodegeneration. Continued funding will support the personnel, technology, and computational infrastructure needed to carry out and manage this highly data-intensive research.

IOA FUNDING Cont'd.

Additional Philanthropic Support

- A $250,000 gift (to be paid over five years) from a private family foundation will support the facilities, personnel, equipment, and reagents necessary for advanced post-mortem brain tissue research. This fund will serve as a critical infrastructure resource for Alzheimer's disease and related disorders (ADRD) research at Penn, enabling collaborative investigations across multiple labs using techniques ranging from whole-brain imaging to nanoscale molecular analysis. Importantly, it will also allow researchers to study brain tissue from individuals treated with newly approved therapies, helping to uncover how these interventions impact disease pathology and guiding future efforts toward personalized, preventive treatment approaches.

- A $500,000 gift (to be paid over four years) from another foundation will support projects on Monitoring Neuroinflammatory and Neurodegenerative Treatment Response to Anti-amyloid Therapy.

IOA-FUNDED PROGRAMS

IOA Research Scholar Program

The IOA Research Scholar Program provides support to two scholars (early career investigators) per year with the **John Q. Trojanowski Research Scholar Award** and the **Joseph A. Brennan Research Scholar Award.**

2024

Silvia Porta Antolinez, PhD
John Q. Trojanowski Research Scholar

Emma Rhodes, PhD
Jospeh Brennan Research Scholar

IOA-funded PennPREP Scholar

Each year, the IOA supports a student for the University of Pennsylvania Post-Baccalaureate Research Education Program (PennPREP). The program provides a full time research experience in a biomedical science discipline, along with preparation for applying to and succeeding in graduate school.

2024

Gabriel Elias
During his time as a PennPREP Scholar, Gabriel is working in the neuroscience lab of David J. Irwin, MD. His work focuses on incorporating histopathology of human brain tissue to understand brain-behavior correlations to neurodegenerative disease diagnosis with a particular emphasis on Primary Progressive Aphasia (PPA).

"Through PennPREP, I hope to develop molecular techniques in researching neurodegenerative diseases and enhance my scientific writing to become a strong candidate for a PhD," said Gabriel.

IOA-FUNDED RESEARCH

Alzheimer's Disease Therapeutics Accelerator Projects

This year, the IOA has funded two more **Alzheimer's Disease Therapeutics Accelerator Projects.** These awards, funded by a research grant obtained by the Co-Directors of the IOA from the Delaware Community Foundation, support projects that focus on AD therapeutics including projects that address comorbid pathologies in the setting of Alzheimer's disease.

Inhibition of HMGB2-mediated CNS cell death as a novel approach to the treatment of Alzheimer's disease.

Principal Investigators: Ian A. Blair, George Kannarkat, David J. Irwin, Katheryn A.Q. Cousins

"*Using cell models, we propose to lay the foundation for a novel treatment of AD via inhibition of ferroptosis and calreticulin (CRT) translocation by the nuclear exportin 1 (XPO1) inhibitor selinexor, and other inhibitors of high mobility group box 2 (HMGB2) activity.*"

A Precision Disaggregase Gene Therapy for Alzheimer's Disease with TDP-43 and Tau Pathology

Principal Investigator: James Shorter, MA, PhD

"The overarching goal of this study is to develop a conditional gene therapy that selectively targets and reverses TDP-43 and tau aggregation in Alzheimer's disease (AD) using a synthetic system that senses TDP-43 loss of function and drives expression of potent protein disaggregases—engineered Hsp104 or cytoplasm-localized PARLSkd3—only in neurons experiencing TDP-43 proteinopathy."

FUNDRAISING

Penn Medicine's 13th Annual 5K for the IOA & Memory Mile Walk

$43k +

was raised for Alzheimer's and aging-related research and care at Penn's Institute on Aging at this year's Penn Medicine 5K for the IOA & Memory Mile Walk

STRATEGIC PLAN 2023-2028

IOA STRATEGIC PLAN FOR ALZHEIMER'S DISEASE AND RELATED DEMENTIAS (ADRD)

VISION:

A world with effective interventions to ameliorate, prevent, and cure Alzheimer's disease and related dementias.

MISSION:

To improve the quality and quantity of ADRD research, the IOA Strategic Plan for Alzheimer's disease and related dementias (ADRD) will use multidisciplinary approaches to strive for groundbreaking discoveries to advance the field.

PURPOSE:

Improve the lives of both patients and their loved ones through scientific advances in Alzheimer's disease and related dementias.

IOA Strategic Plan for ADRD • Progress so far...

Strategic Priority 1: Scale Investments to Grow Capacity

Progress:

- Secured funding for Alzheimer's Disease Therapeutics Accelerator Projects, funded by the Delaware Community Foundation's Paul H. Boerger Fund and the Shanahan Family Foundation Alzheimer's Research Fund
- Supported submission of Synuclein P01 application (PI: Alice Chen-Plotkin) resubmission which has since been funded
- Secured philanthropic gifts exceeding $1.4 million

Strategic Priority 2: Deepen the Bench of World-Class Talent

Progress:

- Recruited **Michael Seamus Haney, PhD** from Stanford who joined the faculty January 1, 2024
- Recruited **George Kannarkat, MD, PhD** who joined the faculty July 1, 2024
- Added two instructors in Cognitive Neurology
- Recruited **Michael Guo, MD, PhD** who joined the faculty October 2024

Strategic Priority 3: Leverage Unique Strengths Toward Competitive Advantage

Progress:

- Anti-Amyloid Therapy Monitoring Study (ATM)
  - The goal of this study is to learn who is most likely to benefit and/or have side effects from anti-amyloid treatment. It will:
    - Advance a precision medicine approach to enhance efficacy
    - Investigate more about the mechanisms of ARIA
    - Enroll all patients undergoing lecanemab evaluation and therapy
    - Include additional advanced MRI sequences with clinical MRI scans
    - Bank CSF, blood, and plasma for AD biomarkers, CSF asyn RT-QuIC, inflammatory measures, genetic testing
    - Include digital cognitive testing
- Integration of biomarkers into clinical practice
- Penn Medicine system pathways for anti-amyloid therapy

*NEW

IOA Strategic Plan for ADRD • Progress so far...

Strategic Priority 4: Communicate Multi-disciplinary Advances and Impact to Stakeholders

Progress:

- Neurodegenerative Disease Grand Rounds, a collaboration between the IOA, Penn ADRC, Penn Memory Center, and Penn FTD Center, launched in October 2024
  - Grand Rounds is attended by ~50 attendees (including faculty, staff and trainees at all levels) at the presentations which take place every other week
- Communications Collaborative across IOA, Penn ADRC, Penn Memory Center, Penn FTD Center and other neurodegenerative disease and aging centers at Penn meets bi-weekly
- Implementation of educational efforts around anti-amyloid therapies

Strategic Priority 5: Increase Infrastructure to Meet Scaled Demand and Optimize Collaboration

Progress:

- Renovations completed at the Ralston House which serves as office and clinical space for faculty and staff of Penn's Institute on Aging, Penn Memory Center, Alzheimer's Disease Research Center, and the departments of Psychiatry and Geriatrics, and more.

Strategic Priority 6: Promote a culture of translation from discovery to clinical implementation

Progress:

- Anti-amyloid Therapy Monitoring Study
- Leveraging of Penn Medicine Biobank

*NEW

IOA ANNUAL EVENTS

Sylvan M. Cohen Annual Retreat & Poster Session • March 11, 2025

Environmental Impacts on Neurodegeneration

Co-sponsored by the Penn Center for Excellence in Environmental Toxicology (CEET)

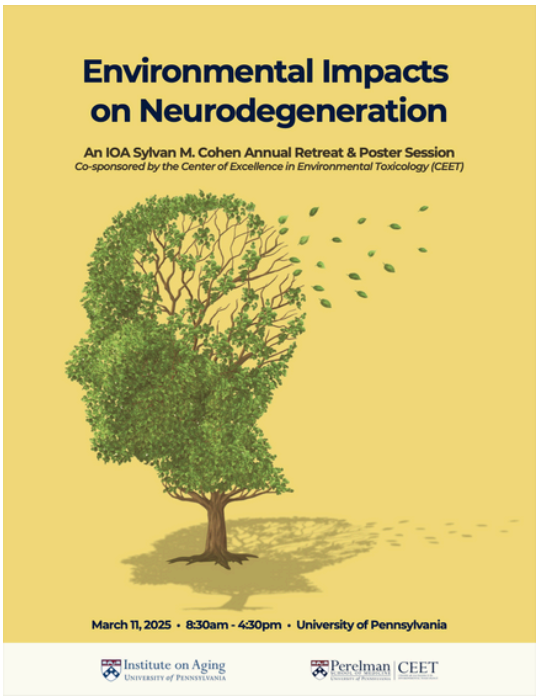
KEYNOTE SPEAKERS

Eva-Maria Collins, PhD
Associate Professor in Biology, Swarthmore College

Gary Miller, PhD
Professor of Environmental Health Sciences, Columbia University

Penn Presenters:

- Aimin Chen, MD, PhD
- Corey McMillan, PhD
- Edward B. Lee, MD, PhD
- Holly Elser, MD, PhD, MPH
- Andrea Schneider, MD, PhD
- Yeong Shin Yim, PhD
- Victoria Johnson, MBCHB, PhD
- Sigrid Veasey, MD



IOA ANNUAL EVENTS Cont'd.

Mary and Joseph A. Pignolo, Sr. Award and Lectureship in Aging Research • April 22, 2025

"Longevity factor Klotho, Aging, and Neurodegenerative Disease"

KEYNOTE SPEAKER

Dena Dubal, MD, PhD
Professor of Neurology, UCSF Weill Institute for Neurosciences

Vincent J. Cristofalo Annual Lectureship • October 21, 2025

More details coming soon!

KEYNOTE SPEAKER

Amy Kind, MD, PhD
Professor of Geriatrics and Gerontology, University of Wisconsin School of Medicine and Public Health

IOA ANNUAL EVENTS Cont'd.

Penn Neurodegenerative Disease Grand Rounds and IOA Visiting Scholars Series

The Penn Neurodegenerative Disease Grand Rounds is a collaborative effort between the Alzheimer's Disease Research Center, Penn Memory Center, Penn FTD Center, and Penn Institute on Aging. Lectures are held every other Tuesday at noon unless otherwise noted. External speakers are co-sponsored by the IOA's Visiting Scholars Series.

Visiting Scholars

Yaakov Stern, PhD
"Studying Cognitive Reserve"
October 8, 2024

Jessica Langbaum, PhD
"Primary and Secondary Prevention of Alzheimer's Disease: Latest updates from the field"
January 28, 2025

Philip Wong, PhD
"Vulnerability of TDP-43 deficient neurons to caspase 3 in an MED mouse model contributes to exacerbated tauopathy"
February 11, 2025

Grand Rounds Lecturers

- Eddie Lee, MD, PhD
- Daniel Ohm, PhD
- Joseph Baur, PhD
- Silvia Porta, PhD
- Norma Coe, PhD
- Mingyao Li, PhD
- Jessica Morgan, PhD
- Alessandra Chesi, PhD
- Adam Naj, PhD
- Wan-Ping Lee, PhD
- Katheryn Cousins, PhD
- Geroge Kannarkat, MD, PhD
- Nancy Hodgson, PhD, RN, FAAN
- Amita Sehgal, PhD

For the most up-to-date listing of our upcoming Grand Rounds lectures, visit: www.med.upenn.edu/adrc

All other IOA events are posted at www.med.upenn.edu/aging/events.html

Special Events

"Neuroimmune Dysfunction in FTD-ALS spectrum disease"

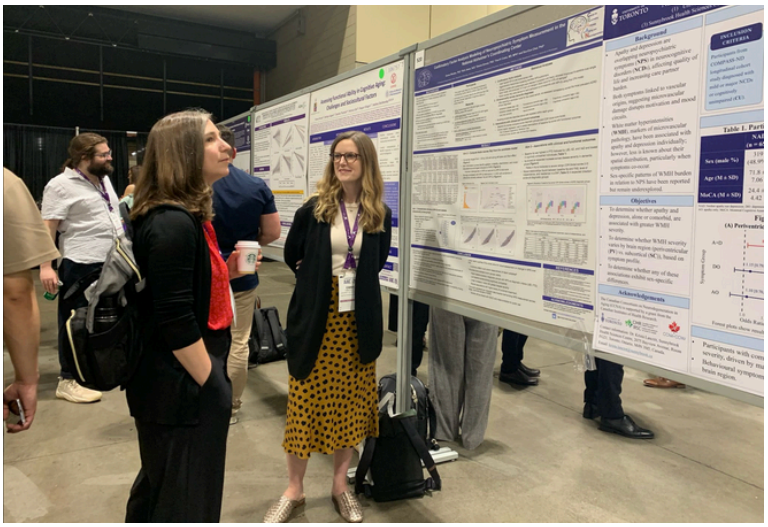
A joint symposium hosted by the Center for Neurodegenerative Disease Research (CNDR) and Institute on Aging

October 11, 2024

Keynote Speaker: Eric Huang, MD, PhD
Department of Pathology, University of California San Francisco

Penn at AAIC 2025

Many researchers and clinicians from Penn participated in the 2025 Alzheimer's Association International Conference (AAIC). Work from **over 40 IOA Members** and affiliates was presented as either oral presentations or posters this year.



Pictured above: Dawn Mechanic-Hamilton, PhD, ABPP-CN and Emma Rhodes, PhD, MA at AAIC 2025.
Photo credit: Nadia Dehghani

IOA FACULTY RECRUITS

Michael Guo, MD, PhD

Michael Guo joined the faculty and started his independent research lab in the Departments of Neurology and Genetics in October 2024. His lab studies the genetics of Alzheimer's disease. He is performing large scale genetic studies in thousands of individuals to identify genes that are associated with Alzheimer's disease. He is using these findings to better understand the causes of Alzheimer's, as well as to develop better tools to predict disease risk and rates of disease progression. He is also performing studies to understand how some genes may continue to mutate in the brains of individuals with Alzheimer's disease and how these mutations contribute to disease progression. His lab is generously supported by the Institute of Aging, National Institutes of Health, and Alzheimer's Association. He also devotes time to seeing patients as a cognitive neurologist in the Penn Memory Center.

Other Recent Faculty Recruits

- Michael Seamus Haney, PhD - January 2024.
- George Kannarkat, MD, PhD - July 2024.

DIGITAL COMMUNICATIONS

659
Facebook Followers

2,061
Twitter Followers

1,440
YouTube Subscribers

22 new
blogs posted
from 2024-2025

913+
E-Newsletter Subscribers

~30%
average open rate

IOA E-Newsletters are sent monthly.
Subscribers also receive upcoming event emails as well as any other IOA or neurodegenerative disease and/or aging-related news at Penn.

*** All numbers represent total lifetime stats, unless otherwise noted, as of August 2025*

DIGITAL COMMUNICATIONS

The Age of Aging Podcast

The Age of Aging podcast is a collaborative effort supported by the Penn Memory Center, Penn FTD Center, Penn Institute on Aging, and Penn Alzheimer's Disease Research Center. Episodes explore topics related to living well with an aging brain.

All three seasons of the Age of Aging podcast are available to stream on all major platforms including Spotify, YouTube, and Apple Podcasts.

PRINT COMMUNICATIONS

The IOA produces a bi-annual print newsletter featuring significant research highlights, news, and publications from the IOA and its members or collaborators.

Hard copies are made available at IOA events and digital copies are available online.

An Institute on Aging Newsletter ■ Spring/Summer 2025

The Science of **Aging**

FDA Approves First Blood Test Used in Diagnosing Alzheimer's Disease

The U.S. Food and Drug Administration (FDA) has officially cleared the first-ever blood test to aid in the diagnosis of Alzheimer's disease — a milestone many experts say could transform how the disease is detected and managed. The newly approved test, The Lumipulse G pTau217/1b-Amyloid 1-42 Plasma Ratio, measures specific proteins in the blood that are associated with amyloid plaques in the brain.

Until now, diagnosing Alzheimer's has often relied on more invasive, expensive procedures like PET scans or spinal taps. This blood test offers a much simpler, less invasive option, with the potential of finally making earlier and more accessible diagnosis a reality.

"The advancement of blood-based biomarkers for Alzheimer's Disease has been truly breathtaking over the last few years," said **David A. Wolk, MD**, Co-Director of the Institute on Aging and Penn Memory Center. "FDA approval of this test is a landmark for the field and likely the beginning of an era in which blood tests will play a critical role in our care of patients."

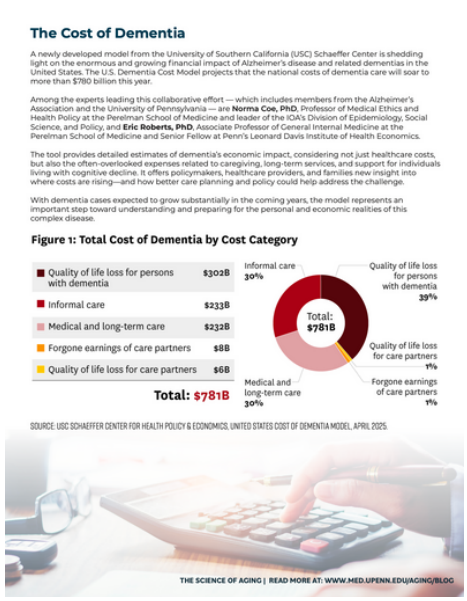
The FDA's clearance of the test marks a major step forward in the ongoing fight against Alzheimer's and reflects growing momentum in the development of accessible, reliable diagnostic tools. Experts are hopeful that this will not only improve diagnosis but also accelerate clinical trials and, ultimately, lead to better treatments.

SOURCE: U.S. FOOD AND DRUG ADMINISTRATION, FDA CLEARS FIRST BLOOD TEST TO AID IN THE DIAGNOSIS OF ALZHEIMER'S DISEASE, JUNE 2024

A LOOK INSIDE

Scan below to view the full stories:

Institute on Aging
University of Pennsylvania



The Cost of Dementia

A newly developed model from the University of Southern California (USC) Schaeffer Center is shedding light on the enormous and growing financial impact of Alzheimer's disease and related dementias in the United States. The U.S. Dementia Cost Model projects that the national costs of dementia care will soar to more than $780 billion this year.

Among the experts leading this collaborative effort — which includes members from the Alzheimer's Association and the University of Pennsylvania — are **Norma Coe, PhD**, Professor of Medical Ethics and Health Policy at the Perelman School of Medicine and leader of the IOA's Division of Epidemiology, Social Science, and Policy, and **Eric Roberts, PhD**, Associate Professor of General Internal Medicine at the Perelman School of Medicine and Senior Fellow at Penn's Leonard Davis Institute of Health Economics.

The tool provides detailed estimates of dementia's economic impact, considering not just healthcare costs, but also the often-overlooked expenses related to caregiving, long-term services, and support for individuals living with cognitive decline. It offers policymakers, healthcare providers, and families new insight into where costs are rising—and how better care planning and policy could help address the challenge.

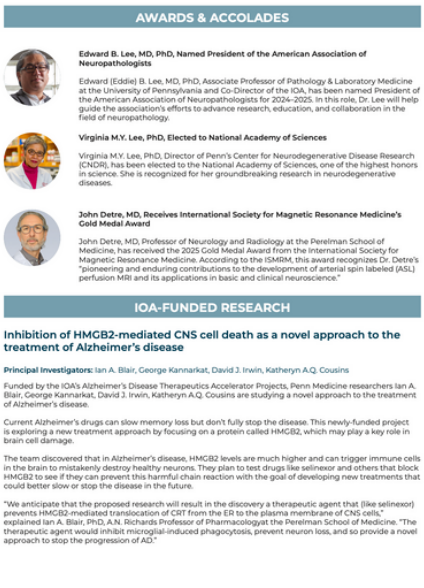
With dementia cases expected to grow substantially in the coming years, the model represents an important step toward understanding and preparing for the personal and economic realities of this complex disease.

Figure 1: Total Cost of Dementia by Cost Category

Quality of life loss for persons with dementia	$302B
Informal care	$233B
Medical and long-term care	$232B
Forgone earnings of care partners	$8B
Quality of life loss for care partners	$6B

Total: $781B

SOURCE: USC SCHAEFFER CENTER FOR HEALTH POLICY & ECONOMICS, UNITED STATES COST OF DEMENTIA MODEL, APRIL 2025.



AWARDS & ACCOLADES

Edward B. Lee, MD, PhD, Named President of the American Association of Neuropathologists

Edward (Eddie) B. Lee, MD, PhD, Associate Professor of Pathology & Laboratory Medicine at the University of Pennsylvania and Co-Director of the IOA, has been named President of the American Association of Neuropathologists for 2024–2025. In this role, Dr. Lee will help guide the association's efforts to advance research, education, and collaboration in the field of neuropathology.

Virginia M.Y. Lee, PhD, Elected to National Academy of Sciences

Virginia M.Y. Lee, PhD, Director of Penn's Center for Neurodegenerative Disease Research (CNDR), has been elected to the National Academy of Sciences, one of the highest honors in science. She is recognized for her groundbreaking research in neurodegenerative diseases.

John Detre, MD, Receives International Society for Magnetic Resonance Medicine's Gold Medal Award

John Detre, MD, Professor of Neurology and Radiology at the Perelman School of Medicine, has received the 2025 Gold Medal Award from the International Society for Magnetic Resonance Medicine. According to the ISMRM, this award recognizes Dr. Detre's "pioneering and enduring contributions to the development of arterial spin labeled (ASL) perfusion MRI and its applications in basic and clinical neuroscience."

IOA-FUNDED RESEARCH

Inhibition of HMGB2-mediated CNS cell death as a novel approach to the treatment of Alzheimer's disease

Principal Investigators: Ian A. Blair, George Kannarkat, David J. Irwin, Katheryn A.Q. Cousins

Funded by the IOA's Alzheimer's Disease Therapeutics Accelerator Projects, Penn Medicine researchers Ian A. Blair, George Kannarkat, David J. Irwin, Katheryn A.Q. Cousins are studying a novel approach to the treatment of Alzheimer's disease.

Current Alzheimer's drugs can slow memory loss but don't fully stop the disease. This newly-funded project is exploring a new treatment approach by focusing on a protein called HMGB2, which may play a key role in brain cell damage.

The team discovered that in Alzheimer's disease, HMGB2 levels are much higher and can trigger immune cells in the brain to mistakenly destroy healthy neurons. They plan to test drugs like selinexor and others that block HMGB2 to see if they can prevent this harmful chain reaction with the goal of developing new treatments that could better slow or stop the disease in the future.

"We anticipate that the proposed research will result in the discovery a therapeutic agent that (like selinexor) prevents HMGB2-mediated translocation of CRT from the ER to the plasma membrane of CNS cells," explained Ian A. Blair, PhD, A.N. Richards Professor of Pharmacologyat the Perelman School of Medicine. "The therapeutic agent would inhibit microglial-induced phagocytosis, prevent neuron loss, and so provide a novel approach to stop the progression of AD."

WHERE ARE THEY NOW?

Farraday Johnson: From STAR Intern to Penn Memory Center Coordinator

Last summer, Farraday Johnson joined the Penn Memory Center (PMC) as part of the Summer Training in Aging Research (STAR) program. Under the mentorship of Katheryn Cousins, PhD, she explored how biological age relates to plasma biomarkers linked to Alzheimer's disease. During her internship, Johnson combined research, lectures, and clinical shadowing, gaining hands-on experience in aging and memory research.

"One thing I will say about the STAR program is that you're in very capable hands of professionals who will be able to guide you through every step," Johnson said. "It is an amazing opportunity to be around such wise and experienced individuals."

Building on her strong performance as a STAR intern, Johnson officially joined PMC in February as a clinical research coordinator for the Anti-amyloid Therapy Monitoring (ATM) study. In this role, she has learned to process blood samples, recruit participants, and work closely with clinicians—all while connecting with patients.

"Penn is my dream," Johnson said, as she looks ahead to applying to medical school and continuing her work in Alzheimer's research.

SOURCE: MEGHAN MCCARTHY, PENN MEMORY CENTER, "FARRADAY JOHNSON'S PATH FROM STAR INTERN TO PMC COORDINATOR," PENN MEMORY CENTER, APRIL 23, 2025

RESEARCH HIGHLIGHT

Clinical criteria for limbic-predominant age-related TDP-43 encephalopathy

In a recent publication authored by IOA Co-director **David A. Wolk, MD**, he and his team outline the first clinical diagnostic criteria for limbic-predominant age-related TDP-43 encephalopathy (LATE), a common but under-recognized cause of memory loss in older adults. Often mistaken for Alzheimer's disease, LATE is linked to abnormal TDP-43 protein accumulation rather than amyloid pathology. The proposed criteria help distinguish LATE from Alzheimer's by identifying specific patterns of memory decline, hippocampal shrinkage, and amyloid biomarker status. This important step forward lays the foundation for improving diagnosis, refining clinical trials, and developing targeted treatments for age-related memory disorders.

SOURCE: WOLK DA, NELSON PT, APOSTOLOVA I, ET AL. CLINICAL CRITERIA FOR LIMBIC-PREDOMINANT AGE-RELATED TDP-43 ENCEPHALOPATHY. ALZHEIMER'S DEMENT. 2025; 21:E14202. HTTPS://DOI.ORG/10.1002/ALZ.14202

MISSION

The mission of the Institute on Aging (IOA) at the University of Pennsylvania is to improve the health of older adults by increasing the quality and quantity of clinical and basic research as well as educational programs focusing on normal aging and aging-related diseases across the entire Penn campus.

CONTACT

Scan the QR to contact or connect with the IOA on Facebook, X, and more.

The Spring/Summer 2025 Newsletter is pictured above and can be downloaded on the IOA website.

AWARDS & ACCOLADES

We proudly celebrate all of our IOA Members on their recent achievements and honors

Edward B. Lee, MD, PhD, Named President of the American Association of Neuropathologists
Edward (Eddie) B. Lee, MD, PhD, Professor of Pathology & Laboratory Medicine at the University of Pennsylvania and Co-Director of the IOA, has been named President of the American Association of Neuropathologists for 2024–2025. In this role, Dr. Lee will help guide the association's efforts to advance research, education, and collaboration in the field of neuropathology.

David Wolk, MD, to Serve on ADRC Executive Committee
Dr. Wolk will serve a three-year term on the ADRC Executive Committee, as well as a three-year term on the National Alzheimer's Coordinating Center Steering Committee, ending Fall 2027.

Virginia M.Y. Lee, PhD, Elected to National Academy of Sciences
Virginia M.Y. Lee, PhD, Director of Penn's Center for Neurodegenerative Disease Research (CNDR), has been elected to the National Academy of Sciences, one of the highest honors in science. She is recognized for her groundbreaking research in neurodegenerative diseases.

Jina Ko, PhD receives the 2025 National Science Foundation (NSF) CAREER Award
Jina Ko, PhD a professor of bioengineering in Penn Engineering and of pathology and laboratory medicine in the Perelman School of Medicine, was awarded the 2025 National Science Foundation (NSF) CAREER Award for her expertise across bioengineering, molecular biology, and chemistry in developing transformative technologies for molecular diagnostics of diseases, especially with respect to how brain-related conditions are diagnosed and treated.

John Detre, MD, Receives International Society for Magnetic Resonance Medicine's Gold Medal Award
John Detre, MD, Professor of Neurology and Radiology at the Perelman School of Medicine, has received the 2025 Gold Medal Award from the International Society for Magnetic Resonance Medicine. According to the ISMRM, this award recognizes Dr. Detre's "pioneering and enduring contributions to the development of arterial spin labeled (ASL) perfusion MRI and its applications in basic and clinical neuroscience."

J. Margo Brooks Carthon, PhD, RN, FAAN, receives the 18th Claire M. Fagin Distinguished Researcher Award
This award honors outstanding individuals who have made a profound impact in advancing the nursing profession and improving healthcare practices through research and leadership.

Catherine Auriemma, MD, MSHP receives Donald B. Martin Teaching Award
Catherine Auriemma, MD, MSHP, Assistant Professor if Pulmonary and Critical Cre Medicine at the Hospital of the University of Pennsylvania, received Penn Medicine's 2025 Donald B. Martin Teaching Award. The Donald B. Martin Teaching Award is one of the highest teaching achievements in graduate medical education at the University of Pennsylvania. Selected based on resident votes and overall teaching evaluations, the award reflects dedication, passion, and commitment to teaching. Additionally, Dr. Auriemma was named a Visiting Professor in the Division of Pulmonary and Critical Care at Brigham and Women's Hospital and received funding for a new grant, Refining and testing a values clarification tool for persons with dementia, from the Penn Alzheimer's Disease Research Center Developmental Projects.

AWARDS & ACCOLADES CONT'D.

Lisa M. Walke, MD, MSHA, AGSF receives the Geriatrics Workforce Enhancement Program (GWEP) award

Dr. Walke received the GWEP award in July 2024. This award is a federal grant program administered by the Health Resources and Services Administration (HRSA) to enhance the healthcare workforce's ability to care for older adults. Additionally, Dr. Walke was promoted to William Maul Measey–Truman G. Schnabel, Jr., MD Professor of Geriatric Medicine and Gerontology at the University of Pennsylvania.

David Irwin, MD, elected as Chair-elect for the Scientific Advisory Council of the Lewy Body Dementia Association and to Board of Directors for the International Society for Frontotemporal Dementias

David Irwin, MD, Associate Professor of Neurology, was elected as the Chair-elect for the Scientific Advisory Council of the Lewy Body Dementia Association (LBDA SAC). The LBDA SAC members are internationally recognized leaders in LBD research and clinical management. Additionally, Dr. Irwin was elected to the board of directors for the International Society for Frontotemporal Dementias as the Chair-elect for Program & Site, Selection Committee. He was also the Scientific lead/co-Chair at the the FTD subcommittee in the 2025 Alzheimer's Disease-Related Dementias (ADRD) Summit. Dr. Irwin has also received funding for a new R01: Glial-mediated Inflammation and Iron Accumulation in Frontotemporal Dementia R01-AG-090414.

Yanxiang Deng, PhD, receives Rising Star Award at 2025 Biomedical Engineering Society (BMES) Cellular and Molecular Bioengineering (CMBE) Conference

Yanxiang Deng, PhD, Assistant Professor of Pathology and Laboratory Medicine, received a Rising Star Award at this year's CMBE Conference. This award recognizes a Cellular and Molecular Bioengineering Special Interest Group (CMBE-SIG) member in the early independent career stage that has made an outstanding impact on the field of cellular and molecular bioengineering.

Christos Davatzikos, PhD receives Senior Scientist de Leon Prize in Neuroimaging at the Alzheimer's Association International Conference (AAIC) 2025

Dr. Davatzikos received the Senior Scientist de Leon Award at this year's AAIC for his 2024 paper "Brain aging patterns in a large and diverse cohort of 49,482 individuals" published in Nature Medicine. The de Leon Prizes in Neuroimaging have recognized scientists judged to have published "best papers" in the field of neuroimaging of neurodegenerative processes. Additionally, Dr. DAvatziko's received the Annual Nathan W. Shock Award Lecture from the National Institute on Aging.

This list represents a selection of recent achievements shared with us by IOA members over the past few months and is not a comprehensive account of all member accomplishments.

WAYS TO GET INVOLVED

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CONTACT

INSTITUTE ON AGING
UNIVERSITY OF PENNSYLVANIA

aging@pennmedicine.upenn.edu

215-898-7801

www.med.upenn.edu/aging

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