2017 Beeson Annual Meeting
Program Book
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2017 ANNUAL MEETING

HYATT REGENCY
TAMAYA RESORT AND SPA

NOVEMBER 15 – 18, 2017
AGENDA

WEDNESDAY, NOVEMBER 15, 2017

4:00 p.m.  Hotel Check-in Time

4:45 – 5:45 p.m.  Registration / Reception
Tamaya Prefunction

5:45 – 7:00 p.m.  WELCOME AND KEYNOTE ADDRESS
Tamaya E

WELCOME AND KEYNOTE ADDRESS

Thomas Gill, MD
Professor of Medicine and Professor of Epidemiology
Yale School of Medicine and
Chair, Beeson Program Advisory Committee; 1997 Beeson Scholar

Mark Lachs, MD, MPH
President, AFAR
Psaty Distinguished Professor of Medicine,
Weill Cornell Medical College; 1995 Beeson Scholar

Marie Bernard, MD
Deputy Director, National Institute on Aging

INTRODUCTION OF NEW SCHOLARS AND TRAVEL Awardees

KEYNOTE ADDRESS:

Delirium in Older Persons: My Investigative Journey

Sharon K. Inouye, MD, MPH
Director, Aging Brain Center, Institute for Aging Research, Hebrew SeniorLife
Milton and Shirley F. Levy Family Chair
Professor of Medicine, Harvard Medical School, Beth Israel Deaconess Medical Center

7:00 – 9:00 p.m.  DINNER
Tamaya E
THURSDAY, NOVEMBER 16, 2017

7:00 – 9:00 a.m.  
**BREAKFAST**  
Wolf

8:00 – 9:00 a.m.  
**SPEED NETWORKING**  
(Tamaya ABC)  
(Note: Only for current Scholars, travel awardees, and other attendees who previously signed up for this session)

**Introduction: Stacie Deiner, MD**  
Icahn School of Medicine at Mount Sinai

Have you ever left a meeting wishing you could have met more people, realizing most people you met you already know? Well, then this event is for you! Meeting colleagues from other disciplines can spark a new research idea or open the door to a solution to a problem that has seemed intractable. Each ‘meeting’ is no longer than 3 minutes, and each person should answer these questions:

1. What is your top research interest?  
2. What expertise are you looking for in a research partner?  
3. What can you offer a research partner?

9:00 – 9:15 a.m.  
**BREAK**

9:15 – 10:45 a.m.  
**BUILDING AND MANAGING A SUCCESSFUL RESEARCH TEAM: WHAT TO LOOK FOR AND WHAT TO AVOID**  
(Tamaya ABC)

**Introduction: Anthony Rosen, MD, MPH**  
Weill Cornell Medical College

This session will focus on how to manage a research group or lab. We will discuss conflict instruments, leadership training, logistics of managing a budget, hiring and managing personnel. The main session will discuss general principles, followed by two breakout sessions (clinical focus and basic research focus) lead by Beeson alumni.

**Christopher Callahan, MD**  
Pettinga Professor in Aging Research, Director, Indiana University Center on Aging Research; Investigator, Regenstrief Institute

**BREAKOUT SESSIONS:**

*Clinical Research Focus:*
**Consuelo Wilkins, MD,** and **Sanjay Asthana, MD,** Discussants  
Main Meeting Room, Tamaya ABC

*Basic Research Focus:*
**Jonathan Wanagat, MD, PhD,** and **Ray Yung, MD,** Discussants  
Meeting Room – Badger BC

10:45 – 11:15 a.m.  
**BREAK**
11:15 a.m. – 12:15 p.m.
Tamaya ABC

GRADUATING SCHOLARS PRESENTATIONS: GROUP 1

Introduction: Itamar Abrass, MD
University of Washington School of Medicine

Jon Wanagat, MD, PhD
Assistant Professor, University of California, Los Angeles

Stephen Thielke, MD
Associate Professor, University of Washington

Bill Ehlenbach, MD
Assistant Professor, University of Wisconsin

12:15 – 1:15 p.m.
Wolf

LUNCH

1:15 – 3:00 p.m.
FREE TIME / MENTORING ACTIVITIES
Note: A private session is scheduled for the NIA staff and travel awardees in the Elk Room

3:15 – 5:00 p.m.
DATA BLITZ!
The academic equivalent of speed dating – a fast-track vehicle to understand research and possible synergies with others. Each session involves a research theme, with current scholars each presenting their research in five minutes or less – the time limit will be strictly enforced. Groups will be arranged by content area (assignments are in program booklet).

Group 1: Wolf A
Group 2: Wolf B
Group 3: Wolf C
Group 4: Badger A

5:00 – 7:00 p.m.
Tamaya D

POSTER SESSION AND RECEPTION
Note: Please remove your poster at the conclusion of the session.

5:00 – 5:15  Set-up and general viewing
5:15 – 6:00  Small group poster viewing with 2016 Scholars (Posters 1 - 8). Discussant Jean Kutner
6:00 – 6:30  Odd numbers attend their poster
6:30 – 7:00  Even numbers attend their poster

7:00 – 9:00 p.m.
Tamaya ABC

DINNER
FRIDAY, NOVEMBER 17, 2017

7:00 – 9:00 a.m.  
**BREAKFAST**
Note: A private breakfast meeting for the Program Advisory Committee and other invited participants will be held in Puma BC from 7:30 – 8:45 a.m.

9:00 – 10:00 a.m.  
**GRADUATING SCHOLARS PRESENTATIONS: GROUP 2**  
Introduction: Alison Moore, MD  
University of California, San Diego

Dan Matlock, MD, MPH  
Associate Professor, University of Colorado Anschutz Medical Campus

Duke Han, PhD  
Associate Professor, University of Southern California

Amy Kelley, MD  
Associate Professor, Icahn School of Medicine at Mount Sinai

10:00 – 11:30 a.m.  
**FUNDING SESSION – LITTLE KNOWN K AWARDS AND OTHER NIH MECHANISMS**  
Introduction: Margaret Fang, MD  
University of California, San Francisco

This session revolves around lesser-known NIH mechanisms such as the more senior awards K24, K07 & K02, and NIA Diversity, Disability, and Re-Entry Supplement Programs – what does it take to get one of these awards?

Robin Barr, DPhil  
Director, Division of Extramural Activities, NIA

Panelists:

Kenneth Covinsky, MD  
Professor, University of California, San Francisco School of Medicine

Kristine Yaffe, MD  
Professor of Psychiatry, Neurology and Epidemiology,  
Roy and Marie Scola Endowed Chair, Vice Chair of Research in Psychiatry,  
University of California, San Francisco School of Medicine

11:30 a.m. – 12:00 p.m.  
**BREAK**

12:00 – 1:00 p.m.  
**GRADUATING SCHOLARS PRESENTATIONS: GROUP 3**  
Introduction: Tom Gill, MD  
Yale School of Medicine

Steven Prior, PhD  
Adjunct Associate Professor, University of Maryland

Alex Smith, MD  
Associate Professor, University of California, San Francisco

Vivek Prabhakaran, MD, PhD  
Associate Professor, University of Wisconsin
1:00 – 2:30 p.m.  
Wolf

LUNCH – CONSULTANCIES AND AIMS PAGE WORKSHOPS (SIGN-UP ONLY)

Consultancy Group 1: Hawk A  
Consultancy Group 2: Hawk B  
Aims Page Workshop: Hawk C

2:30 – 6:30 p.m.

FREE TIME/ MENTORING ACTIVITIES

6:30 – 9:00 p.m.  
Cottonwoods

DINNER AT PAVILION

Meet in the lobby at 6 pm for shuttle to the Cottonwoods.  
If you prefer, it is a short walk from the hotel, but it will be dark going back,  
and there are coyotes and rattlesnakes!

Enjoy after dinner s’mores and wine around the fire pits at Cottonwoods.  
Camp songs optional.

SATURDAY, NOVEMBER 18, 2017

7:00 – 8:30 a.m.  
Wolf

BREAKFAST

8:30 a.m.

ADJOURN

11:00 a.m.

HOTEL CHECK-OUT TIME
Hyatt Regency Tamaya

DIRECTIONS
From the Airport: Take Sunport Blvd. West to I-25. Go North on I-25 to Exit 242 (US550). Go West on US550 to Tamaya Blvd. (approx. 2.5 miles). Go North (right) on Tamaya Blvd. to Tuyuna Trail. (approx. 2.4 miles). East (right) on Tuyuna Trail.
Hyatt Regency Tamaya Resort & Spa Facility Map

- The Cottonwoods Pavilion
- The Hummingbird Garden
Paul B. Beeson Emerging Leaders Career Development Awards in Aging Program

The Program is sponsored by:

Atlantic Philanthropies (USA), www.atlanticphilanthropies.org

Administered by:

American Federation for Aging Research, www.afar.org

The Meeting is sponsored by:

The John A. Hartford Foundation and The National Institute on Aging*

* Funding for this meeting was made possible, in part, by 1 R13AG058415-01 from the National Institute on Aging. The views expressed in written meeting materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government.
### Program Advisory Committee Mentor Assignments

<table>
<thead>
<tr>
<th>Committee</th>
<th>Thursday, Nov 16 1:15 - 2:15 pm</th>
<th>Thursday, Nov 16 2:15 - 3:15 pm</th>
<th>Friday, Nov 17 2:30 - 3:30 pm</th>
<th>Friday, Nov 17 3:30 - 4:30 pm</th>
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<tbody>
<tr>
<td>Where to meet</td>
<td>Hotel Lobby</td>
<td>Hotel Lobby</td>
<td>Hotel Lobby</td>
<td>Hotel Lobby</td>
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<tr>
<td>Liana Apostolova</td>
<td>Makoto Ishii</td>
<td>Brendan Lucey</td>
<td>Ana Pereira</td>
<td>Jonathan Graff-Radford</td>
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<tr>
<td>Ken Covinsky</td>
<td>Kasia Lipska</td>
<td>Zara Cooper</td>
<td>Hillary Lum</td>
<td>X</td>
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<tr>
<td>Wes Ely</td>
<td>Stacey Deiner</td>
<td>May Hua</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Tom Gill</td>
<td>Jennifer Lai</td>
<td>Kathleen Unroe</td>
<td>Tony Rosen</td>
<td>Dae Hun Kim</td>
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<tr>
<td>Alison Moore</td>
<td>Nathan Brummel</td>
<td>Raquel Gardner</td>
<td>Donavan Maust</td>
<td>Lauren Ferrante</td>
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<tr>
<td>Consuelo Wilkins</td>
<td>Charles Brown</td>
<td>Caroline Stephens</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Kristine Yaffe</td>
<td>Kelly Trevino</td>
<td>Katherine Gifford</td>
<td>Miles Berger</td>
<td>X</td>
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<tr>
<td>Raymond Yung</td>
<td>John Newman</td>
<td>Sofya Milman</td>
<td>Phillip Smith</td>
<td>Andrew Teich</td>
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</tbody>
</table>

2013 Scholars have not been assigned to mentors. Contact mentors directly to arrange to meet at other times during the meeting.

### Assignments

One of the features of the Beeson Program is that we match current scholars with members of the program committee. One of the roles of the members of the Program Committee is to serve as external mentors to the Beeson Scholars. This is an informal mentorship and will give active Scholars the opportunity to discuss career and research issues with another senior investigator in aging research outside his/her own institution. Most of the interactions will be at this meeting, but Scholars may also call on this external mentor during the Beeson Award. Assignments are listed above (note this sheet has two tabs, assignments per mentor, and assignments per scholar.)

Please meet during the time and day that are listed above. We have tried to make sure there is no conflict with travel itineraries. If for some reason you cannot attend the scheduled session, or if you have any questions, please contact your assigned scholar or mentor.

We were not able to assign everyone a time, so if you wish, you can contact your assigned mentor/scholar directly.

11/7/2017
<table>
<thead>
<tr>
<th>2013 Scholars</th>
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<tbody>
<tr>
<td>Betz, Marian</td>
<td>University of Colorado Denver</td>
<td>Physician Screening of Older Drivers: Decision Rules for Geriatric Injury Prevention</td>
<td>Jean Kutner</td>
</tr>
<tr>
<td>Fung, Constance</td>
<td>UCLA David Geffen School of Medicine</td>
<td>Improving Older Adults' Decision Making for Obstructive Sleep Apnea Treatment</td>
<td>Ken Covinsky</td>
</tr>
<tr>
<td>Hu, William</td>
<td>Emory University</td>
<td>Early CSF detection of FTLD</td>
<td>Liana Apostolova</td>
</tr>
<tr>
<td>Kramer, Daniel</td>
<td>Hebrew Rehabilitation Center</td>
<td>Patient-Centered Outcomes of Implantable Defibrillator Therapy in Older Patients</td>
<td>Tom Gill/SCHOLAR NOT ATTENDING</td>
</tr>
<tr>
<td>Okonkwo, Ozioma</td>
<td>The University of Wisconsin</td>
<td>Early detection of asymptomatic middle-age adults at risk for AD</td>
<td>Liana Apostolova</td>
</tr>
<tr>
<td>Peterson, Janey</td>
<td>Weill Cornell Medical College</td>
<td>INSPIRE: Intervention to Support Participation in Regular Exercise in the Elderly</td>
<td>Jean Kutner</td>
</tr>
<tr>
<td>Prabhakaran, Vivek</td>
<td>University of Wisconsin - Madison</td>
<td>Stroke Plasticity</td>
<td>Wes Ely</td>
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<tr>
<th>2014 Scholars</th>
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<tbody>
<tr>
<td>Dharmarajan, Kumar</td>
<td>Yale University School of Medicine</td>
<td>Geriatric Conditions and Readmission after Acute Myocardial Infarction</td>
<td>Ken Covinsky/SCHOLAR NOT ATTENDING</td>
</tr>
<tr>
<td>Hiniker, Anne</td>
<td>University of California, San Francisco</td>
<td>Chemical-Genetic Approaches to Define Lrrk2 Kinase Function in Parkinson Disease</td>
<td>Raymond Yung/SCHOLAR NOT ATTENDING</td>
</tr>
<tr>
<td>Lai, Jennifer</td>
<td>University of California, San Francisco</td>
<td>Frailty and Functional Status in Older Liver Transplant Patients</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Lipska, Kasia</td>
<td>Yale University</td>
<td>Predicting Severe Hypoglycemia among Older Adults with Diabetes</td>
<td>Ken Covinsky</td>
</tr>
<tr>
<td>Maust, Donovan</td>
<td>University of Michigan</td>
<td>Preventable Hospitalization in Dementia: The Impact of Neuropsychiatric Symptoms</td>
<td>Alison Moore</td>
</tr>
<tr>
<td>Newman, John</td>
<td>University of California San Francisco</td>
<td>Epigenetic regulation of healthspan and longevity by ketone bodies</td>
<td>Raymond Yung</td>
</tr>
<tr>
<td>Trevino, Kelly</td>
<td>Weill Cornell Medical College</td>
<td>Anxiety With Cancer in the Elderly (ACE): A Cognitive-Behavioral Intervention</td>
<td>Kristine Yaffe</td>
</tr>
<tr>
<td>Uhroe, Kathleen</td>
<td>Indiana University</td>
<td>Delivering Hospice and Palliative Care Services to Nursing Home Patients</td>
<td>Tom Gill</td>
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<thead>
<tr>
<th>2015 Scholars</th>
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<tbody>
<tr>
<td>Kim, Dae Hun</td>
<td>Brigham and Women's Hospital</td>
<td>Development and Validation of a Frailty Index Using Claims Data for Pharmacoepidemiologic Studies in Older Adults</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Gifford, Katherine</td>
<td>Vanderbilt University</td>
<td>Cognitive Complaints in Aging Adults</td>
<td>Kristine Yaffe</td>
</tr>
<tr>
<td>Deiner, Stacie</td>
<td>Icahn School of Medicine at Mount Sinai</td>
<td>Optimizing postoperative cognition in the elderly</td>
<td>Wes Ely</td>
</tr>
<tr>
<td>Ishii, Makoto</td>
<td>Weill Cornell Medical College</td>
<td>Pathobiology of Hypothalamic and Metabolic Dysfunction in Normal Aging and Alzheimer's Disease</td>
<td>Liana Apostolova</td>
</tr>
<tr>
<td>Gardner, Raquel</td>
<td>University of California, San Francisco</td>
<td>Traumatic Brain Injury and The Aging Brain: Predictors of Clinical Trajectories</td>
<td>Alison Moore</td>
</tr>
<tr>
<td>Hua, May</td>
<td>Columbia University Health Sciences</td>
<td>Determinants of Critical Care Intensity for Hospitalized Older Adults: the effect of hospital-based palliative care services</td>
<td>Wes Ely</td>
</tr>
<tr>
<td>Milman, Sofya</td>
<td>Albert Einstein College of Medicine</td>
<td>Effect of longevity genomes on the GH/IGF-1 phenotype and disease-free survival</td>
<td>Raymond Yung</td>
</tr>
<tr>
<td><strong>2016 Scholars</strong></td>
<td>Vanderbilt University</td>
<td>LONG TERM OUTCOMES OF PHYSICAL Activity in Older Adults with Critical Illness</td>
<td>Alison Moore</td>
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<tr>
<td>Cooper, Zara</td>
<td>Harvard Medical School</td>
<td>BEYOND 30-DAYS: Patient-Oriented Outcomes among Older Adults after Emergency General Surgery</td>
<td>Ken Covinsky</td>
</tr>
<tr>
<td>Linos, Eleni</td>
<td>University of California San Francisco</td>
<td>INVOLVING OLDER ADULTS IN DECISION MAKING FOR SKIN CANCER</td>
<td>Jean Kutner/SCHOLAR NOT ATTENDING</td>
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<tr>
<td>Lucey, Brendan</td>
<td>Washington University School of Medicine</td>
<td>SLEEP QUALITY AND HUMAN AMYLOID-BETA KINETICS</td>
<td>Liana Apostolova</td>
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<tr>
<td>Lum, Hillary</td>
<td>University of Colorado Denver</td>
<td>REFINING AN ADVANCE CARE PLANNING GROUP VISIT INTERVENTION? A NOVEL INTERVENTION TO ENGAGE</td>
<td>Consuelo Wilkins</td>
</tr>
<tr>
<td>Pereira, Ana</td>
<td>Rockefeller University</td>
<td>ENHANCING GLUTAMATE TRANSPORT IN AGE-RELATED COGNITIVE DECLINE AND ALZHEIMER'S DISEASE</td>
<td>Liana Apostolova</td>
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<tr>
<td>Rosen, Anthony</td>
<td>Weill Cornell Medical College</td>
<td>IDENTIFYING INJURY PATTERNS AND FORENSIC BIOMARKERS DIAGNOSTIC OF PHYSICAL ELDER ABUSE</td>
<td>Tom Gill</td>
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<td>Smith, Phillip</td>
<td>University of Connecticut</td>
<td>REGULATORY MECHANISMS IN A HOMEOSTATIC MODEL OF GERIATRIC VOIDING PROBLEMS AND INCONTINENCE</td>
<td>Raymond Yung</td>
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<tr>
<td>Teich, Andrew</td>
<td>Columbia University Health Sciences</td>
<td>AN INTEGRATIVE ANALYSIS OF DNA METHYLATION; TRANSCRIPTOMIC CHANGES; AND COGNITIVE</td>
<td>Raymond Yung</td>
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<tr>
<th><strong>2017 Scholars</strong></th>
<th>Duke University Medical Center</th>
<th>Neuro-inflammation in postoperative cognitive dysfunction: CSF and fMRI studies</th>
<th>Kristine Yaffe</th>
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<tr>
<td>Graff-Radford, Jonathan</td>
<td>Mayo Clinic</td>
<td>Cerebral Microbleeds in the Aging Population</td>
<td>Liana Apostolova</td>
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<td>Brown, Charles</td>
<td>Johns Hopkins University</td>
<td>Monitoring Cerebral Autoregulation in Patients Undergoing Traumatic Hip Fracture Surgery to Improve Postoperative</td>
<td>Consuelo Wilkins</td>
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<tr>
<td>Ferrante, Lauren</td>
<td>Yale University</td>
<td>The PREDICT Study (PRE-ICU Determinants of Post-ICU Functional Outcomes among Older Adults).</td>
<td>Alison Moore</td>
</tr>
<tr>
<td>Stephens, Caroline</td>
<td>University of California, San Francisco</td>
<td>Improving Palliative Care Access through Technology (ImPaCtT): A Multi-Component Pilot Study.</td>
<td>Consuelo Wilkins</td>
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<tr>
<td>First</td>
<td>Last</td>
<td>Institution</td>
<td>Project</td>
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<td>Charles</td>
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<td>Zara</td>
<td>Cooper</td>
<td>Harvard Medical School</td>
<td>Beyond 30-Days: Patient-Oriented Outcomes Among Older Adults After Emergency General Surgery</td>
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<tr>
<td>Scott</td>
<td>Dresden</td>
<td>Northwestern University</td>
<td>Improving care in the emergency department for older adults.</td>
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<tr>
<td>Lauren</td>
<td>Ferrante</td>
<td>Yale University</td>
<td>The PREDICT Study (PRE-ICU Determinants of Post-ICU FunCTional Outcomes among Older Adults).</td>
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<tr>
<td>Lauren</td>
<td>Gerlach</td>
<td>University of Michigan</td>
<td>Psychotropic Medication Use Among Older Adults</td>
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<td>Rasheeda</td>
<td>Hall</td>
<td>Duke University</td>
<td>Assessing Resilience in Older Dialysis Patients</td>
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<td>Veerawat</td>
<td>Phongtangkuel</td>
<td>Weill Medical College of Cornell University</td>
<td>Improving Perioperative Outcomes for Older Adults</td>
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<td>Heather</td>
<td>Whitson</td>
<td>Duke University</td>
<td>Developing Interventions to Improve Function in Seniors with Comorbid Conditions</td>
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<tr>
<td>Katrina</td>
<td>Abuabara</td>
<td>UCSF</td>
<td>patient-oriented research on chronic inflammatory skin disease.</td>
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<tr>
<td>Marian</td>
<td>Betz</td>
<td>University of Colorado School of Medicine</td>
<td>Physician Screening of Older Drivers: Decision Rules for Geriatric Injury Prevention</td>
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<tr>
<td>Nathan</td>
<td>Brummel</td>
<td>Vanderbilt University</td>
<td>Long Term Outcomes of Physical Activity in Older Adults with Critical Illness</td>
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<tr>
<td>Jane</td>
<td>Jih</td>
<td>UCSF</td>
<td>Reduce health disparities by developing and evaluating innovative, patient-centered tools that lead to improved patient-centered and health outcomes</td>
</tr>
<tr>
<td>Matthew</td>
<td>O'Connell</td>
<td>Trinity College</td>
<td>Novel physiological determinants of functional decline across Ireland</td>
</tr>
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<td>Janey</td>
<td>Peterson</td>
<td>Joan &amp; Sanford I Weill Medical College of Cornell University</td>
<td>INSPIRE: Intervention to Support Participation in Regular Exercise in the Elderly</td>
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<td>Anthony</td>
<td>Rosen</td>
<td>Weill Cornell Medical College</td>
<td>Identifying Injury Patterns and Forensic Biomarkers Diagnostic of Physical Elder Abuse</td>
</tr>
<tr>
<td>Caroline</td>
<td>Stephens</td>
<td>UCSF</td>
<td>Improving Palliative Care Access through Technology (ImPacTT): A Multi-Component Pilot Study.</td>
</tr>
<tr>
<td>First</td>
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<td>Institution</td>
<td>Project</td>
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<tr>
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<tr>
<td>Stacie</td>
<td>Deiner</td>
<td>Icahn School of Medicine at Mount Sinai</td>
<td>Optimizing postoperative cognition in the elderly</td>
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<tr>
<td>Raquel</td>
<td>Gardner</td>
<td>University of California, San Francisco</td>
<td>Traumatic Brain Injury and The Aging Brain: Predictors of Clinical Trajectories</td>
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<tr>
<td>Katherine</td>
<td>Gifford</td>
<td>Vanderbilt University</td>
<td>Cognitive Complaints in Aging Adults</td>
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<td>Jonathan</td>
<td>Graff-Radford</td>
<td>Mayo Clinic</td>
<td>Cerebral Microbleeds in the Aging Population</td>
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<tr>
<td>Hillary</td>
<td>Lum</td>
<td>University of Colorado Denver</td>
<td>Refining an Advance Care Planning Group Visit Intervention? A Novel Intervention to Engage Older Adults in Advance Care</td>
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<td>Donovan</td>
<td>Maust</td>
<td>University of Michigan</td>
<td>Preventable Hospitalization in Dementia: The Impact of Neuropsychiatric Symptoms</td>
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<tr>
<td>Claire</td>
<td>McEvoy</td>
<td>Queens University Belfast</td>
<td>Mediterranean diet and cognitive decline - strengthening the evidence base and encouraging behaviour change</td>
</tr>
<tr>
<td>Ozioma</td>
<td>Okonkwo</td>
<td>The University of Wisconsin</td>
<td>Early detection of asymptomatic middle-age adults at risk for AD</td>
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<tr>
<td>Kelly</td>
<td>Trevino</td>
<td>Weill Medical College of Cornell University</td>
<td>Anxiety With Cancer in the Elderly (ACE): A Cognitive-Behavioral Intervention</td>
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<tr>
<td>Kathleen</td>
<td>Unroe</td>
<td>Indiana University</td>
<td>Delivering Hospice and Palliative Care Services to Nursing Home Patients</td>
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<tr>
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<tr>
<td>William</td>
<td>Hu</td>
<td>Emory University</td>
<td>Early cerebrospinal fluid (CSF) detection of Frontotemporal lobar degeneration (FTLD)</td>
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<td>Makoto</td>
<td>Ishii</td>
<td>Weill Medical College of Cornell University</td>
<td>Pathobiology of Hypothalamic and Metabolic Dysfunction in Normal Aging and Alzheimer’s Disease</td>
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<td>Brendan</td>
<td>Lucey</td>
<td>Washington University School of Med</td>
<td>Sleep Quality and Human Amyloid-Beta Kinetics</td>
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<td>Sofiya</td>
<td>Milman</td>
<td>Albert Einstein College of Medicine</td>
<td>Effect of longevity genomes on the GH/IGF-1 phenotype and disease-free survival</td>
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<tr>
<td>John</td>
<td>Newman</td>
<td>University of California San Francisco</td>
<td>Environment, epigenetics, and diseases of aging in mice (and people)</td>
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<tr>
<td>Alexander</td>
<td>Panda</td>
<td>Tufts University School of Medicine</td>
<td>Age associated defects in localization and trafficking of Toll-like receptor 1</td>
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<tr>
<td>Ana</td>
<td>Pereira</td>
<td>Rockefeller University</td>
<td>Enhancing Glutamate Transport in Age-related Cognitive Decline and Alzheimer’s Disease</td>
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<tr>
<td>Andrew</td>
<td>Teich</td>
<td>Columbia University Health Sciences</td>
<td>An Integrative Analysis of DNA Methylation; Transcriptomic Changes; and Cognitive Dysfuction in Alzheimer’s Disease</td>
</tr>
<tr>
<td>Phillip</td>
<td>Smith</td>
<td>University of Connecticut</td>
<td>Regulatory Mechanisms in a Homeostatic Model of Geriatric Voiding Problems and Incontinence</td>
</tr>
</tbody>
</table>
Consultancies
Friday, November 17, 1:00 - 2:30 pm

Room: Hawk A
Group 1 Anne Kenny
Charles Brown Johns Hopkins University
Rasheeda Hall Duke University
Tony Rosen Cornell
William Hu Emory
Makoto Ishii Cornell
Andrew Teich Columbia

Room: Hawk B
Group 2 Sean Morrison
May Hua Columbia
Donovan Maust University of Michigan
Jane Jih UCSF
Nathan Brummel Vanderbilt
Lauren Ferrante Yale
Kelly Trevino Cornell

Other Attendees
Emily Finlayson UCSF
Fred Blow University of Michigan
Arleen Brown UCLA

How a Consultancy Session works:
This is a popular and effective group problem-solving activity known as a “consultancy.” This is structured to enable a set of people with a variety of knowledge and expertise to provide support, new perspectives, and ideas to one another, particularly around an important or difficult challenge.

Each Scholar will get approximately 10 minutes. Each Scholar will have 2-3 minutes or so to present what he/she views as the major career challenge he/she is facing (or will soon face). This may include, but is certainly not limited to:

- Time Management
- Balancing Career and Family
- Strategies for promotion
- Balancing research, clinical, teaching and administrative responsibilities
- Issues related to your lab/team members (supervision, quality control, hiring, firing, disciplinary action, etc.)
- Transitioning relationship with your mentor(s).
- Finding/solidifying your niche, area of expertise

Following each Scholar’s presentation, the group will ask clarifying questions for the next one-two minutes. For the bulk of the remainder of the time, the Scholar will receive feedback and advice from the group. In the last minute or so, the Scholar will then have a chance to respond to the ideas presented.

We will follow a strict timetable, so that each person will have the same opportunity for constructive feedback.
Aims Page Workshop
Room: Hawk C

Moderators: Liana Apostolova, Andrew Goldberg, Mike Steinman

Emmy Betz
Zara Cooper
Connie Fung
Lauren Gerlach
Veerawat Phongtankuel
2017 Beeson Scholars

Miles Berger, MD, PhD, Assistant Professor of Anesthesiology, Duke University Medical Center: Neuro-inflammation in postoperative cognitive dysfunction: CSF and fMRI studies

Charles Brown, MD, Assistant Professor, Johns Hopkins University: Monitoring Cerebral Autoregulation in Patients Undergoing Traumatic Hip Fracture Surgery to Improve Postoperative Outcomes

Lauren Ferrante, MD, Assistant Professor in Medicine, Yale University: The PREDICT Study (PRE-ICU Determinants of Post-ICU FunCTional Outcomes among Older Adults)

Jonathan Graff-Radford, MD, Assistant Professor of Neurology, Mayo Clinic: Cerebral Microbleeds in the aging population

Caroline Stephens RN, PhD, GNP, Associate Professor, University of California, San Francisco: Improving Palliative Care Access through Technology (ImPACTT): A Multi-Component Pilot Study

2017 Travel Awardees

Katrina Abuabara, MD, Assistant Professor, University of California, San Francisco

Scott Dresden, MD, Assistant Professor, Northwestern University

Lauren Gerlach, DO, Clinical Lecturer, University of Michigan

Rasheeda Hall, MD, MBA, Medical Instructor, Duke University

Jane Jih, MD, Assistant Professor, University of California, San Francisco

Veerawat Phongtankuel, MD, Assistant Professor, Weill Cornell Medical College
A. Personal Statement

I am a geriatric neuroanesthesiologist and a translational researcher in postoperative cognitive dysfunction and delirium. My research background is in basic and translational neuroscience and molecular pharmacology; thus, I am fascinated by the neural mechanisms of general anesthesia and post-operative cognitive disorders. Although general anesthesia is typically viewed as a unitary state irrespective of which anesthetic drugs are used, basic science studies in cell culture and animal models suggest specific anesthetic agents act through distinct cellular and molecular mechanisms to produce different brain activity patterns and differential neurotoxicity patterns, including differential effects on Alzheimer’s disease (AD) pathways. To investigate the clinical relevance of these findings, my team conducted the first double blind, randomized controlled trial to examine the effect of propofol versus isoflurane anesthesia on cerebrospinal fluid (CSF) markers of AD, the MAD-PIA study: Markers of Alzheimer’s Disease after Propofol or Isoflurane Anesthesia. Surprisingly, and contrary to our hypothesis, we found no difference between these anesthetics in the postoperative change in the levels of the CSF AD markers amyloid beta (Aβ) or tau (Berger M. et al, JAD, 2016). This highlights the gap between animal model experiments and human clinical practice, and the need for translational human studies.

Nonetheless, independent of anesthetic treatment or surgery type, we found a ~3 fold increase in CSF tau levels and in the tau/Aβ ratio within 24 hours after anesthesia and surgery, into the same ranges for these markers seen in AD patients. This finding suggests that postoperative changes in AD pathology and biomarkers may play an etiologic role in postoperative cognitive dysfunction (POCD) and delirium. To further address this issue, my team has recently completed the Markers of Alzheimer’s Disease and neuroCognitive Outcomes after Perioperative CARE (MADCO-PC) study (clinicaltrials.gov identifier NCT01993836; funded by an IARS mentored research grant, and an NIA R03 GEMSSTAR award). In the MADCO-PC study, we performed cognitive testing and fMRI imaging and obtaining CSF and blood samples both before and after surgery in 108 patients over age 60, and are currently enrolling a matched cohort of age-, sex- and education- matched non-surgical controls (i.e. community dwelling older adults). In performing this study, we have also obtained preliminary data demonstrating that significant central neuroinflammation occurs after non-cardiac, non-neurologic surgery in older adults, which likely plays a role in causing POCD and delirium and related functional brain connectivity changes. Following up this preliminary data is the focus of my current K76 Beeson award.

A. Positions, Employment, Honors

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<tr>
<th>Year</th>
<th>Position/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 1997</td>
<td>Student, International Summer Science Inst., Weizmann Institute for Science, Rehovot, Israel</td>
</tr>
<tr>
<td>1997-01</td>
<td>Undergraduate Student, Columbia College at Columbia University, NY, NY.</td>
</tr>
<tr>
<td>2001-09</td>
<td>Medical Student (MSTP Program), UCSF, San Francisco. SF, CA.</td>
</tr>
<tr>
<td>2003-08</td>
<td>Graduate Student, Biomedical Sciences Graduate Program, UCSF San Francisco, SF, CA.</td>
</tr>
<tr>
<td>2009-10</td>
<td>Transitional Internship, Duke University Medical Center, Durham NC.</td>
</tr>
<tr>
<td>2010-13</td>
<td>Anesthesiology Resident, Duke University Medical Center, Durham NC.</td>
</tr>
<tr>
<td>2009-6/2013</td>
<td>Duke ACES [Academic Career Enrichment Scholars (ACES)] anesthesia research resident</td>
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<tr>
<td>7/2013-6/2014</td>
<td>Medical Instructor/Neuroanesthesiology Faculty Fellow, Duke Anesthesiology Department,</td>
</tr>
<tr>
<td>7/2014-present</td>
<td>Assistant Professor, Duke Anesthesiology Department.</td>
</tr>
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</table>
Other Experience and Professional Memberships

2001-present  Inducted into Phi Beta Kappa
2007-present  Member, Society for Neuroscience (SFN)
2010-present  Member, American Society of Anesthesiology (ASA)
2010-present  Member, Society for Neuroscience in Anesthesiology and Critical Care (SNACC)
8/2016-present  Member, SNACC Research Board
4/11/2014  American Board of Anesthesiology (ABA), Board Certified
8/2014-present  Member, International Anesthesia Research Society (IARS)
8/2014-present  Member, Society for the Advancement of Geriatric Anesthesiology (SAGA)
10/2016-present  Member, SAGA Board
8/2015-present  Member, Alzheimer's Association Perioperative Cognition Professional Interest Group
8/2016-present  Associate Member, Association of University Anesthesiologists (AUA)
6/2016-present  Member, ASA Brain Health Initiative
5/2016-present  Vice President and co-founder, early Stage Anesthesiology Scholars (eSAS)

Honors and Awards:

2001  Phi Beta Kappa, Honors in Biology Major, Magna Cum Laude, Columbia University, NY NY.
2012  2nd Place, Poster Competition, North Carolina Society for Anesthesiology
2012  2nd place, Resident Research Essay Competition, American Society of Anesthesiology Annual Meeting.
2015  Jahnigen Scholar Award, from AGS/Foundation for Anesthesia Education and Research
2016  Butler-Williams Scholar Award, National Institute of Aging
2016  William L. Young Neuroscience Research Award, Soc. for Neurosci. in Anesthesia & Critical Care
2017  Beeson K76 Scholar Award, National Institute of Aging

B. Contributions to Science

My recent work has focused on understanding the pathophysiology of postoperative cognitive dysfunction and delirium, and understanding whether these disorders or anesthesia/surgery exposure are associated with long term changes in dementia risk. I am principle investigator of the MADCO-PC trial (Markers of Alzheimer’s Disease and Cognitive Outcomes after Perioperative Care), which uses functional MRI, CSF AD biomarker studies and neuropsych testing to better understand the pathophysiology of POCD/D, and/or whether perioperative care is associated with changes in Alzheimer’s disease pathology. My colleagues and I have also written several reviews and editorials discussing methodological issues in this area (Berger et al, JCTVA 2014, Berger et al, A&A, 2014; Berger et al, Anesthesiology, 2015).


Completed List of Published Works in MyBibliography: (22 publications total)
NAME: Charles Hugh Brown IV

POSITION TITLE: Assistant Professor; Division of Cardiac Anesthesia

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>Completion Date</th>
<th>FIELD OF STUDY</th>
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<tr>
<td>Harvard University</td>
<td>B.A.</td>
<td>1994-1998</td>
<td>Biology</td>
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<tr>
<td>Johns Hopkins School of Medicine</td>
<td>M.D.</td>
<td>1999-2005</td>
<td>Medicine</td>
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<td>Johns Hopkins Emergency Medicine Residency</td>
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<td>Emergency Medicine</td>
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<tr>
<td>Johns Hopkins Anesthesia and Critical Care Residency</td>
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<td>Anesthesia and Critical Care</td>
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<td>Johns Hopkins Cardiac Anesthesia Fellowship</td>
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<td>Cardiac Anesthesia</td>
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<tr>
<td>Johns Hopkins School of Public Health</td>
<td>M.H.S.</td>
<td>2011–2013</td>
<td>Epidemiology</td>
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A. Research and/or Professional Experience

Employment (Selected)

7/02-6/03 Fellow, Sarnoff Endowment for Cardiovascular Research (Lab director: B. Farese)
7/03-6/04 Staff, U.S. House of Representatives Select Committee on Homeland Security (Chair: J. Gannon)
7/05-6/07 Resident, Johns Hopkins Department of Emergency Medicine (Chair: G. Kelen)
7/07-6/10 Resident, Johns Hopkins Department of Anesthesia and Critical Care (Chair: J. Ulatowski)
7/10-6/11 Fellow, Cardiac Anesthesia, Johns Hopkins Department of Anesthesia and Critical Care (Chair: J. Ulatowski)
7/11-present Assistant Professor, Division of Cardiac Anesthesia, Johns Hopkins. (Chair: C. Koch)
7/17-present Director of Perioperative Clinical Research: Cardiac Anesthesia Division

Honors (Selected)

1998   Academic All-Ivy League in Lacrosse
1998   Harvard nomination for Rhodes Fellowship. Maryland State Interview for Rhodes Fellowship
2015   Selected as an ad hoc reviewer for NIA-N study section
2016   Appointed Vice-Chair of the American Society of Anesthesiologists Abstract Review Subcommittee on Geriatric Anesthesia
2016   Elected Secretary of the Society for the Advancement of Geriatric Anesthesia

B. Publications (Selected)

Overview: The focus of my research is improving outcomes for older adults after surgery. I have focused on optimizing perfusion during surgery, identifying novel risk factors for delirium, and examining interventions.


Link to all publications

C. Research Support (Selected)
Ongoing Research Support
Title: Monitoring Cerebral Autoregulation in Patients Undergoing Traumatic Hip Fracture Surgery to Improve Postoperative Outcomes
Date: 8/15/17-8/14/21
Sponsor: NIH/NIA K-76 AG057020 (Beeson Award)
Role: Principle Investigator: 75% effort

Title: Prevention of Cardiac Surgery Associated Acute Kidney Injury by a Goal-Directed Perfusion Protocol: Pilot Single Center Randomized Clinical Trial
Date: 7/1/2017-6/30/2018
Sponsor: Society for Cardiac Anesthesia /International Anesthesia Research Society Mid Career Grant
Role: Co-investigator 1% effort

Prior Research Support
Sarnoff Endowment for Cardiovascular Research; 7/2002-6/2003; Role: Trainee

KL2 Mentored Career Development Award; 7/2011 – 6/2013; Role: Trainee

RO3 GEMSSTAR; 8/15/2012 – 8/14/2014; Role: PI

Research Career Development Core Award Johns Hopkins OAIC; 7/1/14-6/30/16; Role: PI

International Anesthesia Research Society Career Development Award; 7/1/15-6/30/17; Role: PI
NAME: Lauren Elena Ferrante

eRA COMMONS USER NAME (credential, e.g., agency login): LFERRANTE

POSITION TITLE: Assistant Professor of Medicine, Section of Pulmonary, Critical Care, and Sleep Medicine

EDUCATION/TRAINING

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<tr>
<td>Fairfield University, Fairfield, CT</td>
<td>B.S.</td>
<td>05/2002</td>
<td>Neuroscience</td>
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<tr>
<td>Stony Brook School of Medicine, Stony Brook, NY</td>
<td>M.D.</td>
<td>05/2007</td>
<td>Medicine</td>
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<tr>
<td>Columbia University Medical Center, New York, NY</td>
<td></td>
<td>06/2010</td>
<td>Internal Medicine residency Pulmonary &amp; Critical Care Medicine fellowship</td>
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<tr>
<td>Yale University, New Haven, CT</td>
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<td>06/2015</td>
<td>Geriatrics Research fellowship</td>
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<td>Yale University, New Haven, CT</td>
<td>M.H.S.</td>
<td>05/2016</td>
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A. Personal Statement

My career goal is to become an independent physician-scientist and national leader in geriatric critical care research whose body of work improves the long-term functional outcomes of critically ill older adults. With the increase in ICU survivorship and the aging of our population, the number of older ICU survivors is increasing. Many of these patients suffer from poor long-term outcomes, including disability - yet providers have no way to identify which older ICU patients are at risk of increased disability. Building on my prior work, which elucidated the role of certain pre-ICU vulnerability factors with post-ICU functional outcomes, I plan to develop, validate, and pilot test a predictive tool that can be used in the ICU to identify older adults at risk of increased disability and provide a personal estimate of the expected absolute increase in disability. In addition to providing important point-of-care information to the ICU care team, patients, and families, this study will inform my future work, including a prospective cohort study to test the accuracy of the tool and a subsequent clinical trial testing interventions to improve post-ICU functional outcomes.

My clinical training as a Pulmonary & Critical Care Medicine (PCCM) physician and research training in Geriatric Clinical Epidemiology have positioned me to successfully execute this work and continue my career development as a physician-scientist at the interface of critical care medicine and geriatrics. In addition to my research interests, I am leading efforts to integrate geriatrics into the subspecialties, including my own subspecialty: I co-founded and co-chair the American Thoracic Society (ATS) Critical Care Assembly Aging and Geriatrics Working Group, and also serve as Co-Chair of the American Geriatrics Society (AGS) Medical Subspecialties Section.

With the support of my interdisciplinary mentorship team, and the wealth of resources available to me at Yale, I am looking forward to the next stage of my career development: 5 years of intensive training via a Beeson award. The proposed work and my rigorous career development plan will allow me to transition to a fully independent investigator at the interface of geriatrics and critical care medicine, working to improve the functional outcomes of the 1.4 million older adults who survive a critical illness every year.

B. Selected Positions and Honors

Positions and Employment

6/2011 - 6/2015 Clinical Fellow, Pulmonary and Critical Care Medicine, Yale School of Medicine, New Haven, CT

7/2013 - 6/2015 Research Fellow, Geriatric Clinical Epidemiology and Aging-Related Research, Yale School of Medicine, New Haven, CT
7/2015 - 6/2017  Instructor in Medicine, Section of Pulmonary, Critical Care, and Sleep Medicine, Yale School of Medicine, New Haven, CT

7/2017 - present  Assistant Professor of Medicine, Section of Pulmonary, Critical Care, and Sleep Medicine, Yale School of Medicine, New Haven, CT

**National Leadership Positions**

2015 - present  Co-Chair, Aging and Geriatrics Working Group, American Thoracic Society (ATS) Critical Care Assembly

2016 - present  Co-Chair, American Geriatrics Society (AGS) Medical Subspecialties Section

**Selected Honors and Awards (last 2 years)**

2015  T. Franklin Williams Scholar Award

2015  Top Poster Award, 2015 Claude D. Pepper Older Americans Independence Centers annual meeting, Arlington, VA

2016  AGS/Merck New Investigator Award

2016  Iva Dostanic Physician-Scientist Award, Yale School of Medicine, New Haven, CT

2017  AAMC Early Career Women Faculty Leadership Development Seminar

**C. Contribution to Science (primary)**

My epidemiologic work has focused on understanding the impact of pre-ICU patient-related factors on functional outcomes after a critical illness among older adults. Most critical care studies enroll patients at the time of ICU admission and assess premorbid risk factors retrospectively, leaving large gaps in knowledge regarding the contribution of these premorbid risk factors on post-ICU outcomes. Using data from a unique longitudinal study with monthly functional assessments over more than 16 years, I have been working to unlock the "black box" of the pre-ICU period.


A complete listing of my peer-reviewed bibliography is located at: [http://www.ncbi.nlm.nih.gov/sites/myncbi/16g0lavKxNE5b/bibliography/47188061/public/?sort=date&direction=ascending](http://www.ncbi.nlm.nih.gov/sites/myncbi/16g0lavKxNE5b/bibliography/47188061/public/?sort=date&direction=ascending)

**D. Research Support**

**Current Research Support**

K76 AG057023  Ferrante (PI)  8/15/17 – 5/31/22

Paul B. Beeson Emerging Leaders Career Development Award in Aging

The PREDICT Study (PRE-ICU Determinants of Post-ICU FunCTional Outcomes among Older Adults)

Parker B. Francis Research Opportunity Award - Ferrante (PI)  7/1/17 - 6/30/18

Francis Family Foundation

**Completed Research Support (last 2 years)**

R03 AG050874  Ferrante (PI)  8/15/15 – 5/31/17

Grants for Early Medical/Surgical Subspecialists' Transition to Aging Research (GEMSSTAR)

Yale Pepper Scholar Award  Ferrante (PI of Pepper award)  7/1/15 – 6/30/17

P30 AG021342  Gill (PI)

ATS/AAIM-ASP Career Development Award in Geriatrics  Ferrante (PI)  9/15/15 – 9/14/17
NAME: Graff-Radford, Jonathan

POSITION TITLE: Assistant Professor of Neurology

EDUCATION/TRAINING

<table>
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<td>University of Florida, Gainesville, FL</td>
<td>BS</td>
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<td>Biological and Medical Sciences</td>
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<tr>
<td>University of Florida College of Medicine, Gainesville, FL</td>
<td>MD</td>
<td>05/2009</td>
<td>Medicine</td>
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<td>Mayo Clinic College of Medicine, Rochester, MN</td>
<td>Internship</td>
<td>06/2010</td>
<td>Medical Intern</td>
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<td>06/2014</td>
<td>Behavioral Neurology</td>
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<td>Mayo Clinic, Rochester, MN</td>
<td>Certificate</td>
<td>06/2014</td>
<td>Postdoctoral Research</td>
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<tr>
<td>Mayo Clinic, Rochester, MN</td>
<td>Fellowship</td>
<td>06/2015</td>
<td>Cerebrovascular Neurology</td>
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A. Personal Statement

I am a neurologist at Mayo Clinic in Rochester who evaluates and treats patients with neurodegenerative disorders and cerebrovascular diseases. I completed fellowships in behavioral neurology from 2013-2014 and cerebrovascular neurology from 2014-2015. Additionally, I have completed a one-year post-doctoral research certificate through Mayo Clinic's Center for Clinical and Translational Science. I am a co-investigator in the Mayo Clinic Alzheimer’s Disease Research Center and the Mayo Clinic Study of Aging. I have been a co-investigator on several clinical trials in neurodegenerative diseases performed at the Mayo Clinic Rochester site and look forward to participating in the Alzheimer’s Clinical Trials Consortium. I was awarded a career development award from Mayo Clinic to investigate vascular contributions to cognitive impairment. My research program bridges my two clinical interests, behavioral and cerebrovascular neurology. My K76 grant is focused on understanding the pathophysiology and clinical outcomes of individuals with cerebral microbleeds. My mentors are Dr. Kejal Kantaric and Dr. Ronald Petersen. My long term goal is to become an independent investigator committed to delineating the shared and separate mechanisms of cerebrovascular disease and AD in dementia.

B. Positions and Honors

Positions and Employment

2011-2015 Instructor of Neurology, Mayo Clinic College of Medicine, Rochester, MN
2015-present Assistant Professor of Neurology, Mayo Clinic College of Medicine, Rochester, MN
2015-present Senior Associate Consultant, Department of Neurology, Mayo Clinic, Rochester, MN

Honors

2008 Alpha Omega Alpha
2012 Resident Scholarship, American Academy of Neurology Meeting
2013 Mayo Brothers Distinguished Fellowship Award
2013 Woltman Award for Excellence in Clinical Neurology
2014 Department of Neurology Research Award for superior performance in clinical research

C. Contribution to Science

1. Relationship between cerebrovascular disease, cognitive impairment and intracerebral hemorrhage risk. Atrial fibrillation has been associated with the risk of dementia even when controlling for history of clinical stroke. In a population-based study, we demonstrated that participants with both atrial fibrillation and infarction are more likely to have a mild cognitive impairment than participants with either infarction or atrial fibrillation alone. More recently we have demonstrated that lobar cerebral microbleeds are associated with AD type atrophy in non-demented individuals while deep cerebral microbleeds are associated with lacunar stroke and greater white matter hyperintensity. We have also published on the clinical relevance of cerebral microbleeds in stroke patients with atrial fibrillation and the implications for managing clinicians.


2. **Dementia with Lewy Bodies: Clinical and imaging characterization**. Dementia with Lewy bodies (DLB) is the second most common cause of neurodegenerative dementia. While most DLB patients are treated with acetylcholinesterase inhibitors, predicting who will respond to treatment is problematic. After evaluating a number of DLB patients with excellent response to cholinesterase inhibitors and others with poor a response, we became interested in predicting those with a good clinical response. We demonstrated that those without neuroimaging features of coexisting Alzheimer’s pathology (hippocampal atrophy) were more likely to significantly improve with treatment. Therefore, we became interested antemortem prediction of coexisting Alzheimer’s pathology in DLB patients. Using fluorodeoxyglucose-positron emission tomography, we demonstrated that the cingulate island sign (sparing of the posterior cingulate) was a biomarker of low Braak neurofibrillary tangle stage in DLB patients, serving as a useful predictor of coexisting tau pathology. Additionally, we have shown that hippocampal atrophy is associated with a shorter survival in DLB.


3. **Alzheimer’s disease and other neurodegenerative disorders**. The most common pathology underlying semantic primary progressive aphasia is TDP-43. We demonstrated that globular glial tauopathy can cause semantic primary progressive aphasia as well. We also published that parkinsonism can distinguish subtypes of primary progressive aphasia. Using ADNI data, we published a study demonstrating network failure precedes amyloid deposition in Alzheimer’s disease.


4. **Neuroanatomy of brain-behavior relationships**. Apraxia of speech is a motor planning disorder that commonly occurs after a left hemisphere stroke. The exact neuroanatomical localization has been a matter of controversy because it commonly occurs with aphasia. By identifying a number of patients with pure apraxia of speech (without aphasia), we demonstrated that the actual neuroanatomical correlate is the premotor cortex. Prior studies had implicated the insula. In a study of patients with delusional jealousy (Othello’s syndrome), we demonstrated this delusion to be associated with dysfunction of the right frontal lobe.


**Complete List of Published Work in PubMed**: [http://www.ncbi.nlm.nih.gov/pubmed/?term=Graff-Radford J][Author]
NAME: Stephens, Caroline E.

eRA COMMONS USER NAME (credential, e.g., agency login): CarolineStephens

POSITION TITLE: Associate Professor, UCSF Dept. Community Health Systems; Associate Director, UCSF Hartford Center of Gerontological Nursing Excellence

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE (if applicable) | Completion Date MM/YYYY | FIELD OF STUDY |
|--------------------------|------------------------|--------------------------|----------------
| University of California, Davis | BS | 06/1995 | Biopsychology, Human Development & Aging |
| University of Pennsylvania | BSN | 05/1999 | Nursing (Summa Cum Laude) |
| University of Pennsylvania | MSN | 05/2000 | Geropsychiatric Advanced Practice Nursing |
| University of California, San Francisco | Post-MS Certificate | 12/2001 | Gerontological Nurse Practitioner |
| University of California, San Francisco | PhD | 09/2010 | Gerontological Nursing & Health Policy |
| San Francisco VA Medical Center/UCSF Division of Geriatrics | Fellow | 06/2012 | Clinical Research |
| University of California, San Francisco – Dept. of Social & Behavioral Sciences | Fellow | 07/2012 | Healthcare Quality & Leadership |

A. Personal Statement

I am an Associate Professor in the UCSF School of Nursing. My current program of research focuses on vulnerable populations at high risk for poor care transitions, particularly in the long-term care setting. I have been involved with multidisciplinary geriatric clinical research for almost 20 years, having worked on major epidemiological studies, randomized clinical trials, mixed-methods studies, as well as large dataset analyses, employing diverse advanced quantitative research methods. My program of research has also been informed by over 15 years of clinical experience as a Gerontological Nurse Practitioner and Geropsychiatric Advanced Practice Nurse. I have cared for complex frail older adults across the care continuum, including the provision of geropsychiatric consultations in over 100 nursing homes in 3 states. My work to date reveals that emergency room use by vulnerable nursing home (NH) residents is not only common, but frequently preventable. My KL2 Faculty Scholar research employed focus groups to explore the use of emerging health technologies to reduce potentially inappropriate NH resident acute care utilization. These findings underscore the need for more timely and appropriate access to palliative care expertise and support in the NH setting.

My next professional step is to develop a more robust body of palliative care (PC) research and leadership experience, as well as to gain experiential training in Implementation Science. This skill set will enable me to become an interdisciplinary leader in aging and PC research who examines and promotes changes at the junctures of healthcare systems to improve access to PC services and supports for hard to reach NH populations. I will build on my recently funded Palliative Care Quality Initiative (PCQI) work that has identified the palliative care needs of an ethnically and racially diverse group of NH residents and their families, as well as educational needs of NH staff. Our PCQI findings and recent small technical feasibility beta test for post-discharge PC support underscores the need for a more proactive, upstream multi-component telehealth PC intervention. We believe such an approach is more in line with stakeholder needs, recruitment feasibility, equity, sustainability over time, and desire to be more patient-centered. The focus of this Beeson proposal is to develop such an intervention to provide early identification, outreach, education, and support to NH residents, families, and staff prior to resident use of inpatient PC services and crises at the end of life. We propose to use mixed methods to develop and test the Improving Palliative Care Access Through Technology (ImPacTT) intervention. Findings from this work will be disseminated widely through abstracts, publications, and presentations, and help provide the scientific foundation
for a future NIA/NINR RO1 or PCORI application to evaluate the clinical and cost outcomes of this intervention in a real world, multisite implementation trial.

B. Positions and Honors

Principal Positions Held

1993-1997 UC Davis School of Medicine, Cardiovascular Health Study, Events Ascertainment Assistant
1995-1997 UC Davis School of Medicine, Sleep Heart Health Study, Post-Graduate Researcher (PGR)
1996-1997 UC Davis School of Medicine, Women’s Health Initiative, Outcomes Specialist/PGR
1997-2001 University of Pennsylvania School of Nursing, Graduate Research Assistant
2000 Hospital of the University of Pennsylvania, Level 2 Geropsychiatric Staff Nurse
2000-2002 University of Pennsylvania School of Nursing, Project Manager
2001-2002 University of Pennsylvania School of Nursing, Research Nurse Consultant
2002 Primary Home Care, Gerontological Nurse Practitioner
2002-2003 Master Psychiatric Consulting, Geropsychiatric Advanced Practice Nurse
2003-2006 Senior Access & Treatment Team, Geropsychiatric Advanced Practice Nurse
2007-2008 UCSF School of Nursing, Graduate Student Researcher (Dept. Social & Behavioral Sciences)
2007-2015 Vericare Behavioral Medicine, Geropsychiatric Advanced Practice Nurse
2010-2012 UCSF School of Nursing, Assistant Adjunct Professor (Dept. Social & Behavioral Sciences)
2010-2012 UCSF School of Nursing, John A. Hartford Foundation/Atlantic Philanthropies Postdoctoral Fellow
2010-2012 San Francisco VA Medical Center/UCSF Div. of Geriatric Medicine, VA Quality Scholar Postdoc Fellow
2012-2016 UCSF School of Nursing, Assistant (Tenure Track) Professor (Dept. Community Health Systems)
2015-present UCSF Geropsychiatric Consultation Faculty Practice, Geropsychiatric Advanced Practice Nurse
2016-present UCSF School of Nursing, Associate (Tenured) Professor (Dept. Community Health Systems)

Honors and Awards

1995 Psi Chi, National Psychology Honors Society
1998-1999 University of Pennsylvania Tyson Scholar
1999 Sigma Theta Tau, International Nursing Honors Society, Xi & Alpha Eta Chapters
1999 University of Pennsylvania Nightingale Award
2002 University of Pennsylvania Dean’s Award
2006 Cota-Robles Fellow, 2006-2007
2007 John A. Hartford Foundation Building Academic Geriatric Nursing Capacity (BAGNC) Predoctoral Scholar
2008 9th Annual UCSF Outstanding Health Policy Paper Award
2009 Century Club Dissertation Award
2009-2010 Graduate Dean’s Health Sciences Fellow
2010 Sigma Theta Tau International, Alpha Eta Chapter Research Award
2010-2012 John A. Hartford Foundation/Atlantic Philanthropies Claire M. Fagin Postdoctoral Fellow
2010-2012 Veteran’s Administration Quality Scholar (VAQS) Postdoctoral Fellow
2013-2017 UCSF Clinical Translational Sciences Institute KL2 Scholar
2014 UCSF Young Innovator
2015 Best Health Information Technology Study – American Geriatrics Society Presidential Poster Session
2015 Paul B. Beeson Emerging Leaders Career Development Award in Aging

Professional Activities

2002-present American Geriatrics Society, Member (Care Transitions Special Interest Group)
2007-2008 John A. Hartford Foundation Nursing Home Collaborative, Member - UCSF HCGNE
2007-present Gerontological Society of America (GSA), Nursing Care of Older Adults & Systems Research in Long Term Care Interest Groups; Student Paper/Poster Award Reviewer; Ad hoc abstract reviewer
2007-present Geropsychiatric Nursing Collaborative (GPNC) – Chair; Co-PI National Geropsychiatric Nursing Education Survey; AACN Consultant/Web Case Study Author; Peer Reviewer; GPNI Consultant
2009-present Sigma Theta Tau International – Alpha Eta Chapter, Ad hoc Research Award Reviewer
2013-present National Hartford Centers of Gerontological Nursing Excellence (HCGNE), Institutional Assoc. Director
2015-2016 2016 International Psychogeriatric Association’s International Congress Planning Committee member
2015-present Centers for Medicare & Medicaid Services, Health Services Advisory Group – Ad hoc consultant
2015-present Coalition for Compassionate Care of California – Ad hoc consultant
2015-present Swiss National Science Foundation – Ad hoc grant reviewer
2015-present California Partnership to Improve Dementia Care – Ad hoc consultant
2016-present Palliative Care Research Cooperative, Associate Director of the Investigator Development Core
C. Contribution to Science

1. Cognitive Impairment Adds Complexity to the Transitional Care Needs of Vulnerable Elders. As a graduate nursing student at the University of Pennsylvania, I worked closely with Dr. Mary Naylor on her pioneering program of transitional care research. My early co-authored publications highlighted the complexity that cognitive impairment (CI) adds to transitional care needs of vulnerable hospitalized elders and their caregivers who reside in the community. I helped design the study, conducted the data analysis, and later served as a geropsychiatric nurse consultant for Dr. Naylor’s RO1 clinical trial. In my subsequent years of clinical experience in over 100 NHs in 3 states, I have documented how severity of CI impacts acute care utilization among our most vulnerable elders residing in the NH setting. I have completed several large population-based studies examining factors associated with, and longitudinal trends of ER and hospital use by NH residents. Key findings from my national population-based studies reveal that ER use by vulnerable NH residents, especially those with dementia, is not only common, but frequently preventable. I also conducted the first study examining the effect of CI severity on ER visits and hospitalizations in a national random sample of NH residents. Seminal findings revealed that higher rates of ER visits among NH residents with mild cognitive impairment (MCI) may suggest a unique role for MCI in acute illness presentation.


2. Potentially Preventable Emergency Room and Hospital Use by Nursing Home Residents. As part of my large population-based studies to better understand the influence of CI on NH resident acute care utilization, I have also elucidated the epidemiology of and factors associated with acute care utilization by NH residents. In a collaborative effort with colleagues in UCSF Geriatrics, Epidemiology, and Emergency Medicine, our team conducted a longitudinal analysis of NHAMCS data to examine trends in ER use by NH residents. As a co-senior author, I actively participated in the conceptualization and refinement of this project, data analysis, study supervision, and preparation/editing of the final manuscript. Key findings revealed that despite legislation to enforce NH standards and care quality, no decrease in ER visits for potentially preventable conditions has occurred in the last decade. While health policies have largely been focused on reducing hospitalizations, my collective work has highlighted the importance of the more frequent, and arguably more distressing, trips to the ER that may lead to a cascade of excess disability.


3. Transitional Care Needs of High Risk Populations, Many of Whom Have Unmet Palliative Care Needs. I have led several studies documenting the transitional care needs of high-risk populations, many of whom have unmet palliative care (PC) needs. Findings from my large population-based studies have highlighted ER use by certain high-risk populations, such as cognitively impaired NH residents with feeding tubes, and underscored the need for earlier engagement of PC to reduce the revolving door with the ER. In addition, I have led an extramurally funded interprofessional health systems redesign to improve the quality and safety of care transitions for Veterans at high risk for readmission. Our VA study findings highlighted the complex medical, psychiatric and social needs of our most vulnerable Veterans at high risk for readmission and highlighted the systems-level changes required to create a greater partnership between Veterans and their providers. This work led the SF VA Medical Center to realign its strategic objectives to sustain and expand implementation of an evidence-based model of transitional care (Project RED), subsequently impacting over 1000 Veterans’ lives. My more recent NH-related focus group work has highlighted how suboptimal communication and lack of access to appropriate and timely PC support and expertise in the NH setting contribute to frequent ED
transfers. We learned that many NH residents who benefited from extensive PC services in the hospital experienced a disruption in their care plans, relationships with the PC team who assisted them with their POLST, and/or symptom management, following discharge. These discontinuities commonly led to unclear goals of care and subsequent burdensome transfers at the EOL. We recently completed a Palliative Care Quality Initiative to better understand the palliative care learning needs of NH staff and PC needs of NH residents and their families, as well as their experiences and current concerns with symptom management and advance care planning.


4. Potential Role for Emerging Health Technologies to Reduce ER Transfers and Increase Access to Palliative Care. Findings from the above body of work have greatly informed this most recent line of inquiry and group of projects in which we have used focus groups to highlight the numerous transitional challenges between the hospital and nursing home and explore how emerging health technologies might address those issues. Numerous use cases for PC emerged from these projects. We are in the early stages of technical feasibility testing of telehealth to extend the reach of a hospital-based PC consult service to recently discharged NH residents who received a PC hospital consult. However, our emerging PCQI findings support the need for a more proactive, upstream multi-component telehealth PC intervention. Such an intervention would provide early identification, outreach, education and support to NH residents, families, and staff prior to resident use of inpatient PC services and crises at the end of life – which is the focus of my Beeson proposal.


D. Research Support
Ongoing Research Support

**K76 AG054862**  Stephens (PI)  08/15/2017 - 06/30/2021
NIH – National Institute on Aging (NIA) Paul B. Beeson Emerging Leaders Career Development Award in Aging Improving Palliative Care Access Through Technology (ImPACtT): A Multicomponent Pilot Study

The proposed training and support will provide Dr. Stephens with the necessary additional skills to become a transformative interdisciplinary leader in aging and palliative care research who examines and promotes changes at the junctures of healthcare systems to improve access to palliative care services and supports for hard to reach nursing home (NH) populations. Dr. Stephens’ research will focus on developing, optimizing and pilot-testing a multi-component Improving Access Through Technology (ImPACtT) intervention that leverages existing telehealth technologies to provide staff education; family outreach, engagement and support; care coordination; and resident symptom management and facilitation of goals-of-care discussion.

**R13AG056140**  Stephens (PI)  07/01/2017-06/30/2018
NIH – National Institute on Aging (NIA)

State of the Future in Global Aging, Dementia & Mental Health: Bridging Leadership, Science, Practice and Policy

This conference planning grant will partially support the first international and interdisciplinary NHCGNE Leadership conference entitled “State of the Future in Global Aging, Dementia & Mental Health: Bridging Leadership, Science, Practice and Policy. The goals of this conference are to: actively engage key patient-oriented interdisciplinary stakeholders in aging, dementia and mental health; evolve a research agenda and priority actions; provide national and international guidance to disseminate best practices for curricular innovations; identify primary practice roles for the future; and foster the development of leadership skills in the next generation of national and international academic and clinical leaders in this field. These goals will be achieved through knowledge dissemination and interdisciplinary engagement in
plenary sessions, peer-reviewed abstracts, commissioned white papers, discussant reports, panel discussions, poster sessions, consensus development, and leadership workshops. We have also strategically integrated a mentoring theme throughout the structure, planning, and programming of the conference to stimulate input from and promote the leadership pipeline of the “next generation” of patient-oriented interdisciplinary researchers and scholars in the field.

R13AG056140-01A1  Stephens (PI)  07/20/2017-06/30/2018
NIH – National Institute on Aging (NIA)
State of the Future in Global Aging, Dementia & Mental Health: Bridging Leadership, Science, Practice and Policy
This is an Administrative Supplement grant to cover dissemination of findings from the 4 conference white papers, 4 commentaries and additional findings from our Think Tank in a special journal publication of the Journal of the American Geriatrics Society. Additional funds will be used to cover speakers for the conference and some of costs of the rental facilities at the hotel where the conference will be held.

5U24NR014637-03  Ritchie (PI)  07/10/2015-06/30/2018
NIH - National Institute of Nursing Research
Refinement and Expansion of the Palliative Care Research Cooperative Group (PCRC)
The purpose of this project is to amplify the role of the PCRC as a national resource for efficient conduct of high quality, collaborative, multisite, palliative care and end-of-life (PCEOL) research. As the Associate Director of the PCRC Investigator Development Core, I will work closely with my primary mentor, Dr. Christine Ritchie (PI and Director of the Investigator Development Core) to gain mentorship and leadership experience in palliative care research.
Role: Associate Director, PCRC Investigator Development Core (effort in kind)

1F31NR015380-01  Hunt (PI)  01/01/2015-12/31/2017
NIH – National Institute of Nursing Research
Outcomes of Pain in Community Dwelling Older Adults with Dementia
The purpose of the proposed study is to use National Health and Aging Trends Study (NHATS) data to explore the effect of pain on key health outcomes in community-dwelling older adults with dementia, including ER use, hospitalizations and transitions in living arrangements. I am co-sponsor for this doctoral student’s training grant with Dr. Ken Covinsky.
Role: Co-sponsor (effort in kind)

Selected Completed Research Support (last 10 years)

UCSF Pepper Center/Tideswell at UCSF  Stephens (PI)  01/01/2015-09/30/2017
UCSF Resource Allocation Program
Improving Palliative Care Access Through Technology (ImPacTT): A Pilot Study

8 KL2 TR000143-08  Stephens (Scholar/PI)  07/01/2013-06/30/2017
UCSF Clinical & Translational Sciences Institute KL2 Career Development Award
TeleED: Using Technology to Reduce Potentially Preventable ED Visits by Nursing Home Residents

HRSA  Saxe (PI)  07/01/2013-06/30/2016
Interprofessional Adult Gerontology Education for Nurse Practitioners
Role: Interprofessional Gerontology Faculty Expert (effort in kind)

HRSA D62HP24191  Portillo (PI)  07/01/2012-06/30/2015
Comprehensive Geriatric Education Program
Role: Geropsychiatric Nursing Expert (effort in kind)

Gordon & Betty Moore Foundation/CQSI  Stephens (PI)  01/07/2011-12/31/2013
Avoid Readmissions Through Collaboration Planning Grant (SFVAMC)

National Veteran’s Administration  Stephens (PI)  07/01/2010-06/30/2012
VA Quality Scholars (VAQS) Postdoctoral Fellowship

John A. Hartford Foundation/Atlantic Philanthropies  Stephens (PI)  07/01/2010-06/30/2012
Claire M. Fagin Postdoctoral Fellowship

Sigma Theta Tau International Alpha Eta Chapter Research Award  Stephens (PI)  06/07/2010
Century Club Dissertation Award  Stephens (PI)  04/01/2010
Graduate Dean’s Health Sciences Fellowship  Stephens (PI)  09/01/2009-06/30/2010
John A. Hartford Foundation  Stephens (PI)  09/01/2007-08/31/2009
Building Academic Geriatric Nursing Capacity Predoctoral Scholar

Cota-Robles Fellowship  Stephens (PI)  09/01/2006-06/20/2007
1R01AG023116-01A1  Naylor (PI)  09/15/2005-08/31/2010
Hospital to Home: Cognitively Impaired Elders/Caregivers
Role: Geropsychiatric Nurse Consultant
NAME: Katrina Abuabara

eRA COMMONS USER NAME (credential, e.g., agency login): katrina.abuabara

POSITION TITLE: Assistant Professor of Dermatology

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>Completion Date MM/YYYY</th>
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<tr>
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<td>12/2001</td>
<td>Human Biology</td>
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<td>Internal Medicine</td>
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<td>09/2014</td>
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<tr>
<td>University of Pennsylvania</td>
<td>M.S.C.E.</td>
<td>06/2015</td>
<td>Clinical Epidemiology</td>
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A. Personal Statement

I am an Assistant Professor of Dermatology at the University of California San Francisco focused on patient-centered epidemiologic research and dermatologic clinical care. I study long-term outcomes of chronic inflammatory diseases including atopic dermatitis (also known as eczema) and psoriasis. My background in sociology and experience working with large complex data sets enable me to take a comprehensive approach to understanding chronic disease. I aim to develop personalized interventions that address both the pathophysiological and sociocultural factors to improve the lives of patients.

Atopic dermatitis is one of the most common and burdensome childhood diseases and is increasing in incidence worldwide. Yet little is known about persistence of atopic dermatitis into adulthood. My research program uses population-based methods to describe individual disease trajectories and investigate the role of genetic, environmental, and psychosocial factors on variation in outcomes. Atopic dermatitis is particularly well suited to a comprehensive approach. It appears to have a multifactorial etiology, and it is a prevalent condition that waxes and wanes over a measurable time period. Using insights from existing longitudinal data sets I plan to develop experimental studies that gather comprehensive patient data to understand clinical trajectories and test disease-modifying interventions.

B. Positions and Honors

Positions and Employment

2000-2001 Core Teaching Assistant, Program in Human Biology, Stanford University
2001-2003 Regional Program Manager, Population Council, Mexico City, Mexico
2003-2005 Research Consultant, Ibis Reproductive Health, San Francisco, CA
2004-2006 Research Assistant, Harvard Center for Risk Analysis, Boston, MA
2006 Research Consultant, United Nations International Organization for Migration, Indonesia
2009 Research Fellow, Department of Dermatology, Massachusetts General Hospital
2009-2010 Research Fellow, Department of Dermatology, University of Pennsylvania
2014-2015 Clinical Instructor in Dermatology, University of Pennsylvania School of Medicine
2015-current  Assistant Professor in Dermatology, University of California San Francisco

Honors
1998          Phi Beta Kappa Honors Society
2000          Bingham Fellowship for Student Innovation
2001          Colin S. Pittendrigh Award for Excellence in Teaching
2002          Fulbright Fellowship, US Department of State, Mexico City, Mexico
2008          American Medical Student Association Women’s Empowerment Institute Award
2009          Doris Duke Clinical Research Fellowship
2009          American Academy of Dermatology Diversity Medical Student Mentorship Award
2011          Women’s Dermatologic Society Mentorship Award
2012,13       College of Physicians of Philadelphia Stelwagon Clinical Research Award
2014          Dermatology Foundation Investigator Research Fellowship
2015          Dermatology Foundation Career Development Award

C. Contribution to Science

1. Investigated the natural history of atopic dermatitis into adulthood and developed the idea of atopic dermatitis persistence as an outcome

2. Adopted a value of information approach based to establish comparative effectiveness research priorities in psoriasis

3. Discovered associations between psoriasis and comorbid conditions

4. Examined contextual factors influencing women’s health outcomes


**Complete List of Published Work in MyBibliography:**

**D. Research Support**

**On-going Research Support**

**Research Grant**

<table>
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<tr>
<th>Katrina Abuabara (PI)</th>
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<tr>
<td>National Eczema Association</td>
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<tr>
<td>The longitudinal association between atopic dermatitis and sleep</td>
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<tr>
<td>Using data from a large birth cohort study followed for over 2 decades, this study aims to understand whether individuals with AD have worse quality and quantity of sleep at each developmental stage, examine how individual patterns of AD disease activity relate to sleep over the long-term, and identify factors that may help to predict which patients are most likely to benefit from sleep interventions.</td>
<td></td>
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Role: PI

**Harold Amos Medical Faculty Development Program**

<table>
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<tr>
<th>Katrina Abuabara (PI)</th>
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<tbody>
<tr>
<td>Robert Wood Johnson Foundation</td>
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<tr>
<td>A comprehensive approach to eczema disease activity</td>
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<tr>
<td>Using data from two existing cohort studies I will determine whether genetic ancestry is associated with eczema persistence among African Americans and examine the association between stress and eczema persistence. I will also collect new qualitative data to identify patient perceptions about eczema activity.</td>
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Role: PI

**Career Development Award in Health Care Policy**

<table>
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<tr>
<th>Katrina Abuabara (PI)</th>
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<tbody>
<tr>
<td>Dermatology Foundation</td>
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<tr>
<td>The natural history of eczema in children and young adults</td>
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<tr>
<td>This project aims to determine the prevalence, severity, and duration of eczema in a large population-based cohort from the UK; then examine the risk of the most common medical comorbidities in eczema.</td>
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Role: PI

**KL2 TR001870**

<table>
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<th>Douglas Bauer (PI)</th>
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<tr>
<td>NIH/NCATS</td>
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<tr>
<td>Factors associated with eczema persistence</td>
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<tr>
<td>The goal of the CTSI KL2 career development award is to increase the number and quality of clinical and translational investigators skilled at leading multidisciplinary research teams. I aim to develop expertise in complex data analysis, genetic epidemiology, and methods for patient-centered research via mentored multidisciplinary research examining the natural history of eczema in population-based longitudinal cohorts, the impact of disease definition on prevalence estimates in studies using routinely collected data, and variation in phenotypes in genetic studies of eczema.</td>
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Role: Scholar

**Completed Research Support**

**Health and Society Scholars Pilot Funding**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Robert Wood Johnson Foundation</td>
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</table>
The purpose of this award is to encourage the development of preliminary data regarding the role of socioeconomic status on eczema persistence.

Role: PI

**T32 AR007465 31**
Sarah Millar (PI) 07/01/13-07/01/15
NIH/HHIAMS
Dermatology Research Training Grant
The goal of this training program is to maintain and accelerate long-term research progress and innovation in cutaneous biology, skin diseases, and dermatoepidemiology, leading to novel treatments for skin disease and improvements in overall human health. I received support to obtain my MSCE degree and perform research on the persistence of eczema.

Role: Trainee

**Dermatologist Investigator Research Fellowship**
Katrina Abuabara (PI) 07/01/14-06/30/15
Dermatology Foundation
The goal of this fellowship was to advance the research careers of individuals in the early stages of career development. My work determined how often patients with eczema have good disease control during their childhood and teenage years, and whether disease control improves with age.

Role: PI
NAME: Scott M Dresden, MD, MS

eRA COMMONS USER NAME (credential, e.g., agency login): SCOTTDRESDEN

POSITION TITLE: Assistant Professor, Department of Emergency Medicine and Center for Healthcare Studies, Northwestern University, Feinberg School of Medicine

EDUCATION/TRAINING  (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

<table>
<thead>
<tr>
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<tr>
<td>University of Michigan, Ann Arbor, MI</td>
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<td>Biology</td>
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<td>Loyola University Chicago, Stritch School of</td>
<td>M.D.</td>
<td>06/2007</td>
<td>Doctor of Medicine</td>
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<td>Medicine, Maywood, IL</td>
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<td>Boston Medical Center, Boston, MA</td>
<td>Internship</td>
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<td>Northwestern University, Chicago, IL (Post-Doctoral Fellowship)</td>
<td>M.S.</td>
<td>06/2013</td>
<td>Health Services and Outcomes Research</td>
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</tbody>
</table>

A. Personal Statement

I am an emergency physician, health services researcher, and director of Geriatric Emergency Department Innovations (GEDI) at Northwestern Memorial Hospital. GEDI was started with a Centers for Medicare and Medicaid Health Care Innovations Award (HCIA) from 2012-2015. The GEDI program centers on emergency department (ED) geriatric assessments by geriatric nurse liaisons, and care coordination with social work, pharmacy, and physical therapy. Many of these services were new to the Northwestern Memorial Hospital Emergency Department prior to the implementation of the GEDI WISE. The GEDI data collection and self-monitoring system, is robust and allows for tailoring interventions to maximize the positive impact on geriatric patients. Using these data, we have demonstrated that GEDI has had significant impact on older adults in the ED, including decreasing hospitalizations, re-hospitalizations within 30 days of discharge, and inpatient length of stay for admitted patients.

Though we are pleased with the success of GEDI, we aim to streamline the process to expand the number of patients we are able to impact while in the ED. Additionally, we are currently evaluating the impact of this program on priority domains of Health Related Quality of Life, to ensure that the program is responsive to the needs of patients, not just the financial incentives set forth by Medicare.

B. Positions and Honors

Positions and Employment

July 2011- Present  Attending Physician – Emergency Medicine  Northwestern Medicine, Chicago, IL

2011-2014  Instructor of Emergency Medicine  Department of Emergency Medicine Northwestern University, Chicago IL

2014-Present  Assistant Professor of Emergency Medicine  Department of Emergency Medicine, Northwestern University, Chicago, IL
Other Experience and Professional Membership

Professional Society Memberships
2007-   ACEP: American College of Emergency Physicians
2007-   SAEM: Society for Academic Emergency Medicine
2011-   AMA: American Medical Association
2012-   Academy Health
2013-   AGEM: Academy of Geriatric Emergency Medicine

Committee Service
2014-15  Member, Improving Patient Care for Seniors Committee – Northwestern Medicine
2016-    Chair, Awards and Communications Committee, Academy of Geriatric Emergency Medicine
2017-    Board Member at Large, Academy of Geriatric Emergency Medicine

GuestReviewer
2011    –    Journal of Emergency Medicine
2014    –    Journal of the American Geriatrics Society
2015    –    Academic Emergency Medicine
2017-    JAMA
2017-    Geriatrics and Gerontology International

Honors
2003    Magna cum Laude, University of Michigan
2010-11 Chief Resident, Boston Medical Center Department of Emergency Medicine
2013    Outstanding Junior Faculty, Northwestern University Department of Emergency Medicine
2014    Dr. Amer Aldeen award for teaching excellence, Northwestern University Dept of EM
2015    Academy of Geriatric Emergency Medicine: Best abstract by faculty at the Society for Academic Emergency Medicine Annual Meeting

C. Contribution to Science
1. After completing fellowship in health services and outcomes research, I began work in geriatric emergency medicine. Oftentimes, elderly patients are admitted without much thought because of their age. These admissions come at high cost to and high risk of complications such as delirium, urinary tract infection, and falls to patients. I had the opportunity to work with other health services researchers, emergency physicians, and geriatricians to implement Geriatric Emergency Department Innovations through Workforce, Informatics, and Structural Enhancement (GEDI WISE), a program designed to improve care for geriatric patients in the emergency department. Through the GEDI WISE program I participated in the execution and evaluation of an ED based, care coordination intervention which aimed to improve care for seniors in the ED, and decrease costs. The implementation of this program has been described, and the evaluation is ongoing. Preliminary data suggests that targeted assessment and care coordination in the emergency department has led to decreased hospitalizations for patients without a subsequent increase in return visits to the emergency department.

   • Hwang U, Rosenberg M, Dresden, SM “Geriatrics Emergency Department—The GEDI WISE Program.” In Geriatrics Models of Care: Bringing ‘Best Practice’ to an Aging America. Springer. 2015
2. While completing my health services and outcomes research fellowship, I worked to better understand and define what value means for emergency department patients. I conducted a review of the literature and used a well-described framework for value to explore value from the patient’s perspective. I then collaborated with health policy researchers across the country to develop a framework to understand and measure value from multiple stakeholders’ perspectives. Our framework describes the different outcomes and costs that are important to different stakeholder groups such as patients, providers, payers, the health system, and society. Measuring the described costs and outcomes researchers can begin to objectively describe the value of care provided in the ED. Additionally, we evaluated Ambulatory Care Sensitive Hospitalizations, which are thought to be low value to the health care system, but often are necessary and important for patients when access to outpatient care is limited. Finally, we worked to understand how patients sought out health-related information prior to using the emergency department by assessing their internet searches.


3. Building on our previous work evaluated changes in ED visits over time, we recently completed funding to evaluate changes in ED visits after implementation of the Affordable Care Act in Illinois. We found that ED visits increased as health insurance coverage (especially Medicaid) coverage increased, and that patients who remained uninsured in Illinois were less likely to use the ED than patients who were uninsured prior to Affordable Care Act Implementation.


4. Additionally, I have worked with other emergency physicians at to evaluate how best to provide ED care in a variety of conditions and situations. This has included using ED ultrasound for expedited diagnosis of pulmonary embolism and identifying lag in uptake of implementing American Heart Association (AHA) endorsed guidelines for Therapeutic Hypothermia in cardiac arrest.

- Scott G, McCarthy DM, Aldeen AZ, Czerniak A, Courtney DM, Dresden SM. “Use of online health information by geriatric and adult ED patients; access, understanding, and trust.” Academic Emergency Medicine. 2017 Jul;24(7): 796-802


5. Recently, I have worked with faculty in the Department of Emergency Medicine to evaluate burnout among emergency physicians. Burnout is a longstanding problem in emergency medicine, and our research has demonstrated that it not only affects physician well-being, but also trainee education and patient care.


• Lu DW, Dresden SM, Courtney DM, Salzman, D “An investigation of the relationship between emergency medicine trainee burnout and their clinical performance in a high fidelity simulation environment.” Academic Emergency Medicine Education and Training. [In press]

Complete List of Published Work in MyBibliography:

D. Research Support

Current Support
AG050945 Dresden (PI) 8/15/16 – 4/30/18
National Institute on Aging Grants for Early Medical/Surgical Subspecialists’ Transition to Aging Research (GEMSSTAR) R03
Role: Principal Investigator

The Geriatric Emergency Department Innovations (GEDI) program at Northwestern Memorial Hospital is a unique model of geriatric emergency department care which centers on validated assessments, appropriate referral, and care coordination performed in the emergency department by a geriatric nurse liaison GNLP. The objectives of this study are to identify patients most likely to benefit from the GNLP and to understand the longer-term effects of GEDI on health services use and health related quality of life.

2016 Dennis W. Jahnigen Career Development Award Dresden (PI) 8/15/16 – 4/30/18
American Geriatrics Society, Emergency Medicine Foundation, and Society for Academic Emergency Medicine Foundation
Role: Principal Investigator

The Dennis W. Jahnigen Career Development Award offers funding for a Professional Development Plan to complement the NIA R03 research project funded under the National Institute on Aging Grants for Early Medical/Surgical Subspecialists’ Transition to Aging Research (GEMSSTAR) R03

Completed Support
AGMT – 6/17/15 Dresden (PI) 7/1/15-6/30/16
Emergency Medicine Foundation
Role: Principal Investigator

The overall objective of this study is to examine changes in both outpatient ED visits and hospitalizations through the ED by patients’ insurance status between 2010 and 2014. Successful completion of this study will provide
insights into current controversies about the extent to which increased access to care increases (or ultimately decreases) ED visits and ED hospitalizations.

1C1CMS331055-01-00

Richardson (PI) 07/01/13 – 08/31/15

Center for Medicare and Medicaid Innovation Health Care Innovation Award: “Geriatric Emergency Department Innovations through Workforce, Informatics and Structural Enhancements (GEDI WISE).”

Role: Co- Investigator 07/01/13-06/30/14

Site Principal Investigator 07/01/14-08/31/15

Working with Mt. Sinai School of Medicine, this project will train a group of dedicated geriatric care providers over a period of three years to use evidence-based geriatric clinical protocols, informatics support for patient monitoring and clinical decision support, and structural enhancements to improve patient safety and satisfaction while decreasing hospitalizations, return ED visits, unnecessary diagnostic and therapeutic services, medication errors, and adverse events, such as falls and avoidable complications.

AHRQ T32 HS000078

Holl (PI) 07/01/11-06/30/13

Role: Research Fellow

The purpose of this award is to train postdoctoral fellows in the area of health services and outcomes research
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Gerlach, Lauren Beth

eRA COMMONS USER NAME (credential, e.g., agency login): glauren

POSITION TITLE: Clinical Lecturer

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<tr>
<td>Denison University, Grandville OH</td>
<td>BS</td>
<td>2000-2004</td>
<td>Biology, Psychology minor, Neuroscience concentration</td>
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<td>University of Pennsylvania, Philadelphia PA</td>
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<td>2004-2006</td>
<td>Post-baccalaureate</td>
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<td>Western University of Health Sciences, Pomona CA</td>
<td>DO</td>
<td>2007-2011</td>
<td>Medicine</td>
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<td>University of Michigan, Ann Arbor MI</td>
<td>2011-2015</td>
<td>Residency in Psychiatry</td>
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<td>University of Michigan, Ann Arbor MI</td>
<td>2014-2015</td>
<td>Chief resident</td>
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<td>University of Michigan, Ann Arbor MI</td>
<td>2015-2017</td>
<td>Fellow, Geriatric Psychiatry</td>
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<td>University of Michigan, Ann Arbor MI</td>
<td>MSc</td>
<td>2017-CURRENT</td>
<td>Master of Science in Health and Health Care Research</td>
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A. Personal Statement

I am a fellowship-trained geriatric psychiatrist with additional training in health services research. Following a combined clinical and research fellowship in geriatric psychiatry at the University of Michigan, I began my current position as Clinical Lecturer of Psychiatry at the University of Michigan in July 2017. During my first year on faculty, I am completing a Master’s of Science in Health and Health Care Research to gain additional skills in health services research, offered by the University of Michigan site of the National Clinician Scholars Program. A key area of my research interest is in understanding trends and appropriate use of psychotropic medications among older adults. I have used national survey and administrative claims data to evaluate the growth of central nervous system (CNS) medication polypharmacy use among older adults and to understand how health systems respond to warnings (e.g., from the US FDA) for psychotropic medications. During psychiatry residency and my subsequent geriatric psychiatry fellowship, I published several papers that explored questions surrounding safe and rationale psychotropic medication prescribing among older adults. In particular, this work highlighted for me the difficulty of targeting appropriate mental health treatments to the patients that would benefit from these treatments the most.


B. Positions and Honors

**Positions and Employment**

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<tr>
<td>9/2004 – 7/2005</td>
<td>Clinical Research Assistant, University of Pennsylvania, Graduate School of Education</td>
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<tr>
<td>8/2005 – 7/2006</td>
<td>Clinical Academic Associate, Hospital of the University of Pennsylvania, Department of Emergency Medicine</td>
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<td>1/2006 – 7/2007</td>
<td>Clinical Research Coordinator, Behavioral Health Laboratory and Mental Illness Research, Education, and Clinical Centers (MIRECC), Philadelphia Veterans Affairs Medical Center</td>
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<tr>
<td>8/2006 – 7/2007</td>
<td>Clinical Research Assistant, Hospital of the University of Pennsylvania, Department of Emergency Medicine</td>
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<tr>
<td>7/2017 – Current</td>
<td>Clinical Lecturer, Department of Psychiatry, University of Michigan Medical School</td>
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**Other Experience and Professional Memberships**

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<tr>
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<td>6/2008 – Present</td>
<td>Member, American Psychiatry Association</td>
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<td>8/2009 – Present</td>
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<td>8/2013 – Present</td>
<td>Member Michigan Psychiatric Society</td>
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<td>5/2017 – Present</td>
<td>Member, American Geriatrics Society</td>
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<td>2016 – Present</td>
<td>Ad-hoc reviewer, Alzheimer's and Dementia: Translational Research and Clinical Interventions (TRCI)</td>
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<td>2016 – Present</td>
<td>Ad-hoc reviewer, <em>Journal of the American Geriatrics Society</em> (JAGS)</td>
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<td>2017 – Present</td>
<td>Ad-hoc reviewer, Psychopharmacology</td>
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**Honors and Awards**

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<td>2010</td>
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<td>2013</td>
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<td>2013</td>
<td>Frankwood Williams Inpatient Teaching Award, University of Michigan</td>
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<td>2014</td>
<td>Denison University Varsity D Association Athletics Hall of Fame, inducted</td>
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<td>2014</td>
<td>Herbert Schmale Outpatient Teaching Award, University of Michigan</td>
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<td>2015</td>
<td>Veterans Administration Health System Military Veteran Advocacy Award, Ann Arbor Veteran’s Affairs Medical Center</td>
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<td>2015</td>
<td>Resident Achievement Award for excellence during psychiatry residency, University of Michigan</td>
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<td>2017</td>
<td>University of Michigan Medical School Teaching Award, awarded by medical students within the Learning Environment Task Force</td>
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<tr>
<td>2017</td>
<td>Best trainee poster, 2017 University of Michigan Silverman Research Conference</td>
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</table>

C. Contributions to Science

1. **Pharmacoepidemiology of psychotropic medication use among older adults.** A key area of interest is in understanding trends and appropriate use of psychotropic medications among older adults. In this line of research, we have shown that prescribing of central nervous system (CNS)-active medication polypharmacy, as defined by the American Geriatrics Society (AGS) 2015 Beers Criteria, has grown considerably among older adults.
adults. Using data from the National Ambulatory Medical Care Survey (NAMCS) from 2004 through 2013, we evaluated 97,910 outpatients age 65 or older. We found that annual CNS polypharmacy visits more than doubled for seniors, from 1.50 million in 2004 to 3.68 million in 2013. The largest increases in CNS polypharmacy visits were observed among rural visits and among visits with no mental health or pain diagnoses. Opioid use appeared to be driving the recent national increase in CNS polypharmacy and co-prescribing of opioids and benzodiazepines occurred at 1.50 million visits annually. This line of work raises concern for increases in non-evidence based psychotropic prescribing among non-psychiatric prescribers.


2. Health system responsiveness to psychotropic medication warnings. A number of my research activities have been particularly aimed at evaluating how health systems respond to warnings (e.g., from the U.S. FDA) for psychotropic medications. My work has focused on evaluating how two health systems (University of Michigan and the Veterans Health Administration [VHA]) responded to the 2011-2012 FDA warnings regarding risk of QT prolongation with use of high dose citalopram. This work demonstrated low rates of EKG monitoring for patients maintained on higher than recommended doses of citalopram, despite an intervention alerting providers of the potential harms. Additionally, for patients who switched to a new antidepressant or reduced their dose of citalopram following the warning, they were more likely to be prescribed additional psychotropic medications including sedative hypnotics and benzodiazepines and had higher overall health care utilization, suggesting that these patients were potentially destabilized—an unintended consequence of the drug safety warning. In our work using administrative data from the VHA evaluating 623,434 patients on citalopram, we found that following the drug safety warnings while high dose, any dose, and new citalopram use declined, roughly a third of older adults still remained on higher than recommended doses of citalopram.


3. Improving access and quality of care for older adults receiving mental health treatment within primary care. As the majority of older adults with mental health and cognitive disorders are managed within primary care, a interest of mine has been improving access to and quality of mental health care to older adults in non-mental health settings. My work has included evaluating delivering mental health care to low income older adults in rural areas through a telephone delivered collaborative care intervention and implementing and evaluating a collaborative care clinic directly embedding geriatric psychiatry within a geriatric primary care clinic. Additional work has focused on understanding factors that can influence adherence to antidepressant medication treatment, such as social support, for older adults treated within primary care for later-life depression.


Complete list of published work in My Bibliography: https://www.ncbi.nlm.nih.gov/sites/myncbi/1t3b-m54crCA9/bibliography/51062823/public/?sort=date&direction=ascending.

D. Research Support

Research Support

Active

Previous Grants

2004 Undergraduate Neuroscience Summer Research Program in Mechanisms of Behavior, National Institutes of Health (NIH). Project Title: Changing dopamine function: neural factors involved in the development of addiction during adolescence. Training grant to support mentored research for students interested in behavioral neuroscience. PI Cynthia Kuhn, Duke University.

2008 Summer Training on Aging Research Topics- Mental Health Program, National Institutes of Mental Health (NIMH). Project Title: Why patients miss appointments: barriers to mental health treatment engagement among a veteran population. Training grant to support mentored research for students interested in academic geriatric psychiatry. PI David Oslin, University of Pennsylvania.

2013 Janssen Scholars Program, American Psychiatric Association. Project Title: EKG monitoring of patients on citalopram after the 2011 FDA warning. PI Helen Kales, University of Michigan.
NAME: Hall, Rasheeda Kamial

eRA COMMONS USER NAME (credential, e.g., agency login): RASHEEDA.HALL

POSITION TITLE: Medical Instructor, Department of Medicine, Duke University Medical Center

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<td>Vanderbilt University, Nashville, TN</td>
<td>BE</td>
<td>5/2001</td>
<td>Biomedical Engineering</td>
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<tr>
<td>Vanderbilt University, Nashville, TN</td>
<td>MD</td>
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<td>Medicine</td>
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<td>Vanderbilt University, Nashville, TN</td>
<td>MBA</td>
<td>5/2006</td>
<td>Healthcare Management</td>
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<td>Duke University Medical Center, Durham, NC</td>
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<td>6/2009</td>
<td>Internal Medicine Residency</td>
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<tr>
<td>Duke University, Durham, NC</td>
<td>MHS</td>
<td>12/2013</td>
<td>Clinical Research</td>
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<tr>
<td>Duke University Medical Center, Durham, NC</td>
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<td>6/2015</td>
<td>Nephrology Fellowship</td>
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<tr>
<td>Durham Veterans Affairs Medical Center, Durham, NC</td>
<td></td>
<td>6/2015</td>
<td>Advanced Fellowship in Geriatrics</td>
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</table>

A. Personal Statement

I am a Medical Instructor in the Division of Nephrology conducting clinical research in geriatric nephrology. My overarching goal is to be a leading investigator in geriatric nephrology and answer research questions that contribute to substantive changes to how we deliver care to older dialysis patients. Towards this goal, I extended my fellowship training to gain knowledge and experience in aging research from a diversity supplement to Duke’s Pepper Older Americans Independence Center (OAIC) and a Veterans’ Affairs (VA) Advanced Fellowship in Geriatrics. I have also earned a Masters in clinical research and participated in the NIA’s Butler-Williams Program and the American Society of Nephrology’s (ASN) Geriatric Nephrology seminars. I was awarded the NIA’s 2015 Grants for Early Medical/Surgical Specialists’ Transition to Aging Research (GEMSSTAR) grant, a 2016 Duke CTSA Research Career Development Award (KL2 Scholar), and a 2016 Research Education Component Scholar Award from Duke’s OAIC. Through my career development and research experience to date, I have developed skills in observational study design, including prediction modeling and longitudinal data analyses, as well as, psychometric evaluation and qualitative analyses. My research projects have focused on functional impairment, healthcare utilization, geriatric syndromes, and quality of life in older adults with kidney disease. I have two manuscripts under review: 1) role of kidney function on fracture risk in older male veterans, and 2) the association of QOL scores with mortality and hospitalization in older dialysis patients. My KL2 involves primary data collection from older dialysis patients to study physical activity, fatigue, and physical function, as well as, the feasibility and acceptability of conducting geriatric assessment in dialysis units. These studies will provide specific details (intervention elements, target population, feasible functional measures) for the design of a pilot study of geriatric assessment integration into dialysis units. My Beeson application extends on this work towards a deprescribing intervention for dialysis units.
I will benefit from the 2017 Beeson Meeting Travel Award because: 1) I can learn from others’ research to refine my own scientific conceptual model, and 2) the Beeson meeting’s agenda has events that will help me further develop my communication and leadership skills.

B. Positions and Honors

Positions and Employment

- 7/2006-6/2009 Resident in Internal Medicine, Duke University Medical Center
- 7/2010-6/2012 Research Fellow, Center for Health Services Research, Durham VAMC
- 7/2011-6/2013 Research Fellow, Duke Clinical Research Institute
- 7/2009-6/2013 Fellow in Nephrology, Duke University Medical Center
- 7/2012-Present Director, Geriatric Nephrology Outpatient Consult Service, Durham VAMC
- 7/2013-6/2015 Advanced Geriatrics Research Fellow, GRECC, Durham VAMC
- 7/2015-Present Medical Instructor, Duke University School of Medicine
- 7/2015-Present Staff Physician, GRECC, Durham VAMC

Professional Memberships

- 2009-Present Member, American Society of Nephrology
- 2009-Present Member, National Kidney Foundation
- 2014-2016 Member, American Society of Nephrology Geriatric Nephrology Advisory Group
- 2016-Present Member, Coalition for Supportive Care of Kidney Patients
- 2017- Present Member, American Geriatric Society

Honors

- 1999 Tau Beta Pi - National Engineering Honor Society
- 2001 Summa cum Laude, Honors in Biomedical Engineering
- 2001 Vanderbilt School of Medicine Dean’s Scholarship
- 2004 Alpha Omega Alpha Honor Medical Society
- 2006 Vanderbilt Medicine Dean’s Award for Outstanding Service
- 2006 Beta Gamma Sigma - International Honor Society for Business
- 2009 ABIM Board Certification in Internal Medicine
- 2010 NIH/NMA Fellows in Academic Careers Program Travel Award
- 2010 Agency for Healthcare Research and Quality T32 in Comparative Effectiveness Research
- 2011 American Society of Nephrology Professional Development Seminar Travel Award
- 2011 ABIM Board Certification in Nephrology
- 2012 AcademyHealth/Aetna Foundation Minority Scholars Program Travel Award
- 2012 Diversity Supplement-Duke Claude D. Pepper Older American Independence Center (OAIC)
- 2012 American Society of Nephrology Geriatric Nephrology Program Travel Award
- 2013 NIA Butler-Williams Scholars Program (Summer Institute on Aging Research)
- 2013 American Society of Nephrology (ASN) Travel Award for Nephrology Fellows Program
- 2013 ASN Dimitrios G. Oreopoulos Visiting Professor Program
- 2014 The Institute for Medical Research Young Investigator 1st Place Poster
- 2015 NIA Grants for Early Medical/Surgical Specialists’ Transition to Aging Research Award
- 2015 T. Franklin Williams Scholar Award
- 2016 Duke CTSA KL2 Award (1 of 3 selected)
- 2016 Duke Claude D. Pepper OAIC Research Education Component Scholar
- 2017 NIH NIDDK Loan Repayment Program

C. Contributions to Science

1. My early work at Vanderbilt established my interest in patient-oriented research and provided experience in data collection, data management, statistical analysis, and cost-analysis. During that time, Dr. Wes Ely’s ICU Delirium Study Group at Vanderbilt uncovered variations in management of ICU delirium which provided an argument for subsequent randomized controlled trials (RCT) to establish evidence for standard of care in management of ICU delirium. Prior to residency, I led the design of a cost-analysis of an ongoing RCT comparing delirium incidence in patients receiving dexmedetomidine or lorazepam for sedation. This preliminary work was completed after the trial ended and later published in JAMA (PMID18073360).

2. My initial post-doctoral research focused on the Veterans’ Affairs (VA) health system response to estimated glomerular filtration rate (eGFR) reporting by clinical laboratories. Our driving hypothesis was that eGFR reporting would enhance detection and management of chronic kidney disease (CKD); however, we found that timing of adoption of eGFR reporting was variable across facilities in the VA health system and the effect of eGFR reporting on CKD care was not substantial. These publications demonstrate that health system innovations may not translate into better patient care. I led one of these studies during fellowship, and I have been a collaborator on subsequent studies with this dataset.


3. As a junior investigator, I have gained practical experience through working on my mentor’s (Cathleen Colón-Emeric) R01-funded research studies focusing on nursing home falls prevention through staff interventions.


4. Towards my clinical and research niche in geriatric nephrology, my recent publications uncover outcomes in older adults with kidney disease and functional impairment. I led the study design for a systematic review, two observational studies, and a cost-effectiveness analysis. I also described the functional disability in patients who receive care in Durham VA’s geriatric nephrology clinic. These studies elucidate the significant role functional impairment has on morbidity and mortality in older adults with kidney disease and the need for in-depth study to improve these outcomes and quality of life in these patients.


**Complete List of Published Work in MyBibliography:**

**D. Research Support**

**Current Research Support**

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<td>12/31/2017</td>
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<td>Duke Clinical and Translational Science Award KL2 Award</td>
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<td>2P30AG028716-11 (PI: Kenneth Schmader and Miriam Morey)</td>
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<td>This grant supports research activities designed to advance knowledge on resilience in older adults and train new investigators in aging research (Research Education Component). Specific to this application, Dr. Hall’s project involves primary data collection to understand resilience in older dialysis patients.</td>
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**Completed Research Support**

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<td>8/15/2015</td>
<td>5/31/2017</td>
<td>$45,000</td>
<td>13%</td>
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<td>Improving Quality of Life Measurement in Older Dialysis Patients</td>
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<tr>
<td>This GEMSSTAR project would use psychometric testing and qualitative methods to examine the current approach to quality of life measurement to identify areas for improvement. This funding would support direct costs of research.</td>
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<td>Role: PI</td>
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### NAME: Jane Jih

**eRA COMMONS USER NAME** (credential, e.g., agency login): JANEJIH

**POSITION TITLE:** Assistant Professor of Medicine

**EDUCATION/TRAINING** *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

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<td>MD</td>
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<td>University of Illinois at Chicago, IL</td>
<td>MPH</td>
<td>12/2008</td>
<td>Epidemiology</td>
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<td>University of Chicago Medical Center, IL</td>
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<tr>
<td>Mercy Hospital and Medical Center, Chicago, IL</td>
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<td>University of California San Francisco, CA</td>
<td></td>
<td>06/2014</td>
<td>Primary Care Research Fellow</td>
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### A. Personal Statement

I am a bilingual second generation Taiwanese American general internist and researcher with a focus on reducing health disparities in aging minority and immigrant populations by leveraging technology to support patient-centered care and outcomes. My research program aims to design and test innovative technology-based interventions for primary care that are person-centered and bridge the community and clinical settings to improve chronic disease management in diverse aging populations. I completed a two-year primary care research fellowship in 2014 with advanced training in community-based participatory research (CBPR) methods, epidemiology, and biostatistics. I am currently an Assistant Professor of Medicine in the Division of General Internal Medicine at the University of California San Francisco (UCSF).

I have a longstanding commitment to studying and addressing health disparities in older minority and immigrant populations. Prior to initiating my medical studies, I conducted clinical hepatitis B research at the Hepatitis Research Center, National Taiwan University Hospital in Taipei, Taiwan as a National Security Education Program Boren Scholar. While in medical school, my work with the Asian Pacific American Medical Student Association helped me build relationships with Chinese and Vietnamese American community organizations as we worked together to identify strategies to improve the wellbeing of those communities. I also received an Albert Schweitzer Fellowship, which aims to cultivate leaders in service that develop programs for the unmet health needs of underserved communities. As a Schweitzer Fellow, I aimed to address cardiovascular health disparities in the Filipino American community with a CBPR approach. At the end of this fellowship year, my community collaborators and I launched the Filipino American Community Health Initiative of Chicago (FACHIC), the first community health agency to serve the Filipino American community in the greater Chicago area. I also led the development and implementation of a community needs assessment and asset mapping to improve the health of older Filipino Americans in Chicago.

During my research fellowship, I obtained funding from the NIA through the UCSF Center for Aging in Diverse Communities (CADC) to explore the attitudes and beliefs surrounding the dietary behaviors of older Filipino
adults with cardiovascular disease with a focus on how and why unhealthy eating habits may arise. I used participant surveys, Photovoice-guided focus groups and home visits to examine socio-cultural influences on dietary behaviors in this high risk population. I incorporated Photovoice, a CBPR methodology, where participants use photographs to communicate their “food experience” that can stimulate group discussion. This manuscript is under review.

My current work, funded by the NIA GEMSSTAR and with Drs. Christine Ritchie and Tung Nguyen as mentors, focuses on the relationship of food insecurity and multiple chronic conditions in diverse older adult patients and assesses the feasibility, acceptability, and potential impact of using Photovoice as a communication and assessment tool around food insecurity within primary care. Through a pilot study supported by the NIA-funded UCSF Claude D. Pepper Older Americans Independence Center (OAIC), I have been developing a novel Photovoice intervention to assess dietary behaviors and their contextual factors and to facilitate patient-provider communication on this topic in the clinical setting among older adults with chronic disease. Under the primary mentorship of Dr. Ritchie, I completed a secondary analysis of the Health and Retirement Study to examine the relationship between food insecurity and multiple chronic conditions among older adults. An abstract of this study received the 2016 American Geriatrics Society Presidential Poster Award for Health and Healthcare Disparities and the manuscript is under review.


B. Positions and Honors

Positions and Employment
2012-2014 Primary Care Research Fellow, Division of General Internal Medicine, UCSF
2012-2014 Clinical Instructor, Department of Medicine, UCSF
2012-present Attending Physician, General Internal Medicine Clinic, UCSF
2014-present Assistant Professor, Division of General Internal Medicine, UCSF

Professional Licensure and Certification
2011-present Board Certification in Internal Medicine
2012-present Medical Licensure, California (A121062)

Other Experience and Professional Memberships
2004-2005 President, University of Illinois at Chicago Asian Pacific American Medical Student Association
2007-present Founding Board Member, Filipino American Community Health Initiative of Chicago
2009-present Member, Society of General Internal Medicine
2012-present Abstract and Workshop Reviewer, Society of General Internal Medicine
2013-present Advisory Board Member, Bay Area Albert Schweitzer Fellowship Advisory Board
2013-present Member, Asian American Research Center on Health
2015-present Member, American Geriatrics Society
2015-present Ad hoc Reviewer, Journal of General Internal Medicine, Journal of the Health Care for the Poor and Underserved, and Preventive Medicine

Honors and Awards
2002 Phi Beta Kappa
2002 Donald and Leah Riddle Prize, awarded to one graduating senior for academic excellence and leadership
C. Contribution to Science

1. **Overweight and obesity and diabetes prevalence among Asian Americans.** I led a secondary data analysis of the California Health Interview Survey (CHIS) to examine the prevalence of overweight and obesity among disaggregated groups of Asian Americans using the World Health Organization Asian body mass index (BMI) cut-points and to compare this with the prevalence of overweight and obesity in non-Hispanic Whites (NHW), African Americans and Latinos. We found that Filipinos had the highest prevalence of overweight and obesity among all Asian subgroups, exceeding that of NHWs and similar to that of African Americans and Latinos. We also found that Filipinos, Vietnamese, Korean, South Asian and Japanese groups have higher diabetes prevalence at lower BMI cut-points compared to NHWs. This manuscript published in *Preventive Medicine* in 2014 has been recognized as the 2014 Best Published Paper Award from the Asian & Pacific Islander Caucus for Public Health in the American Public Health Association. This work has also contributed to a position statement by the American Diabetes Association to recommend lowering the BMI cut-point to screen for diabetes among Asian Americans.


2. **Diet and nutrition interventions among older immigrant and limited English proficient (LEP) immigrants and minority, particularly Asian Americans.** I led the analysis of a cluster-randomized controlled trial of in-language educational interventions (2 lectures plus printed materials versus printed materials) to promote nutrition and physical activity among older Chinese American immigrants. I recently also completed a NIA-funded CBPR pilot study using Photovoice (a CBPR methodology where participants use photographs to communicate their “food experience” that can stimulate group discussion) to explore the dietary behaviors of older Filipino immigrants with cardiovascular disease with a focus on how and why unhealthy eating behaviors may arise. I presented findings in an oral presentation at the 2015 American Public Health Association Annual Meeting in Chicago and the manuscript is under review. I am currently a PI of a NIA-funded study to examine the contribution of food insecurity in diverse older adult patients with multiple chronic conditions, to assess the utility of Photovoice in eliciting patient beliefs and behaviors regarding food insecurity and to assess feasibility, acceptability and potential impact of using Photovoice as a communication and assessment tool around food insecurity within a primary care setting.


3. **Patient-physician language concordance in older LEP immigrant populations.** In prior research studies, patient-physician language concordance among LEP patients has been associated with better clinical outcomes in specific conditions and whether language concordance contributes to use of specific preventive care services has been unclear. To examine this research question, I completed a cross
sectional analysis of CHIS to examine the association of patient-physician language concordance with the use of preventive care services in LEP Latinos and Asians (Chinese, Korean and Vietnamese). We found that patient-physician language concordance was not associated with higher use of mammography, colorectal cancer (CRC) screening, or influenza vaccination. Language concordance was negatively associated with CRC screening among Asians.


4. Neural mechanisms of behavioral flexibility. My interest in research was sparked while as an undergraduate research assistant in a biopsychology laboratory, where I completed an undergraduate honors thesis and co-authored two peer-reviewed manuscripts that focused on the neural mechanisms of behavioral flexibility. I contributed to studies of animal models focused on elucidating the role of the muscarinic and nicotinic receptors within the dorsomedial striatum on the ability to adopt new strategies and inhibit old strategies. These studies contributed to greater understanding of the mechanisms within the striatum that mediate behavioral flexibility with implications in the study of neurological disorders that lead to impairments in cognitive flexibility such as autism and Parkinson’s disease.


Complete List of Published Work in My Bibliography: https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/49325304/?sort=date&direction=ascending

D. Research Support

Current Research Support
R03 AG050880 GEMSSTAR (Jih) NIH/National Institute on Aging
Identifying and Assessing Food Insecurity in Older Diverse Primary Care Patients
This study aims to examine the contribution of food insecurity in diverse older adult patients with multiple chronic conditions, to assess the utility of Photovoice in eliciting patient beliefs and behaviors regarding food insecurity and to assess feasibility, acceptability and potential impact of using Photovoice as a communication and assessment tool around food insecurity within a primary care setting.
Role: Principal Investigator

P0515824 (Jih) Mount Zion Health Fund
Developing and Implementing a Heart Healthy Integrative Diet for Chinese American Patients
The objective of this project is to create and implement an empirically derived diet consistent with Chinese medicine principles that meets current nutrition standards, and is acceptable and feasible for Chinese Americans with cardiovascular disease and their healthcare providers in the UCSF Division of General Internal Medicine Practice.
Role: Principal Investigator

UCSF Pilot in Integrative Medicine (Chao) Pilot randomized controlled trial of integrative nutritional counseling to improve diet self-management among Chinese Americans with type 2 diabetes
The aims of this proposed study are to conduct a pilot randomized controlled trial to assess the feasibility and acceptability of integrative nutritional counseling as part of diabetes self-management education (DSME) compared to usual DSME; assess the effects of integrative nutritional counseling on attitudes and beliefs; and
assess the effects of integrative nutritional counseling on behavioral and clinical outcomes among Chinese Americans with diabetes.
Role: Co-Investigator

**Completed Research Support**

P30 Claude D. Pepper Older American Independence Center (Covinsky) 07/01/15 – 06/30/16
NIH/National Institute on Aging

UCSF Pepper Center Research Career Development Core Scholar
The purpose of this award is to support career development and research activities integrating principles of geriatrics.
Role: Research Career Development Core Scholar

P30 AG15272 Center for Aging in Diverse Communities (CADC) (Pérez-Stable) 09/01/13 – 06/30/14
NIH/National Institute on Aging

**Dietary Behaviors of Older Filipino Adults with Cardiovascular Disease** (PI: Jih)
Community based pilot study to examine dietary behaviors of older Filipino adults with cardiovascular disease through Photovoice guided focus groups and home visit observations.
Role: Principal investigator of pilot study funded by CADC

T32HP19025 (Bindman)
Department of Health and Human Services/Health Resources and Services Administration

**National Research Service Award** 06/30/12 – 06/29/14
The goal of this project is to train general internal medicine clinical investigators.
Role: T32 Research Fellow
BIOGRAPHICAL SKETCH
Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Phongtankuel, Veerawat

eRA COMMONS USER NAME (credential, e.g., agency login): VPHONGTANKUEL

POSITION TITLE: Assistant Professor of Medicine

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<td>Cornell University, Ithaca, NY</td>
<td>B.S.</td>
<td>05/2004</td>
<td>Human Development</td>
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<td>SUNY Downstate Medical College, Brooklyn, NY</td>
<td>M.D.</td>
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<td>Temple University Hospital, Philadelphia, PA</td>
<td>Intern</td>
<td>06/2010</td>
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<td>Temple University Hospital, Philadelphia, PA</td>
<td>Resident</td>
<td>06/2012</td>
<td>Internal Medicine</td>
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<tr>
<td>New York Presbyterian Hospital, New York, NY</td>
<td>Fellow</td>
<td>06/2014</td>
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<td>Weill Cornell Medical College, New York, NY</td>
<td>M.S.</td>
<td>01/2017</td>
<td>Clinical and Translational Research</td>
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A. Personal Statement
I am an Assistant Professor of Medicine at Weill Cornell Medicine in the Division of Geriatrics and Palliative Care. My research interests revolve around improving quality of care for older adults and their caregivers while reducing care transitions at the End-of-Life (EoL). This has led me to collaborate with community organizations such as the Visiting Nurse Service of New York Hospice and Palliative Care (VNSNYHPC) to understand associations with poor care transitions (e.g., acute hospitalizations) in the home hospice population. I am a Grants for Early Medical/Surgical Specialists’ Transition to Aging Research (GEMSSTAR) awardee and my current project aims to examine correlates of symptom burden in the home hospice population. We are collecting patient, caregiver and hospice utilization data, which will provide a more comprehensive picture of symptom burden experienced by home hospice patients at the EoL.

My long-term goal is to become an independent researcher and academic reducing patient suffering, caregiver burden and care transitions at the EoL, specifically in home hospice care. I have already laid significant groundwork towards this goal, developing close longitudinal mentorship relationships, gaining broad research, clinical, management, and leadership skills, along with experience as a PI on an NIA grant. The Beeson award will allow me to build upon my experience, provide me with the opportunity to complete the important project which I have proposed and support my career to become a researcher and leader in the field of palliative and EoL care for older adults.

B. Positions and Honors

Positions and Employment
2009-2010 Intern, Department of Internal Medicine, Temple University Hospital, Philadelphia, PA
2010-2012 Resident, Department of Internal Medicine, Temple University Hospital, Philadelphia, PA
2012-2014 Fellow, Division of Geriatrics and Palliative Medicine, New York Presbyterian Hospital, New York, NY
2014-2016 Instructor of Medicine, Division of Geriatrics and Palliative Medicine, Weill Cornell Medical
College, New York, NY
2016- Assistant Professor of Medicine, Division of Geriatrics and Palliative Medicine, Weill Cornell Medical College, New York, NY

Other Experiences and Professional Memberships
2012-13 Member, Gerontological Society of America
2012-14 Member, Metropolitan Area Geriatric Society
2013- Member, American Geriatric Society
2017- Member, American Academy of Hospice and Palliative Medicine

Honors
2013-2015 AFAR/Hartford Foundation COE Scholar in Geriatric Medicine
2014-2016 Empire Clinical Research Investigator Program (ECRIP) Scholar

C. Contribution to Science

1. My contribution to science focuses on understanding drivers of acute hospitalization in the home hospice population. This care transition has been defined as “burdensome” by the Department of Health and Human Services and is considered a marker of poor EoL care by many in the field. Hospitalization can be burdensome for patients and caregivers and lead to unwanted aggressive and futile care. The following publications detail qualitative and quantitative studies examining reasons and/or associations with acute hospitalization in the home hospice population. While reasons and triggers are complex, our findings revealed that symptoms, caregiver burden, and frequency of nursing visits trigger hospitalization. I served as the primary investigator in these studies.

2. A majority of patients with advanced chronic diseases experience significant symptom and psychological burden. Palliative medicine is a growing field aimed at addressing the medical, psycho-social and spiritual aspects of care to improve Quality of Life (QoL) for patient in any course of their illness. The following publications focus on: 1) highlighting the significance, prevalence and management of pain experienced by patients suffering from advanced chronic diseases; 2) reviewing the literature on the implementation and outcomes of multi-disciplinary palliative care interventions in patients with advanced chronic disease; 3) understanding awareness and misperceptions of palliative and hospice care among community dwelling adults.


3. My earlier publication examined testosterone levels in HIV-infected men. While the consensus is that HIV-infected men typically have low testosterone levels, this publication details a particular case in which a patient infected with HIV and hepatitis C presented with unusually elevated levels of testosterone. This particular pattern was noticed among a cohort of HIV-infected males presenting to the HIV clinic at Temple University Medical Center. The central finding of the study revealed that there was no significant correlation between evidence of hepatitis C infection and elevated testosterone levels in HIV-infected men although further research is needed to understand this association.


4. Transcatheter aortic valve replacement (TAVR) offers older patients with severe aortic stenosis an opportunity to live longer lives. Although this procedure allows clinicians to treat sicker and frailer patients who cannot undergo surgical aortic valve replacement, there is growing support from providers that age-related factors, specifically cognitive impairment and frailty, should factor into the evaluation process. This case study examines the importance of assessing for cognitive impairment during the evaluation process for TAVR.


D. Research Support

**Ongoing Research Support**

Grants for Early Medical/Surgical Specialists’ Transition to Aging Research (R03) 08/01/16 – 06/30/18

*Identifying Correlates of Symptom Burden Experienced by Home Hospice Patients and its Association with Patient and Caregiver Outcomes*

The aims for this two-year research project are to comprehensively study symptom burden in the home hospice population through identification of patient, caregiver, and hospice level correlates and analyze its impact on quality of care. Results from this work will lay the foundation for developing and implementing interventions at reducing symptom burden experienced by older adults receiving care in the home hospice setting.

Role: PI

**Completed Research Support**

ECRIP grant 01/01/14 – 12/31/15

*Predicting Hospital Utilization in Home Hospice Patients*

The objective of this project was to develop a predictive model aimed at identifying home hospice patients who disenrolled and utilized hospital services using 2012 Medicare hospice claims data.

Role: PI

AFAR/Hartford Foundation COE Scholar 07/01/14 – 07/01/15

*Primary Caregivers’ Perspectives on why Patients on Home Hospice Return to the Hospital*

The objective of this study was to understand and elucidate factors that trigger home hospice patients to utilize hospital resources through phone interviews with their informal caregivers.

Role: PI
Name
William Ehlenbach, MD, MS

Title
ASSISTANT PROFESSOR

Division
PULMONARY & CRITICAL CARE

Address
UW MED FNDTN CENTENNIAL BLDG
1685 HIGHLAND AVE
MADISON, WI 53705-2281

Phone Number
(608) 262-0802

Email
wjehlen@medicine.wisc.edu

Biography
Specialty: Pulmonary and Critical Care
Board Certification(s): Internal Medicine, Pulmonary Medicine, Critical Care Medicine
Medical School: University of Wisconsin
Residency: University of Wisconsin
Chief Residency: University of Wisconsin
Fellowship: University of Washington, Seattle
Primary Affiliation(s): UWHC

Clinical Interests
Dr. Ehlenbach is board certified in Internal Medicine, Pulmonary Medicine, and Critical Care Medicine. He sees patients in the Pulmonary Medicine Clinic at the University of Wisconsin Hospital and Clinics, and manages critically patients in the intensive care units of the University of Wisconsin Hospital. His clinical interests include lung disease in the elderly, COPD, bronchiectasis, sepsis, and the evaluation and management of patients with multiple chronic diseases.

Research Interests
Dr. Ehlenbach’s research program aims to improve understanding of long-term outcomes among survivors of critical illness, particularly cognitive and other functional outcomes among older persons. His clinical and health services research program seeks to identify specific aspects of critical illnesses and the therapies used to treat them that may be associated with chronic cognitive impairment. Additional research interests include in-hospital cardiac arrest among older patients and the delivery of palliative care in the intensive care unit.

His research is currently funded by the National Institute on Aging (NIH), the John A. Hartford Foundation, the American Federation for Aging Research, the Atlantic Philanthropies, and the Starr Foundation through the Paul B. Beeson Career Development Awards in Aging Research Program.

Search for William Ehlenbach's literature abstracts on PubMed
NAME: Han, Duke

eRA COMMONS USER NAME: DHAN06

POSITION TITLE: Associate Professor of Family Medicine, Neurology, Psychology, and Gerontology

EDUCATION/TRAINING

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<td>University of Massachusetts Boston, Boston, MA</td>
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<td>UCSD/VA San Diego Healthcare System, San Diego, CA</td>
<td>Intern</td>
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<td>Postdoc</td>
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<td>Neuroimaging/Npsych</td>
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<td>UCSD School of Medicine, San Diego, CA</td>
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A. Personal Statement

I am currently Director of Neuropsychology in Family Medicine and an Associate Professor of Family Medicine, Neurology, Psychology, and Gerontology at the Keck School of Medicine of the University of Southern California. Prior to completing a clinical neuropsychology internship and an NIH T32 postdoctoral fellowship in neuropsychology and neuroimaging at the University of California San Diego (UCSD), I trained with the Brigham Behavioral Neurology Group and the Surgical Planning Laboratory of Harvard Medical School’s Brigham and Women’s Hospital in advanced functional neuroimaging and neuropsychological approaches. I am currently a PI of an R01 research grant (R01AG055430) investigating factors that mediate or moderate racial differences in decision making and multi-modal neuroimaging data among a cohort of demographically-matched older Black and White adults from the Rush Alzheimer’s Disease Center Memory and Aging Project and the Minority Aging Research Study. Other previous PI funding includes a grant administered through the Illinois Department of Public Health Alzheimer’s Disease Research Fund and a P30 pilot grant administered through the Rush Alzheimer’s Disease Center, both of which were projects focused on identifying functional neuroimaging biomarkers of early Alzheimer’s Disease. I am a co-investigator or consultant on a number of federally-funded awards on a wide range of research topics including teen sleep interventions to improve executive functioning, cholesterol mechanisms in preclinical Alzheimer’s Disease, and primary prevention interventions for elder abuse. My Paul Beeson K23 Career Development Award (CDA) in Aging Research was devoted to the study of decision making in old age using multi-modal neuroimaging, and below are some examples of published work:


**B. Positions and Honors**

**Positions and Employment:**
- **2006-2009** Assistant Professor, Dept. of Psychology, Loyola University Chicago, Chicago, IL
- **2007-2009** Clinical Assistant Professor, Dept. of Neurology, Loyola University Medical Center, Maywood, IL
- **2009-2014** Assistant Professor, Dept. of Behavioral Sciences, Rush University Medical Center, Chicago, IL
- **2012-2014** Conjoint Assistant Professor, Dept. of Neurological Sciences, Rush University Medical Center, Chicago, IL
- **2012-2015** Rush Alzheimer’s Disease Center, Rush University Medical Center, Chicago, IL
- **2012-2015** Director of Neuropsychology, Mental Health Care Group, VA Long Beach Healthcare System
- **2014-2015** Associate Professor, Dept. of Behavioral Sciences, Rush University Medical Center, Chicago, IL
- **2014-2015** Conjoint Associate Professor, Dept. of Neurological Sciences, Rush University Medical Center, Chicago, IL
- **2016-2017** Visiting Professor, Dept. of Behavioral Sciences, Rush University Medical Center, Chicago, IL
- **2016-2017** Visiting Professor, Dept. of Neurological Sciences, Rush University Medical Center, Chicago, IL
- **2016-** Associate Professor, Dept. of Family Medicine (primary appointment), University of Southern California, Alhambra, CA
- **2016-** Director of Neuropsychology, Dept. of Family Medicine, University of Southern California, Alhambra, CA
- **2016-** Associate Professor, Dept. of Neurology (secondary appointment), University of Southern California, Los Angeles, CA
- **2016-** Associate Professor, Dept. of Psychology (courtesy appointment), University of Southern California, Los Angeles, CA
- **2016-** Associate Professor, Dept. of Gerontology (courtesy appointment), University of Southern California, Los Angeles, CA

**Professional Memberships:**
- **2000-present** Member, American Psychological Association
- **2003-present** Member, International Neuropsychological Society
- **2006-present** Member, National Academy of Neuropsychology
- **2012-present** Member, American Academy of Clinical Neuropsychology
- **2012-present** Member, American Board of Professional Psychology
- **2016-present** Member, Alzheimer’s Association International Society to Advance Alzheimer’s Research and Treatment (ISTAART)

**Honors:**
- **2003** Elected Chief Intern of UCSD Internship Class 2003-2004
- **2006** International Neuropsychological Society Nelson Butters Award
- **2006** Alzheimer's Association New Investigator Neuroimaging Award Honorable Mention
- **2008** NIA Summer Research Institute Participant
- **2010** Organizing Committee – Diffusion MRI of Traumatic Brain Injury Roadmap Workshop
  University of Chicago and Department of Defense
- **2011** International Neuropsychological Society Annual Meeting Program Committee
- **2011** Advanced Psychometrics Methods Workshop: ADNI Participant
- **2011-2014** American Psychological Association Division 40 Program Committee
- **2012** American Psychological Association Division 40 Blue Ribbon Award
- **2012-** International Neuropsychological Society Continuing Education Committee
- **2012-2017** Paul B. Beeson Career Development Award for Aging Research
- **2013** Nominated for APA Division 40: Clinical Neuropsychology Member-At-Large
- **2014-2017** National Academy of Neuropsychology Publications Committee
2014 Alzheimer's Association International Conference Abstract Reviewer
2014 Paul B. Beeson Fellowship Planning Committee for Annual Meeting
2015-2016 International Neuropsychological Society Annual Meeting Program Committee
2015 Best Poster Finalist, Alzheimer's Imaging Consortium
2015 Walking Tour Selection, Alzheimer's Imaging Consortium
2015-2018 Governance Committee Member, Global Council on Brain Health
2016 Graduate Student Organization Honoree, Wayne State University Institute of Gerontology
2016-2021 Oral Examiner for Board Certification, American Board of Clinical Neuropsychology
2017 Clinical Scholar designation by the President of the University of Southern California
2017 Board of Directors nomination, American Academy of Clinical Neuropsychology

**Reviewership:** Ad-hoc journal reviewer for 35 peer-review scientific journals, editorial board member for 2 scientific journals (Archives of Clinical Neuropsychology and Journal of Alzheimer's Disease), regular extramural grant reviewer for NIH CSR and NIA, including 8 separate grant review panels in 2017

**C. Contribution to Science**

1. My efforts to elucidate the cognitive, behavioral, and neural correlates of decision making in old age have yielded significant insights into possible risk and protective factors and potential neuroimaging biomarkers.

2. My application of advanced statistical and neuroimaging approaches to better understand risk for Alzheimer's disease or recovery following brain injury has yielded new insights into these conditions.

3. My use of neuroimaging and neurocognitive assessment approaches to better understand the association of apolipoprotein E genotype with cognition across the lifespan has informed theoretical models linking genetics, cognition, and brain compensatory mechanisms.


4. My early work focused on the long-term effects of chronic schizophrenia in old age. By integrating computer modeling, cognitive neuroscience, and functional neuroimaging approaches to investigate the semantic language disturbance of schizophrenia in old age, I was able to associate auditory hallucinations with aberrant functional activity in brain language regions among older schizophrenia patients.


5. My efforts in applying clinical neuropsychological assessment methods to real-world outcomes have produced a number of studies that inform community health and clinical practice.


Complete List of Published Work in MyBibliography:

D. Research Support

Ongoing Research Support:

R01AG055430 Han (PI) 7/15/17-4/30/22
National Institute on Aging (NIA)
Racial Differences in Decision Making Among Older Adults
This grant is to investigate factors that mediate or moderate racial differences in decision making using cross-sectional behavioral and neuroimaging methods among a cohort of demographically-matched older Black and White adults.
Role: PI

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<td>Finance, Cognition, and Health in Elders Study (FINCHES) – Pilot Phase</td>
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<td>This foundation grant is to support pilot data collection for a study of older adult financial fraud victims using affective biophysics and neuroimaging measures.</td>
<td>Role: PI</td>
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<tr>
<td>R01AG055770</td>
<td>Yassine (PI)</td>
<td>6/1/17-5/31/22</td>
</tr>
<tr>
<td>National Institute on Aging (NIA)</td>
<td>Biomarkers of ABCA1 Mediated Functions in Alzheimer’s Disease</td>
<td></td>
</tr>
<tr>
<td>This grant is to investigate cholesterol mechanisms potentially involved in memory decline and Alzheimer’s disease.</td>
<td>Role: Co-I</td>
<td></td>
</tr>
<tr>
<td>2016-ZD-CX-K008</td>
<td>Wilber/Mosqueda (Co-PI)</td>
<td>1/1/17-6/30/18</td>
</tr>
<tr>
<td>National Institute on Justice (NIJ)</td>
<td>NIJ Elder Mistreatment Prevention – Planning Phase</td>
<td></td>
</tr>
<tr>
<td>This grant is to plan for an intervention to address elder mistreatment to be implemented on a systemic level.</td>
<td>Role: Co-I</td>
<td></td>
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<tr>
<td>R01HL112756</td>
<td>Crowley (PI)</td>
<td>9/1/14-6/30/19</td>
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<tr>
<td>National Heart, Lung, and Blood Institute (NHLBI)</td>
<td>Teen School-Night Sleep Extension: An Intervention Targeting the Circadian System</td>
<td></td>
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<tr>
<td>This grant is to test the effects of a sleep intervention on cognition and other outcomes.</td>
<td>Role: Co-I</td>
<td></td>
</tr>
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</table>

Selected Completed Research Support Over the Past Three Years:

<table>
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<th>Grant Number</th>
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<tbody>
<tr>
<td>K23AG040625</td>
<td>Han (PI)</td>
<td>8/15/12-7/31/17</td>
</tr>
<tr>
<td>National Institute on Aging (NIA)</td>
<td>Paul B. Beeson Career Development Award</td>
<td></td>
</tr>
<tr>
<td>“Neural Correlates of Impaired Financial &amp; Health Care Decision-Making in Old Age”</td>
<td>This grant is to provide training in geriatrics, epidemiology, behavioral economics, neuroimaging, statistics, and bioethics, and to conduct a multi-modal neuroimaging study of decision making in older adults. A health disparities administrative supplement was awarded in 2014 to study decision making in older Black adults.</td>
<td>Role: PI</td>
</tr>
<tr>
<td>K23AG040625AFAR</td>
<td>Han (PI)</td>
<td>8/15/12-7/31/17</td>
</tr>
<tr>
<td>American Federation for Aging Research (AFAR)</td>
<td>Neural Correlates of Impaired Financial &amp; Health Care Decision-Making in Old Age</td>
<td></td>
</tr>
<tr>
<td>This grant provides additional support for K23AG040625.</td>
<td>Role: PI</td>
<td></td>
</tr>
<tr>
<td>K23AG040625-S1</td>
<td>Han (PI)</td>
<td>9/15/14-4/30/15</td>
</tr>
<tr>
<td>National Institute on Aging (NIA)</td>
<td>Health Disparities Administrative Supplement</td>
<td></td>
</tr>
<tr>
<td>“Neural Correlates of Impaired Financial &amp; Health Care Decision-Making in Old Age”</td>
<td>This supplement funded collection of a decision making battery and neuroimaging data among 50 older Black adults without dementia.</td>
<td>Role: PI</td>
</tr>
</tbody>
</table>
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Kelley, Amy S., M.D., M.S.H.S.

eRA COMMONS USER NAME (credential, e.g., agency login): amykelley01

POSITION TITLE: Associate Professor and Vice Chair of Health Policy and Faculty Development

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
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<th>FIELD OF STUDY</th>
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<tbody>
<tr>
<td>Cornell University, Ithaca, NY</td>
<td>B.A.</td>
<td>05/98</td>
<td>Biology</td>
</tr>
<tr>
<td>Weill Cornell Medical College, New York, NY</td>
<td>M.D.</td>
<td>05/02</td>
<td>Medicine</td>
</tr>
<tr>
<td>New York Hospital-Cornell Medical Center, New York, NY</td>
<td>Internship &amp; Residency Fellowship</td>
<td>06/02-06/05</td>
<td>Internal Medicine</td>
</tr>
<tr>
<td>New York Hospital-Cornell Medical Center, New York, NY</td>
<td>MSHS</td>
<td>07/05-06/07</td>
<td>Geriatric Medicine</td>
</tr>
<tr>
<td>University of California, Los Angeles, CA</td>
<td>MSHS</td>
<td>03/09</td>
<td>Health Services Research</td>
</tr>
</tbody>
</table>

A. Personal Statement

I am fully committed to making a substantial contribution to advancing the care of older adults by improving care quality in the context of serious illness and promoting healthcare policies that will help align treatment with patient needs and values. With prior support from the National Research Service Award and Hartford Foundation, and as a Brookdale Leadership in Aging Fellow and Beeson Scholar, I have completed and disseminated the results of many research projects and become a nationally visible contributor in field of aging and palliative care research. I have mentored several students, fellows and junior faculty, who have disseminated their work through presentations at national meetings and peer-reviewed publications. I am now an independent, NIH-funded investigator continuing to pursue my goal of conducting patient-centered research in order to ultimately improve the quality of care for seriously ill older adults.

To date, my primary laboratory for this work includes two nationally-representative, longitudinal cohorts: the Health and Retirement Study (HRS) and the National Health and Aging Trends Study (NHATS), both linked with Medicare claims data. Over 10 years of working with HRS data, and 4 years working with NHATS, I have examined factors associated with treatment intensity among older adults with serious illness, with a specific focus on the factors that may put older adults at risk of potentially-avoidable, high-cost hospital-based treatment. I developed a novel conceptual framework to explore the personal, social and regional factors associated with treatment intensity. With the support of the Paul B. Beeson Career Development Award in Aging Research, I used this conceptual model to guide my analyses of risk factors for hospital admissions, intensive procedures and Medicare expenditures. I built upon this work by evaluating the impact of hospice enrollment on Medicare spending and hospital utilization among older adults with serious illness near the end of life. My research has revealed the significance of non-clinical factors (e.g., race/ethnicity, nearby family, region of residence) in relation to the intensity and expense of medical care provided near life’s end and the substantial effect of functional decline on healthcare costs. Based upon this expertise, I contributed a chapter describing the epidemiology of the highest cost patients in the U.S. to the Institute of Medicine’s report, Dying in America, Improving Quality and Honoring Individual Preferences Near the End of Life, published October 2014. More recently, my research has aimed to prospectively identify those seriously ill older adults who are at greatest risk for high healthcare costs and may have unmet palliative care needs. This work is being used to identify the denominator for quality and accountability metrics; to establish the seriously ill target population for an Advanced Alternative Payment Model proposal to CMS; and is of particular relevance to large integrated...
health systems seeking to maximize care value by effectively and prospectively matching specialized geriatric and palliative care services to the patients most likely to benefit. The following publications specifically highlight my experience and qualifications for the proposed project:


B. Positions and Honors

Employment
2007-2009 Instructor, Department of Medicine, David Geffen School of Medicine at UCLA
2009-2015 Assistant Professor, Brookdale Department Geriatrics & Palliative Medicine, Icahn School of Medicine at Mount Sinai (ISMMS)
2013-present Physician, Geriatric Research Education and Clinical Centers, James J Peters VA Medical Center, Bronx, NY
2015-present Associate Professor, Brookdale Department Geriatrics & Palliative Medicine, ISMMS
2017-present Vice Chair for Health Policy and Faculty Development, Brookdale Department Geriatrics & Palliative Medicine, ISMMS

Honors
2002 Moselle and Milton Pollack Prize in Medical Ethics, Weill Cornell Medical College
2002 Weiss Prize for Excellence in Clinical Medicine, Weill Cornell Medical College
2005 Frederick T. Kirkham Award for Research & Clinical Excellence, Cornell Internal Medicine Associates
2007 UCLA Hartford Center of Excellence, Small Projects Research Operations Support Grant
2009 Mack Lipkin Sr. Associate Member Award, Society for General Internal Medicine
2009 Merck / AGS New Investigator Award, American Geriatrics Society
2009 Brookdale Leadership in Aging Fellowship
2009 Summer Institute on Aging Research, National Institutes of Health
2010 American Academy of Hospice and Palliative Medicine (AAHPM) Research Scholar
2012 Palliative Care Clinician of the Year, Mount Sinai School of Medicine
2012 Best Paper Award, American Geriatrics Society Annual Meeting
2012 Paul B. Beezon Career Development Award in Aging Research
2013 Outstanding Junior Investigator of the Year Award, American Geriatrics Society
2015 Inspiring Hospice and Palliative Medicine Leaders Under 40 Award, AAHPM
2015 Palliative Care Clinician of the Year, Mount Sinai School of Medicine
2016 Best Paper Award, American Academy of Hospice and Palliative Medicine Annual Meeting
2016 Mid-Career Women Faculty Professional Development Seminar, AAMC

Professional Societies and Public Advisory Committees
2004-present Member, Society for General Internal Medicine
2005-present Member, Gerontological Society of America
2006-present Member, American Geriatrics Society
2007-present Member, Junior Faculty Research Special Interest Group, American Geriatrics Society
2009-present Member, American Academy of Hospice and Palliative Medicine
2010-present Member, Scientific Review Committee, National Palliative Care Research Center
2011-2013 Member, Junior Faculty Development Task Force, American Geriatrics Society
2011-2013 Chair, Junior Faculty Research Special Interest Group, American Geriatrics Society
2013-2014 Reviewer, National Cancer Institute, R01 Special Emphasis Panel
C. Contribution to Science
My scholarly work builds upon my clinical expertise at the intersection of geriatrics and palliative medicine by focusing on the needs of seriously ill older adults and their families. My primary scientific contributions have centered on the 4 following themes.

1. **High Burden of Health-related Costs of People with Dementia**: I have examined factors associated with health-related costs for older adults with serious illness, in particular those with Alzheimer’s disease and related dementias (ADRD). My team and I are currently investigating year-over-year healthcare spending and its distribution across payers and families within the HRS cohort, and examining how this spending may influence both quality of patient care and family outcomes. The evidence generated by this ongoing work is needed to inform health and social policies that will ensure high quality care for older adults with ADRD, while avoiding the impoverishment of families.
   
   
   
   

2. **Financial Risk of Patients and Families**: In my work examining a comprehensive set of factors that influence treatment intensity, I have used data from the Dartmouth Atlas of Healthcare in many studies. I was invited to present my work at the 2010 Dartmouth Atlas P01 meeting and went on to develop collaborative relationships with Drs. Jonathan Skinner and Kathleen McGarry, both leading health economists. Our shared efforts have focused on examining the financial risk faced by seriously ill patients and their families. This work has revealed the exceptional level of personal financial burden faced by those with ADRD and highlighted the substantial risk faced by vulnerable social and demographic subgroups of older adults. In addition to peer-reviewed publication of this work, the results were featured by the New York Times, Washington Post, USNews, PBS News Hour, Money magazine, and many other mass media outlets.
   
   

3. **Vulnerable Populations**: Since the beginning of my clinical training I have sought to understand and advocate for the needs of the most vulnerable patients, in particular those older adults who may be at increased risk for adverse outcomes or preference-discordant treatments, such as hospitalized patients with ADRD or those belonging to racial and ethnic minorities. During my Geriatrics fellowship, this interest led me to consider how to approach pain management among elderly patients with ADRD; and as a NRSA fellow to investigate how cultural preferences among older Latinos may affect advanced care planning and end-of-life care. Through these efforts, I recognized the importance of contributing scientific data to policy discussions so that the needs of vulnerable elders may be better understood and effectively addressed.
   


4. **Communication Skills Training for Clinicians**: As highlighted in the Institute of Medicine’s report, *Dying in America, Improving Quality and Honoring Individual Preferences Near the End of Life*, a strong evidence base for clinician-patient communication is needed and effective skills training methods must be translated to clinical practice. As part of my clinical work in geriatrics and palliative medicine and in collaboration my clinical colleagues (marked with * below), I have contributed to the evidence base for communication skills training for front-line clinicians. This work is focused on those skills needed in communication encounters with seriously ill patients and their families and specifically covers topics relevant to the proposed research: diagnosis of dementia, caregiver burden, nursing home placement, and hospice referral.


Complete List of Published Work in MyBibliography:

D. Research Support

**Ongoing Research Support**

R01AG054540 (Kelley) 05/15/17-05/31/22
NIH/NIA

*The Burden of Care for Adults with Dementia*

This study examines the burden of personal costs and caregiving among older adults with and without Alzheimer’s disease and related dementias and how these costs contribute to disparities in care quality and family outcomes, particularly among vulnerable and underserved populations.

Role: Principal Investigator

Project HoPe (Morrison) 07/01/16 – 06/30/21
West Health Institute

*Home Palliative Care for Seriously Ill Adults*

This research project aims to develop, implement and evaluate of a model of community-based palliative care delivered at home for seriously ill adults.

Role: Co-Investigator

R01CA202956 (Wisnivesky/Kong) 07/01/16-6/30/20
NIH/NCI

*Optimizing Treatment of Lung Cancer Patients with Comorbidities*

The objective of this study is to improve the management and outcomes of patients with localized lung cancer and comorbid illnesses. We will use the Lung Cancer Policy Model to perform comparative effective simulation analyses tailored to this population.

Role: Co-Investigator
Measurement of the Quality of Care: Embracing Complexity of Care at the Close of Life

Led by investigators at University of Washington, this project aims to develop a measurement framework and guiding principles on measuring quality of care for emerging community based programs for the seriously ill.

Role: Site Principal Investigator

Serious Illness Accountability Initiative

The Serious Illness Accountability Initiative aims to establish reliable access to high-quality serious illness care across the country by working to define the population, consolidate information, prioritize opportunities, engage relevant stakeholders, and coordinate necessary changes across existing accountability systems.

Role: Co-Investigator

Completed Research Support

Improving Care for Older Adults with Serious Illness

The major goals of this project are to identify older adults at risk of potentially-avoidable, high-cost hospital-based treatment; explore risk factors for potentially avoidable hospital admissions; and understand the barriers to care outside of the hospital among older adults with serious illness.

Prospectively Identifying Older Adults with Serious Illness at Risk for High Healthcare Utilization

The goal of this pilot work is to produce criteria to identify those older adults with serious illness at greatest risk of high utilization and costs, who could benefit most from palliative care intervention. This work will directly support an R01 application in which we will field-test these criteria in a real world healthcare system.

Developing a Center of Excellence in Hospice and Palliative Medicine

The University of Cincinnati’s Department of Family and Community Medicine aimed to use the communication program GeriTalk to train physicians and other healthcare providers to improve advance care planning for older adults with serious chronic disease. I served as a consultant and trainer for a core group of UC faculty as they developed this program locally.

Leveraging the Health and Retirement Study to Advance Palliative Care Research

The Health and Retirement Study (HRS) is uniquely positioned to address many of palliative care’s most pressing and challenging research questions. In particular, several of the palliative care research priorities generated at the Jan 31st 2013 NIH/NPCRC Research Priorities for Geriatric Palliative Care Conference may be amenable to studies using HRS data. This award supported a 1½ day conference of leading researchers using the HRS for palliative care research. A report of the meeting proceedings was published in the Journal of Palliative Medicine with the aim of facilitating other investigators’ work in this field.

Determinants of Care Intensity and Decision Making at the End of Life

This study used secondary data from the Health and Retirement Study, Medicare claims, and the Dartmouth Atlas of Health Care to explore the relationship between patient-level characteristics, regional resources and Medicare expenditures. These analyses aimed to determine to what extent wide regional variation in treatment intensity is explained by patient characteristics versus regional resources and practice patterns.

Opinions: End-of-Life Preferences and Planning Among Older Latinos

This study measured end-of-life care preferences and advance care planning among inner city, Spanish-speaking older Latinos. The study also assessed preferences for family-centered decision making and patient autonomy, while adjusting for level of acculturation.
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Daniel D. Matlock, MD, MPH

eRA COMMONS USER NAME (credential, e.g., agency login): MATLOCK.D

POSITION TITLE: Associate Professor of Medicine

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

<table>
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<tr>
<td>Colorado School of Mines, Golden, CO</td>
<td>B.S.</td>
<td>07/1999</td>
<td>Chemical Engineering</td>
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<tr>
<td>University of Colorado, Aurora, CO</td>
<td>M.D.</td>
<td>05/2003</td>
<td>Medicine</td>
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<td>06/2006</td>
<td>Internal Medicine</td>
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<td>MPH</td>
<td>06/2007</td>
<td>Geriatrics</td>
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<td>University of Colorado</td>
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<td>06/2009</td>
<td>NRSA T32 Fellowship</td>
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A. Personal Statement.

My research is aimed at fundamentally changing and improving how patients make decisions around invasive interventions. I am currently funded under an NIH RO1 and three current or previous PCORI grants studying the implementation and effectiveness of decision aids for implantable cardioverter-defibrillators (ICD) and Left Ventricular Assist Devices (LVAD). I am a member of the Colorado Cardiovascular Outcomes Research Group, one of the top outcomes research groups in the country. I have participated in the American College of Cardiology’s shared decision making task force and I participated in the writing group for an American Heart Association statement entitled “Shared Decision Making in Heart Failure.” I also participated on the International Patient Decision Aid Standards (IPDAS) update writing committee for the chapter on “establishing the effectiveness.” I am currently the lead implementation scientist for the Denver VA medical Center’s Geriatric Research Education and Clinical Center. I have done extensive work on ICD decision making including qualitative and survey work with both patients and clinicians, epidemiological work on ICD practice variations, development of an ICD decision quality measure, and development of 4 ICD decision aids and 2 LVAD decision aids (www.patientdecisionaid.org). I have successfully led two multi-site randomized trials of a decision aids and participated as the site-investigator for two National Heart, Lung, and Blood Institute funded RO1s exploring various aspects of decision making among patients with advanced heart failure. I have mentored or co-mentored four T32 or post-doctoral fellows and nine K level awardees. I currently direct the Shared Decision Making Core at the Adult and Child Consortium for Outcomes Research and Delivery Science where we take a broad view of shared decision making acknowledging that decisions are hard and influenced by many factors beyond cognitive information. We have a strong user-centered design focus to the development of our decision aids for the purpose of enhanced implementation.

My expertise in geriatric decision making, patient reported outcomes, multi-site clinical trials with shared decision making interventions, and mixed methods evaluations are all skills I will bring to this application to help Dr. Stevens-Lapsley in her application to test a driving decision aid among older adults.


B. Positions and Honors

Positions and Employment
2007 – 2009: Instructor, Division of General Internal Medicine, Dept. of Medicine, U of Colorado
2007 – 2009: Medical Director – The Denver Hospice
2009 – 2015: Assistant Professor, Division of General Internal Medicine, Dept. of Medicine, U of Colorado (secondary appointment – Division of Geriatrics)
2009 –: Affiliate Investigator – Kaiser Institute for Health Research
2015 –: Associate Professor, Division of Geriatrics, Dept. of Medicine, U of Colorado
2015 –: Co-Director, Shared Decision Making Core, Adult and Child Consortium for Health Outcomes Research and Delivery Science (ACCORDS)
2015 –: Dir of Implementation Science, VA Geriatric Research Education and Clinical Center

Other Experiences and Memberships
2016-: Associate Editor, Circulation: Cardiovascular Quality and Outcomes
2006 - 2014: Member, Society of General Internal Medicine
2007: Member, American Geriatrics Society
2010-: Member, Society for Medical Decision Making
2013-: Associate Editor, Journal of Palliative Medicine
2013-: Associate Editor, Medical Decision Making
2011-: Member, the International Patient Decision Aid Standards update committee
2007-: Member, The Colorado Cardiovascular Outcomes Research Consortium

Honors
2003: Honor Council Award – University of Colorado
2003: Hippocrates Award – University of Colorado
2003: Adler Scholarship – for service and leadership, University of Colorado
2007: Jahnigen Scholarship - University of Colorado
2007: Alpha Omega Alpha – University of Colorado
2008: George Bennett Fellowship – Foundation for Informed Medical Decision Making
2009: Hartford Geriatrics Health Outcomes Research Scholar
2011: Paul B. Beeson, K23 Career Development Award
2012: Mountain West SGIM Clinician Investigator of the year
2013: University of Colorado, Department of Medicine Early Career Scholar
2015: Colorado ACP Young Physician of the Year

C. Contribution to Science

1. Decision Making for Implantable Cardioverter-Defibrillators (ICD): The major focus of my early research career has been in exploring and documenting the patient’s and clinician’s perspectives related to the decision to receive an ICD for primary prevention. While ICDs confer an important reduction in the risk of death, they come with a host of harms. Also, for some older adults, sudden cardiac death is not the worst path of decline. We have documented a well-meaning clinician perspective to prolong life which can lead to a benevolent/parternalistic approach to decision making. Consequently, patients are poorly informed and
their perspectives are not being explored. Considering these two perspectives, we have developed decision aids designed to support patients in their decision but also to support clinicians in their discussions. (www.patientdecisionaid.org). Through this work, we have pushed the science of shared decision making to explore trade-offs around modes of death and to begin to acknowledge many of the emotional aspects of this decision making. This work has been supported by the NIA (K23) and PCORI. (In addition to relevant publications listed in section A above)

a. Matlock DD; Kutner JS; Emsermann C; Al-Khatib S; Sanders GD; Rumsfeld JS; Dickinson LM; Masoudi FA. Regional Variations in Physicians’ Attitudes and Recommendations Surrounding Implantable Cardioverter-Defibrillators. J Card Fail 2011 17(4):318-24. PMID: 21440870


c. Matlock DD; Peterson PN; Wang Y; Curtis JP; Reynolds MR; Varosy P; Masoudi FA. Variation in Use of Dual Chamber Implantable Cardioverter-Defibrillators: Results from the NCDR. Archives of Internal Medicine 2012;172(8):634-41. PMID: 22529229

d. Lewis KB, Stacey D, Matlock DD. Making Decisions about Implantable Cardioverter-Defibrillators from Implantation to End-of-Life: An Integrative Review of Patients’ Perspectives. The Patient. 2014;7(3):243-60. PMID: 24668214

2. Decision Making for Left Ventricular Assist Devices (LVAD) and Advanced heart failure: Building on our work in ICDs, I teamed up with an excellent group of investigators on the University of Colorado heart failure service and we have explored a host of important research projects related to patient, caregiver, and clinician decision making for LVADs. (In addition to relevant publications listed in section A above). We have demonstrated that current patient directed materials developed by industry are inaccurate, incomplete, and biased. We have also shown that for both patients and caregivers, this decision is uniquely emotional. We have developed a decision aid that we are currently studying in a broad implementation project funded by PCORI.


b. Matlock DD, Carolyn TN, Bekelman DB. Patient Perspectives on Decision Making in Heart Failure. J Card Fail 2010; 16(10):823-826. PMID: 20932464

c. Peterson PN; Shetterly SM; Clarke CL; Bekelman DB; Chan PS; Allen LA; Matlock DD; Magid DJ; Masoudi FA. Health Literacy and Outcomes among Patients with Heart Failure. JAMA. 2011;305(16):1695-170. PMCID: PMC4540335


3. Decision Making in Palliative care: Grounded firmly in the soil of patient autonomy, it is a natural marriage between the fields of decision science and palliative care. We have explored the feasibility of using a decision aid on an inpatient palliative care service. We have learned that tools and decisions in this setting are highly contextual and shared decision making needs to be malleable.


4. The science of shared decision making: Finally, in addition to the above work on decision making related to specific decisions and situations, I have also worked on the science of decision making in general including the development and measurement of outcomes instruments and clinician numeracy.


5. Qualitative and mixed methods research: I also have significant experience in mixed methods and qualitative research in multiple settings. I completed over 10 qualitative studies over the past 9 years.


Complete List of Published Work in MyBibliography:

D. Research Support

Ongoing Research Support
Veterans Administration, Health Services Research and Development IIR 9/1/2017-8/31/2017

Type of Funding: VA HSR&D IIR 16-075 (eRA: I01 HX-002204-01)

Patient Centered Care for Older Adults with Advanced Liver Disease.
Role: Co-Investigator (Multiple PI - Kanwal MPI)
Amount: $980,000

National Heart, Lung, and Blood Institute (R01HL136403-01) 05/15/2017 – 02/28/2022

Title: A Multicenter Trial of a Shared DECision Support Intervention for Patients offered implantable Cardioverter-DEfibrillators: DECIDE - ICD Trial
Role: PI
The overall goal is to assess real-world effectiveness (Aim 1) and implementation (Aim 2) of patient decision aids for high-risk decisions using the implantable cardioverter-defibrillator (ICD) as a model.

The Colorado Health Foundation
Title: Development and Evaluation of an Advance Care Planning Certification Program
Role: Co-PI (Candrian Co-PI)
This award builds on prior CTSA funded community relationship with the Denver Hospice to develop an advance care planning certification program for volunteers.

Department of Medicine – University of Colorado
Title: Early Career Scholar Award
Role: Principal Investigator
This local award is modeled after the NIH Innovator awards to support promising early career investigators.

Patient-Centered Outcomes Research Institute (PCORI) [1310-06998]
Title: A Multicenter Trial of a Shared Decision Support Intervention for Patients and their Caregivers Offered Destination Therapy for End-Stage Heart Failure
Role: Co-I
In this project we will implement a decision aid across six sites studying effectiveness and implementation.

**Completed Research Support**

National Heart, Lung, and Blood Institute (R01HL107268)
Title: "Using Videos to Facilitate Advance Care Planning for Patients"
Role: Site-Investigator (PI – Volandes – Mass. General)
The goal of this randomized clinical trial is to determine if a decision aid designed for patients with heart failure helps improve patients' knowledge and decision making.

National Institutes on Aging (K23AG040696)
Paul B. Beeson K23 Career Development Award
Title: Implanted Defibrillators and Older Adults: A Model of Decisions and Technologies
Role: Principal Investigator
The goal of this career development award is to foster development around shared decision making for implantable cardioverter-defibrillators and older adults.

National Heart, Lung, and Blood Institute (R01HL102084)
Title: "An Intervention to Improve ICD Deactivation Conversations"
Role: Site-Investigator (PI – Goldstein, Mt. Sinai)
The goal of this randomized clinical trial is to evaluate the effectiveness of an educational intervention to improve cardiologists' discussions with patients regarding implantable defibrillator deactivation.

Patient Centered Outcomes Research Institute (IP2 PI000116-01)
Title: Development and Pilot of Three Patient Decision Aids for Implanted Defibrillators
Role: Principal Investigator
In this pilot project, we will develop and pilot three different ICD decision aids in three clinical settings.

Patient Centered Outcomes Research Institute (IP2 PI000116-01)
Title: Evaluation of Dissemination and Implementation of a PCORI pilot developed ICD Patient Decision Aid across a national learning Network
Role: Co-I
In this engagement award, we are evaluating the implementation of the ICD decision aid across a national learning network.

Not Assigned, University of Colorado
General Internal Medicine Small Grants Program
The overarching purpose of our research program is to promote changes in health care systems to achieve patient-centered care. The primary purpose of the proposed research in this application is to determine
whether audiotaping patient-physician interactions is a feasible approach to test an agenda setting letter in a larger efficacy trial.
Role: Co-PI (Matlock, Lewis)
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Vivek Prabhakaran

eRA COMMONS USER NAME (credential, e.g., agency login): vprabhakaran

POSITION TITLE: Associate Professor, Radiology & Neurology

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>Completion Date MM/YYYY</th>
<th>FIELD OF STUDY</th>
</tr>
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<tbody>
<tr>
<td>Northwestern University, Evanston, IL</td>
<td>B.S./HPME</td>
<td>1990-1993</td>
<td>Biomedical Engineering</td>
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<tr>
<td>Stanford University, Stanford, CA</td>
<td>M.D./Ph.D.</td>
<td>1993-2001</td>
<td>Medicine/Neuroscience</td>
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A. Personal Statement

I received an MD/PhD from Stanford Medical School and completed a combined residency/fellowship program at Johns Hopkins Hospital with board certifications in Neurology, Radiology, and Neuroradiology. I joined the faculty of University of Wisconsin-Madison in July 2008 as an Assistant Professor in Neuroradiology with affiliate appointments in Neurology, Psychiatry, Psychology, and the Neuroscience Training Program. My MD/PhD research training in cognitive neuroscience, functional neuroimaging, and clinical training in neurology, radiology, and neuroradiology provides me with a unique background for neurotranslational research. The goal of my research program is to characterize brain plasticity changes in aging and in stroke patient populations as well as develop novel interventions toward recovery. Specifically my lab combines neuroimaging measures such as functional magnetic resonance imaging (fMRI), diffusion tensor imaging (DTI), and other advanced neuroimaging as well as behavioral measures to 1) identify prognostic factors that predict functional recovery, 2) identify adaptive and maladaptive networks that contribute to functional recovery, and 3) identify a critical time window for intervention in these patients. My lab in collaboration with Justin Williams’ Lab is developing Brain-Computer Interface technology as a rehabilitation treatment for patients, which will lead to faster and more optimal level of recovery. My research accomplishments include 70 peer-reviewed journal publications including high profile seminal papers in Nature, Nature Neuroscience, Journal of Neuroscience, and Journal of Neurophysiology, and over 100 presentations/symposiums at various regional, national, and international meetings, which have made an impact in both the scientific and the public arena, including coverage in NPR, BBC, CBS News, Scientific American, and other media. Recently our Rehab BCI work was selected for press release at 2013 RSNA, won magna cum laude at ISMRM, and was selected for podium presentations at 2014 International Stroke conference and American Society for Neuroradiology.

B. Positions and Honors

Positions and Employment

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<th>Year</th>
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<tr>
<td>2001-2002</td>
<td>Internship in Medicine, Johns Hopkins Bayview Hospital Baltimore, MD</td>
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<td>2002-2004</td>
<td>Residency in Neurology, Johns Hopkins Hospital Baltimore, MD</td>
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<tr>
<td>2004-2006</td>
<td>Residency in Radiology, Johns Hopkins Hospital Baltimore, MD</td>
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<td>2006-2008</td>
<td>Fellowship in Neuroradiology, Johns Hopkins Hospital Baltimore, MD</td>
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<tr>
<td>2008-2017</td>
<td>Assistant Professor in Neuroradiology, University of Wisconsin-Madison Madison, WI</td>
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<tr>
<td>2008–current</td>
<td>Director of Functional Neuroimaging in Radiology, UW-Madison, WI</td>
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<tr>
<td>2016-current</td>
<td>Program leader of Neuroimaging Research in Radiology, UW-Madison, WI</td>
</tr>
<tr>
<td>2017-current</td>
<td>Associate Professor in Neuroradiology, University of Wisconsin-Madison Madison, WI</td>
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Honors: Grants/Awards/Certification

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<tr>
<td>1995-1997</td>
<td>Beckmann Scholar (Stanford University)</td>
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<td>Graduate Medical Fellowship (Stanford University)</td>
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1995-1997 NIH Training Fellowship (Stanford University)
1997-2000 NRSA Predoctoral Research Fellowship
2008-present Board Certified Radiologist - American Board of Radiology
2008-present Board Certified Neurologist - American Board of Psychiatry & Neurology
2008-2009 American Society of Neuroradiology NERF Scholar Award
2009 Tong Biomedical Engineering Design Award
2009,10,11 Shapiro Research Awards
2009-2010 ICTR type 1 translational research pilot Award
2009-2011 NIH-NINDS Loan Repayment Grant
2010-2013 NIH ICTR KL2 Scholar Career Development Award
2010 Stroke Rehabilitation Device Patent - Pending through UW WARF
2010 Neuroradiology Certificate of Added Qualification – ABR

Professional Societies
2008-present American Society of Functional Neuroradiology
2006-present American Society of Neuroradiology – Senior Member
2008-present American College of Radiology
2008-present American Academy of Neurology
2004-present Radiological Society of North America
1996-present Society for Neuroscience
2008-present Cognitive Neuroscience Society
2008-present Cognitive Science Society
2008-present Human Brain Mapping
2008-present American Heart Association

Ad Hoc Reviewer:
Journals
Proceedings of National Academy of Sciences, Journal of Cognitive Neuroscience
Neuropsychologia, Cognitive Brain Research, Cerebral Cortex
Neuropsychology, Cognitive Science, Neuroimage, International Stroke Conference
American Journal of Neuroradiology, Psychoneuroendocrinology, Intelligence
Behavioural Brain Sciences, Behavioural Brain Research

Study Section Reviewer
ANIE meetings on Feb. 25, 2013; Dec. 11, 2013
NINDS CTE mail in review 7/19/13 - meeting 2013/08 ZNS1 SRB-E (57) - NINDS Special Emphasis Panel
NIH / SBIB R15 Review Meeting 6/12/14, 2/25/15
NST-2 October 27-28, 2014 at the Fairmont Hotel in Washington, DC.
UW ICTR Scientific Review Committee
UW Clinical Neuroengineering Training Program grants

C. Contribution to Science
1. Developing various neuroimaging tools and analyses for modeling brain function in healthy normals and patient populations: Our group has been focused on developing resting state fMRI along with task fMRI and other neuroimaging tools to study brain function using advanced statistical analyses. Resting state fMRI is an exciting new tool which has the potential to complement and possibly replace task fMRI. Task fMRI has many performance confounds such as performance, attention, and strategy differences among individuals and groups making activation maps difficult to interpret and therefore characterizing brain function difficult. Validation and improving the reliability of resting-state fMRI is currently a hot topic as this has become important so we can properly characterize brain function in both normals and patient population, which can potentially be used as a biomarker to differentiate normals and patients and in patient diagnostics and prognostics.


2. Characterizing brain function in young and old healthy normals using advanced neuroimaging tools: Our group has investigated group and individual differences in normal brain function in both young and old healthy normals using neuroimaging tools with a variety of neuroimaging analyses. By characterizing normal brain function in different age groups, different baselines for different ages can be used as a reference as we aim to restore brain function in patient populations of various age groups.


d. Meier TB, Nair VA, Meyerand ME, Birn RM, Prabhakaran V. The neural correlates of age effects on verbal-spatial binding in working memory. Behav Brain Res. 2014 Jun 1;266:146-52. PMCID: PMC4039180.


3. Characterizing brain function in stroke patient populations using advanced neuroimaging tools: Our group has mainly focused on understanding stroke plasticity. We hope that studying brain plasticity will allow us to prognosticate outcome in these patients, as well as isolate a critical time window of intervention for various therapies, and characterize adaptive and maladaptive networks involved in brain plasticity. Future treatments can be aimed at facilitating adaptive and suppressing maladaptive networks in order to optimize recovery.


4. Clinical application of BCI intervention in stroke patients: We are also developing a neurorehabilitation tool using brain-computer interface technology which will allow us to harness plasticity principles using a
real-time image-guided rehabilitation approach in patient populations and have published several papers in using this approach in stroke patients.


Full list of publications available on google scholar author homepage: https://scholar.google.com/citations?hl=en&user=nTd0-IAAAAAJ&view_op=list_works&sortby=pubdate&cstart=60&pagesize=20

D. Research Support:

Active
NIH-NINDS Beeson K23 Career Development Award (Prabhakaran) 01/15/2014-12/31/2017
Stroke Plasticity. Role: PI

1U10NS086533-01 Dempsey(PI) 09/25/2013-07/31/2018
NIH NINDS UNIVERSITY OF WISCONSIN STROKE REGIONAL COORDINATING CENTER (UW RCC)
Role: Consultant

AHA Grant in Aid - Midwest Award (Prabhakaran) 07/01/2015-06/30/2017
Efficacy of a Novel Stroke Rehabilitation Device. Role: PI

ICTR-Novel Therapeutics Discovery & Development Pilot Program (Prabhakaran) 09/01/2015-08/30/2017
A BCI-EEG driven robotic stroke rehabilitation device. Role: PI

NIH U01 NS093650-01 Epilepsy Connectome Grant (Binder & Meyerand) 09/01/2015-08/30/2019
Role: Co-Investigator

NIH U01EB02118 One Stop Shop Imaging for Acute Ischemic Stroke Treatment (Chen) 09/30/15 – 06/30/19
Role: Co-Investigator

NIH 1UF1AG051216-01 Alzheimer’s Disease Connectome Grant (Li & Bendlin) 04/01/2016 -03/31/2020
Role: Co-Investigator/Site PI

NCAA-DOD Grant Alliance (MCW PI: McRae; UW SitePI: Brooks ) 7/01/2015-9/14/2017
Role: Co-Investigator
Completed (in Past Three Years)

NIH-NINDS R01 NS081926-01 (PI: Zhou - Stanford/PaloAltoVA) 04/01/2013-03/31/2017
Long-term cognitive effects of microembolization associated with carotid stenting. Role: Site PI

AHA Innovative Research Award – National (Prabhakaran) 01/01/2015-12/31/2016
Efficacy of a Novel Stroke Rehabilitation Device. Role: PI

Foundation of ASNR Comparative Effectiveness Research Award (Prabhakaran) 07/01/2014-6/30/2016
Clinical Utility of FMRI in brain tumor patients. Role: PI

UW ICTR Awards NIH/UL1RR025011 (Drezner)
ICTR KL2 Scholar Mentored Career Development Award (Prabhakaran) 06/01/2010 -01/14/2014
Characterizing Plasticity Changes in Stroke Patients. Role: PI
ICTR Pilot Award (Prabhakaran & Williams) 07/01/2013 -06/30/2014
Efficacy of Novel Stroke Rehabilitation Device. Role: PI
ICTR Pilot Award (Prabhakaran) 08/01/09-12/31/10
Characterizing Plasticity Changes in the Brain after a Stroke using fMRI. Role: PI

UW ICTR TL1 Awards (Mentee - B. Young, Mentors - Prabhakaran & Williams) 09/01/2013-06/30/2015
Efficacy of Novel Stroke Rehabilitation Device;
UW ICTR TL1 & CNTP Awards (Mentee – C. La, Mentors - Prabhakaran & Meyerand) 09/01/2012-06/30/2015
Stroke Plasticity. Role: Mentor

UW-Madison Graduate Student Grant (PI: Dorothy Edwards) 07/01/2012 - 06/2014
Neural Correlates of Older Driver Performance. Role: Co-Investigator

R41 NS081926-01 NIH (PI: Deyoe) 12/01/2012 – 06/30/2014
Presurgical brain mapping with functional connectivity. Role: Site PI

RSNA seed grant (Homer & Prabhakaran) 07/01/2012 – 12/31/2013
Language Reorganization and Functional and Structural Connectivity Patterns in Children with Benign Epilepsy with Centrencephalotemporal Spikes (BECS) Role: Mentor/co-PI

American Heart Association Postdoctoral Fellow Research Award (Nair & Prabhakaran) 07/1/2011 – 06/30/2013
Characterizing Brain Plasticity in Stroke Patients. Role: Mentor/PI

UW-Milwaukee-Madison Intercampus grant (Justin Williams & Inga Wang) 07/1/2011-06/30/2012
An EEG Triggered Robotic Stroke Rehabilitation Device
The goal of this project is to develop a next-generation stroke rehabilitation device combining Brain-Computer Interface with Robotics. Role: Co-Investigator

RC1MH090912-01 NIH NIMH Challenge Grant (Meyerand, M Elizabeth) 09/30/2009 - 04/30/2012
Validating Resting State fMRI Derived Brain Connectivity. Role: Co-Investigator

Coulter Award (Williams & Prabhakaran) 04/01/2009-09/30/2011
W.H. Coulter Translational Partnership in Biomedical Engineering Research Grant Fund
A Closed Loop Neural Activity Triggered Stroke Rehabilitation Device
The goal of this project is to develop a closed-loop neurological feedback device that can be utilized during early-phase and chronic stroke rehabilitation. Role: Co-PI
NAME: Prior, Steven John

eRA COMMONS USER NAME (credential, e.g., agency login): SPRIOR

POSITION TITLE: Assistant Professor, Research Physiologist

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>Completion Date MM/YYYY</th>
<th>FIELD OF STUDY</th>
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<tbody>
<tr>
<td>University of Pittsburgh, Bradford, PA</td>
<td>B.S.</td>
<td>04/99</td>
<td>Exercise Science</td>
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<tr>
<td>Ohio State University, Columbus, OH</td>
<td>M.A.</td>
<td>08/01</td>
<td>Exercise Physiology</td>
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<tr>
<td>University of Maryland, College Park, MD</td>
<td>Ph.D.</td>
<td>08/05</td>
<td>Exercise Physiology</td>
</tr>
<tr>
<td>University of Maryland School of Medicine, Baltimore, MD</td>
<td>Postdoc</td>
<td>07/08</td>
<td>Gerontology – Exercise, Angiogenesis and Metabolism</td>
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</table>

A. Personal Statement

My research uses translational exercise intervention studies to determine mechanisms by which the risk for cardiometabolic diseases and associated vascular impairments may be reduced in aging. The current research in my laboratory investigates circulating angiogenic cell (CAC) mechanisms underlying abnormal angiogenesis, vascular dysfunction, insulin resistance, and mobility impairments in aging, type 2 diabetes (T2DM), and peripheral arterial disease (PAD), as well as how aerobic exercise training may restore CAC function and angiogenesis and in these individuals. Through my K23 Beeson Award, I have developed expertise in the assessments of angiogenesis, skeletal muscle capillarization, and techniques to assess vascular function in vivo. Furthermore, my laboratory has developed basic science and cell culture techniques to study the number and function of circulating angiogenic cells (CACs) that may contribute to improvements in angiogenesis and vascular function induced by exercise training and other therapies. The training and research in my Beeson Award has already resulted in several original research publications, allowed me to successfully compete for NIH and VA grants, and generated novel preliminary data for pending and future research grant applications.

Publications most relevant to this project:


B. Positions and Honors
Positions and Employment

1999-2001  Graduate Associate, Sport and Exercise Science Department, Ohio State University, Columbus, OH
2002-2004  Predoctoral Research Fellow: David H. Clarke Fellowship, Department of Kinesiology, University of Maryland, College Park, MD
2004-2005  NRSA Predoctoral Research Fellow (T32 – AG00268): Department of Kinesiology, University of Maryland, College Park, MD
2005-2008  NRSA Postdoctoral Research Fellow (T32 – AG000219): Department of Medicine, University of Maryland School of Medicine, Baltimore, MD
2008-2012  Health Science Specialist: Baltimore VA Medical Center, Department of Veterans Affairs, Baltimore, MD
2008-2017  Assistant Professor: Division of Gerontology, Department of Medicine, University Of Maryland School of Medicine, Baltimore, MD
2017-2017  Associate Professor: Division of Gerontology, Department of Medicine, University Of Maryland School of Medicine, Baltimore, MD
2012-Present  Research Physiologist: Baltimore VA Medical Center Geriatric Research, Education and Clinical Center, Department of Veterans Affairs, Baltimore, MD
2017-Present  Adjunct Associate Professor: Division of Gerontology, Department of Medicine, University Of Maryland School of Medicine, Baltimore, MD
2017-Present  Assistant Professor: Department of Kinesiology, University of Maryland School of Public Health, College Park, MD

Honors

1999   Outstanding Achievement Award, Department of Sport and Exercise Science, University of Pittsburgh.
2003   Ilene H. Nagel Travel Grant, Division of Research and Graduate Studies, University of Maryland.
2002   David H. Clarke Fellowship, Department of Kinesiology, University of Maryland.
2004   Jacob K. Goldhaber Travel Grant, Division of Research and Graduate Studies, University of Maryland.
2007   New Investigator Research Award, The Obesity Society
2012   American Diabetes Association Young Investigator Travel Grant
2012-2017  Beeson Scholar, NIA and the American Federation for Aging Research

C. Contribution to Science

1. Identifying genetic influences on cardiovascular outcomes in older adults: My early research and publications focused on the identification of genetic polymorphisms affecting risk factors for cardiovascular diseases and the effects of exercise interventions on these outcomes. Under the tutelage of my mentors, I performed the first screening of the hypoxia-inducible factor 1α (HIF1A) gene for variation, identifying two common polymorphisms that are associated with differential cardiorespiratory fitness levels before and after exercise training in older adults. This stimulated further interest in hypoxia and angiogenesis in muscle and prompted my dissertation work that studied the effects of genetic variation in the vascular endothelial growth factor (VEGF) gene and identified VEGF haplotypes that affect hypoxia-induced VEGF expression in skeletal muscle. We also reported effects of C-reactive protein genotypes on circulating C-reactive expression in skeletal muscle. We also reported effects of C-reactive protein genotypes on circulating C-reactive protein levels in older adults, as well as significant genetic contributions to skeletal muscle mass and strength in a large, multigenerational family study. Together, these studies established genetic factors that influence the expression and response to exercise of angiogenic and inflammatory cytokines in older adults, as well as skeletal muscle and cardiorespiratory fitness phenotypes.


2. **Studies of the metabolic effects of acute and chronic exercise:** We conducted studies examining the metabolic responses to acute exercise in both young adults and sedentary, insulin-resistant older adults. A recent study identified impaired metabolic flexibility during aerobic exercise in older adults with impaired glucose tolerance compared to those with normal glucose tolerance. This finding suggests that the ability to shift from fat to carbohydrate oxidation with increasing exercise intensity is reduced in overweight and older subjects with insulin resistance, and that this limitation may affect the ability to supply energy to skeletal muscle during exercise. Our studies of chronic exercise have helped to identify the beneficial effects of lifestyle interventions such as exercise and weight loss to improve circulating markers of cardiometabolic health status, reduce intramyocellular lipid levels, and improve skeletal muscle metabolism and glucose tolerance in obese, insulin-resistant, older adults.


3. **Identification of skeletal muscle capillarization as a contributor to exercise-induced improvement in insulin sensitivity:** My recent work examined skeletal muscle capillary rarefaction in older adults with impaired glucose tolerance and T2DM. In our first studies, we found that skeletal muscle capillary density is lower in insulin-resistant older adults, and that low capillary density is associated with lower insulin sensitivity and the degree of glucose intolerance in older adults. Subsequent studies addressed the effects of exercise and weight loss interventions to improve angiogenesis, finding that aerobic exercise with or without weight loss improves capillary density in older insulin-resistant adults, and that exercise-induced increases in insulin sensitivity are directly related to the increase in capillary density. Our most recent publication used an aerobic exercise training intervention followed by two-week detraining to establish an effect of exercise-induced increases in skeletal muscle capillary density on insulin sensitivity that was independent of changes in insulin signaling and action. Together, these studies suggest that angiogenesis and microvasculature may play a key role in modulating the development and reversal of insulin resistance in aging.


4. **The effects of acute and chronic exercise on CAC and angiogenic factors:** Our recent work also examined the relationship between CAC function and skeletal muscle capillarization. A key finding from this study is that reduced skeletal muscle capillarization in insulin resistance may, in part, be attributable to CAC dysfunction, as low CD was associated with low CAC function in impaired glucose tolerant older adults. We also studied the
effects of acute and chronic exercise on CAC oxidative stress and circulating levels of angiogenic and inflammatory cytokines in healthy young adults. These studies found that physical inactivity is associated with increased oxidative stress in CACs in the form of higher superoxide levels attributable to NADPH-oxidase (Nox2) and superoxide dismutase-1 (SOD-1) expression. These studies demonstrate CAC dysfunction in insulin resistance and identify potential oxidative stress mechanisms by which exercise training may improve CAC function to enhance vascular function in older adults with cardiometabolic diseases, and to enhance the efficacy of trials using therapeutic applications of autologous CACs.


Complete List of Published Work in MyBibliography:

D. Research Support

**Ongoing Research Support**

**NIH/NIA R21-AG-054935** (Prior, PI) 9/2017 – 8/2019
Neuromuscular rehabilitation to improve function in older adults with PAD
This study will determine whether neuromuscular electrical stimulation plus exercise improves skeletal muscle capillary density, muscle perfusion and ambulatory capacity more than exercise in older patients with peripheral arterial disease.
Role: PI

**NIH/NIA P30 AG-028747** (Magaziner, PI) 7/2016 - 6/2021
Claude D. Pepper Older American Independence Center
The center conducts research examining the mechanisms underlying the functional impairments associated with stroke, hip fracture, and prevalent chronic diseases in older people; and also translates interventions developed in clinical laboratories and in other clinical centers for implementation in community settings.
Role: Co-Investigator

**Veterans Affairs Merit Review Award** (Prior, PI) 10/2013 - 9/2018 (nce)
Exercise training, CACs, and vascular function in older veterans with IGT
The major goal of this study is to determine whether aerobic exercise training will improve CAC mobilization in older veterans with impaired glucose tolerance, and whether the improvements in CACs translate to improvements in angiogenesis, skeletal muscle capillarization, and insulin sensitivity.
Role: PI

**Veterans Affairs SPiRE Award** (Prior, PI) 1/2016 – 12/2017
Post-revascularization rehabilitation to improve function in Veterans with PAD
This study tests the hypothesis that a supervised rehabilitation program will improve mobility function and ambulatory capacity more than standard care, and these improvements occur through including increases in angiogenesis, capillary density, and muscle perfusion in veterans with PAD after revascularization.
Role: PI

**Veterans Affairs Geriatric Research, Education and Clinical Center** (Katzel, Director) 10/2008 - 9/2018
The GRECC supports clinical investigation to improve the health of older veterans with cardiovascular and metabolic diseases. GRECC investigators test the hypothesis that susceptibility to CVD in older veterans can be attenuated by changing lifestyle habits of diet and physical inactivity.
Role: Co-Investigator
Multimodal exercise and weight loss in older obese veterans with dysmobility
This study tests the hypothesis that a center-based exercise rehabilitation intervention added to a hypocaloric nutritional intervention will be more effective than a nutritional intervention alone in maintaining muscle mass and improving muscle quality, metabolic function and economy of gait, and that these will translate to improvements in fitness, physical function and gait speed in obese, older veterans with mobility limitations
Role: Co-Investigator

Exercise for Prevention of PTS through Enhanced Resolution of Thrombus
The goal of this study is to determine whether a therapeutic exercise program prevents post-thrombotic syndrome in patients with acute deep vein thrombosis, and to assess the effects of exercise therapy on fibrinolysis and thrombus resolution, as well as venous hemodynamics and exercise capacity.
Role: Co-Investigator

Exercise and weight loss to improve mobility function in older Veterans with PAD
The goal of this mentored award is to examine the effects of exercise and exercise plus weight loss on mobility function and underlying mechanisms including inflammation and lipid infiltration in obese Veterans with PAD.
Role: Mentor

Peer support for exercise in older Veterans with psychotic disorders
The goal of this mentored award is to examine the feasibility and efficacy of peer coaching and education on participation in supervised exercise and physical function and fitness in Veterans with serious mental illness.
Role: Mentor

Effects of aerobic exercise on EPCs and vasculature dysfunction in Aging and T2DM
This mentored career development award provided the training to discover mechanisms underlying endothelial progenitor cell (EPC) dysfunction in middle-aged vs. older adults with T2DM.
Role: PI

Translational Studies of a Novel Cardiovascular Disease Risk Factor: Endothelial Progenitor Cells.
The aims of this grant were to 1) Determine if EPCs from older athletes exhibit lower oxidative stress than matched older sedentary individuals; 2) Determine whether sedentary individuals will improve, and training cessation in older athletes will worsen EPC oxidative stress and EPC function.
Role: Co-Investigator

Strength training for skeletal muscle adaptation after stroke
This study investigated strength training (ST) to improve abnormalities in paretic and non-paretic leg muscle volume and composition compared to an attention-matched control regimen of supervised stretching over a 3-month intervention period.
Role: Co-Investigator
NAME: Smith, Alexander K

eRA COMMONS USER NAME (credential, e.g., agency login): Alexanderks

POSITION TITLE: Associate Professor in Residence

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<th>FIELD OF STUDY</th>
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<tr>
<td>University of Michigan, Ann Arbor</td>
<td>B.S.</td>
<td>06/1996</td>
<td>High Honors, Biology</td>
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<tr>
<td>University of California, Berkeley</td>
<td>M.S.</td>
<td>06/1999</td>
<td>Health and Medical Sciences</td>
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<td>University of California, San Francisco</td>
<td>M.D.</td>
<td>06/2002</td>
<td>Medicine</td>
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<td>Brigham and Women's Hospital, Boston</td>
<td>Intern</td>
<td>06/2003</td>
<td>Medicine</td>
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<tr>
<td>Brigham and Women's Hospital, Boston</td>
<td>Resident</td>
<td>06/2005</td>
<td>Medicine</td>
</tr>
<tr>
<td>Dana Farber Cancer Institute and Brigham and Women's Hospital, Boston</td>
<td>Fellow</td>
<td>06/2006</td>
<td>Palliative Care</td>
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<tr>
<td>Harvard Medical School and Beth Israel Deaconess Medical Center, Boston</td>
<td>Fellow</td>
<td>06/2008</td>
<td>General Internal Medicine</td>
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<tr>
<td>Harvard School of Public Health, Boston</td>
<td>M.P.H.</td>
<td>06/2008</td>
<td>Clinical Effectiveness</td>
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A. Personal Statement

I am an Associate Professor of Medicine at UCSF and a general internist dually trained in palliative medicine and health services research. I am currently the PI of an NIA funded R01 to develop prognostic models for the general population of older adults. I was recipient of NIA Paul Beeson K23, SGIM/T Franklin Williams Scholar, Greenwall Faculty Scholar, NIA Diversity Supplement, and National Palliative Care Research Center awards.

My research is focused on improving quality of life and patient-physician communication for older adults with late-life disability. Many young and healthy people assume that quality of life is poor for people with late-life disability. Our work has demonstrated that with support, a good quality of life is possible in late-life disability.

I am a strong proponent of technology. I am a co-founder of ePrognosis.org, an online compendium of prognostic calculators, and co-founded GeriPal, a blog and podcast that provides an open forum for the exchange of ideas between the geriatrics and palliative care communities. I also serve as Deputy Editor at the Journal of the American Geriatrics Society (JAGS).

I am committed to mentoring. Mentoring is the most enjoyable aspects of my professional work. My mentees have published first author manuscripts in major academic journals, including one in JAMA, four in JAMA Internal Medicine, three in Journal of General Internal Medicine, and seven in Journal of the American Geriatrics Society. Five of my mentees have successfully obtained research faculty positions, and four have secured junior faculty career development award funding. I serve as co-director of UCSF’s NIA-funded T32 training program in aging research.

B. Positions and Honors

Principal Positions Held

<table>
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<tr>
<th>Year</th>
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<th>Institution</th>
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<tr>
<td>2002</td>
<td>2005</td>
<td>Brigham and Women’s Hospital/HVMA Primary Care, Boston, MA</td>
<td>Internal Medicine Residency</td>
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<tr>
<td>2005</td>
<td>2006</td>
<td>Brigham and Women’s Hospital</td>
<td>Fellow</td>
<td>Pain and Palliative Care</td>
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</table>
2006–2008 Boston, MA  Beth Israel Deaconess Med Center, Fellow General Internal Medicine

2006–2008 Boston, MA  Dana Farber Cancer Institute and Brigham and Women’s Hospital, Attending Physician Pain and Palliative Care Service

2008–present Boston, MA  University of California, San Francisco, CA  Assistant Professor Division of Geriatrics

2014–present Boston, MA  University of California, San Francisco, CA  Associate Professor Division of Geriatrics

Honors and Awards

1996 Phi Beta Kappa University of Michigan
1999 Janice Kuby Memorial Scholarship UC Berkeley/UCSF Joint Medical Program
2002 Outstanding Resident Mentor Award Brigham and Women's Hospital
2010 New Investigator Award American Geriatrics Society
2010 Greenwall Faculty Scholar in Bioethics Greenwall Foundation
2010 T Franklin Williams Scholar Award in Geriatrics Society of General Internal Medicine
2012 Paul Beeson Career Development Award in Aging American Federation for Aging Research/NIA
2012 Named one of "The 50 Best Medical Professors on Twitter" OnlineColleges.com
2012 Best Paper of the Year Award Society of General Internal Medicine
2012 Top Reviewer Annals of Internal Medicine
2013 Nominated as a hospice and palliative care "visionary" who greatly influenced the development and expansion of the field. American Academy of Hospice and Palliative Medicine
2013 Research Mentor of the Year Award Medical Students in Aging Research (MSTAR)
2014 PDIA Palliative Medicine National Leadership Award American Academy of Hospice and Palliative Medicine
2017 UCSF School of Medicine Alumni Board

C. Key Contributions to Science:

1) Prognostic indices and ePrognosis:

I knew that prognostic indices for the elderly existed but were buried in the literature. I therefore mentored a UCSF medical student to conduct a systematic review of prognostic indices for older adults, published in JAMA. We took the additional step of launching a website, ePrognosis, an online compendium of the prognostic indices included in our systematic review. We did this so that clinicians could have easy access to these prognostic indices at the point of care for patients. We were blown away by the response to our paper and systematic review, including half a million page views in the first week, largely driven by stories in the New York Times and USA Today. Our most recent data indicate that ePrognosis now averages over 3,500 users per month, and that 85% of users are clinicians. We subsequently launched ePrognosis: Cancer Screening in both an iPhone/iPad app and website.


d) Thai, JN, Walter LC, Eng C, **Smith AK.** "Every Patient is an Individual": Clinicians Balance Individual Factors When Discussing Prognosis with Diverse Frail Elders. *J Amer Geriatr Soc.* Jan 15 2013. PMCID: PMC3573246

2) Bioethics issues in older adults with disability and dementia

Working with national leaders in bioethics, I have authored a series of case-based conceptual bioethics papers that address common everyday dilemmas. For example, in a series of conceptual ethical analysis published in the New England Journal of Medicine, I argue that clinicians have an obligation to offer to discuss prognosis and associated uncertainty with very elderly patients and those with a limited prognosis. In another thought piece published in NEJM we argue for creatively maximizing the safety and independence of older adults with dementia living alone.

a) **Smith, AK**, Williams, B, Lo, B. Discussing Overall Prognosis with the Very Elderly. *N Eng J Med*; 2011; 365:2149-2151. PMCID:PMC3760676


3) Quality of life in disability and dementia

Most younger adults fear “the ravages of age” and disability that can occur in late life. My research has demonstrated that while pain, cognitive impairment, and disability are common and accelerates at the end of life, a good quality of life is possible with adequate support.


b) **Smith AK**, Walter LC, Miao Y, Boscardin WJ, Covinsky KE. Disability during the last two years of life. *JAMA Intern Med.* 2013. PMCID:PMC3773297

c) King J, Yourman L, Ahalt C, Eng C, Knight S, Pérez-Stable E, **Smith AK.** Quality of life in late-life disability: “I don't feel bitter because I am in a wheelchair.” *J Amer Geriatr Soc*; Mar 2012;60(3):569-576. PMCID:PMC3619719


4) Healthcare disparities in serious illness

I remain seriously concerned that the rising tide of hospice and palliative care has not lifted all boats equally. For example, whites have benefited disproportionally from the remarkable expansion of hospice services over the last 20 years. I am committed to a research program that investigates and seeks to eliminate disparities in end-of-life care, and to conducting research in diverse populations of older adults.

a) **Smith AK**, Sudore R, Pérez-Stable E. Palliative care for Latino patients and their families: "Whenever we prayed, she wept." *JAMA.* 2009;301:1047-1057. PMID: PMC2782583


5) Health services use at the end of life

I have serious concerns about the over-use of aggressive, expensive, life prolonging treatments at the end of life, particularly for older adults. I have conducted and mentored others in a series of studies documenting high use of emergency departments, skilled nursing facilities, and other forms of high intensity care in the months prior to death.


A complete list of my publications can be found at: https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/46170672

D. Research Support

**Ongoing Research Support**

**R01AG047897 (Smith & Lee) 05/15/2015 – 01/31/2019**

NIH/NIA Parent R01

*Developing prognostic models for life expectancy and geriatric outcomes*

The objective of this project is to create prognostic tools for estimating life expectancy and time to the onset of disability, difficulty managing finances or medications, and mobility impairment.

Role: Co-Principal Investigator

**R01AG047897-02S1 (Smith & Lee) 09/15/2016 – 01/31/2019**

NIH/NIA Administrative Supplement

*Defining the Cohort, Outcomes and Predictors for a Prognostic Index for Older Patients with Alzheimer’s Disease or Related Dementias*

The objective of this project is to conduct preliminary work which will support a subsequent application to develop and validate prognostic tools for estimating life expectancy and time to severe disability in older adults with dementia.

Role: Co-Principal Investigator

**R01AG047897-03S1 (Smith & Lee) 05/01/2017 – 01/31/2019**

NIH/NIA Administrative Diversity Supplement

*Prognostic Information and Decision Making among Older Adults with Mild Cognitive Impairment*

The goals of this project are:

1. To build on Dr. Romo’s research by expanding to a population largely been overlooked in research: diverse elders with mild cognitive impairment, a precursor condition to Alzheimer’s and related dementias, and

2. To support Dr. Romo’s career development and position him to secure an NIH K01 award.

Role: Co-Principal Investigator

**K23AG040772 (Smith) 09/01/2012 – 11/30/2017**

NIH/NIA/AFAR

*Late Life Disability: Epidemiology, Symptoms, Quality of Life*

The research aims are (1) using the NIA funded Health and Retirement Study, to provide the first nationally representative estimates of the amount of time elders spend in disabled states prior to death, and examine how key demographic characteristics impact this amount of time; (2) using a cross sectional primary data
study, to test and refine a conceptual model of quality of life for disabled elders; and (3) to pilot a longitudinal study of factors influencing quality of life over time, including end-of-life outcomes.

Role: Principal Investigator

**R21CA212386 (Schonberg)** 07/01/2017-06/30/2019
NIH/NCI
*Discussions of Prognosis and Stopping Cancer Screening in Older Adults*
The aim of this grant is to better understand how PCPs should discuss older adults’ prognosis in the context of discussing stopping cancer screening. We aim to develop strategies for PCPs to use to approach these discussions and to test these strategies. Ideally, providing older adults with more information about their prognosis would allow older adults to make more informed medical decisions and may help those with short life expectancy avoid medical interventions with a long lag-time to benefit (e.g., cancer screening) that may only put them at risk of harm.

Role: Co-Investigator

**No grant # (Smith)** 07/01/2015-10/31/2017 (NCE)
National Palliative Care Research Center
*Prognosis Communication with Disabled Elders*
The objective is to investigate the safety and response to receiving calculated prognosis among older adults with late-life disability.

Role: Principal Investigator

**P30AG044281 (Covinsky)** 07/15/2013-06/30/2018
NIH/NIA
*UCSF Older Americans Independence Center*
The goal of this project is to improve the health care and quality of life of vulnerable older adults with or at risk for disability.

Role: RCDC Advanced Scholar

**Completed Research Support**

**No grant # (Smith)** 07/01/2010-06/30/2015 (NCE)
Greenwall Foundation
*Disclosure of Prognosis: Normative Issues and Implications for Practice and Policy*
Project goal is to address three normative issues in disclosure of prognosis.

Role: Principal Investigator
NAME: Stephen Thielke

eRA COMMONS USER NAME (credential, e.g., agency login): THIELKE

POSITION TITLE: Associate Professor

CONTACT INFORMATION: Geriatric Research, Education, and Clinical Center
1660 South Columbian Way, Seattle, WA 98108
Phone: (206) 764-2815 Fax: (206) 764-2567

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<tr>
<th>INSTITUTION AND LOCATION</th>
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<th>FIELD OF STUDY</th>
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<tr>
<td>Reed College, Portland, Oregon</td>
<td>BA</td>
<td>1989-1992</td>
<td>Classics</td>
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<tr>
<td>King's College, Cambridge University, UK</td>
<td>Visiting Scholar</td>
<td>1992-1993</td>
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<tr>
<td>University of Washington, Seattle</td>
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<td>Classics</td>
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<td>MD</td>
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</tr>
<tr>
<td>University of Washington, Seattle</td>
<td>MS</td>
<td>2006-2008</td>
<td>Health Services</td>
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</tbody>
</table>

A. Personal Statement

As a geriatric psychiatrist and health services researcher at the Puget Sound VA Geriatric Research, Education, and Clinical Center, I am eager to improve mental and physical health care for older Veterans, by ensuring that they are active participants in health care decisions, particularly around medication use. After my clinical fellowship in geriatric psychiatry, I completed a T32 Geriatric Mental Health Services Research Fellowship. In 2010, I became the first recipient of an NIMH-funded K23 Beeson Career Development Award, focused on personalized feedback to older adults with depression. I am principal investigator on VA Merit Award, examining discontinuation of medications for Alzheimer's dementia. I am Associate Director for Education and Evaluation at the Geriatric Research, Education, and Clinical Center (GRECC) of the Seattle VA. I serve as chair of the VA national Dementia Education Workgroup, and co-chair of the VISN20 Dementia Committee and the VA national Dementia Education and Training Committee. I have over a decade of clinical experience in dementia care in our VA memory disorders clinic.

B. Positions and Honors

Positions and Employment
1993-1995 Teaching and Research Assistant, University of Washington Department of Classics
1995-2000 Information Technologist, University of Washington School of Dentistry
2001-2005 Resident Physician, University of Washington Department of Psychiatry
2003-2005 Resident Member, American Psychiatric Association (APA) Council on Social Issues and Public Psychiatry
2003-2006 Resident Member, Washington State Psychiatric Association Executive Board
2005-2006 Senior Clinical Fellow, Geriatric Psychiatry, University of Washington
2006-2008 Senior Research Fellow, Geriatric Mental Health Services Research, University of Washington
2008-2010 Acting Assistant Professor, Psychiatry and Behavioral Sciences, University of Washington
2008-present Investigator, Geriatric Research, Education, and Clinical Center, Puget Sound VA Health Care System
2010-2011 President, Washington State Psychiatric Association
2010-2014 Assistant Professor, Psychiatry and Behavioral Sciences, University of Washington
2010-present Acting Associate Director for Education and Evaluation, Geriatric Research, Education, and Clinical Center, Puget Sound VA Health Care System
2013-2014 Health and Aging Policy Fellow (sponsored by the Atlantic Philanthropies and the American Political Science Association)
2014-present Associate Professor, Psychiatry and Behavioral Sciences, University of Washington
2014-present Associate Director for Education and Evaluation, Geriatric Research, Education, and Clinical Center, Puget Sound VA Health Care System

Honors and Awards
1991 National Endowment for the Humanities Younger Scholars Grant
1992 Class of 1921 Prize for Excellence in Thesis Work (Reed College)
1992 Phi Beta Kappa, Reed College
1998 Stanley Foundation Award for Independent Study in Medical Science
2003-2005 APA/BMS Fellowship Award in Public Psychiatry
2004 APA William Sorum Award for Outstanding Resident Contribution to a District Branch
2004-05 American Association for Technology in Psychiatry Fellowship Award
2005 Innovative Contribution Award, University of Washington Psychiatry Residency
2006-2008 NIH Loan Repayment Plan Recipient
2008-2010 NIH Loan Repayment Plan Extension Recipient
2010-2012 NIH Loan Repayment Plan Extension Recipient

C. Contributions to Science

1. End-of-life decision-making: By re-examining the history, context, use, and goals of advance directives, we developed a novel framework to ensure that patients can express their wishes around end-of-life. This has been accepted for publication in the high-visibility Journal of the American Medical Directors Association.

2. Health technologies among older adults: I have worked with researchers from a variety of disciplines (nursing, rehabilitation, computer science, informatics) in order to understand the practical and theoretical limits of technologies to enhance clinical care or increase quality of life. This work has exposed a variety of barriers to widespread use of technologies, in particular that such technologies often do not meet the needs of patients or providers. This body of work provides a framework to guide the development of clinical and decision-making tools.

3. Longitudinal course of symptoms during aging: There are many untested assumptions about the course of physical and mental health symptoms during aging and cognitive decline. By applying transition probability
analyses to data from the Cardiovascular Health Study, my colleagues and I found that many of these assumptions are inaccurate. Even into advanced age, health symptoms are dynamic, and the probability of improvements year-to-year is high. This body of work has reformulated how health status changes with advancing age, and has encouraged additional research about promoting resilience.


Objective behaviors and subjective states: Depression is traditionally assumed to involve psychomotor changes, but these have not been established using objective measurements in real-world settings. Novel technologies allow for unobtrusive observation of day-to-day functioning. This work examined observed in-home behaviors and reports of low mood among a group of older adults. We found, contrary to expectation, that low mood was associated with going out of the house less and using the computer less, but no consistent changes in movement patterns. This is preparatory work toward incorporating objective assessments into research and clinical practice, and establishes parameters and algorithms for interpreting objective data. Other research from the same team has examined the experience of loneliness in relation to behavioral parameters.


Research Support
CURRENT

VA Clinical Studies R&D
This clinical trial assesses changes in status during double-blind, placebo-controlled discontinuation of cholinesterase inhibitor medications.
Role: Principal Investigator

Suicide Risk After Discharge from Long-Term Care (Simons, PI) 9/2017 – 9/2018
VA Office of Suicide Prevention
This study identifies factors associated with suicidal thoughts and attempts after discharge from long-term care.
Role: Site Co-Principal Investigator

1 R01 HS022106-01A1 (Turner, PI) 9/2013-8/2018
“Addressing the Personal Health Information Management Needs of Older Adults”
AHQR
This grant investigates how older adults and their families use technologies to manage personal health information.
Role: Co-Investigator

COMPLETED

Puget Sound R&D Seed Grant (Thielke, PI), 3/2016-3/2017
“Automated Algorithms for Identifying Weight Loss and Its Consequences in Older Veterans”
Puget Sound R&D
This project develops automated approaches to analyze weight data.
Role: Principal Investigator

VA P01185 (Thielke, PI) 2/2016 – 2/2017
“Rural Provider and Staff Training Initiative”
VHA Office of Rural Health
This grant provides dementia training for rural VA providers, and evaluates outcomes.
Role: Principal Investigator

“Transition to Long-Term Opioid Use Among Older Adults”
National Institute of Nursing Research, National Institutes of Health
This grant works to understand how some older adults with chronic pain begin to use opioid medications on a long-term basis.
Role: Co-Investigator

1 K23 MH093591-01 (Thielke, PI), 9/2010-8/2014
Paul B Beeson Career Development Award
“Development and Evaluation of a Depression Risk Calculator”
NIH/NIA/NIMH
Role: Principal Investigator

“Center for the Management of Sleep Disturbances”
National Institute of Nursing Research, National Institutes of Health
This research examines how symptom monitoring using in-home sensors impact clinical care for patients with traumatic brain injury.
Role: Co-Investigator

ORCATECH Pilot Grant (Thielke, PI) 7/2012-6/2013
“Transition Probabilities in Observed Behaviors and Subjective Health in ISAAC”
Roybal Centers for Translational Research in Aging
This project developed algorithms for analyzing behavioral data in relation to subjective health measures.
Role: Principal Investigator
NAME: Jonathan Wanagat

eRA COMMONS USER NAME (credential, e.g., agency login): jwanagat

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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<td>University of Illinois Urbana-Champaign</td>
<td>B.S.</td>
<td>06/1993</td>
<td>Honors Biology and Chemistry</td>
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<tr>
<td>University of Wisconsin-Madison</td>
<td>M.D., Ph.D.</td>
<td>06/2002</td>
<td>Medicine, Cellular and Molecular Biology</td>
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<tr>
<td>University of Washington</td>
<td>Intern</td>
<td>06/2003</td>
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<td>University of Wisconsin-Madison</td>
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<td>University of Washington</td>
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NOTE: The Biographical Sketch may not exceed five pages. Follow the formats and instructions below.

A. Personal Statement

My goal is to increase the quantity and quality of life for older Americans. As a practicing geriatrician, I am reminded continuously of the impact of aging and age-related chronic diseases on post-mitotic tissues such as brain, heart and skeletal muscle. The goal of the proposed research is to investigate the role of mitochondrial biogenesis in the accumulation and biological impact of age-associated mtDNA deletion mutations. As a physician-scientist trained in geriatrics and biogerontology, I have the expertise, leadership and motivation necessary to successfully carry out the proposed work. I have a broad background in geriatrics and biogerontology, with focused training and expertise in skeletal muscle aging and mtDNA mutations as required for the current proposal. As a graduate student with Dr. Judd Aiken at the University of Wisconsin, I was the first to employ laser microdissection in the study of focal, age-associated muscle fiber abnormalities (Wanagat et al., FASEB J, 2001) – a publication cited more than 200 times. This work led to my focus on, and expertise in, histological, single-cell and mutation assay methods in aging.

During my postdoctoral work with Peter Rabinovitch in the Nathan Shock Center for the Biology of Aging at the University of Washington, I expanded my work into the study of genetically engineered mouse models to test causal relationships in aging. In 2009, I was awarded an NIH/NIA Beeson K08 and began the development of my independent research career at UCLA in 2010. With my K08 award and several additional private foundation and pilot grants, I equipped and staffed a laboratory focused on the single cell studies of mtDNA mutations and skeletal muscle fiber aging. In addition to building my first independent basic science laboratory, my K08 award has so far resulted in 11 peer-reviewed manuscripts, a manuscript currently in revision, two more manuscripts in preparation, and much of the preliminary data in this R01 proposal.

I have maintained strong ties with other biogerontologists and mitochondrial researchers at UCLA, which have afforded me access to invaluable samples from aging rodent studies. As one of only a few physician-scientists trained in both clinical geriatrics and basic biogerontology, I bring a unique perspective and background to an
area of utmost importance for our aging American society and my expertise and capabilities have prepared me
to collaborate in the proposed research.

B. Positions and Honors

Positions and Employment

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<td>2009-2010</td>
<td>Clinical Instructor</td>
<td>Department of Medicine, Division of Geriatrics, UCLA</td>
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<td>Co-Director</td>
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<td>Assistant Professor</td>
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Honors

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<td>1997</td>
<td>Glenn/AFAR Graduate Research Fellowship in the Biology of Aging</td>
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<td>2007</td>
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<td>2007-2009</td>
<td>Brookdale Leadership in Aging Fellowship, Brookdale Foundation</td>
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<td>Beeson Scholar, NIH, NIA, AFAR</td>
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Other Experience and Professional Memberships

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Medical License History

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C. Contribution to Science

1. Mitochondrial DNA (mtDNA) mutations are known to increase with age in many tissues, an increase that is exacerbated in many age-related diseases. Current limitations in our ability to genetically manipulate mtDNA prevent direct testing of a causal role for mtDNA mutations in aging and age-related diseases. My early publications addressed the possible biological impact of mitochondrial DNA (mtDNA) deletion mutations in aging muscles. I was the first to examine age-associated mitochondrial defects along the length of muscle fibers and create three dimensional models of these fibers and the associated mitochondrial defect. These studies found that age-associated mtDNA deletion mutations were associated with fiber atrophy, fiber splitting and focally increased oxidative damage. My approach of studying the mitochondrial defects in a volume of tissue allowed us to more broadly estimate their number in whole muscles. In the rat model, we estimated that at least 15% of all muscle fibers in the old rats harbored these mitochondrial defects and eventually would be lost from the population of functioning muscle fibers. These observations led to a hypothesized series of events linking mtDNA mutation, accumulation, and cellular impact to the loss of post-mitotic muscle fibers and subsequent muscle aging.
2. The segmental mitochondrial defects identified in aging muscle were attributed to mtDNA mutations based on observations from inherited mtDNA mutation diseases. This was supported by early in situ hybridization methods that gave an estimate of the mutation size and position. I was the first to apply laser capture microdissection of single muscle fibers to identify the precise mtDNA mutation present in age-associated muscle mitochondrial defects. The novel application of this microdissection technique demonstrated the nature of the underlying mtDNA mutation and emphasized the need for histological and single cell techniques to facilitate the study of focal aging events that are otherwise lost in tissue homogenate studies.

3. Our findings in rat skeletal muscle suggested a causal role in mammalian aging and we hypothesized their presence in other tissues and correlations with interventions that affect life span. We have applied our histological and molecular approaches to other tissues and identified similar focal accumulations of mtDNA mutations in other aging rat muscles, kidneys and cardiac tissue, and human cardiac tissue. These studies demonstrated that therapeutic interventions such as caloric restriction and cardiac assist devices have beneficial effects on mtDNA mutations and their associated biochemical defects across mammalian tissues.

4. In order to test the causal role of mtDNA mutations in aging, I have been increasingly collaborating with other prominent biogerontologists who are studying rodent models of modified aging. We found that increasing mtDNA deletion mutations increases the number of affected muscle fibers and exacerbates sarcopenia, while decreasing the number of mtDNA deletion mutations in the mouse heart has protective effects on mouse cardiac function. These observations strengthen the implication of a causal role of mtDNA mutations in aging and age-related diseases and suggest possible points of therapeutic intervention. I have recently shown that our initial hypothesis of a direct role of oxidative stress in mtDNA mutations was incorrect, which leaves open the question of what drives in vivo mtDNA mutation and accumulation.
Attenuated by Overexpression of Catalase Targeted to Mitochondria. Aging Cell. Apr 29. PMCID: PMC3265170.


*These authors contributed equally.

5. I am pioneering methods in digital PCR quantitation of mtDNA and single cell proteomics to begin clarifying the role of mitochondria in regulating key cellular processes including metabolic flux, autophagy, and apoptosis. An understanding of the affected cellular pathways could reveal points of therapeutic intervention to prevent their accumulation or impact. The digital PCR methods are quantitative, do not require nested primers, are independent of PCR efficiency, and are able to monitor targets at levels that cannot be discriminated by real time PCR. Building on our demonstrated skill in single fiber DNA analyses, we have recently developed an innovative approach to single fiber protein measurement. This approach, which couples laser capture microdissection with rare-earth element immunolabeling and inductively coupled mass spectroscopy, allows for multiplex measurements of proteins (up to 32 at a time) in single muscle fiber sections. With this technique, we are effectively running 32 simultaneous Western blots on a single cell. We are now able to study protein changes in these specific fibers and provides another tool for studying focal age-related changes that are not amenable to typical homogenate studies. This research will drive the development of novel therapeutic strategies for maintaining mitochondrial quality and improving human health.


Complete List of Published Work in MyBibliography:

D. Research Support

Ongoing and Completed within last 3 years, of greatest relevance to the proposed project

Ongoing
R01AG055518-01 (PI: Wanagat) 09/30/17 – 08/31/22
NIH/NIA
Mitochondrial biogenesis, genetics and cell loss in mammalian aging
Goals: The goal of this study is to identify the role of mitochondrial biogenesis on mtDNA deletions and sarcopenia.
Role: Principal Investigator

Agilent Applications and Core Technology Research Grant (PI: Wanagat) 11/01/16 – 10/31/17
Agilent Technologies
Single cell multiplex protein assessment by laser ablation-inductively coupled mass spectroscopy
Goal: Application of REE-antibody immunolabeling to multiplex protein measurement in single muscle fibers.
Role: Principal investigator

Pilot Grant
UCLA OAIC Pepper Center
Determining the effects of life-long MIF knockout on mtDNA deletion mutations
Goal: Determine the role of inflammation on muscle mitochondrial DNA mutations and muscle mitochondrial quality control in aging.
Role: Principal investigator

Completed
Pilot and Feasibility Grant (PI: Wanagat)
UCSD/UCLA Diabetes Research Center
Determining the effects of muscle mitochondrial DNA copy number and mitochondrial quality control on insulin sensitivity
Goal: Determine the role of muscle mitochondrial DNA copy number and muscle mitochondrial quality control in metabolism and insulin sensitivity.
Role: Principal investigator

Agilent Applications and Core Technology Research Grant (PI: Wanagat)
Agilent Technologies
Single cell multiplex protein assessment by microdissection and mass spectroscopy
Goal: Application of REE-antibody immunolabeling to multiplex protein measurement in single muscle fibers.
Role: Co-investigator

5K08AG032873-04 (PI: Wanagat)
NIH/NIA/AFAR
Paul B. Beeson Career Development in Aging Award
Mitochondrial Genetics in Skeletal Muscle Aging
Goals: The goal of this study is to identify the effects of altered mtDNA mutations rates on sarcopenia.
Role: Principal Investigator

20094670 (PI: Wanagat)
AFAR
Paul B. Beeson Career Development in Aging Subaward
Mitochondrial Genetics in Skeletal Muscle Aging
Goals: The goal of this study is to identify the effects of altered mtDNA mutations rates on sarcopenia.
Role: Principal Investigator

AGNS06996-10 (PI: Wanagat)
Ellison Medical Foundation
Mitochondrial Genetics in Skeletal Muscle Aging
Goal: The goals of this study include whole genome sequencing of mtDNA in aging rodents and trial of a small molecule antioxidant to prevent mtDNA mutations.
Role: Principal Investigator
NAME: Sanjay Asthana, MD, FACP, FRCP(C)

eRA COMMONS USER NAME (credential, e.g., agency login): SASTHANA

POSITION TITLE: Professor of Medicine; Duncan G. & Lottie H. Ballantine Endowed Chair in Geriatrics; Associate Dean for Gerontology; Director, NIA/NIH Wisconsin Alzheimer’s Disease Research Center (ADRC); Head, Division of Geriatrics and Gerontology; Director, Geriatric Research, Education and Clinical Center (GRECC), William S. Middleton Memorial Veterans Hospital, Madison, WI

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

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A. Personal Statement: I have extensive research, leadership, teaching and administrative experience in overseeing and managing large research and training programs, and multisite intervention trials involving subjects with Alzheimer’s disease (AD), Mild Cognitive Impairment (MCI) and healthy older volunteers. Funded continuously by NIH for over 22 years, I have published extensively in the fields of AD, hormone therapy and geriatrics and have trained/mentored over 60 PhD investigators and physician-scientists in dementia and aging research to date. I am Associate Dean for Gerontology, Director of the NIA-funded Wisconsin Alzheimer’s Disease Research Center (ADRC), Head of the UW Division of Geriatrics and Gerontology and Director of the Madison VA GRECC. For over 12 years, I have served as the Program Director of this NIA-funded T32 Training Program and have overseen training of 47 predoctoral and postdoctoral fellows in the biology of aging and translational research in geriatrics. Importantly, the majority of these trainees are pursuing academic careers at institutions across the country and “gerontologizing” their universities. The present competitive renewal application has received substantial institutional commitment and recruited 35 faculty mentors with acknowledged expertise across the full spectrum of aging research. Successful funding of this application will continue to attract the best learners, and train the future generation of bright young scientists committed to aging research, both locally and nationally.

B. Positions and Honors

Positions and Employment
1979–1980 1st year Resident House Physician, Internal Medicine and General Surgery, Safdurjung Hospital (University Hospital), New Delhi, India
1981–1983 Senior House Officer (Junior Resident), Geriatric Medicine & Neurology, Stepping Hill Hospital, Stockport, Cheshire, U.K.
1983-1986 Senior House Officer (Senior Resident), Internal Medicine and Gastroenterology, Diabetes and Endocrinology, Mansfield and District Hospital, Nottinghamshire, U.K.
1992-1993 Assistant Professor, Division of Geriatric Medicine and Gerontology, The Johns Hopkins University School of Medicine, Baltimore, MD
1993–2000 Research Assistant Professor, Department of Medicine, University of Washington School of Medicine, Seattle, WA and Staff Physician, Geriatric Research, Education and Clinical Center Veterans Affairs Puget Sound Health Care System, Tacoma, WA
2000–2001 Research Associate Professor, Department of Medicine, University of Washington School of Medicine, Seattle, WA
2001– 2006 Ballantine Associate Professor of Medicine; Head, Division of Geriatrics & Gerontology; Director, Madison VA GRECC, University of Wisconsin School of Medicine & Public Health
2006–present Ballantine Professor of Medicine; Head, Division of Geriatrics; Director Madison VA GRECC, University of Wisconsin School of Medicine and Public Health, Madison, WI

Other Experience and Professional Memberships
2001 - Present Chair & Member, NIA Special Emphasis Panels to review AD and aging grant proposals
2004 – 2007 Chartered Member, Aging System and Geriatrics Study Section
2008 – 2011 Chartered Member, NIA-N Study Section
2010 – 2012 Chair, NIA-N Study Section
2010 Member, Protocol Review Board for the SPRINT Study, NHLBI/NIH
2010- 2011 Member, CTSA-Consortium/NIA Collaborative Projects Committee
2010 – Present Chairman, Data Safety Monitoring Board (DSMB) for an NIH-funded RO1 entitled “Pharmacological Management of Delirium”, PI: Malaz Boustani, MD

Honors and Awards
2002 – 2005 Hartford Academic Geriatrics Leadership Scholar
2006 - Present Associate Editor, Hazzard's Principles of Geriatrics and Gerontology
2006 - Present Co-Chair, Dementia Steering Committee, Department of Veterans Affairs, Washington, DC
2006 – 2011 Academic Leadership Award in Alzheimer’s Disease (KO7), NIA/NIH
2007 - Present Director, Hartford Center of Excellence in Geriatric Medicine and Education at the UW
2008 – 2011 Elected Member, Board of Directors of the Association of Directors of Geriatric Academic Programs (ADGAP)
2009 – Present Director, NIA/NIH Wisconsin Alzheimer’s Disease Research Center (ADRC)
2015 –Present Associate Dean for Gerontology, UW-Madison

C. Contribution to Science
My contributions to science span over a period of 25 years and involve publication of over 200 peer-reviewed papers to date (h-index: 40; i10-index: 80), several in high-profile journals. The primary focus of my own research relates to the psychopharmacology and neuroendocrinology of estrogen and related gonadal hormones in Alzheimer’s disease (AD). Additional major research interests involve collaborative studies in the field of antecedent biomarkers of preclinical stages of AD. Below is a brief summary of major areas of AD research in which I have made original contributions.

1) My first studies in dementia research focused on the cognition-enhancing efficacy, neuroendocrinology, pharmacokinetics and pharmacodynamics of two prototypes of cholinergic drugs, namely physostigmine and arecoline in patients with AD. These studies provided novel information about the cognitive effects, pharmacokinetics, adverse effect profile and neuroendocrine response to intravenous infusions of arecoline and physostigmine in patients with AD. Findings from these studies demonstrated that both drugs enhanced verbal memory, had short half-lives and were associated with significant gastrointestinal side effects. These findings underscored the need to develop longer-acting cholinergic drugs with acceptable adverse effect profile, and contributed to the development of currently approved cholinergic drugs for AD. Below is a list of some important publications related to my research involving cholinergic drugs.

2) I have made original contributions in the field of cognition-enhancing efficacy and neuroendocrine response to estrogen in patients with AD. Almost 20 years ago, my studies were the first to demonstrate that transdermal estradiol enhanced verbal memory and selective attention in older postmenopausal women with AD. These novel findings were replicated by additional studies, including an NIH-funded study that I designed and published. More recently, since the publication of WHIMS (Women’s Health Initiative Memory Study) findings, I successfully launched and completed another NIH-funded multisite study of 4 years of estrogen therapy in younger, recently postmenopausal women. Findings from this first, large study, called KEEPS Cognitive and Affective Study, involving over 690 recently postmenopausal women (mean age 51.7 years) demonstrated that, unlike WHIMS, therapy with oral conjugated equine estrogen in low-doses (0.45 mg daily) significantly improved symptoms of depression and did not exhibit adverse cognitive effects. These findings are novel and have generated new information in the field of estrogen and cognition research. Moreover, the KEEPS findings are projected to reinvigorate the field of neurobiology of estrogen research and lead to larger definitive studies. Below is a list of some of my published papers in the field of estrogen therapy, AD and cognition research.


3) In my capacity as Director of the NIA-funded Wisconsin ADRC, I provide leadership and resources for all aspects of AD research and have made significant contributions as a collaborator in the field of antecedent biomarkers of preclinical stages of AD—the overarching scientific theme of the Wisconsin ADRC. Findings from our Center involving renowned observational cohorts of WRAP (Wisconsin Registry for Alzheimer’s Prevention) and IMPACT have demonstrated that adult, middle-aged, asymptomatic children of patients with AD show evidence of disease pathology (i.e., amyloid deposition on PET imaging, cortical atrophy, CSF changes of neuronal death and subtle cognitive changes) several years before the onset of clinical symptoms. Notably, for several biomarkers, these changes are independent of the APOE genotype and suggest a significant role of family history in the pathobiology of AD. Below is a sample of my published papers in the field of preclinical biomarkers of AD research.


D. Research Support

Active

P50 AG033514 Center Grant (Asthana) 05/01/09-03/31/19
NIH/NIA
Title: Wisconsin Alzheimer’s Disease Research Center
Goal: The major goal of the Wisconsin ADRC is to identify antecedent biomarkers of preclinical stages of AD and develop novel therapeutic and prevention strategies for the disease.
Role: Principal Investigator

P50 AG033514-09S1 (Asthana) 08/15/17-03/31/19
NIH/NIA
Title: Wisconsin Alzheimer’s Disease Research Center-Development and Validation of a Natural Language Processing Ontology to Improve Detection of Alzheimer’s Disease using Electronic Health Records
Goal: The major goal of the this project is to develop and validate a Natural Language Processing ontology using clinical data in the HER of hospitalized dementia patients enrolled in the Wisconsin ADRC.
Role: Principal Investigator

P50 AG033514-09S2 (Asthana) 08/15/17-03/31/19
NIH/NIA
Title: Wisconsin Alzheimer’s Disease Research Center- Inclusion of Mobile/e-consents for Alzheimer’s Disease Research
Goal: The major goal of the project is to provide critical information about the efficacy of a multimedia E consent process in middle aged and older adults.
Role: Principal Investigator

P50 AG033514-09S3 (Asthana) 09/01/17-03/31/19
NIH/NIA
Title: Wisconsin Alzheimer’s Disease Research Center-Oneida Supplement Project
Goal: This project provides outreach to the Oneida Nation of Wisconsin, developing an outreach and recruitment program to increase enrollment, participation and retention of AI/NA subjects into the Wisconsin ADRC and associated studies.
Role: Principal Investigator

T32 AG00213 (Asthana) 07/01/91-04/30/18
NIH/NIA
Title: Biology of Aging and Age-Related Diseases
Goal: This training program in biomedical gerontology supports four predoctoral and four postdoctoral trainees, and provides state-of-the-art training in aging and dementia research to all trainees.
Role: Principal Investigator
R01 AG027161 (Johnson) 05/15/12-03/31/18
NIH/NIA
Title: Wisconsin Registry for Alzheimer’s Prevention: Biomarkers of Preclinical AD
Goal: The major objective of this study is to identify clinical, neuroimaging and biochemical markers of preclinical stages of Alzheimer's disease in at risk population.
Role: Co-Investigator

State of Wisconsin (Asthana) 07/01/05-recurring
Title: UW Alzheimer’s Disease Initiative
Goal: This initiative provides funds for the Wisconsin Brain Donor Program, and supports novel research studies targeting the neurobiology of AD.
Role: Principal Investigator (PI)

U01 AG01697 (Asthana-Subcontract PI) 07/01/09-06/30/18
NIH/NIA
Title: National Alzheimer's Coordinating Center
Goal: This subcontract provides funding support to the Wisconsin ADRC for NACC (National Alzheimer’s Coordinating Center) related activities
Role: Subcontract Principal Investigator

Toyama Chemical (Asthana-Site PI) 11/21/13-ongoing
NIH/NIA/ADCS
Title: A Phase 2 multi-center, randomized, double blind, placebo controlled, parallel group study to evaluate the efficacy and safety of T-817MA in patients with mild to moderate Alzheimer’s Disease (US202)
Goal: The major goal of this study is to evaluate the potential efficacy of a novel treatment for patients with Alzheimer’s disease.
Role: Site Principal Investigator

MK-8931-017-00 (Asthana-Site PI) 08/20/13-ongoing
Merck Sharp & Dohme Corporation
Title: A Randomized, Placebo Controlled, Parallel-Group, Double Blind Efficacy and Safety Trial of MK-8931 in Subjects with Mild to Moderate Alzheimer’s Disease
Goal: The major objective of this phase III clinical trial is to examine the efficacy of MK-8931 in patients with Alzheimer’s disease.
Role: Site Principal Investigator

H. Lundbeck A/S (Study #14861A) (Asthana -Site PI) 02/14/13-ongoing
Title: Randomized, double-blind, parallel-group, placebo-controlled, fixed-dose study of Lu AE58054 in patients with mild-moderate Alzheimer’s disease treated with donepezil; study 1
Goal: This phase III clinical trial will evaluate the efficacy of a new treatment for Alzheimer’s disease.
Role: Site Principal Investigator

JangoBio, LLC; Asthana PI 12/01/16 – 11/30/17
Title: A Novel Biologic for the Treatment of Hypogonadism
Goal: To determine if the endocrine factors that decrease neurogenesis and synaptic plasticity in heterochronic parabiosis models are reproductive hormones and to determine if the ratio of sex hormones regulates the aberrant re-activation of the cell cycle in post-mitotic neurons, synaptic plasticity and cognitive decline.
Role: Principal Investigator

Recently Completed

American Federation for Aging Research (Asthana) 07/01/12-12/31/16
AFAR
Title: Harford Foundation’s Center of Excellence in Geriatric Medicine and Training National Program Award
Goal: The goal of this Center of Excellence is to provide geriatric training to clinicians and students.
Role: Principal Investigator (PI)

R01 AG029624 (Asthana) 04/15/07-03/31/15
NIH/NIA
Title: KEEPS Cognitive and Affective Study
Goal: The major goal of this study is to evaluate the differential efficacy of oral and transdermal estrogen on cognitive function of perimenopausal women.
Role: Principal Investigator (PI)

UB4 HP19062 (Asthana -subcontract Co-I) 07/01/12-06/30/15
HRSA
Title: Wisconsin Geriatric Education Center
Goal: This HRSA-funded project supports training of clinicians and students in geriatrics and dementia
Role: Subcontract PI
After some funding from the National Institute on Aging to support research on attention and aging, Dr. Barr joined the Institute in 1987 and became a program administrator in the Behavioral and Social Research Program (now Division of Behavioral and Social Research). During that time, he helped both to establish the NIA Roybal Centers of Research on Applied Gerontology and to develop the Institute's initiative examining cognitive interventions to improve functioning in older adults (ACTIVE). From 1994 to 2006 he was Deputy Head of the Division of Extramural Activities - contributing to policy development and coordination at the NIA - and the NIA Training Officer. In this latter capacity he had particular responsibility for overseeing training initiatives, for anticipating the need for new kinds of training and for working with the National Institutes of Health in shaping overall research training policy. He brought the Beeson program to NIA with ample help from AFAR. After working with the Jahnigen and Williams Scholars’ programs for physician and surgeon junior faculty to gain experience in aging research, he helped create the successor GEMSSTAR program at NIA.

In April 2006, Dr. Barr became Acting Director of the Division of Extramural Activities, NIA and was appointed Director of the Division in June 2007. Since that time, he has worked at the NIH level to help shape NIH’s policies towards new and early stage investigators. His leadership role at NIA includes managing the National Advisory Council on Aging and advising the Director, NIA on all extramural activities of the Institute.
Dr. Callahan graduated from St. Louis University School of Medicine in 1985. He completed his Internal Medicine residency at Baylor College of Medicine in 1988 and completed a fellowship in Health Services Research at the Indiana University School of Medicine in 1991. He has served on the faculty at the Indiana University School of Medicine for 26 years. His clinical practice focuses on the care for older adults with depression and dementia. He is a Research Scientist in the Regenstrief Institute, Inc and the founding Director of the Indiana University Center for Aging Research. Recently he became the Chief Research and Development Officer at Eskenazi Health. In 1999-2000 he was a Visiting Scholar in the History and Psychopathology Research Program in the Department of Psychiatry at Cambridge University in the United Kingdom. During this sabbatical, he co-authored the book “Reinventing Depression: A History of the Treatment of Depression in Primary Care” (Oxford University Press). He has conducted observational and interventional research to improve the care of older adults with dementia and depression in primary care settings. This work includes clinical trials exploring new models of care seeking to improve the care of vulnerable elders. These models increasingly focus on the integration of family, community, and medical services. He continues to study new approaches to implement care models into routine clinical practice.
Kenneth Covinsky

Title  Professor
School  UCSF School of Medicine
Department  Medicine
Address  4150 Clement St
         San Francisco CA 94121
Phone  415-221-4810 ext. 4363
Email  Ken.Covinsky@ucsf.edu
vCard  Download vCard

Education and Training
University of California, San Francisco  M.D.  1988  Medicine

Awards and Honors
1999  Paul Beeson Faculty Scholar in Aging Research
Bay Area Clinical Research Symposium  2005  Clinical Research Mentor of the Year
Society of General Internal Mediine  2007  Mid Career Research Mentorship Award
                    2007  American Society For Clinical Investigation

Overview
Dr. Covinsky is a clinician-researcher in the UCSF Division of Geriatrics. His work focuses on understanding the determinants and outcomes of disability in older persons. He holds the Edmund G. Brown, Sr Distinguished Professorship in Geriatrics and is Principal Investigator of the UCSF Older Americans Independence Center.

Dr. Covinsky completed his undergraduate degree at the University of Illinois and medical school at UCSF. He completed his internal medical training on the Osler Medical Service of the Johns Hopkins Hospital, a fellowship in General Internal Medicine at the Beth Israel Hospital, and an MPH degree at the Harvard School of Public Health.

Dr. Covinsky was recruited back to UCSF in 1988 to lead the research program of the UCSF Geriatrics Division. He has led a nationally recognized research program that has advanced our understanding of the determinants and outcomes of disability in older persons. He has conducted pioneering work that has defined the hospitalization disability syndrome by demonstrating how hospitalization frequently precipitates disability in older persons. He is also a national leader in the science of prognostication in older persons. His work has proven that functional status is a vital determinant of health outcomes and quality of life in older persons.
Dr. Covinsky is passionate about mentoring trainees who are committed to improving the health and well being of older persons. He has received local and national awards for research mentorship including the Bay Area Clinical Research Mentor of the Year Award and the SGIM Midcareer Research Mentoring Award. Several of his mentees, including Louise Walter, Mike Steinman, Sei Lee, and Alex Smith are now local and national leaders in aging research.

Dr. Covinsky is Principal Investigator of the UCSF Older Americans Independence Center (OAIC), a National Institute on Aging Funded Pepper Center. The UCSF OAIC supports UCSF researchers who are working to improve the health outcomes and quality of life of older persons.

Dr. Covinsky attends on the Medical Service and Acute Care For Elders Unit and cares for patients in the Geriatrics clinic at the San Francisco VA Medical Center. He is an Associate Editor at JAMA-Internal Medicine and has served as chair of the Clinical Aging Study section at the National Institute on Aging.
Sharon K. Inouye, M.D., MPH
Professor of Medicine, Harvard Medical School
Division of Gerontology, Beth Israel Deaconess Medical Center
Milton and Shirley F. Levy Family Chair
Director, Aging Brain Center, Institute for Aging Research
Hebrew SeniorLife, 1200 Centre Street, Boston, MA
Phone: 617-971-5390; email: sharoninouye@hsl.harvard.edu

Dr. Inouye is an internationally recognized leader in geriatric medicine and aging research. She is an elected member of the National Academy of Medicine, chaired the Delirium Clinical Guidelines Panel for the American Geriatrics Society, and serves as an Associate Editor of the *Journal of the American Geriatrics Society*. Her research focuses on prevention of delirium and cognitive decline with aging, promoting healthy aging and independence follow acute illness, and improvement of healthcare systems through policy.

Continuously NIH-funded since 1989 with over 50 grants and over 250 publications, Dr. Inouye developed the Confusion Assessment Method (CAM)—the most widely used method for delirium identification, used in over 4000 publications and translated into 20 languages—along with the Hospital Elder Life Program (HELP) for delirium prevention, a cost-effective model of patient-centered care that has been disseminated to over 200 hospitals worldwide. She was recently awarded an R24 Delirium Network grant by the National Institutes of Health. She is committed to translating research into practice and policy changes.

**Education**
- B.A., Pomona College; Claremont, CA; cum laude (1977)
- M.D., University of California San Francisco (UCSF); San Francisco, CA (1981)
- M.P.H., Yale University; New Haven, CT; with distinction (1989)

**Professional Experience**
- Assistant Professor of Medicine; Yale University School of Medicine; 1989-1994
- Associate Professor of Medicine; Yale University School of Medicine; 1994-2002
- Professor of Medicine; Yale University School of Medicine; 2002-2005
- Professor of Medicine, Harvard Medical School 2005-present

**Selected Honors and Awards**
- University of California Los Angeles 2005 David H. Solomon Award
- Leonard Tow Humanism in Medicine Award (Arnold P. Gold Foundation), 2005
- Elected Member, Association of American Physicians (AAP), 2007
- American Geriatrics Society 2010 Edward Henderson Award, 2010
- Elected Member, National Academy of Medicine (Institute of Medicine), 2011
- 2012-2013 A. Clifford Barger Excellence in Mentoring Award, Harvard Medical School
- Executive Leadership in Academic Medicine (ELAM) Fellow, 2013-2014
- Elected Fellow, Gerontological Society of America (GSA) 2013; American College of Physicians (ACP), 2015; American Geriatrics Society (AGS), 2015
- Named to Thomson Reuters ScienceWatch, World’s Most Influential Scientific Minds, 2014
- M. Powell Lawton Award, Gerontological Society of America (GSA), 2015
- Yale School of Public Health Winslow Centennial Honor Roll 2015
- Health and Aging Policy Fellowship, American Political Science Association Congressional Fellowship 2016-7

**Selected Publications (of >250)**


Consuelo H. Wilkins, MD, MSCI, is a physician, biomedical researcher and current Executive Director of the Meharry-Vanderbilt Alliance. Dr. Wilkins holds faculty appointments as Associate Professor of Medicine at both Vanderbilt University Medical Center and Meharry Medical College and is widely recognized for her innovative work in community-engaged research. Dr. Wilkins is the principal investigator (PI) of more than $25 million in research awards including funding from the Patient-Centered Outcomes Research Institute and NIH. She has pioneered methods of stakeholder engagement that involve community members and patients in research across the translational spectrum. One approach, the Community Engagement Studio model has been implemented at more than a dozen academic institutions and has been used in more than 150 clinical research studies. Engaging communities in research is a key strategy in Dr. Wilkins’ health equity research and is deeply embedded in her work as a PI of the Vanderbilt-Miami-Meharry Center of Excellence in Precision Medicine and Population Health, which focuses on decreasing disparities among African Americans and Latinos using precision medicine, and the Vanderbilt Recruitment Innovation Center, CTSA-wide center dedicated to enhancing recruitment and retention in clinical trials. As leader of the Meharry-Vanderbilt Alliance, Dr. Wilkins oversees a portfolio of cross-institutional initiatives in three pillars: community health and engagement, translational research and interprofessional education. Dr. Wilkins serves in leadership roles in the community including on the Board of the Safety Net Consortium of Middle Tennessee and the Steering Committee for NashvilleHealth.

Prior to taking her current role in 2012, Dr. Wilkins was an Associate Professor in the Department of Medicine, Division of Geriatrics, with secondary appointments in Psychiatry and Surgery (Public Health Sciences) at Washington University School of Medicine in St. Louis. She served as Founding Director of the Center for Community Health and Partnerships in the Institute for Public Health, co-director of the Center for Community Engaged Research in the CTSA, and director of "Our Community, Our Health"- a collaborative program with Saint Louis University.

Dr. Wilkins earned a Bachelor of Science in microbiology (magna cum laude, Phi Beta Kappa) and a Doctor of Medicine from Howard University. She completed residency training in Internal Medicine at Duke University Medical Center and a Geriatric Medicine fellowship at Washington University School of Medicine/Barnes-Jewish Hospital. Following her medical training, Dr. Wilkins earned a Master of Science in Clinical Investigation from Washington University School of Medicine.
BIOGRAPHICAL SKETCH

NAME: Kristine Yaffe, MD

eRA COMMONS USER NAME (credential, e.g., agency login): kyaffe

POSITION TITLE: Professor of Psychiatry, Neurology and Epidemiology/Biostatistics

EDUCATION/TRAINING

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A. Personal Statement

I am the Scola Endowed Chair and Vice Chair and Professor of Psychiatry, Neurology and Epidemiology, at UCSF as well as the Chief of NeuroPsychiatry and Director of the Memory Evaluation Clinic at the San Francisco Veterans Affairs Medical Center. In both my research, clinical work, and mentoring, I have directed my efforts towards improving the care of patients with cognitive disorders and other geriatric neuropsychiatric conditions. My research focuses on the epidemiology of cognitive aging and dementia.

As the principal investigator of several NIH grants in addition to others from the VA and DOD, my research focuses on the epidemiology of cognitive aging and dementia. I have published over 450 peer-reviewed articles (H-index=119) in numerous prestigious journals including the Lancet, BMJ, JAMA, and NEJM, many of which focus on the identification of novel risk factors and trials. I co-chaired the Institute of Medicine’s Committee on the Public Health Dimensions of Cognitive Aging, and I am a member of the Alzheimer’s Association Medical & Scientific Advisory Council.


B. Positions and Honors

Positions and Employment

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<td>Director, Memory Disorders Clinic, San Francisco VA Medical Center</td>
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<td>Assistant Clinical Professor, Department of Psychiatry, UCSF</td>
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<tr>
<td>1997-</td>
<td>Chief, NeuroPsychiatry, San Francisco VA Medical Center</td>
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<tr>
<td>1999-03</td>
<td>Assistant Professor, Depts. of Psychiatry, Neurology &amp; Epidemiology, UCSF</td>
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<tr>
<td>2003-07</td>
<td>Associate Professor, Depts. of Psychiatry, Neurology &amp; Epidemiology, UCSF</td>
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2004-08 Editorial Board, American Journal of Geriatric Psychiatry
2005-07 Co-Director, Clinical and Translational Sciences Training Program, UCSF
2007- Professor, Depts. of Psychiatry, Neurology & Epidemiology, UCSF
2008- Adjunct Investigator, Division of Research, Kaiser Permanente
2009-16 Vice Chair of Research in the Department of Psychiatry, UCSF
2009-16 Editorial Board, Journal Gerontology: Medical Science
2009- Roy and Marie Scola Endowed Chair in Psychiatry
2015- Director, CTSI Pilot Award Program
2015- Co-Director Global Brain Health Initiative Pilots and Projects
2017- Vice Chair, Weill Institute for Neurosciences

Other Experience and Professional Memberships
1999- PI, San Francisco Dementia Core of Mental Illness Research, Educational, & Clinical Center
1999-12 PI, Translation Core & Co-Director, California Alzheimer’s Disease Research Center, UCSF
2001-05 Consultant to NIH, The Cognitive and Emotional Health Project: The Healthy Brain
2007-14 Scientific Program Committee, Alzheimer’s Association International Conference
2008-15 External Advisory Board, The Beeson Scholars in Aging Program
2009-14 NIA-N Study Section (standing member)
2011-13 Chair, Scientific Program Committee, Alzheimer’s Association International Conference
2012- Senate, Council of the German Center for Neurodegenerative Diseases
2014-15 Co-Chair, National Academy of Medicine’s (IOM) Committee on the Public Health Dimensions of Cognitive Aging
2014- Alzheimer’s Association Medical & Scientific Advisory Council
2015-16 National Academy of Medicine’s (IOM) Committee on Decreasing the Risk of Developing Alzheimer’s-Type Dementia, Mild Cognitive Impairment, and Age-related Cognitive Impairment
2017- Advisory Group, The International Research Network for Dementia Prevention

Honors
1985 Magna cum laude, Honorary Distinction in Biology
1989 The Morris Ginsburg Prize for the medical student voted “ideal physician”
1994 NIMH Outstanding Resident Award
1998 Junior Investigator Award, American Association of Geriatric Psychiatry
2001 Paul Beeson Faculty Scholar in Aging Research
2003 William Abrams Award in Geriatric Clinical Pharmacology
2005 American Academy of Neurology Research Award in Geriatrics
2008 American Academy of Neurology Frontiers in Neuroscience Plenary Talk
2010 The Royer Award for Academic Excellence in Psychiatry/Neurology
2013 John Mackey Award for Excellence in Dementia Care
2013 UCSF Faculty Research Award in Clinical Science
2014 American Association for Geriatric Psychiatry Distinguished Scientist Award
2015 American College of Psychiatry Award for Research in Geriatric Psychiatry
2017 Potamkin Prize, American Academy of Neurology

C. Contributions to Science
1. My research program has been at the forefront of dementia epidemiology with a primary focus on the identification of modifiable risk factors for cognitive aging. Over the past 17 years, I have developed innovative analytical methods to more fully leverage the power of data from longitudinal studies, and as result, I have made significant advances in several key areas of inquiry. I was one of the first investigators to examine hormone therapy and risk of dementia, and I have developed an extensive body of work on the role of cardiovascular and metabolic factors and risk of cognitive aging. In addition, my group has examined how sleep disorders may affect cognitive outcomes and we have identified several risk factors including sleep disordered breathing and abnormal circadian rhythms. As a natural extension of my work with veterans at the San Francisco VA, I have also broken new ground in the understanding of military risk factors such as traumatic brain injury and post-traumatic stress disorder for cognitive aging. Furthermore, I have also embarked on a series of studies to define “successful” cognitive aging. While most research has focused on dementia and cognitive decline, I am interested in the cognitive heterogeneity that occurs with
aging. Recently, I have expanded our theoretical framework to determine the effects of this extensive list of modifiable risk factors over the life course.


2. My work in cognitive aging is constantly evolving and I am committed to translating prior observational work on modifiable risk factors for cognitive aging to prevention trials. Notably, I published a paper in Lancet showing that up to 30% of dementia cases may be attributable to modifiable risk factors. Because the prevalence and incidence of these risk factors are high in aging populations, designing and implementing effective interventions will have significant public health impact worldwide. Increasingly, such trials are focused on testing multi-domain strategies for prevention, and I am now leading an intervention.


b. Barnes DE, **Yaffe K**, Belfor N, Jagust WJ, DeCarli C, Reed BR, Kramer JH. Computer-based cognitive training for mild cognitive impairment: Results from a Pilot Randomized, Controlled Trial. *Alzheimer Disease and Associated Disorders*. 2009; 23(3):205-10. PMC2760033


**List of Published Work in MyBibliography:**

**D. Research Support: Kristine Yaffe, MD**

**Ongoing Research Support as PI**

- **R01 AG057508** Yaffe/Larson (Multiple PI) 09/17 – 05/21
  NIH: National Institute on Aging
  Multidomain Alzheimers Risk Reduction Study (MARRS) Pilot
  The goal of the project is to conduct a randomized trial of a personalized, multi-domain Alzheimer’s disease risk reduction intervention in older adults. Role: Multiple-PI

- **R01 AG054073** Yaffe/O’Bryant/Toga (Multiple PI) 09/17 – 05/22
  NIH: National Institute on Aging
  Health Disparities in Alzheimer’s Disease Among Mexican Americans
  The goal of the project is to study the differential pathological mechanisms and biomarkers of MCI and AD among Mexican Americans. Role: Multiple PI

- **RF1 AG054443** Yaffe/Zeki Al-Hazzouri (Multiple PI) 05/17 – 04/21
  NIH: National Institute on Aging
  Healthy Heart, Healthy Brain? A Pooled Life-course Cohort for Dementia Risk Assessment
  The goal of this study is to create a pooled cohort from four prospective studies to investigate cardiovascular risk factors over the life course. Role: Multiple-PI

- **W81XWH-16-1-0507** Yaffe (PI) 08/16 – 08/19
  Department of Defense
  Risk and Resiliency for Dementia: Comparison of Male and Female Veterans
The goal of this project is to identify factors that are associated with risk and resiliency for cognitive impairment and dementia in older Veterans and determine how they differ by gender. Role: PI.

Doris Duke Charitable Foundation
Yaffe (PI) 01/16 – 12/21

Doris Duke Fund to Retain Clinical Scientists
The goal of this project is to provide supplemental, flexible funding to young faculty members working on clinical research projects and facing extraprofessional demands of caregiving. Role: PI.

W81XWH-12-PHTBI-CENC Yaffe (PI) 02/15 – 09/18
Department of Defense/VA

Chronic Effects of Neurotrauma Consortium: Epidemiology Project
The goal of this project will be to examine trajectories and neurosensory outcomes of mild TBI (mTBI) among military service members and veterans. Role: PI.

R01 HL122658 Yaffe/Sidney (Multiple PI) 12/14 – 11/18
NIH: National Heart, Lung, and Blood Institute

Determinants of Midlife & Longitudinal Change in Cognitive Function
The goal of this project is to examine the cardiovascular, metabolic, and lifestyle risk factors for cognitive aging in midlife and to investigate their relationships with structural brain changes and genetic risk. Role: Multiple PI.

W81XWH-14-2-0132 Yaffe (PI) 10/14 – 09/18
Department of Defense

Blood Biomarker Profile of TBI-associated Cognitive Impairment
The goal of this project is to define the biomarker profile of late-life cognitive impairment in veterans who have been exposed to TBI. Role: PI.

P50 AG023501 Yaffe (PI) 04/14 – 03/19
NIH: National Institute of Aging

Alzheimer's Disease Research Centers: Data and Statistical Core
The Core provides data management and statistical consulting to the ADRC. Role: Core PI.

K24 AG031155 Yaffe (PI) 06/13 – 11/20
NIH: National Institute on Aging

Predictors of cognitive aging across the lifecourse
The goal is to apply a lifecourse approach to the investigation of risk factors for cognitive aging and structural brain integrity and to provide mentoring to the next generation of leaders in cognitive health. Role: PI.

R01 AG026720 Renewal Years 6-10 Stone/Yaffe (Multiple PI) 10/12 – 03/18
NIH: National Institute on Aging

Change in Sleep & Cognition in Older Women
The goal of this renewal is to determine the association between sleep dysfunction and cognitive impairment in a large ongoing prospective study. Role: Multiple-PI

R01 AG05401 Yaffe/Cummings (Multiple PI) 09/11 – 05/18
NIH: National Institute of Aging

Study of Osteoporotic Fractures
The goal of this prospective study is to investigate the predictors and outcomes of successful aging. Role: Multiple-PI.

Sierra Pacific VISN Yaffe (PI) 10/09 – 09/23
Mental Illness Research, Educational and Clinical Center Psychiatric Fellowship.
The goal is to fund dementia research at the San Francisco VA. Role: Director.

Ongoing Research Support as Co-Investigator
P30 AG044281 Covinsky (PI) 07/13 – 06/18
NIH: National Institute on Aging

UCSF Older American Independence Center
The goal of this project is to improve the health care and quality of life of vulnerable older adults with or at risk for disability. Role: Co-Investigator

W81XWH-14-2-0176 Manley (PI) 10/14 – 09/19
Department of Defense
Traumatic Brain Injury Endpoints Development (TED) Award
The goal of this project is to identify and validate measures of brain injury and recovery. Role: Co-Investigator
R01 AG048234 Kramer (PI) 04/15 – 01/20
NIH: National Institute on Aging

Effects of Chronic Inflammation on Brain Structure and Function
The goal of this project is to better define the longitudinal impact of chronic inflammation on brain structure and function in the elderly by employing imaging biomarkers of white matter injury and AD. Role: Co-Investigator
R01 AG032289 Kramer (PI) 09/15 – 05/20
NIH: National Institute on Aging

Biological predictors of brain aging trajectories
The goal of this project is to better understand the inflammatory, vascular, and neurodegenerative mechanisms that contribute to diversity in brain aging trajectories. Role: Co-Investigator
R01 AG052964 Cummings (PI) 06/16 - 05/21
NIA

Comprehensive Evaluation of Aging-Related Clinical Outcomes and Geroproteins
The goal of this grant is to determine whether proteins discovered to delay or accelerate aging in the brain, heart, and skeletal muscle are associated with aging outcomes. Role: Co-Investigator
RF1 G050745 Spira (PI) 06/16 - 05/21
NIA

The ARIC study of midlife sleep and late-life brain amyloid
The goal of the project is to determine whether disturbed sleep and sleep-disordered breathing are associated with neuroimaging evidence of β-amyloid deposition. Role: Co-Investigator.
UL1 TR991872 Grandis (PI) 07/16 - 06/21
NIH: NCATS
UCSF Clinical and Translational Science Institute
The goal of the UCSF CTSI is to create an integrated academic home that transforms training and conduct of clinical and translational research, provides high quality research infrastructure, and promotes successful careers of researchers. Role: Co-Lead of Translational Endeavor/Pilot Translational & Clinical Studies Director

Completed Research Support (in last 3 years, as PI)
R01 MH086498 Yaffe (PI) 03/10 – 02/15
NIH: National Institute of Mental Health

Long Term Depressive Symptom Course & Adverse Health Outcomes among Older Women
The goal of this project is to investigate how depressive symptoms among elderly women are associated with cognitive and functional decline over the long term. Role: PI.
W81XWH-12-1-0581 Yaffe (PI) 10/12 – 03/15
Department of Defense

Endophenotypes of Dementia Associated with Traumatic Brain Injury in Retired Military Personnel
The goal of this project is to define the clinical, biomarker, and neuropathologic phenotypes of late-life dementia in veterans who have been exposed to TBI. Role: PI
2P01 AG019724 Miller/Yaffe (PI) 09/12 – 05/17
NIH: National Institute of Aging

Frontotemporal Dementia: Genes, Images, and Emotions: Data Management and Biostatistics Core
The goal of this program project is to test new international research criteria for frontotemporal dementia and to determine the value of imaging and biomarkers for diagnosis. Role: PI of Data & Biostatistics Core.
R01 DK069406 Yaffe/Kurella (Multiple PI) 09/11 – 05/17
NIH: National Institute of Diabetes and Digestive and Kidney Diseases

Cognitive Decline in Chronic Renal Insufficiency
The goal of this project is to investigate cognitive trajectories of individuals transitioning from advanced CKD to ESRD. Role: Multiple-PI
Dr. Raymond Yung

Raymond Yung, M.B., Ch.B., is the Chief of the Division of Geriatric and Palliative Medicine in the Department of Internal Medicine, and the Director of the NIH-funded Claude D. Pepper Older Americans Independence Center. His other administrative rolls include Director of the Institute of Gerontology at the University of Michigan and Director of the UM John A. Hartford Center of Excellence in Geriatrics.

Dr. Yung is a U-M professor of Internal Medicine who is board-certified in internal medicine, geriatric medicine, rheumatology, and hospice and palliative medicine. As Division Chief, he is responsible for faculty matters and all aspects of the clinical, research, and education missions of the Division, including fellowships in geriatric medicine and palliative care medicine.

As a specialist in the care of older adults with arthritis, Dr. Yung is a sought after clinician who has been consistently recognized in Best Doctors in America. He is a member of both geriatric and rheumatologic societies and is a regular reviewer of manuscripts and grants.

Nationally recognized for his research on inflammation and aging, Dr. Yung has published over 80 peer-reviewed articles and book chapters. His research focuses on understanding the relationship between age-related changes in the immune system and the development of chronic inflammatory diseases in the elderly. His research has been continuously funded by the National Institute of Health (NIH) since 1992. He has been recognized by several foundations with grants and won the prestigious American Federation for Aging Research Paul Beeson Physician Faculty Scholar in Aging Research, among other awards.

Dr. Yung received his medical training at the University of Liverpool, England. After completing his Internal Medicine residency in Detroit, he received fellowship training in rheumatology and geriatric medicine, both at the University of Michigan. He joined the U-M faculty in 1996.
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Prevalence and Predictors of Frailty after Hospitalization for Critical Illness

Scholar: Nathan E. Brummel, MD MSCI, Vanderbilt University Medical Center
Mentors: E. Wesley Ely, MD MPH, Vanderbilt University Medical Center
Thomas M. Gill, MD, Yale University

RATIONALE
At admission to the intensive care unit (ICU), frailty is present in one out of three patients. Among these patients, more severe frailty is independently associated with greater mortality and disability in activities of daily living. The prevalence of frailty and risk factors for new or worsened frailty after critical illness, however, are unclear. We hypothesized that new or worsened frailty after critical illness would be common and that clinical risk factors could be identified.

METHODS
To test these hypotheses, we enrolled patients who were treated for respiratory failure and/or shock within 72 hours of admission to the medical or surgical intensive care unit (ICU) from 5 US centers. At 3 and 12 months after ICU discharge, trained study personnel, who were masked to the events of the index hospitalization, used patient and/or surrogate interviews to assess survivors along the fitness to frailty continuum using the Clinical Frailty Scale (CFS) score. The CFS score ranges from 1 (very fit) to 7 (severely) frail, with scores of 5 or greater representing clinical frailty. We used descriptive statistics to determine the prevalence of fitness (i.e., CFS score 1-3), apparent vulnerability (i.e., CFS score of 4) and frailty (i.e., CFS score 5-7) at both follow-up time points. We used multivariable regression to determine the association between age, years of education, sex, coexisting illnesses, disability in basic and instrumental activities of daily living, severity of illness, duration of delirium, duration of coma, duration of sepsis, duration of mechanical ventilation, and discharge location with higher CFS scores at 3 and 12 months.

RESULTS
We enrolled 1040 patients who were a median [IQR] of 62 [53-72] years old with an APACHE II of 24 [18-30] and 329 (32%) of whom were admitted with sepsis/ARDS. We assessed 546 out of 711 survivors (77%) at 3 months and 467 out of 631 survivors (74%) at 12 months.

Results of these analyses will be available at poster session.
Pre-Existing Illness Burden is Associated with Emergency Department (ED) Visits and Mortality Following Emergency Laparotomy
Lilley, Kelley, Bollens-Lund, Ritchie, Mitchell, Cooper

Introduction
Pre-existing functional and medical vulnerability is prevalent among older patients who undergo emergency laparotomy (EL) and is associated with worse outcomes. There is little population-level data to characterize the relationship between baseline vulnerability and mortality and healthcare utilization in the year after surgery. Therefore, we sought to compare 1-year outcomes after post-EL discharge among a national sample of patients with high (HIB) vs. low illness burden (LIB) before admission.

Methods
Health and Retirement Study interviews linked to Medicare claims (2000-2012) identified patients, ≥65.5, discharged alive after EL. Using existing methodology, illness burden prior to surgery was characterized by indicators of functional and medical vulnerability, including functional dependence, dementia, use of helpers, multimorbidity, high healthcare utilization, and poor prognosis. We used univariate analysis to compare 1-year postoperative healthcare utilization (ED visit, readmission, intensive care unit (ICU) admission) and mortality for those with HIB or LIB (≥2 vs. <2 vulnerabilities). We used competing-risk multivariable regression to examine illness burden as an independent predictor of outcomes.

Results
Among 349 patients discharged alive, 54% had HIB prior to EL. In the year after EL, patients with HIB experienced more ED, hospital and ICU admissions and higher mortality, compared to those with LIB. HIB independently predicted ED visits (p=0.03) and mortality (p<0.01).

Conclusions
These data suggest that EL is associated with considerable ongoing healthcare utilization and mortality for older patients, regardless of pre-existing illness burden. Those patients with HIB before surgery are at greatest risk and may benefit from palliative care concurrent with surgical care.

Figure. Outcomes within one year after hospitalization for emergency laparotomy

*Adjusted Hazard Ratio (95% CI) adjusted for age, sex, race, complications; Low Illness Burden as reference group
Sleep loss increases risk of Alzheimer’s disease by increasing CNS Aβ production

Authors: Brendan P. Lucey, Terry J. Hicks, Jennifer S. McLeland, Cristina D. Toedebusch, Jill Boyd, Donald L. Elbert, Bruce M. Patterson, Jack Baty, John C. Morris, Vitaliy Ovod, Kwasi G. Mawuenyega, Randall J. Bateman

Objectives: Sleep disturbances, such as poor sleep efficiency or inadequate sleep time, are associated with increased risk of Alzheimer’s disease. Amyloid-β (Aβ) concentration fluctuates with the sleep-wake cycle suggesting that decreased sleep time may increase Aβ concentration and therefore deposition in the brain. However, the mechanism driving this change in concentration is unclear. The purpose of this study is to determine if sleep alters Aβ concentrations in the human central nervous system via a production or clearance mechanism.

Methods: We collected serial cerebrospinal fluid (CSF) samples via intrathecal lumbar catheter every 2 hours for 36 hours in 8 adults 30-60 years old during behavioral sleep deprivation, increased slow wave sleep via administration of sodium oxybate, and control. Four participants completed the study twice in different intervention groups; four participants completed all three intervention groups. All participants were infused with $^{13}$C₆-leucine for Aβ stable isotope labeling kinetics (SILK). Labeled and unlabeled Aβ was quantitated by mass spectrometry. Sleep-wake activity was monitored with polysomnography.

Results: We found that the mole fraction of isotopically labeled Aβ was the same across all intervention groups, despite the absolute Aβ concentration of sleep-deprived participants increasing over baseline by ~30% compared to the drug and control groups (p<0.0001). Further, the mole fraction of labeled Aβ was not different between the drug and control groups. Sleep-mediated clearance mechanisms are predicted to alter the shape of the SILK labeling curve, whereas production rate does not change the curve. We demonstrated this with sensitivity analyses, supporting that sleep loss drives increased Aβ concentration by increased Aβ production.

Discussion: Our study supports a mechanism of increased Aβ production in the setting of sleep loss. Aβ deposition in the brain is concentration-dependent and a key first step in Alzheimer’s disease pathogenesis. Since increases or decreases in Aβ concentration of 25-40% have been associated with causing or preventing Alzheimer’s disease, these results support that sleep loss increases Alzheimer’s disease risk via an Aβ mechanism. Future investigations will be needed to determine if decreasing Aβ production by increasing sleep time can prevent Alzheimer pathology.
Title: Engaging Patients in Advance Care Planning through an Electronic Health Record Patient Portal

Authors: Hillary D. Lum MD, PhD; Adreanne Brungardt, MM, MT-BC; Sarah Jordan, MA; Lisa Schilling, MD, MSPH; Jean S. Kutner, MD, MSPH

Background: In the US, only 33.4% of adults have completed legal documents to appoint a medical durable power of attorney. The availability of these documents in the electronic health record (EHR) is even more limited. We implemented on-line tools for advance care planning (ACP), including an electronic Medical Durable Power of Attorney (MDPOA) form, in the electronic patient portal website of a large healthcare system.

Objectives: To evaluate feasibility and patient use of novel EHR-based ACP tools.

Methods: Mixed methods evaluation of the first 8 weeks of patient use of ACP tools (e.g. webpage, online messages, and MDPOA form). The ACP tools are available to approximately 286,000 patients who have a patient portal account, however, there was no specific promotion of the new tools. We assessed patient characteristics, type of ACP interaction, and details related to surrogate decision maker documentation among patients who completed the MDPOA form. We conducted a thematic analysis of patient preferences for medical treatment on the MDPOA form.

Results: 296 patients used the ACP tools through the health system’s web-based patient portal. Patients were mostly female (72%) with a mean age of 45 years (range, 18 to 98 years). 11 patients (4%) sent online messages or called the ACP Support Team. 254 (86%) patients completed a MDPOA, 6 (2%) patients competed a 4-item ACP readiness questionnaire, and 24 (8%) patients viewed the MDPOA form but chose not to complete it. Among patients who completed a MDPOA, 61% had no prior documentation of a decision maker, 29% had only an orally appointed decision maker, and 10% already had a MDPOA on file. 107 patients (42%) added preferences in their own words. Key themes from the patient-entered preferences included detailed procedural requests, organ donation, reference to other advance directives, or absolute statements (e.g. “Keep me alive!”).

Conclusions: Novel EHR-based tools built into the health system’s patient portal can engage patients in ACP. The majority of patient usage was to appoint a healthcare decision maker.
Title: Glutamatergic Dysregulation in Age-Related Cognitive Decline and Alzheimer’s disease

The neural circuits affected in aging and in Alzheimer’s disease (AD) are similar, involving the glutamatergic connections among cortical areas and with the hippocampal formation. In aging, synaptic changes occur with minimal neuronal death while in AD, there is frank loss of neurons. With the goal of further understanding the susceptibility of glutamatergic neural circuits to aging and AD that culminates in cognitive decline, the proposed project utilizes a multi-dimensional investigative approach focusing on the major glutamate transporter in the brain, EAAT2. EAAT2 plays a critical role in determining glutamate levels synthaptically and extrasynaptically, and regulating physiological glutamatergic neurotransmission, that all are critical for learning, memory, and synaptic health. Importantly, EAAT2 activity is significantly decreased in both aging and AD, and associated with neurodegeneration in the latter. We have been investigating EAAT2’s pathophysiological role in aging and AD by, first, quantifying changes at the synaptic level, with correlative behavioral assays, and gene expression profiles in aging and AD mouse models, and second, with an intervention with an EAAT2-enhancer, the glutamate modulator riluzole. Moreover, we have been using a newly developed conditional EAAT2 knock-out (KO) mouse for further mechanistic studies on EAAT2’s impact on gene expression patterns and behavior in the aging brain. These studies will delineate the biology of EAAT2 in aging and AD brains at the structural, molecular and functional levels and will test EAAT2 enhancement as a therapeutic target for age-related cognitive decline and AD.
The Impact of the Vulnerable Elder Protection Team: Preliminary Experience with an ED-Based Multi-Disciplinary Elder Abuse Intervention

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Background: Elder abuse, neglect, and exploitation are common and have serious consequences. An emergency department (ED) visit provides a unique opportunity to identify elder abuse, but emergency providers rarely recognize or report it due to significant disincentives. We have developed and launched the Vulnerable Elder Protection Team (VEPT), an ED-based multi-disciplinary intervention. The VEPT is a consultation service available 24/7 to improve identification, comprehensive medical and forensic assessment, and treatment for potential victims. The team is activated via page when ED providers are concerned that a patient may be a victim of abuse, neglect, or exploitation. The on-duty ED social worker evaluates the patient and contacts the on-call geriatric emergency physician (GEP) to discuss the case. When appropriate, the GEP may also evaluate the patient in-person and examine them. Other team members, including ED Psychiatry, ED Radiology, Patient Services, Security, Legal, and Ethics may also be involved when necessary. This team provides recommendations about additional testing, available resources, and appropriate disposition. Here, we examine the impact of the VEPT in the first five months after launch.

Methods: After developing protocols and training providers, the VEPT was launched on April 3, 2017 in a large, urban academic medical center with annual visits of more than 90,000 patients each year, of whom 30% are ≥ 60 years old. We tracked all team activations and closely evaluated each case from 4/3/17-8/31/17, including referral source, patient characteristics, results of VEPT evaluation, and outcomes.

Results: VEPT was activated 40 times for ED patients during the five month period (1.8 / week). Activations steadily increased from 5 during April to 13 during August. The team was activated most commonly by: ED medical providers (50%), ED social workers (33%), ED nurses (5%) and ED psychiatrists (5%). Victims were potentially suffering from physical abuse (58%), neglect (48%), financial exploitation (25%), emotional abuse (25%), and sexual abuse (5%), with 45% suffering from multiple types. Potential abusers were most commonly adult children (41%), paid home caregivers (23%), or spouses/partners (15%). After VEPT evaluation, 60% of patients assessed were determined to have a high or moderate concern for mistreatment. Among these patients with high or moderate concern, 79% had a change in their living / housing situation or were discharged with new or additional home services. Of these, 25% were discharged to an elder abuse shelter, 30% were discharged with a change in their living / housing situation, and 21% were discharged with new or additional home services. Only one of these patients subsequently returned to the ED for a mistreatment-related issue during the study period. Other VEPT interventions included involving the hospital Ethics Committee, contacting Adult Protective Services, reporting to the New York City Police Department, filing a complaint about a nursing facility with the New York State Department of Health, and referring cases to the New York City Elder Abuse Center.

Conclusion: A multi-disciplinary elder abuse response team in a large urban academic ED is frequently activated. Increase in activations suggests the potential that: more ED providers were considering elder mistreatment when evaluating older adults, there was an increased awareness of VEPT’s existence, and a perception was developing that VEPT adds value when activated. Potential victims are suffering many different types of abuse. VEPT interventions often increased safety, through changes in living situation and additional home services. Also, the small number of patients who re-presented to the ED suggests impact on health care utilization. Future research will examine longer-term mistreatment-related as well as medical, mental health, functional, psychosocial, and legal outcomes for patients served by this intervention.
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AGE IS ASSOCIATED WITH AN ALTERED ROLE OF THE HYPERPOLARIZATION ACTIVATED, CYCLIC NUCLEOTIDE GATED (HCN) ION CHANNEL IN ADRENERGIC DETRUSOR RELAXATION

Hypothesis / aims of study
The Hyperpolarization activated Cyclic Nucleotide gated (HCN) ion channel is the molecular analog of an inward, depolarizing current, I_h. This current is known in several tissues including neural, cardiac, and gut, and has recently been identified in human and rat bladders. It serves variously as the feedback current in neural oscillators, membrane potential stabilization, and regulator of susceptibility to excitatory potentials. It is activated by hyperpolarization, and its dynamics enhanced by intracellular cyclic nucleotides. Mouse cystometric evidence suggests enhanced sympathetic-mediated detrusor muscle relaxation with advancing age. This could underpin the loss of bladder volume sensitivity in older humans, associated with an increased risk of urinary dysfunction. We hypothesized that changes in HCN expression would be associated with changes in detrusor relaxation to adrenergic stimulation, in the mouse model.

Study design, materials and methods
Expression of HCN mRNA and the impact of aging was tested with qRT-PCR using bladder tissue from WT 2-3month (Young, YWT)) and 21-22 month old (Old, OWT) C57Bl/6 female mice. HCN1 protein was confirmed by Western Blot from Young WT female mice. The dependence of adrenergic detrusor relaxation on HCN was tested in bladder strips from YWT and OWT mice and young HCN1 KO mice (YKO). In these studies, 1 mm mucosa-intact strips taken transversely from the mid-bladder were stabilized at 8-10 mN tension in a Ca++-contained buffer, and loss of tension measured in response to adrenergic stimulation using 1 microM isoproterenol. After re-tensioning the strip with carbachol, the degree of isoproterenol-induced relaxation was again measured in the presence of an HCN blocker, either CsCl or ZD7288. Strip integrity was confirmed at experiment end with carbachol-induced contraction. Tension and spectral power (0.01-0.05 Hz) were compared with 2-way ANOVA across groups and conditions.

Results
YWT mouse bladders express HCN1>HCN2. OWT bladders express significantly less HCN1 but HCN2 levels are similar to YWT. The presence of HCN1 protein was confirmed. Strip tension studies demonstrated isoproterenol-induced relaxation in YWT and YKO strips, significantly inhibited by HCN blockade only in YWT. OWT bladders conversely showed minimal relaxation to isoproterenol in the absence of HCN blockade but significant relaxation in the presence of HCN blockade. Paralleling these findings, maximum spectral power was increased by isoproterenol in YWT in the absence of HCN blockade, and in OWT in the presence of HCN blockade.

Interpretation of results
Aging and/or maturation is associated with a change in HCN expression, away from HCN1 dominance. HCN1 partially mediates adrenergic detrusor muscle relaxation in young mouse bladders, however altered isoform distribution in old bladders may inhibit adrenergic relaxation. Enhanced isoproterenol-induced relaxation is marked by increased spectral power suggesting myocyte coordination and is age- and HCN-status dependent. HCN is an age-sensitive determinant of bladder responses to sympathetic stimulation with advancing age.

Concluding message
We conclude that altered bladder HCN function with advancing age could contribute to loss of range of response to sympathetic input, diminished volume sensitivity, and impaired detrusor preparation for voiding contraction. As symptom complexes of overactive/underactive bladder and associated incontinence can be considered disorders of bladder volume sensitivity, these changes contribute to an increased prevalence of disorders of urine storage and voiding in later life.

Disclosures
Funding: NIH K76AG054777-02 (NIA) and University of Connecticut Institute for Brain and Cognitive Science Seed Grant. Clinical Trial: No Subjects: ANIMAL Species: Mouse Ethics Committee: University of Connecticut School of Medicine Institutional Animal Care and Use Committee (IACUC)

Key Words: HCN, bladder, aging
A Screening Method for Identifying Therapeutic Modulators of Neurodegeneration

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Over the last decade a variety of computational tools have been developed that allow one to query RNA expression data to determine the cluster of genes (or regulon) that are driven or suppressed by any transcriptional regulator in any cell type. We have used this approach with neuronal expression data and have identified master regulators (MRs) of synaptic dysfunction in Alzheimer’s disease (AD). We are now using these computational tools to facilitate high-throughput screening to identify compounds that rescue synaptic function in AD through appropriate modulation of disease-relevant MRs. Using PLATE-seq (a novel low-cost sequencing technique), we are able to measure the transcriptome as a high-throughput assay readout. One may then expose neuronal cultures to a library of compounds, and measure the transcriptomic changes that result from exposure to each compound. Using a pre-defined map (or “interactome”) of which genes are influenced by each MR, one may then determine which MRs are likely to be modulated by a given compound. As proof of principle, we have knocked down ZCCHC17 (a MR relevant for synaptic dysfunction in AD), and using the PLATE-seq output we have analyzed changes in regulon genes of every MR in our analysis to determine which MR is most likely to be impaired. This analysis identifies ZCCHC17 as the only MR that passes our FDR threshold out of 717 MRs in our analysis. Of note, this result is arrived at by analyzing regulon genes for each MR, not by analyzing MR mRNA levels. Thus, if ZCCHC17 had pharmacologically impaired or increased activity, we would similarly be able to infer altered ZCCHC17 activity from altered regulon gene expression even though ZCCHC17 mRNA levels would be unchanged. We are initially leveraging this technology to screen for drugs that can rescue synaptic dysfunction in AD through disease-relevant MR manipulation. However, this approach can be applied to virtually any physiologic process, and the resources that we will be generating with this project could be used for any neurologic disease.
The prevalence of atopic dermatitis across the lifespan: A UK population-based cohort study

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Key words: Atopic dermatitis, eczema, itch, epidemiology

Background: Atopic dermatitis (also known as eczema or atopic eczema) has been widely studied in childhood, but little is known about adult disease. Although traditionally characterized as a skin condition that remits in most children by adolescence, increasing genetic and epidemiologic evidence suggest it may be better characterized as an episodic systemic inflammatory disorder that also occurs in adulthood.

Design: Retrospective longitudinal cohort study.

Objective: To estimate the age-specific prevalence of active atopic dermatitis and examine how it varies by demographic factors.

Setting: Population-based, using data from The Health Information Network (THIN), a primary care electronic medical record database that is representative of the general population in the United Kingdom.

Participants: 8,604,333 individuals with acceptable records in THIN from 1994-2013.

Main outcome measure: Active atopic dermatitis prevalence by age. All individuals who met a previously validated definition of atopic dermatitis (at least one of five diagnosis codes and at least two treatment codes) were identified. For the primary analysis, an individual was considered to have active disease if he/she had at least one atopic dermatitis-associated code (either a diagnosis or treatment code) in any given year based on chronologic age.

Results: There were 848,435 individuals (9.86%) who ever received a code for atopic dermatitis. The prevalence of active atopic dermatitis by age followed a u-shaped curve: it was highest in infancy and early childhood (12% at ages 0-4), declined to 3-4% in adulthood (ages 20-50), and increased in older age (8% ages 75+). Overall, atopic dermatitis was more common among females and those of higher social class, but the relative prevalence differed by age: active disease was more common among males than females over age 75, and more common among those of lower social class in mid-adulthood. The distribution among those who live rural and urban areas was similar at all ages.

Conclusions: The prevalence of active physician-diagnosed atopic dermatitis is highest during infancy and older age. Additional research is needed to characterize the natural history of the disease over the life course and identify the best treatment options for older adults.
Markers of Alzheimer’s Disease and Neurocognitive Outcomes after Perioperative Care (MADCO-PC): An Observational Cohort Study to Examine Relationships Between Pre to Postoperative Changes in CSF Alzheimer’s Disease Biomarkers, Cognition, and Functional MRI Connectivity

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Background: Animal model and in vitro studies suggest that anesthetic drugs and surgical stress accelerate Alzheimer’s disease (AD) pathology and worsen cognition. Anesthesia and surgery in older adults is associated with postoperative delirium and cognitive dysfunction, and the two largest epidemiologic studies on this subject found that anesthesia and surgery exposure were associated with increased long term dementia risk. Yet, whether anesthesia and surgery are causally related to long term cognitive decline or the development of Alzheimer’s disease is extremely controversial. As a step towards resolving this controversy, we determined whether there was a correlation between pre- to post-operative changes in cognition and CSF AD biomarkers after major non-cardiac surgery under general anesthesia in older adults. Since resting state functional MRI brain connectivity changes (such as in the brain’s default mode network) have been observed prior to clinical dementia symptoms in AD patients, we also examined whether there was a correlation between pre- to post-operative changes in CSF AD biomarkers and resting state functional MRI brain connectivity.

Methods: 110 older adults undergoing non-cardiac, non-neurologic surgery scheduled to last >2 hours under general anesthesia were prospectively consented and enrolled in this IRB-approved study (NCT01993836). Patients completed a cognitive test battery within one month prior to and 6 weeks after anesthesia and surgery; 63 of these patients underwent resting state functional and structural MRI scans at these same times. CSF samples were obtained by lumbar puncture before and 24 hours and 6 weeks after anesthesia and surgery. Cognitive function was assessed by a cognitive test battery; factor analysis was used to minimize redundancy in testing and produce overall cognitive index scores. CSF Aβ1-42, tau and phospho-tau were measured in CSF samples by the ADNI biomarker core laboratory. Spearman correlation tests were used to examine correlations between pre- to postoperative changes in cognition and CSF AD biomarkers. For the resting state functional MRI data, we measured the amplitude of low frequency (0.01-0.1 Hz) fluctuations (ALFF), and correlated pre- to post-operative changes in ALFF with changes in CSF AD biomarkers with false discovery rate correction for multiple comparisons.

Results: The group mean CSF biomarker trajectories showed little or no change from before to after surgery. There was no correlation between pre- to 6-week post-operative cognitive index change and changes in any of the CSF AD biomarkers measured (Ab1-42, tau, or phospho-tau, or their ratios; p>0.05 for all). Across patients, the increase in CSF tau levels from before to 24 hours after surgery was negatively associated with ALFF change from before to 6 weeks after surgery in the right supramarginal gyrus/angular gyrus area (p=0.0006), a part of the default mode network.

Conclusion: We found little or no group mean changes in CSF AD biomarkers from before to after surgery, and, there was no correlation between pre to postoperative changes in CSF AD biomarker and cognition. Yet, pre to postoperative changes in CSF tau levels across individual patients were associated with decreased resting state connectivity within part of the default mode network, similar to connectivity changes seen in early AD. These data suggest anesthesia and surgery may be associated with relatively small changes in CSF AD biomarkers in some patients, which may reflect more significant focal neurologic connectivity changes detectable by resting state functional MRI at six weeks after surgery even though they are not associated with cognitive changes over this interval. This model parallels the amyloid cascade hypothesis of AD, in which CSF AD biomarker changes slowly accumulate and are associated with functional brain connectivity changes before the onset of memory deficits, and leaves open the question of whether anesthesia and surgery contribute to long term AD risk.

*These authors contributed equally to this project, and are co-first authors.
**Prospective validation of a screening tool to identify older adults in need of a driving evaluation**

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**Background/Objectives:** In at-risk older drivers, behind-the-wheel (BTW) tests can assess skills and inform vehicle modifications, retraining or, if necessary, the need for driving retirement. We sought to prospectively validate and refine the five-item “CRASH” screening tool for identifying older drivers needing a BTW test.

**Design:** Prospective observational study.

**Setting:** Geriatric and internal medicine primary care clinics affiliated with a tertiary care hospital, and a local BTW program.

**Participants:** 315 cognitively-intact drivers aged ≥65 years.

**Measurements:** Participants completed: baseline questionnaire (including CRASH tool) and assessments; BTW test (evaluator blinded to questionnaire results); and one-month telephone follow-up. Analysis included descriptive statistics and examination of predictive ability of the CRASH tool to discriminate “normal” (pass) versus “abnormal” (conditional pass or fail) on the BTW test, with logistic regression and CART techniques for tool refinement.

**Results:** 266 participants (84%) had a BTW test; of these, 17% had a normal and 83% an abnormal rating. Half (45%) of those with an abnormal score were advised to limit driving under particular conditions. Neither the CRASH tool nor its individual component variables were significantly associated with the summary BTW score; in refined models with other variables, the best-performing tool had approximately 67% sensitivity and specificity for an abnormal BTW score. Most participants found the BTW test useful and were willing to pay a median of $50. At one-month follow-up, no participants had stopped driving.

**Conclusion:** The CRASH screening tool cannot be recommended for use in clinical practice. Findings on older adults’ perceived utility of the BTW test and the stability of driving patterns at one-month follow-up could be useful for future research studies and for design of older driver programs.

**KEY WORDS:** older adult, automobile driving, driving evaluation, behind-the-wheel test, clinical prediction
Background: In the United States, 400,000 deaths every year are related to unintentional harm in the health care system. The cost of this unintended harm is estimated to be in excess of $17 billion every year. Based on the opportunity for improvement in healthcare value and the recommendations from the Institute of Medicine in 2012 to improve healthcare system quality, Indiana University School of Medicine and Indiana Clinical and Translational Sciences Institute launched the Center for Health Innovation and Implementation Science (CHIIS) in September 2013. CHIIS uses Agile Implementation methods with the complex adaptive system, five factors and sources of variation frameworks to rapidly translate and implement cost effective therapeutics within local, national, and international healthcare systems.

Currently, CHIIS is leading a four year, $48 million federally funded project known as the Great Lakes Practice Transformation Network (GLPTN). The GLPTN is aiming to transform the practices of over 15,000 enrolled clinicians across seven states – Indiana, Illinois, Michigan, Ohio, Kentucky, West Virginia and Virginia. With Quality Improvement Advisors (QIA), the GLPTN is able to provide Agile Implementation consulting along with technical assistance to optimize workflow, utilize data and evidence based practices, and provide Quality Payment Program (QPP) education.

Methods: CHIIS utilizes Agile Implementation to accelerate the adoption of evidence-based practices to achieve better care, better health and lower cost. Agile Implementation uses a reproducible and scalable process to rapidly implement and sustain evidence-based healthcare services. Agile Implementation focuses on 1) selecting an evidence-based healthcare service; 2) rapidly implementing such a service; 3) evaluating the impact of the service; and 4) sustaining and scaling up the evidence based service across the entire healthcare delivery organization.

By utilizing Agile Implementation as a foundational method for practice transformation, GLPTN’s QIAs are able to perform data analyses, disseminate evidence based practices, and exchange information across the Midwest. Through the culmination of this collaborative effort, the GLPTN is implementing practice change by: 1) team-based innovations through a problem-solving network; 2) conducting readiness assessments in order to select the most appropriate tool from the GLPTN’s Agile Implementation Toolkit to begin coaching clinicians; 3) developing monthly reporting tools to collect data from clinicians and report quality improvement data back to clinicians.

Results: Through the guidance of the GLPTN, practices are transforming into patient-centric practices capable of providing better health and better care at a lower cost, impacting over 10.2 million patients. Through 2017, the GLPTN has contributed to over $81 million in costs savings and projects cost savings to reach $800 million by 2019. Table 1 below details the cost savings results.
**Trends in Racial/Ethnic/Nativity Disparities in Cardiovascular Health among Adults without Prevalent Cardiovascular Disease in the United States, 1988-2014**

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**Abstract**

**Background:** Trends in cardiovascular disparities are poorly understood, even as diversity in the US increases.

**Objective:** To examine US trends in racial/ethnic/nativity disparities in cardiovascular health.

**Design:** Repeated cross-sectional study.


**Participants:** US adults ages ≥25 years without self-reported cardiovascular diseases.

**Measurements:** We examined racial/ethnic/nativity and period differences in Life’s Simple Seven (LS7) health factors and behaviors (blood pressure, cholesterol, hemoglobin A1c, body mass index, physical activity, diet, and smoking) and an optimal cardiovascular health composite score (LS7≥10).

**Results:** Optimal cardiovascular health never rose above 40% among Whites, 25% for Mexican Americans, and 15% among African Americans. Relative to Whites, African Americans had consistent disparities in optimal cardiovascular health that declined over time. In 1988-1994, the percentage with optimal LS7 was 22.8% lower than Whites in 25-44 year olds and 8.0% lower in those ≥65 years; by 2011-2014, differences fell to 10.6% and 3.8%, respectively, *P*<0.05 for all comparisons. Disparities in optimal LS7 between Whites and Mexican Americans were smaller, but also declined over the periods studied. The decreases in disparities were due to reductions in optimal cardiovascular health among Whites over all age groups and periods: between 1988-1994 and 2011-2014, the percentage with optimal cardiovascular health fell 15.3% for 25-44-year-old Whites and 4.6% for Whites ≥65 years.

**Limitations:** Only Whites, African Americans, and Mexican Americans studied.

**Conclusions:** The cardiovascular health of the nation has declined, racial/ethnic/nativity disparities persist, and decreases in disparities appear due to worsening cardiovascular health among Whites, not gains among African Americans and Mexican Americans. Multifaceted interventions are needed to address both declining population health and persistent health disparities.
**Title:** The Association of Intraoperative Changes in Brain-Derived Neurotrophic Factor and Postoperative Delirium in Older Adults  
**Authors:** Brown CH, Everett AD, Walston JD, Hogue CW  
**Institution:** Johns Hopkins University School of Medicine  
**Keywords:** BDNF, Delirium

**Background:** Delirium is common after surgery, although the etiology is poorly defined. Brain-derived neurotrophic factor (BDNF) is a neurotrophin important in neurotransmission and neuroplasticity. Decreased levels of BDNF have been associated with poor cognitive outcomes, but few studies have characterized the role of BDNF perioperatively. We hypothesized that intraoperative decreases in BDNF levels would be associated with postoperative delirium.

**Methods:** Patients undergoing spine surgery were enrolled in a prospective cohort study. Serum BDNF was collected at baseline and at least every hour intraoperatively. Delirium was assessed using rigorous methodologies, including the Confusion Assessment Method (CAM) and CAM-ICU. The associations of changes in BDNF and delirium were examined using regression models.

**Results:** Postoperative delirium developed in 32 of 77 (41.6%) patients. Median baseline BDNF levels were 7.6 ng ml⁻¹ (3.0-11.2), and generally declined intraoperatively (median decline 61.4% [IQR 30.8%-80.1%]). By delirium status, there was no difference in baseline BDNF levels. However, the percent decline in BDNF was greater in patients who developed delirium (median 73.9% [IQR 50.7%-81.5%]) vs. did not develop delirium (median 50.2% [IQR 13.6%-79%]; p-value=0.03). In the primary analysis, each 1% decline in BDNF was associated with increased odds of delirium in unadjusted (OR 1.02; 95%CI 1.00-1.04; p=0.01), multivariable-adjusted (OR 1.02; 95%CI 1.00-1.03; p=0.03), and propensity-score adjusted models (OR 1.02; 95%CI 1.00-1.04; p=0.03).

**Conclusions:** The results of this study show an association between intraoperative decline in serum BDNF and delirium. These preliminary results need to confirmed but suggest that serum BDNF levels may be a biomarker for postoperative delirium.
Primary Osteoporosis Screening in U.S. Male Veterans is Associated with Decreased Fractures in High Risk Subgroups, but not Overall

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Keywords: Osteoporosis, screening, males

Importance: Primary osteoporosis screening in men is controversial, and guidelines are conflicting.

Objective: To determine the association between osteoporosis screening and subsequent fractures in Male Veterans.

Design: Propensity score matched observational study using 2000-2010 CMS and VA data, mean follow-up 4.7 years. Screened men were 1:3 matched with unscreened controls on propensity scores indicating the probability of screening in the next year. Landmark analysis with competing risk compared time to fracture.

Setting: All U.S. VA facilities.

Participants: Men aged 65-99 years without prior fracture receiving primary care in VA (n=2,539,812).

Exposure: Primary screening for osteoporosis with Dual Energy X-ray Absorptiometry.

Main Outcome and Measures: Time to first clinical fracture, excluding skull and digital, was the primary outcome. Co-morbidities, demographics, medications, screening results, and osteoporosis treatment were defined using administrative data and natural language processing.

Results: During follow-up of 183,943 screened men and 475,449 controls, 9.4% fractured and 20.6% died. While overall screening was not associated with decreased fracture risk, targeted screening of pre-specified subgroups was associated with lower risk of fracture compared to the overall screening population: men on androgen deprivation therapy (HR 0.77, 0.66-0.89); men on glucocorticoids (0.77, 0.72-0.84); men aged ≥ 80 years (0.85, 0.81-0.90); men with one or more risk factors defined by the VA Guideline (0.91, 0.87-0.95); and men with high risk for fracture by FRAX using BMI (0.90, 0.86-0.95). Initiation of and adherence to osteoporosis medication was generally poor.

Conclusions and Relevance: Targeted DXA testing of higher risk men was associated with lower fracture risk. The results can be used to refine current guidelines for identification of men at risk for fracture.
Postoperative cognitive dysfunction has been described in approximately 15% of elderly (>65 years old) surgical patients at 3 months after surgery and is associated with increased 5 year mortality. Intrinsic patient factors (preexisting cognitive impairment, cognitive reserve, burden of illness) have been demonstrated to be highly associated with cognitive decline after surgery. However, the issue of whether anesthetic technique can moderate the effects of surgery and illness remains unanswered. In this study we focus on whether 1) there are specific domains of cognition which are affected (executive function vs. memory) and 2) cognitive decline is related to functional impairment. We will also examine depth of anesthesia measured by processed electrical (EEG) activity (raw parameter of burst suppression, and/or processed numerical “depth”) and cognitive dysfunction.

In this abstract we present an interim analysis of patients 1-90/175 major noncardiac surgery patients. The median age is 72 years old, 57.5% are female, with 12 years of education. Dropout rate is 14% (74/86). At 3 months, 17/74 (23%) patients experienced some type of decline from their baseline: 9/74 (12%) patients worsened at Trails B and 8/74(10.8%) on Logical Memory Delayed. There was 1 patient who declined in both categories. Most decliners transitioned from average to low performance. There were no high performers on Trails B who declined, there were 4/8 top memory performers who became average at 3 months. No patient declined from top performance to low performing in either memory or executive function. There was no clear relationship between total time in burst suppression and cognitive decline of either type. Neither was there a clear relationship between burst suppression normalized for case duration and postoperative cognition. No trend can be seen with total time in deep states (by processed number) or mean/median Bispectral index value. Patients with baseline and follow up low cognitive scores (who by definition could not decline) demonstrated the largest total amount of burst suppression. By 3 months, 18/74 (24.3%) of patients had not recovered to their IADL baseline. Of the patients with memory decline, 2/8 did not recover IADLs (25%) compared to 4/9 (44%) patients with executive dysfunction, the one patient with both types of dysfunction did not recover IADLs.

Consistent with our hypothesis, our data shows two distinct categories of cognitive decline at 3 months after surgery; memory and executive function. The two types encompass over 20% of all patients who completed 3 month time point to date. The changes appear to be relatively subtle, and baseline strong performers appear to have resilience- at least in executive function. In our formal analysis we will be better able to describe the trajectory of the lowest performers; there will likely be some issue of floor effect. Per our hypothesis, there appears to be a greater incidence of functional impairment in patients with executive dysfunction at 3 months. The largest total amount of burst suppression appears to be related to either baseline low cognitive performers (preexisting fragile brain) or longer surgeries (or both). When normalized for case duration, it seems there is no relationship between decline and burst suppression, although it appears low performers who could not decline further may have had more burst suppression (i.e. marker of vulnerable brain). There appears to be no relationship between median BIS value and outcomes of cognitive or functional impairment. We will continue to recruit for our goal of 175 patients- and should be adequately powered for the primary outcome given the amount of POCID observed and the dropout rate. To address our specific aims we will create models of the outcome of cognitive decline by domain composite score using the full battery and adjusted for known predictors such as age, education level, and baseline cognitive impairment. This will help us clearly delineate whether burst suppression is a marker of anesthetic overdose or a marker of a vulnerable brain.
Title: Changes in Health-Related Quality of Life for Geriatric Patients after an Emergency Department Visit

Author: Scott Dresden

Study Objective: The Geriatric Emergency Department Innovations (GEDI) program has been shown to decrease hospitalizations. The impact on longer term changes in health-related quality of life (HRQoL) are yet unknown. The objective of this study is to evaluate the impact of GEDI on overall self-reported health and priority domains of HRQoL including physical function, anxiety, depression, and the ability to participate in social roles and activities.

Methods: We performed a prospective cohort study comparing GEDI patients to control patients age 65+. All patients age 65+ were eligible. Patients were excluded if they were non-English speaking, or if they had altered mental status as measured by the six-item screener. Eligible patients provided informed consent while in the ED. Patients were enrolled from 3/2015-8/2015 and from 1/2017 to 9/2017. Enrolled patients completed a series of patient reported outcomes measures through the Patient Reported Outcomes Measures Information System (PROMIS) in the ED. Clinical data was obtained through the Enterprise Data Warehouse. Follow up measures were performed at 1 week, 4 weeks, and 8 weeks. Follow up was performed via phone or email per patient’s choice. Data were recorded in REDCap, a secure, web based application for managing data. Categorical variables were evaluated using chi squared test. Continuous variables were evaluated using Student’s t test. Linear regression was used to adjust for confounders.

Results: Of the 278 patients completed the baseline measures. GEDI patients were older (mean age 79.4 vs 73.6 years) and less educated (29% vs 15% with high school or less) than control patients. Overall trends in HRQoL differed by domain. On average, anxiety was highest at the index ED visit (50.7), and improved at week 1 (49.3), 4 (47.2), and 8 (46.5). Depression followed a similar trend with an average t score of 47.4 at the index ED visit, improving to 46.4 at week 1, 45.2 at week 4, and 45.3 at week 8. Participation in social roles and responsibilities worsened from the index ED visit (46.5) to the 1 week follow up (45.0), and then improved at week 4 (47.7), and week 8 (48.4). Physical function followed a similar trend worsening from the ED visit (40.3) to week 1 (39.8), and then improving at week 4 (41.7) and week 8 (43.0).

Compared to controls, GEDI patients had worse baseline scores on Physical Function [GEDI 36.3 (95% CI 34.5-38.2), control 42.4 (95% CI 40.9-43.8)] and Depression [GEDI 49.6 (95% CI 47.8-51.3), control 46.2 (95% CI 45.0-47.5)]. There was no significant difference between baseline GEDI and control scores for Anxiety [GEDI 52.0 (95% CI 49.9-54.1), control 50.1 (95% CI: 48.7-51.6)] and Participation in Social Roles and Responsibilities [GEDI 43.6 (95% CI: 40.8-46.4), control 47.7 (95% CI: 45.4-49.9)]. Follow up results showed significantly worse scores for GEDI patients compared to controls on Participation in Social Roles and Activities, Physical Function, Anxiety, and Depression at weeks 1-8. However, linear regression models demonstrated significantly worse scores for GEDI patients compared to control patients only at the 8 week follow up for physical function.

Conclusion: For ED patients age 65 and older, trends in measures of HRQoL are different for different domains. Anxiety and depression are worst in the ED, and improve at subsequent follow up points. Physical function and satisfaction with social roles and responsibility worsen from the ED visit to week 1 follow up before improving. The GEDI program is identifying a group of patients with lower HRQoL in Physical Function and Depression. Compared to control patients, GEDI patients do not have improved HRQoL in any domain after an ED visit, and have significantly worse Physical Function after 8 weeks compared to controls. There may be unmeasured confounders which can be attributed to this difference. Quasi-experimental methods, or a randomized controlled trial would be necessary to better evaluate the impact of the GEDI program on HRQoL.
Title: The combined effects of frailty and cognitive impairment on the course of disability after an ICU admission among older persons

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Key words: critical illness, aged, activities of daily living

Background: Frailty and cognitive impairment represent distinct vulnerability factors among older persons. Our objective was to evaluate the combined effects of frailty and cognitive impairment on the course of disability after a critical illness.

Methods: Potential participants included 754 community-dwelling persons aged 70+ years, who were evaluated monthly for disability in 13 functional activities from 1998-2013. Frailty was assessed every 18 months using the Fried index (range 0-5), based on the presence of weight loss, exhaustion, muscle weakness, slow gait speed, and low physical activity. Cognitive status was assessed every 18 months using the Folstein Mini-Mental State Examination (MMSE, range 0-30), with participants classified as cognitively impaired (MMSE ≤ 27) or intact (MMSE ≥ 28). The analytic sample included 266 ICU admissions from 215 participants who survived to the first post-ICU monthly interview. To reduce floor effects, admissions were excluded if the disability count in the month prior to ICU admission was 13 (out of 13). We determined the mean (standard deviation, SD) number of disabilities by Fried frailty count (0-5), stratified by cognitive status, over the 6 months following an ICU stay. In the multivariable analysis, we evaluated the combined effects of frailty (0-5) and cognition (as a dichotomous variable) on the number of disabilities over the 6 months following an ICU admission using a negative binomial model with generalized estimating equations and an interaction term. Covariates included age, sex, race, education, number of chronic conditions, pre-ICU disability count (from the month prior to ICU admission), ICU length of stay, mechanical ventilation, and shock.

Results: The mean age of the sample was 83.5 years (standard deviation [SD] 5.4), and the mean disability count in the month prior to ICU admission was 4.6 (range 0-12, SD 3.5). In the multivariable analysis, the association between frailty and post-ICU disability count differed significantly between participants who were cognitively impaired and those who were cognitively intact. Among participants with any cognitive impairment, each 1-point worsening in frailty increased the average disability count over the 6 months following an ICU admission by 54% (rate ratio (RR) 1.54, credible interval (CI) 1.37, 1.74); Figure). Among those who were cognitively intact, the corresponding value was only 18% (RR 1.18, 95% CI 1.13, 1.23). These results were robust to the competing risk of death.

Conclusions: The presence of increasing frailty together with cognitive impairment make older persons particularly vulnerable to the adverse functional consequences of critical illness.
A pilot study to improve decision making and care for older veterans with newly-diagnosed obstructive sleep apnea

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Background: Obstructive sleep apnea (OSA) is a common cause of daytime sleepiness and a risk factor for cardiovascular disease, cognitive impairment, and mortality. OSA poses a treatment challenge to many older adults and their providers because treatment options such as positive airway pressure (PAP) and dental devices require daily self-management activities and are often poorly tolerated. Moreover, OSA typically occurs in the context of multimorbidity (> 2 conditions), and the cumulative number of treatments across all conditions can be overwhelming. Strategies are needed to optimize decision-making about disease-specific treatment strategies in specialty care for older adults with multimorbidity. A patient decision aid may be an effective strategy. Our project is testing the feasibility of using an OSA-specific decision aid for improving the decision-making process and adherence to therapy.

Methods: Individuals aged 60 years or older with newly-diagnosed, untreated OSA were recruited from a VA sleep center. Eligible individuals were randomized to either a decision aid or a general sleep education program. Both interventions were delivered in a web-based format and accompanied by a paper workbook. A health coach oriented the participants to the interventions and provided support to the participants. Acceptability, usability, recruitment rates, and retention rates were measured. Decisional outcomes (e.g., knowledge of options) post-intervention and hours of PAP/night at 3 months follow-up were collected.

Results: 136 patients were screened, and 37 participants were randomized (N=18 to decision aid and N=19 to general education; 65% white, 11% Hispanic; mean age 66.9 (SD 5.5); mean number of comorbidities 6.4 (SD 3.1, min 2, max 14). Completion rates so far are 100% for the intervention, 97% for post-intervention assessment, and 86% for 3-month follow-up. Outcome data are currently being entered and cleaned for analysis.

Discussion and Future Directions: We established the feasibility of recruiting and conducting a randomized controlled trial to test the efficacy of a patient DA for improving outcomes in older adults with newly-diagnosed OSA. These data will be used to support a grant proposal to obtain funding to conduct a full-scale trial of the patient DA.

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Geriatric Traumatic Brain Injury: Unique Considerations for Presentation and Outcome

Raquel C. Gardner, Sourabh Sharma, John Yue, Allison Kaup, Geoffrey T. Manley

Objective: Compare injury characteristics and 6-month neurobehavioral outcomes between young (18-39y), middle-aged (40-59y), and older (60+y) adults with traumatic brain injury (TBI).

Background: Older adults have the highest incidence of TBI of any other age group, largely due to low-level falls. Few studies have investigated age-related differences in TBI presentation and neurobehavioral outcomes.

Methods: Data are from the TRACK-TBI pilot study, a prospective multi-site study of 572 patients (44% young, 35% middle-aged, 21% older) presenting ≤24h of injury to participating trauma centers with TBI of sufficient severity to warrant head CT. We compared baseline injury characteristics and 6-month neurobehavioral outcomes (Glasgow Outcome Scale Extended [GOSE], Craig Handicap Assessment and Reporting Technique-Short Form [CHART-SF], Brief Symptom Inventory [BSI], Acute Concussion Evaluation [ACE], Rivermead Post-concussion Questionnaire-3 [RPQ-3], and Post-traumatic stress disorder [PTSD] checklist-civilian [PCL-C]) across age groups using chi-square tests or ANOVA.

Results: While older patients had more severe TBI per Acute Injury Scale, Injury Severity Scale, CT pathology, and ICU admission vs. young/middle-aged patients (all \( P < 0.001 \)), they endorsed lower rates of loss-of-consciousness (LOC, \( P = 0.001 \)) and post-traumatic amnesia (PTA, \( P = 0.02 \)) and had similar presenting Glasgow Coma Scale scores (\( P = 0.24 \)). Older patients had higher 6-month mortality and lower rates of moderate-good functional recovery on GOSE compared to younger patients, but 53% still achieved good recovery (\( P < 0.001 \)). At 6-months, older patients reported less independence in cognitive function, mobility, and occupation vs. younger patients on the CHART-SF. On most other neurobehavioral measures, however, older patients endorsed fewer physical, mood, post-concussive, & PTSD symptoms vs. younger patients.

Conclusions: GCS, LOC, and PTA may poorly approximate TBI severity in older adults. Most older adults had good recovery per GOSE and were less likely to report most neurobehavioral symptoms. However, older patients endorsed less independence in certain domains compared to younger patients, suggesting that older patients may have un-measured pre-injury or non-brain injury related functional deficits.
Opioids and other central nervous system polypharmacy in older adults in the United States

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OBJECTIVES: To determine patterns of and trends in contributions to central nervous system (CNS) polypharmacy, defined by the Beers Criteria as three or more CNS active medications of each medication class, of adults aged 65 and older seen in U.S. outpatient medical practices.


SETTING: U.S. outpatient medical care.

PARTICIPANTS: Visits by older adults to outpatient physicians (N = 97,910).

MEASUREMENTS: Visits including three or more CNS medications including antipsychotics, benzodiazepines, nonbenzodiazepine benzodiazepine receptor agonist hypnotics (NBRAs), tricyclic antidepressants (TCAs), selective serotonin reuptake inhibitors (SSRIs), and opioids. The proportion of CNS polypharmacy that each medication class contributed during 2011 to 2013 was determined, and then logistic regression was used to determine trends from 2004 to 2013 in the contribution of individual medication classes to such polypharmacy.

RESULTS: Of recent CNS polypharmacy visits, 76.2% included an opioid, and 61.8% included a benzodiazepine; 66.0% of the polypharmacy visits with benzodiazepines included opioids, and 53.3% of the polypharmacy visits with opioids included benzodiazepines. Between 2011 and 2013, opioid and benzodiazepine co-prescribing occurred at approximately 1.50 million visits (95% confidence interval (CI) = 1.23–1.78 million) annually. From 2004 (reference) to 2013, the proportion of polypharmacy visits with opioids rose from 69.6% to 76.2% (adjusted odds ratio = 2.15, 95% CI = 1.19–3.91, P = .01), and the corresponding proportion that included benzodiazepines fell. Of the polypharmacy visits, the odds of SSRI, NBRA, and antipsychotic use were unchanged, and that of TCAs decreased.

CONCLUSION: In older adults, opioid use appears to be largely driving the recent national increase in CNS polypharmacy. Although concomitant use of opioids and benzodiazepines is associated with greater mortality, they are the most common contributors to CNS polypharmacy in older adults.

KEYWORDS: Polypharmacy, opioids, benzodiazepines
Beeson Meeting Abstract 2017

Title: Early identification of Alzheimer’s disease

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Key Words: subjective cognitive decline, mild cognitive impairment, Alzheimer’s disease, early diagnosis

Background: Early identification of Alzheimer’s disease (AD), before the onset of symptoms, is critical to managing the public health crisis. Subjective cognitive decline (SCD) is emerging as an efficient and cost-effective means for early identification. Efforts to refine and enhance this construct remain important for maximizing the clinical and prognostic utility of SCD in primary care, often the first provider to treat symptoms.

Methods: Participants included 335 older adults free of clinical dementia or stroke, including 175 cognitively normal (73±7, 41% female), 132 mild cognitive impairment (MCI; 73±6, 44% female), and 27 cognitively ambiguous (73±7, 26% female) individuals. All individuals completed a SCD protocol, comprehensive neuropsychological assessment, 3T brain MRI. SCD was defined as total score and domains (memory, executive functioning, language). FreeSurfer was used to calculate cortical thickness from T1-weighted brain MRI images. An “AD signature” was derived by summing regions of interest previously identified to best predict AD pathology and disease state.

Results: Partial correlations adjusting for age and education revealed that greater total SCD was related to smaller cortical thicknesses within the AD signature (r=-0.122, p=0.03). Regions within the AD signature most strongly correlated with SCD included the superior temporal gyrus (r=-0.16, p=0.004), left hippocampus (r=-0.14, p=0.01), inferior parietal gyrus (r=-0.16, p=0.004) and the fusiform gyrus (r=-0.17, p=0.002). Analysis of the SCD domains revealed that memory-SCD was marginally significant with the AD signature (r=-0.11, 0.0495) but more robustly correlated with the left hippocampus (p=-0.16, 0.005) and superior temporal gyrus (r=-0.15, p=0.006). Executive functioning-SCD was related to the cingulate (r=-0.16, p=0.005) and right fusiform gyrus (r=-0.16, p=0.003). Language-SCD was related to superior temporal gyrus (-0.16, p=0.004) and right fusiform gyrus (r=-0.14, p=0.01).

Significance: Greater levels of SCD are related to compromised brain structure, particularly within areas known to be affected by AD. The nature of the SCD may preferentially relate to the area of brain involvement with memory-based SCD involving the hippocampus but SCD related to executive dysfunction occurring within the posterior cingulate. Results provide initial and preliminary evidence of SCD endorsement patterns that could relate to different regions of involvement.
Cerebral microbleeds in the aging population

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Key words: Cerebral microbleeds, intracerebral hemorrhage, amyloid, MRI

Background: Cerebral microbleeds (CMBs) are detected on brain MRI and develop in over 20% of the population over age sixty. CMBs are an established risk factor for intracerebral hemorrhage and ischemic stroke and are associated with shorter survival and cognitive impairment. The location of CMBs has been suggested to be a predictor of the underlying pathology - deep CMBs are associated with hypertensive small vessel disease, while lobar CMBs are associated with cerebral amyloid angiopathy (CAA). The objectives of this proposal are to 1) determine the epidemiology of CMBs; 2) determine the clinical outcome of those with CMBs; 3) identify the pathophysiologic and pathologic underpinnings of CMBs.

Methods: As part of the population-based Mayo Clinic Study of Aging, which was sampled from the Rochester Epidemiology Project, age and sex stratified randomly sampled participants undergo annual neurological and neuropsychological testing every 15 months (n=3500). A subset of participants undergo MRI and PET (amyloid, tau, FDG) imaging. Since 2011, MRI scans have included T2* Gradient recall echo sequences which are sensitive to hemosiderin deposition. With the medical records-linkage of the Rochester epidemiology project, we also have detailed electronic health records of major health events to determine clinical outcomes. We will determine whether amyloid and tau burden are associated with CMBs by location and whether regional amyloid load predicts areas of future CMBs in the same region and remotely. In the small number of individuals who develop a macrohemorrhage, we will see if the hemorrhage occurs at sites of regionally increased amyloid burden or prior CMBs. Approximately 30% of participants agree to donate their brain for neuropathological examination (over 300 autopsies performed to date). We will prospectively identify participants with CMBs on MRI and take additional pathologic section in the region of the CMB to perform additional radiological-pathological correlations.

Results: We graded 1215 Mayo Clinic Study of Aging participants age 60 years and older (53% male) with 3T MRI scans with T2* Gradient recall echo sequences from October 2011-December 2016 for CMBs. 1126 (93%) underwent 11C-Pittsburgh Compound-B (PiB) PET scans. Two seventy four participants (22.6%) had at least one CMB. CMB frequency increased by decade, from 11% in persons aged 60 to 69 years to 22% in persons 70-79 and to 39% in participants of 80 years and older. Age (odds ratio (OR) (95% confidence intervals [CI]) (1.52 [1.40, 1.65] p<0.001), male sex (2.08 [1.57, 2.75] p<0.001), hypertension (1.96 [1.44, 2.66] p<0.001) and PiB SUVR (1.18 [1.12, 1.25] p<0.001) were associated with increasing CMBs. In a subsequent multiple regression analysis after adjusting for age, sex, and hypertension, PiB SUVR remained associated with CMBs (2.74 [1.40, 5.38] p = 0.003) with a significant interaction of PiB SUVR and age with regards to increasing CMBs (1.14(1.06, 1.23) p = 0.006). CMB density was greatest in parietal and occipital regions but CMB concentration was only associated with amyloid load in frontal and parietal regions.

Conclusions: CMBs are a common cerebrovascular pathology that increases with age. Amyloid load is associated with lobar CMBs. Future studies will investigate the clinical outcome of individuals with CMBs, the association with tau PET, and the pathological underpinnings of CMBs.
Title: Association of Kidney Disease Quality of Life (KDQOL-36) Subscale Scores with Mortality and Hospitalization in Older Dialysis Patients

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Background: The Kidney Disease Quality of Life (KDQOL-36) instrument is routinely administered to dialysis patients. KDQOL-36 subscale scores may be useful for prognostication but their association with clinical outcomes has not been reported in older adults.

Methods: We conducted a longitudinal study of 3500 adults aged ≥75 years receiving dialysis through a large dialysis organization in 2012 and 2013. We used Cox and Fine and Gray models to evaluate the association of KDQOL-36 subscales with risks of death and hospitalization. All models were adjusted for sociodemographic variables, hemodialysis access type, laboratory values, and Charlson comorbidity index. We compared models with and without the KDQOL-36 subscales using likelihood ratio (LR) statistics.

Results: Among members of this cohort, 3,267 patients completed the KDQOL-36. From the date of KDQOL-36 completion, 929 (25.6%) patients died and 2,005 (61.4%) had at least one hospitalization over a median follow-up of 511 and 204 days, respectively. In unadjusted analyses, cohort members with KDQOL-36 scores in the lowest quintile (relative to the highest quintile) for all subscales had a higher probability of death. Cohort members with a SF-12 physical component score (PCS) in the lowest quintile had an increased adjusted risk of death [hazard ratio (HR), 1.53, 95% confidence interval (CI) 1.18-1.99] and hospitalization (HR, 1.33, 95% CI 1.12-1.58) compared with those with scores in the highest quintile. Cohort members with SF-12 mental component score (MCS) scores in the lowest quintile had an increased adjusted risk of hospitalization (HR, 1.41, 95% CI 1.19-1.68) compared with those in the highest quintile and those with effects of kidney disease subscale scores in the lowest quintile had a lower risk of hospitalization (HR, 0.78, 95% CI 0.63-0.95). The magnitude of these associations was similar in competing risk models. Inclusion of KDQOL-36 subscales improved model fit both for death (LR 41.04; p-value = 0.004) and hospitalization (LR 68.14; p-value < 0.001).

Conclusion: Routinely administered KDQOL-36 subscales may improve risk stratification of older adults receiving dialysis for death and future hospitalizations.
**MyVA Healthe Video: A New VA Mobile App for Secure Store & Forward Video Communication From Veterans To Their Providers.** Helen Hoenig, Kris Amis, Carol Edmonds, Brett Jacobs, Liz Karan, Jon Sanford, Michelle Spencer and the VA Office of Connected Health.

**Objective:** To allow providers to better understand the impact of the home environment on individual patient’s health and function by enabling patients to securely send videos/images to their health-care providers (e.g., of problems with health-care or self-care in their home environment)

**Methods:** The literature and relevant internet sites were reviewed for extant mHealth technology, none of allowed patients to securely send their health-care provider video images. However, existing research supported the clinical benefits of tele-video communication about function in the home setting. This information was provided to the VA Office Connected Health who agreed to develop mobile app technology that could meet that need. A Product / Business Owner was identified (HH) along with 12 Subject Matter Experts from the fields of Rehabilitation and Geriatrics. The VA subcontracted with Hewlett Packard to create software for the mobile app.

**Results:** The MyVA Healthe Video Mobile App was developed and has completed Validation & Verification, Privacy and Data Security Compliance Reviews, Section 508 Compliance Review, User Interface Compliance and Patient Safety Assessment. Currently it is undergoing Field Testing with anticipated release VA/DOD-wide this winter. MyVA Healthe Video allows any VA provider to enter one or more video requests. In response to a video request, any veteran enrolled in MyVA HealtheVet can upload a video from their mobile device (Android or iPhone) or personal computer (Windows or iMAC) for review by VA providers. The veteran owns their video on their own device (i.e., HIPPA compliance is not needed). Video upload is encrypted during transmission (i.e., HIPPA compliant) and videos are stored on a secure VA Server (the Patient Generated Database, PGD). Videos may be reviewed by multiple VA providers; each time the video is viewed, the date/time and provider’s name are recorded. The provider may add a note in the PGD identifying the progress note in the Electronic Medical Record (EMR) where further information may be found (e.g., interpretation of the video information and related actions), with fully integrated EMR documentation under development. The videos recordings are retained in the PGD for 2 years and documentation about their viewing is retained in perpetuity.

**Conclusion:** The MyVA Healthe Video Mobile app will compliment other new VA telehealth technology for live video communication with veterans in their own home, the Virtual Medical Room / Video On Demand (VOD). MyVA Healthe Video store & forward capability allows for excellent video quality even when internet bandwidth limits live video communication by VOD. The MyVA Healthe Video recording enables review by multiple providers over time, which is not possible with VOD technology. Together, these telehealth technologies bring the capability for a home visit into the hands of all VA providers.
Association between the Availability of Hospital-Based Palliative Care and Treatment Intensity for Critically Ill Patients

May Hua, MD, MSc, Xiaoyue Ma, MS, R. Sean Morrison, MD, Guohua Li, MD, DrPH, Hannah Wunsch, MD, MSc

Rationale: In the intensive care unit (ICU), studies involving specialized palliative care services have shown decreases in the use of non-beneficial life-sustaining therapies and ICU length of stay for patients. However, whether widespread availability of hospital-based palliative care is associated with less frequent use of high intensity care is unknown. The objective of this study was to determine whether availability of hospital-based palliative care is associated with decreased markers of treatment intensity for ICU patients.

Methods: We conducted a retrospective cohort study of adult ICU patients who received care in New York State hospitals from 2008-2014. Multilevel regression was used to assess the relationship between availability of hospital-based palliative care during the year of admission and hospital length of stay, use of mechanical ventilation, dialysis and artificial nutrition, placement of a tracheostomy or gastrostomy tube, days in ICU and discharge to hospice.

Results: Of 1,025,503 ICU patients in 151 hospitals, 814,794 (79.5%) received care in a hospital with a palliative care program. Hospital length of stay was similar for patients in hospitals with and without palliative care programs (6 days, interquartile range (IQR) 3-12 vs. 6 days, IQR 3-11, adjusted rate ratio 1.04 [1.03-1.05], p < 0.001), as were other healthcare utilization outcomes. However, patients in hospitals with palliative care programs were 47% more likely to be discharged to hospice than those in hospitals without palliative care programs (1.7% vs. 1.4%, adjusted odds ratio 1.47 [1.31-1.65], p < 0.001).

Conclusions: Availability of hospital-based palliative care was not associated with differences in in-hospital treatment intensity but was associated with significantly increased hospice utilization for ICU patients. The primary benefit of palliative care programs for critically ill patients may lie in discharge planning and increasing use of hospice facilities, as opposed to decreasing healthcare utilization during an ICU-associated hospitalization.

Keywords: palliative care, critical care, hospice services.
Validating Non-Amyloid, Non-Tau biomarkers of Alzheimer’s disease in the Pre-symptomatic, MCI, and dementia stages – a Multi-center study

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Background

Amyloid- and tau-related CSF biomarkers for AD accurately reflect the presence of neuritic plaques and neurofibrillary tangles in the brain, but their levels remain stable throughout the disease course and do not mirror the degree of cognitive and functional decline. Previous studies have examined whether non-amyloid, non-tau (NANT) CSF biomarkers can improve the fluid biomarker-based staging of AD, but few biomarkers have been validated in multi-centered studies other than the Alzheimer’s Disease Neuroimaging Initiative or used independent assays.

Methods

We reviewed findings from published multi-analyte profiling studies and identified the top nine CSF NANT biomarkers associated with AD. Using CSF collected from subjects with normal cognition (NC), very mild dementia/CDR0.5/MCI, AD dementia, and other non-AD dementia recruited from three Alzheimer’s Disease Centers, we qualified nine immunoassays to identify stage-dependent biomarkers of AD.

Results

Each of the 125 subjects was examined according to clinical diagnosis and CSF AD biomarker profiles. Compared to cognitively normal subjects with CSF not consistent with pre-symptomatic AD, subjects with AD dementia had higher CSF levels of fatty acid binding protein 3 (Fabp3), neurofilament light chain (NfL), and YKL-40. Analysis of co-variance (ANCOVA) showed that NfL levels also differed between cognitively normal, MCI, and dementia subjects with CSF suggestive of AD, and additionally identified interleukin 10 (IL-10) levels to differ between groups in this group, after adjusting for age, gender, APOE e4 allele, and recruiting Alzheimer’s Disease Center. Linear regression showed that CSF levels of Fabp3 and IL-10 were correlated with MMSE scores across all subjects (pre-symptomatic, MCI, dementia) with CSF consistent with AD.

Conclusions

When combined with amyloid and tau levels, CSF NANT biomarkers can distinguish between pre-symptomatic, MCI, and dementia stages of AD and non-AD disorders.
The exact pathogenesis of Alzheimer's disease (AD) remains unclear; however, a leading hypothesis is that accumulation of amyloid-beta (\(\beta\) peptides derived from the amyloid precursor protein (APP) leads to the neurodegeneration and eventual dementia in AD (Nat Neurosci 18: 800, 2015). As effectively treating AD once dementia develops may be difficult, understanding the earliest manifestations of AD is critical (NEJM 370:4, 2014). One of the earliest signs in preclinical AD is metabolic dysfunction of unclear mechanism resulting in accelerated early body weight loss (Arch Neurol 63:1312, 2006). Loss of body weight in AD also correlates with disease severity and mortality (J Am Geriatr Soc 46:1223, 1998). Additionally, neuropathological changes consistent with AD are commonly found in the hypothalamus, a brain region critical for the homeostatic regulation of body weight and systemic metabolism (Cell Metabolism, 22: 761, 2015). Thus, brain circuits controlling body weight may be altered early in AD and could be intrinsic to the disease process. Leptin is an adipocyte hormone that acts on the brain, particularly in the hypothalamus, to regulate body weight and metabolism; however, leptin has pleotropic effects including roles in cognition and memory (Cellular and Molecular Neurobiology, 36: 203, 2016). Interestingly, population studies have correlated low plasma leptin levels with increased risk of developing AD (JAMA 302:2565, 2009). In our initial human studies, cognitively intact male subjects that have cerebrospinal fluid (CSF) evidence for amyloid pathology consistent with the preclinical stage of AD were found to have significantly lower plasma leptin levels compared to those who have a normal CSF profile. Furthermore, plasma leptin levels were related directly to the CSF A\(\beta\)1-42 levels but not CSF tau levels. These observations raise the possibility that altered leptin signaling plays an early role in the pathobiology of AD. We hypothesize that early accumulation of A\(\beta\) peptides, prior to plaque formation, can lead to hypothalamic dysfunction in neurons necessary for proper leptin signaling and regulation of metabolism. In earlier mouse studies, we found that transgenic mice overexpressing the Swedish mutation of APP, at an age prior to cognitive dysfunction or amyloid plaque accumulation, have low body weight and adiposity, decreased plasma leptin levels, and, importantly, abnormal hypothalamic responses to the low leptin and low adiposity state (J. Neurosci 34:9096, 2014). Recent studies from our laboratory have found that A\(\beta\) can disrupt the function of neuropeptide Y/agouti-related peptide (NPY/AgRP) neurons in the hypothalamus by increasing intracellular calcium levels leading to aberrant hyperactivity of these neurons. Furthermore, we have identified the calcium dysregulation caused by A\(\beta\) in these neurons to be mediated by L-type voltage calcium channels. Collectively, these studies suggest that early accumulation of A\(\beta\) can disrupt hypothalamic neuronal pathways resulting in body weight/systemic metabolic deficits and low circulating leptin levels prior to the decline in cognition and memory in AD. Our ongoing studies will continue to explore the cellular and molecular mechanisms underlying the early body weight and metabolic deficits in AD utilizing a “bench-to-bedside” strategy including genetic, biochemical, and neurophysiological approaches in animal models complemented by studies investigating the clinical relevance of our findings in human subjects with the earliest signs of AD.
Clinical and Socio-Demographic Characteristics of Diverse Older Primary Care Patients with Multiple Chronic Conditions and Food Insecurity

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Background: Food insecurity, defined as uncertain or limited access to nutritionally adequate and safe foods, has implications in the care of older adults with multiple chronic conditions (MCC). Since the extent of food insecurity among diverse older adults with MCC is not well described, a description of the prevalence of food insecurity and associated clinical factors is needed to promote recognition in the primary care setting.

Methods: We conducted a telephone survey of 475 older adults age 60+ with at least 2+ concurrent chronic conditions based on diagnosis codes from the Elixhauser Comorbidity Index and self-reported speaking English, Spanish or Chinese (Cantonese/Mandarin) from an urban academic general internal practice with a diverse patient population. We recruited participants by clinic population-based sampling stratified by race/ethnicity. The survey included the 10-item US Adult Food Security Survey Module with three-stage design with screeners, medication insecurity and socio-demographic characteristics unavailable from the electronic health record (EHR). Clinical and additional socio-demographic characteristics were obtained from the EHR. Food insecurity (yes/no) status was assigned based on the sum of affirmative answers to the Food Security Survey Module (no=0-2; yes=3-10). We conducted bivariate analysis and compared characteristics of participants with and without food insecurity using chi-square tests for categorical variables and Kruskal-Wallis tests for continuous variables.

Results: The prevalence of food insecurity in this sample of diverse older adults with MCC was 8.2%. Table 1 shows the significant clinical and socio-demographic characteristics of diverse older primary care patients with MCC and with and without food insecurity.

<table>
<thead>
<tr>
<th></th>
<th>Not Food Insecure (n=436)</th>
<th>Food Insecure (n=39)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean ± SD)</td>
<td>72.6 ± 7.76</td>
<td>67.7 ± 6.24</td>
</tr>
<tr>
<td>Female</td>
<td>49.5%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Asian, Black, Latino or American Indian</td>
<td>38.3%</td>
<td>59.0%</td>
</tr>
<tr>
<td>&lt; High school education</td>
<td>19.0%</td>
<td>30.8%</td>
</tr>
<tr>
<td>Disabled</td>
<td>3.7%</td>
<td>28.2%</td>
</tr>
<tr>
<td>Private Insurance</td>
<td>17.0%</td>
<td>5.1%</td>
</tr>
<tr>
<td>&lt; $40,000 annual income (&lt; $3333/month)</td>
<td>32.3%</td>
<td>87.2%</td>
</tr>
<tr>
<td>Use of Supplemental Nutrition Assistance Program</td>
<td>3.7%</td>
<td>12.8%</td>
</tr>
<tr>
<td># of chronic conditions (mean ± SD)</td>
<td>3.52 ± 1.51</td>
<td>4.54 ± 1.97</td>
</tr>
<tr>
<td># of medications (mean ± SD)</td>
<td>12.4 ± 6.25</td>
<td>16.7 ± 8.97</td>
</tr>
<tr>
<td>Body mass index &gt; 25 kg/m²</td>
<td>60.8%</td>
<td>79.5%</td>
</tr>
<tr>
<td>Medication insecurity</td>
<td>10.3%</td>
<td>51.3%</td>
</tr>
<tr>
<td># of primary care visits in last 12 mon (mean ± SD)</td>
<td>3.55 ± 2.59</td>
<td>5.16 ± 3.39</td>
</tr>
</tbody>
</table>

Conclusions: In an urban academic primary care practice, older adults with MCC and food insecurity were more likely to experience socio-economic and medical complexities than older adults with MCC and without food insecurity. Greater attention in geriatric primary care is needed to address the social barriers and health challenges in this vulnerable population of older adults.
Frailty and Functional Status Trajectory After Aortic Valve Replacement

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Background: Despite symptomatic and survival benefits in older adults undergoing surgical aortic valve replacement (SAVR) and transcatheter aortic valve replacement (TAVR), the time course of functional recovery and modulating effect of frailty have yet to be defined.

Methods: We conducted a prospective study to characterize functional status in 103 patients who had SAVR and 143 patients at high or extreme operative risk who had TAVR at an academic medical center. Before procedure, we evaluated the frailty phenotype and comprehensive geriatric assessment-based frailty index. Telephone interviews were performed at 1, 3, 6, 9, and 12 months after procedure. A composite functional status score was defined by the number of 22 activities that patient was able to perform without help (range: 0-22).

Results: Over 12 months, 3 SAVR and 28 TAVR patients died. Preoperative frailty was associated with more functional limitations at baseline and during the follow-up. SAVR patients experienced functional decline at 1 month (-3.1 points; 95% CI: -4.0 to -2.3) but recovered to preoperative functioning at 3 months and remained stable at 12 months. TAVR patients had lesser decline at 1 month (-1.3 points; 95% CI: -2.0 to -0.6) and transient improvement at 3 months, followed by stability in non-frail patients and by gradual decline in frail patients.

Conclusion: Frail TAVR patients have persistent functional limitations at 1 year, whereas most non-frail TAVR patients and SAVR patients recover within the first 3 months.

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KL2/Harvard Catalyst Medical Research Investigator Training Award from NIH (1KL2 TR001100-01)
Paul B. Beeson Clinical Scientist Development Award in Aging (K08AG051187)
Boston Claude D. Pepper Older Americans Independence Center (P30AG031679)
Neighborhood Socioeconomic Contextual Disadvantage, Baseline Cognition and Alzheimer’s Disease Biomarkers in the Wisconsin Registry for Alzheimer’s Prevention (WRAP) Study

Authors: Amy JH Kind, MD, PhD; Barbara B Bendlin, PhD; Alice J Kim, BA; Rebecca L Koscik, PhD; William R Buckingham, PhD; Carey E Gleason, PhD; Kaj Blennow, PhD; Henrik Zetterberg, PhD; Cynthia M Carlsson, MD; Sterling C Johnson, PhD

Background: Dementia due to Alzheimer’s Disease (AD) disproportionately impacts racial/ethnic minorities and the socioeconomically disadvantaged—populations often exposed to neighborhood disadvantage. Neighborhood disadvantage is associated with education, health behaviors and mortality. Health improves with moving to less disadvantaged neighborhoods (Ludwig, Science 2012). Although studies have linked neighborhood disadvantage to diseases like diabetes and cancer, little is known about its effect on development of dementia.

Objective: To examine the association between neighborhood disadvantage, baseline cognition, and CSF biomarkers of AD among participants in the WRAP study, comprising a cohort of late-middle-aged adults enriched for parental family history of AD.

Methods: We created and validated neighborhood-level quantifications of socioeconomic contextual disadvantage for the full US—over 34 million Zip+4 codes—employing the latest American Community Survey and Census data. This metric—the Area Deprivation Index (ADI)—incorporates poverty, education, housing and employment indicators; predicts disparity-related health outcomes; and is employed by Maryland and Medicare through our provision. We used standard techniques to geocode all WRAP subjects with a documented address (N= 1479). WRAP participants were ranked into deciles of neighborhood disadvantage, by ADI. Baseline cognitive function (indexed by factor scores) and CSF biomarker outcomes for levels of Aβ42 and P-tau181 (n=153 with CSF samples) were examined by neighborhood disadvantage decile.

Results: Higher levels of neighborhood disadvantage were associated with worse baseline cognitive outcomes, especially within the most disadvantaged neighborhood decile (p<0.0001). After adjustment for age and education, those within the most disadvantaged decile demonstrated worse cognitive performance across all domains (beta [95% confidence interval] and p-value by domain: working memory: -0.45 [-0.62, -0.28], <0.0001; immediate memory: -0.34 [-0.52, -0.17], <0.0001; speed/flexibility: -0.62 [-0.78, -0.45], <0.0001; verbal learning: -0.44 [-0.61, -0.27], <0.0001). Furthermore, subjects within the most disadvantaged neighborhood decile exhibited a mean CSF P-tau 11.61 units higher (p=0.064) than those within less disadvantaged neighborhoods. Aβ42 did not differ by neighborhood decile.

Conclusion: These early data suggest that neighborhood disadvantage may account for some of the observed disparities in prevalence of dementia. Given the urgent need to reduce dementia and AD disparities, the current results suggest that neighborhood disadvantage deserves additional study.

Learning Objective: To recognize that neighborhood socioeconomic contextual disadvantage impacts health generally, and may specifically impact AD-risk

Key Words: Neighborhood Disadvantage, Cognition, AD Biomarkers
Impact of the CMS National Partnership to Improve Dementia Care on Use of Antipsychotics and Other Psychotropics in Long-Term Care in the U.S.: 2009-2014

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University of Michigan; Ann Arbor, MI

Keywords: dementia, Medicare, antipsychotic, mood stabilizer

Background

The Centers for Medicare and Medicaid Services (CMS) National Partnership to Improve Dementia Care (CMSNP) began in March 2012 with the stated goal of improving the standard of dementia care provided in long-term care settings. However, the primary quality measure was use of antipsychotic medications. While antipsychotic use has declined over the course of CMSNP, it is unclear if providers have simply shifted to other, unmeasured psychotropic medications.

Methods

We used a national 20% sample of Medicare Parts A, B, and D and identified beneficiaries in long-term care (i.e., ≥100 days) from 2009-2014. We determined quarterly prevalent use of antipsychotics and other psychotropic medications (mood stabilizers, antidepressants, and non-benzodiazepine [BZD] sedative-hypnotics [Medicare Part D did not cover BZD during the entire study period]). We used interrupted time-series analysis to examine the impact of CMSNP on psychotropic prescribing, comparing rates of psychotropic use pre-CMSNP (period 1: 2009, quarter 1 through 2012, quarter 1) and then thereafter (period 2: 2012, quarter 2 through 2014, quarter 4).

Results

The sample included n=637,426 residents in long-term care. Psychotropic use was declining pre-CMSNP, with the exception of mood stabilizers. In the first quarter of 2009, 21.3% of patients were prescribed antipsychotics, with use declining until the start of CMSNP. At that point, the quarterly rate of decline slowed compared to pre-CMSNP. In contrast, mood stabilizer use was growing pre-CMSNP (rate 0.07%, 95% CI: 0.05, 0.10, p<0.001) and accelerated after initiation of CMSNP, growing to 20.1% by the final quarter of 2014. Antidepressants were the most commonly prescribed medication overall, beginning 2009 at 52.0%. As with antipsychotics, antidepressant use declined both pre- and post-CMSNP initiation (rates -0.51%, 95% CI: -0.60, -0.42, p<0.001 and -0.17%, 95% CI: -0.28, -0.06, p=0.004, respectively) but the decrease slowed (rate change 0.34, 95% CI: 0.18, 0.50, p<0.001). Results when limited to patients with dementia were similar.

Conclusions

While antipsychotic use has been falling since the start of CMSNP, the rate of decline has actually slowed. In contrast, mood stabilizer use, which was growing before CMSNP, has actually accelerated. The goal of CMSNP was to promote improve the quality of care in long-term care settings, but the primary quality indicator for the program was antipsychotic prescribing. Our results suggest that prescribers have simply shifted to an unmeasured alternative medication to help address the symptoms for which antipsychotics were being prescribed.
Dietary patterns and cognitive function in older US adults: the Health and Retirement Study

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1Queen’s University Belfast, Northern Ireland, UK; 2Global Brain Health Institute, University of California, San Francisco, USA and Trinity College Dublin, Ireland; 3University of Michigan, Ann Arbor, USA 4University of California, San Francisco, San Francisco, USA; 5San Francisco Veterans Affairs Medical Center, San Francisco, USA.

Background: Adherence to the traditional Mediterranean (MedDiet) or MIND diet is shown to be neuroprotective, but study findings to date are limited and inconsistent. We examined the association between adherence to these dietary patterns and cognitive function among 5,907 older community dwelling adults from the nationally representative Health and Retirement Study. Methods: Adherence to dietary patterns was ascertained from a food frequency questionnaire using a priori criteria to generate diet scores for MedDiet (range = 0-55) and MIND diet (range 0-15). Cognitive performance was measured using a composite test score of global cognitive function (range 0-27). Regression models were used to investigate associations between dietary patterns and cognitive function. Models were adjusted for age, sex, race, educational attainment, socioeconomic status, and other cardiovascular health and lifestyle covariates. Results: Mean age of participants was 68 ± 10.8 years. Higher MedDiet score was independently associated with significantly better global cognitive function (P < 0.001) in a dose-response relationship (P TEND < 0.001). Compared to those with low MedDiet score, participants with mid and high score were less likely to have poor cognitive performance (OR 0.85; 95% CI 0.71, 1.02: P = 0.08, and OR 0.65; 95% CI: 0.52, 0.81: P < 0.001, respectively) in fully adjusted models. Results for the MIND diet were similar. Conclusion: In a large, nationally representative population of older adults, greater adherence to the MedDiet or MIND diet was independently associated with better cognitive function and lower risk of cognitive impairment. Clinical trials are required to elucidate the role of dietary patterns in cognitive aging.

Key Words: Mediterranean diet; cognitive function, older adults
Association Between Cognition and IGF-1 is Age Dependent

Sofiya Milman, Erica F. Weiss, Rebecca Chandler, Tina Gao, Jill Crandall, Joe Verghese, Roe Holtzer, Nir Barzilai

Institute for Aging Research, Albert Einstein College of Medicine

Abstract

Prior research demonstrated that lower serum insulin-like growth factor-1 (IGF-1) level was associated with extended survival and preserved cognitive function in females with exceptional longevity. However, it remains unresolved whether IGF-1 level is related to cognition in middle and older age adults. This cross-sectional study aimed to investigate the association between IGF-1 and cognition in community dwelling Ashkenazi Jewish older adults (n=673, 54% female, mean age 75±7.0 years). Participants were evaluated with a neurocognitive test battery and medical questionnaires. Serum IGF-1 level was measured using liquid chromatography/mass spectrometry analysis. Multivariable adjusted logistic regression models tested the association between cognitive impairment and IGF-1 levels. Subjects with IGF-1 levels in the 4th quartile had twice greater odds of being cognitively impaired compared to subjects with IGF-1 levels in the 1st quartile, after adjusting for age, gender, education and BMI, OR 2.00 (95% CI 1.08-3.74), p=0.03. Adjustment for comorbid conditions did not meaningfully alter the results. A statistical interaction was identified between age and IGF-1 quartiles. Analysis stratified by age groups, did not reveal significant associations between IGF-1 levels and cognition among subjects age <70 years (see Table for results). On the other hand, statistically significant greater odds of cognitive impairment were identified in participants age 70-79 and age ≥ 80 years with higher IGF-1 levels (Table). No interactions between IGF-1 and gender were identified. These results demonstrate that higher IGF-1 levels are associated with greater cognitive impairment but only among adults age 70 and older. Thus, the relationship between IGF-1 levels and cognition varies depending on age. This finding has important implications for understanding the biology of aging and the age-specific associations between IGF-1 and disease.

Table. Odds ratios of cognitive impairment according to IGF-1 quartiles and age.

Model is adjusted for age, gender, and education. Q=quartile

<table>
<thead>
<tr>
<th>Age groups</th>
<th>IGF-1 Q1</th>
<th>IGF-1 Q2</th>
<th>IGF-1 Q3</th>
<th>IGF-1 Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;70 years</td>
<td>Reference</td>
<td>0.78 (0.22-2.73)</td>
<td>0.60 (0.17-2.12)</td>
<td>0.72 (0.21-2.55)</td>
</tr>
<tr>
<td>(mean 67.7±1.4)</td>
<td>p=0.70</td>
<td>p=0.43</td>
<td>p=0.62</td>
<td></td>
</tr>
<tr>
<td>n=184</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70-79 years</td>
<td>Reference</td>
<td>3.14 (1.06-9.31)</td>
<td>2.00 (0.64-6.32)</td>
<td>2.70 (0.89-8.19)</td>
</tr>
<tr>
<td>(mean 75±2.9)</td>
<td>p=0.04</td>
<td>p=0.23</td>
<td>p=0.08</td>
<td></td>
</tr>
<tr>
<td>n=332</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 80 years</td>
<td>Reference</td>
<td>1.98 (0.66-5.97)</td>
<td>1.62 (0.56-4.70)</td>
<td>4.73 (1.61-13.90)</td>
</tr>
<tr>
<td>(mean 84.5±3.1)</td>
<td>p=0.22</td>
<td>p=0.38</td>
<td>p=0.01</td>
<td></td>
</tr>
<tr>
<td>n=157</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key words: cognition, IGF-1, age, aging
Ketogenic diet or BHB compounds improve epileptiform spikes, memory, and survival in hAPPJ20 Alzheimer's mouse model

John C. Newman¹,²,³, François Kroll³,⁵, Scott Ulrich⁴, Keran Ma³, Sandrine Saillet³, Jorge J. Palop³, Eric M. Verdin¹,²,³
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⁵ Université de Liège, Liège, Belgium.

Links between epilepsy and Alzheimer’s disease (AD) are seen in both human patients and mouse models. Human patients with AD may commonly have subclinical epileptiform spikes (EP spikes), and overt epilepsy is associated with more rapid cognitive decline. Mechanistic studies in mouse models of Alzheimer’s disease (AD) have shown that altered network activity and epileptiform spikes stem from dysfunctional inhibitory interneurons, which are key elements of cortical circuits underlying cognition. Treatments that reduce epileptiform spikes improve cognition in these models. Thus, targeting subclinical epileptiform activity may be a promising new therapeutic approach to AD. Ketogenic diet (KD) has long been used to treat forms of epilepsy, including Dravet syndrome, a childhood epilepsy caused by mutations in a gene that is critical for inhibitory interneuron function in mouse AD models. However, the concurrent effects of a ketogenic diet on brain electrical activity, cognitive decline, and survival have not been tested, and the translational rationale and feasibility of such an intervention remain uncertain. Here we show that a ketogenic diet reduces epileptiform spikes in the hAPPJ20 mouse model of AD. Similar reduction of EP spikes is observed using a β-hydroxybutyrate (BHB) ester in both AD and Dravet mice. A ketogenic diet improves context-dependent and visuospatial learning in hAPPJ20 mice. It also reduces the high seizure-related mortality observed in male mice of this model. Therapies derived from β-hydroxybutyrate may have potential application in ameliorating cognitive dysfunction in AD through reducing subclinical epileptiform activity.
Mortality in Relation to 10-year Changes in a Healthy Aging Index: The Health, Aging and Body Composition Study

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Key words: Epidemiology, Successful Aging, Physiology, Mortality

Background
Baseline scores on a Healthy Aging Index (HAI), including 5 key physiological domains, strongly predict health outcomes. This study aimed to characterize 10-year changes in a HAI and explore their relationship to subsequent mortality.

Methods
Data are from the Health, Aging and Body Composition study of well-functioning adults aged 70-79. A HAI, which ranges from 0-10, was constructed at year 1 and year 10 of the study including systolic blood pressure, forced expiratory volume, digit symbol substitution test, cystatin C and fasting glucose. The relationships between the HAI at year 1 and year 10 and the change between years and subsequent mortality until year 17 were estimated from Cox proportional hazards models.

Results
2265 participants had complete data on a HAI at year 1, of these 1126 had complete data at year 10. HAI scores tended to increase (i.e., get worse) over 10-year follow-up, from (mean (SD)) 4.3 (2.1) to 5.8 (2.1); within person change 1.5 (1.6). After multivariate adjustment HAI score was related to mortality from year 1 (Hazard Ratio (95% Confidence Interval)=1.19 (1.15 - 1.23) per unit) and year 10 (1.24 (1.18 - 1.31) per unit). The change between years was also related to mortality (1.08 (1.02 - 1.15) per unit change), but this relationship could be attenuated by adjustment for year 10 score.

Conclusions
HAI scores tended to increase with advancing age and stratified mortality risk among participants remaining at year 10. The HAI may prove useful to understand changes in health with aging.
Cardiorespiratory fitness attenuates adverse influence of poor sleep on CSF biomarkers in an at-risk cohort

Lena L. Law, Kate E. Sprecher, Gilda Ennis, Ryan J. Dougherty, Dorothy F. Edwards, Rebecca L. Kosciak, Catherine L. Gallagher, Cynthia M. Carlsson, Henrik Zetterberg, Kaj Blennow, Sanjay Asthana, Mark A. Sager, Bruce P. Hermann, Sterling C. Johnson, Dane B. Cook, Barbara B. Bendlin, Ozioma C. Okonkwo

BACKGROUND: Previous studies have found a bidirectional relationship between physical activity (PA) and sleep, such that increased PA improves sleep quality and better sleep boosts levels of PA. Both exposures have also been favorably associated with Alzheimer’s disease (AD) pathophysiology, including reduced amyloid-beta (Aβ) and tau burden. However, it remains unknown whether higher levels of PA attenuates the adverse effects of poor sleep on biomarkers reflecting AD pathology. Therefore, the objective of this study was to i) examine the relationship between sleep and cerebrospinal fluid (CSF) biomarkers of AD among healthy late-middle-aged adults at risk for the disease and ii) determine whether PA modifies this association.

METHODS: This study included seventy-four adults from the Wisconsin Registry for Alzheimer’s Prevention. Sleep was evaluated using the Medical Outcomes Study Sleep Scale. We specifically focused on the Sleep Problems Index I (SPI) score, which incorporates domains of sleep disturbance, somnolence, sleep adequacy, and shortness of breath. Higher SPI scores indicate greater sleep problems. Participants also underwent a graded exercise test to assess aerobic fitness—an index of habitual PA—using peak oxygen consumption (VO₂ peak) as the measure of fitness. CSF was collected via lumbar puncture, from which Aβ42, total-tau (t-tau) and phosphorylated-tau (p-tau) were immunoassayed. Regression analyses were used to examine the association between SPI scores and CSF biomarkers, as well as the interaction between SPI and aerobic fitness on these same biomarkers, adjusting for age at fitness assessment, sex, and apolipoprotein-ε4 status.

RESULTS: Higher SPI scores were associated with higher levels of t-tau (p=.046) and p-tau (p=.017), as well as higher t-tau/Aβ42 (p=.015) and p-tau/Aβ42 (p=.009) ratios. Importantly, analyses also revealed significant SPI*VO₂ peak interactions for t-tau (p=.034) and p-tau (p=.046). Specifically, the relationship between poorer sleep and higher levels of t-tau and p-tau was significant among less fit individuals, but not among high-fit individuals.

CONCLUSION: In a late-middle-aged at-risk cohort, aerobic fitness attenuated the association between poor sleep and tau levels. These findings suggest physical activity may play an important role in prevention of AD by protecting against tau pathology even within the context of impaired sleep.
Title: Characterizing TLR function in alveolar macrophages of healthy older adults– a feasibility study

Authors: Alexander Panda, Beiyun C Liu Dayong Wu, Weimin Guo, Simin Nikbin Meydani

We recently demonstrated a generalized defect in TLR function in dendritic cells from older individuals. These results provide strong evidence for immunosenescence and dysregulation of cytokine production in human DCs. We now propose to characterize TLR function in human alveolar macrophages of older adults.

The concept of the lung as an easily accessible mucosal site to monitor local immune responses and treatment effects is evolving. Future bronchoalveolar lavage (BAL) research with human subjects, aided by new technology, will undoubtedly yield clinically relevant information regarding biomarkers of disease and new therapeutic targets. Further, the data generated will help design appropriate dietary intervention to prevent the age-related changes in TLR.

The goal of this pilot study was to explore the logistics of bronchoscopies in healthy older adults and to obtain preliminary data for larger grant applications. We were able to show that bronchoscopies were safe and yielded sufficient amounts of alveolar macrophages. Moreover, there seems to be an age related difference in TLR induced cytokine production by alveolar macrophages similar to what we have reported on human peripheral dendritic cells and monocytes.
Motivating physical activity in early stage non-small cell lung cancer patients
Peterson JC, Wells MT, Gupta K, Stiles B, & Lachs MS

**Background:** Non-small cell lung cancer (NSCLC) accounts for 87% of lung cancers. Following lung resection for cancer, lung function declines, leaving patients with decreases of about 13% of peak oxygen uptake after lobectomy and 20-28% after pneumonectomy. These decreases in lung function lead to impaired exercise tolerance. In many chronic respiratory diseases, it is well established that exercise improves exercise capacity and quality of life. However, in NSCLC, data are sparse and the benefits of exercise remain to be established.

**Objectives:** To evaluate whether induction of positive affect results in improved functional capacity compared to an educational Control group. Our primary outcome will be within-patient change (6-months-baseline) in the 6-minute Walk Test. We will also assess the relationship between our primary outcome and the following pulmonary, disease-specific quality of life and energy expenditure outcomes: forced expiratory volume (FEV1) and forced vital capacity (FVC), disease-specific quality of life (FACT-L), and activity expenditure (assessed by the FitBit Zip accelerometer)

**Design:** Randomized controlled pilot study conducted at a single urban academic medical center.

**Results:** In total, 28 participants consented and were enrolled. The mean age of participants was 70.5 years (range 52 – 87) and 61% were female. 11.5% were Black, 11% Hispanic, 15.4% Asian, 69% Caucasian, and 4% more than one race. With regard to stage of lung cancer, 75% had stage IA, 12.5% IB, 8.3% IIA, and 4.2% IIIA. By 6 months, the mean within-patient change in 6-minute walk distance was 45.4 ± 75.8 meters (intervention) vs. 4.8 ± 49.5 meters (control), (p=0.13). As shown in the figure, intervention participants significantly increased their daily time in moderate-high physical activity between 3 and 6 months by 12.6 ± 18.6 minutes vs 0.7 ± 5.5 minutes in control participants (p<0.03)

**Conclusion:** To our knowledge, no previous studies in lung cancer have measured energy expenditure with an objective measure (within-patient change in activity expenditure, assessed by an accelerometer such as the FitBit). Participants randomized to induction of positive affect time demonstrated significant increases in moderate-high physical activity expenditure between 3 and 6 months compared to controls (p<0.03). Further, intervention participants demonstrated greater improvements in walk distance (p=0.13). Further study of this intervention is warranted in a larger sample size.
ABSTRACT

Title: Identifying Correlates of Symptom Burden Experienced by Home Hospice Patients and Its Association with Patient and Caregiver Outcomes.

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Key words: hospice, end of life, symptom burden

Background: Hospice care is an integral part of End-of-Life (EoL) care for many older adults, with over 45% of U.S. deaths being cared for under hospices. Symptom burden is prevalent, predicts poorer quality of life, and can escalate during the last days of a patient’s life; however, there is limited research on correlates of symptom burden and its association with quality measures.

Objectives: To identify correlates of symptom burden experienced by home hospice patients at the EoL and to evaluate the relationship between symptom burden and various quality measures.

Methods: A cross sectional study is being conducted. Patient, caregiver, and hospice utilization data from a hospice discharge is being collected in partnership with a non-profit hospice organization. Data on the patient’s symptom burden (i.e., Edmonton Symptom Assessment Scale - ESAS) during the last week on home hospice is being obtained from the caregiver through a phone interview two weeks after a home hospice discharge. Hospice medical records is being used to abstract patient and hospice utilization data.

Results: Preliminary descriptive results (n=235) reveal that caregivers spent a median of 16 hours per day with their loved ones during the last week receiving home hospice care. Tiredness (n=182, 84.3%), lack of appetite (n=180, 83.7%) and drowsiness (n=139, 67.8%) scores were rated as high (ESAS score ≥7) by caregiver respondents. High scores for pain (n=97, 46.2%) and shortness of breath (n=92, 41.2%) experienced by home hospice patient were noted by caregivers during the last week on hospice as well.

Conclusion: Our preliminary data show that symptom burden is not uncommon among patients receiving home hospice care with multiple high symptom scores being prevalent during the last week on hospice. Further, analysis will be conducted to examine correlates of high symptom burden and its association with certain quality measures (e.g., care transitions, satisfaction with care).
OVER-ARCHING PROBLEM: Every day, millions of Americans see well-intentioned doctors and receive health care that is not recommended by professional society guidelines, is extremely unlikely to help, wastes money and time, and puts them at risk of harm. At the same time, these same Americans miss out on receiving care that is known to improve meaningful health outcomes such as reduced pain and improved quality of life. Making sure that patients always receive high value care is one of our most important public health priorities.

SPECIFIC PROBLEM: Across UCLA Health (rated #7 in the United States, >2.5 million patient visits/year), dozens of scientists and policymakers are implementing innovative interventions to improve the value of health care, but with suboptimal communication among teams.

PROPOSED SOLUTION/MISSION STATMENT: We are launching a new UCLA Value-Based Care Research Consortium that will facilitate collaborative interaction among diverse stakeholders to dramatically improve health care value and associated meaningful patient-centered outcomes. This new Consortium will be an incubator for innovation and will generate scientifically-grounded solutions that will inform efforts to improve healthcare value at UCLA, influence policies across the nation, and serve as a training ground for the next generation of healthcare scientists and leaders.

STRUCTURE: Our Leadership Team brings together diverse expertise across UCLA and partner stakeholders to focus on 2 key focus areas:

I. Research & Policy: The Consortium supports implementation and empiric testing of multi-stakeholder innovative interventions to incentivize high value care, for example partnering with behavioral economists to utilize cutting edge science to change system and provider behavior to improve healthcare value.

II. Training: Capitalizing on the outstanding training programs that already attract the highest caliber trainees to UCLA, our Consortium will train future healthcare leaders how to develop, implement and evaluate high value care.

EXAMPLES OF EARLY MULTISTAKEHOLDER INITIATIVES TO IMPROVE HEALTHCARE VALUE FOR OLDER ADULTS:

1) workflow redesign of pre-op clinic for cataract surgery patients to reduce unnecessary pre-op testing;

2) redesign of electronic health record to decrease unnecessary telemetry monitoring on geriatrics inpatient service.

SUPPORT: UCLA Clinical and Translational Science Institute (NIH/NCATS UL1TR001881), UCLA Department of Medicine, UCLA Midcareer Award in Patient-Oriented Community-Academic Partnered Aging Research (NIH/NIA 1K24AG047899).
Palliative Care Eligibility, Symptom Burden, and Quality of Life Ratings in Nursing Home Residents

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BACKGROUND: Despite an estimate $136 billion spent each year, nursing home (NH) care has been associated with poor symptom control, low family satisfaction, and burdensome and unnecessary care transitions in the final months of life. Little is known about this vulnerable population’s specific palliative care (PC) needs. As part of a Palliative Care Quality Initiative, we sought to identify which NH residents were eligible for PC services, describe their characteristics, and better understand resident and family perceptions regarding symptoms and quality of life.

METHODS: All 228 residents in 3 Northern California NHs were screened for PC eligibility via staff interview and medical record review using the INTERACT 3.0 “Tool for Identifying Residents Who May Be Appropriate For Hospice Or Palliative Care/Comfort Order”. Research assistants abstracted medical record and Minimum Data Set (MDS) data for all PC-eligible residents (n=157). A convenience sample of PC-eligible cognitively intact residents (n=17) and their families (n=32) were administered the Quality of Life at the End of Life (QUAL-E) instrument and completed semi-structured interviews.

RESULTS: Sixty-nine percent (157/228) of NH residents were PC-eligible. The mean age of PC-eligible residents was 80.6 years. Forty-seven percent had a diagnosis of Alzheimer disease/dementia, and almost half had a hospital readmission in the past year. None were receiving PC, and only 2 were receiving hospice care. Only 3.8% had an MDS-documented prognosis of less than 6 months’ survival. Virtually all (98.7%) had a Physician Order for Life-Sustaining Treatment (POLST) completed: 47.7% preferred full treatment, 27.5% requested selective/limited treatment, and 24.8% desired comfort-focused treatment. Despite high POLST completion rates, interviews with the resident and family subsample revealed that few actually recalled having an advanced care planning discussion or signing the POLST.

In our QUAL-E sub-study, 52.9% of residents cumulatively rated their overall quality of life as fair to poor. Sixty-three percent believed that physical symptoms were quite a bit or completely important to their quality of life. Residents reported higher symptom burden than was perceived by families: 64.3% of families thought that their loved ones usually or always experienced bothersome symptoms in the past week, whereas 70.6% of residents reported usually or always experiencing bothersome symptoms in the past week. A higher proportion of residents than families also rated symptoms as severe or very severe (82.3% vs. 60.8%).

CONCLUSIONS: Although most NH residents report high symptom burden and are eligible for PC services, they are not receiving any formal interdisciplinary PC. Increasing access to PC for NH residents is critical given mounting evidence confirming that PC in the NH setting is associated with improved care quality and satisfaction, enhanced symptom management, and fewer ER visits, particularly when such care is initiated earlier in the disease course. The low supply of PC professionals requires novel strategies to facilitate access to PC services in NH settings.

KEY WORDS: nursing home, palliative care, symptoms, quality of life, advanced care planning
Managing Anxiety from Cancer (MAC): A Psychological Intervention for Anxiety in Older Adults with Cancer and their Caregivers

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Background: Over 40% of older adults with cancer (OACs; age ≥65 years) report elevated anxiety that is associated with greater physical symptom burden; poor performance status, quality of life, and emotional, social, and cognitive function; and poor communication with the healthcare team. Similarly, up to 40% of cancer caregivers report elevated distress that is often more severe than and positively associated with patient distress. Yet, approximately half of cancer patients and caregivers report unmet psychological needs. Cognitive Behavioral Therapy (CBT) is an efficacious, safe, and cost-effective psychological treatment for anxiety. However, CBT interventions have not been modified to address the unique needs of OACs and their caregivers. The purpose of this study is to develop and pilot test a CBT intervention for OACs and their caregivers.

Completed study phases: In Phase 1 of this study, patient and caregiver workbooks and corresponding therapist manuals were developed for the intervention, Managing Anxiety from Cancer (MAC). Feedback on these manuals was obtained from OACs, caregivers, and oncology providers and used to inform modifications to MAC (Phase 2). These modifications resulted in a six-session telephone-delivered CBT intervention designed specifically for anxiety in OACs and their primary informal caregivers. Sessions occur weekly for 50-60 minutes and are delivered individually to patients and caregivers by separate licensed social workers.

Progress over the past year: Phase 3 was completed over the previous year and consisted of a proof-of-concept evaluation of MAC. The purpose of this open trial was to examine the feasibility and acceptability of MAC and study procedures and prepare MAC manuals and procedures for a pilot RCT. Patient-caregiver dyads were recruited from the lung, gynecologic, lymphoma, gastrointestinal, and myeloma cancer clinics at Weill Cornell Medicine. Study measures were administered over the telephone pre- and post-MAC. Nine patient-caregiver dyads were enrolled. Results indicate that MAC is feasible and acceptable. Specifically, 89% of enrolled patients and 75% of caregivers completed all MAC sessions and all patients and caregivers (100%) described MAC as moderately to very helpful. Further, the majority of patients (87.5%) and caregivers (80.0%) reported that MAC content was “not at all difficult” to understand and that MAC included “the right amount of information” (patients: 85.7%; caregivers: 100%). Regarding the structure of MAC, 87.5% of patients and 100% of caregivers stated that they liked participating in MAC over the telephone. Further, patients (100%) and caregivers (100%) reported that one MAC session per week was an acceptable frequency but expressed a preference for extending MAC to seven sessions (patients/caregivers: 100%). A notable proportion of patients (62.5%) and caregivers (40.0%) expressed a preference for completing MAC separate from their partner. Patients and caregivers who expressed a preference for combining patient and caregiver sessions suggested that the communication session could be delivered to patients and caregivers jointly.

Phase 4 is a pilot randomized controlled trial (RCT) of MAC to examine feasibility and acceptability, test preliminary efficacy relative to a usual care control condition, and prepare the operations manual for a multi-site efficacy trial. Phase 4 has been initiated; five dyads have been enrolled. The long-term goal of this research program is to develop an efficacious, feasible, and scalable psychological intervention for anxiety that meets the unique needs of OACs and their primary informal caregivers.

Keywords: Anxiety, Cancer, Older adult, Caregiver
Quality of Hospice Care: Family member perceptions of quality of care for patients in nursing homes, assisted living facilities and at home

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Background: In January 2016, Medicare mandated that hospices send surveys to family members rating the quality of care provided, with the intent to publicly report results on the Medicare Hospice Compare website in 2017. Prior to this, conducting after death surveys was voluntary.

Methods: We describe results of the Family Evaluation of Hospice Care (FEHC) survey from 2009-2014 from a multi-state hospice provider for 7,510 patients (a 27% response rate). We also describe the characteristics of 20,204 patients from the same period of time for whom family members did not complete surveys, obtained from the hospice EMR. We also examine differences in reported quality by location of care. Patients had to receive care in one of the three sites of interest for 95% of their hospice days.

Results: Surveys for patients with long, greater than six months, lengths of stay make up 11% of all surveys and represent 8.8% of the total sample. Fewer surveys were returned for non-white patients – 9.3% of returned surveys rated care received by black patients, even though black patients represented 15.2% of the population (p<.0001). Notably, patients with dementia and debility diagnoses are somewhat over-represented in the sample. Survey respondents were more likely to be female and white. There were some statistically significant variations between respondents based on setting of care. A strong majority, 84.3%, of respondents reported that the timing of hospice referral had occurred at “the right time.” Overall, 63.4% of respondents rated service quality as “excellent.” Care in nursing homes, however, was significantly less likely to be perceived as “excellent”; 55.1% of family members of nursing home patients felt care was excellent vs. 67.8% for patients at home and 64.3% of patients in assisted living facilities (p<.001). Multiple other differences among settings in ratings of domains of care quality were noted, including several related to less communication with family members for patients in nursing home and assisted living settings.

Conclusions: These findings raise a number of considerations for policymakers, hospice providers, and consumers. Potential underlying causes of differences of perceived quality for patients in different settings of care should be examined.
# 2017 Beeson Annual Meeting
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Paul B. Beeson Emerging Leaders Career Development Awards in Aging

2017 Report featuring the 2015 Scholars
Dr. Paul B. Beeson, a renowned physician, researcher, and teacher, was the inspiration behind the creation of the Paul B. Beeson Emerging Leaders Career Development Awards in Aging Program. It was his vision to increase the number of physicians with a combined clinical, academic, and scientific expertise to care for a growing older population.

At the time of his death, Dr. Beeson was professor emeritus of medicine at the University of Washington. Although “retired,” he remained active in the field of aging research, attending meetings and advising many Beeson Scholars. In his long and distinguished career, he profoundly influenced the career paths of many physician-scientists and was stalwart in his concern for the care and dignity of patients.

To date, 225 scholars supported by the Beeson Program have become leaders in geriatric medicine and aging research throughout the United States and the Island of Ireland. The careers of these remarkable Scholars serve as a lasting testament to Dr. Beeson’s enduring legacy as they seek to provide the best possible care for older adults and train the next generation of leaders in aging research and geriatrics.
The Beeson Program was launched more than 20 years ago with the intent of creating a new cadre of physician-scientists committed to teaching and mentoring as well as research. In recent years, and with the 2015 Beeson Scholars, we are seeing long-term rewards of this investment guiding careers: a second generation of Beeson Scholars is being mentored by Beeson alumni. It is great for the field that Beeson alumni are some of the strongest advocates of the Program, and are playing a major role in training the next generation of clinician investigators.

As in earlier years, the 2015 Beeson Scholars study aging from the vantage points of many different disciplines and subspecialties. However, the concept of vulnerability is a common theme among their research areas. What are the factors that make older persons vulnerable? Members of this Beeson class are trying to better understand the mechanisms by which older persons become frail, whether physically or cognitively, or in some cases, both.

Notably, this includes two Scholars from the field of anesthesiology—a discipline that, historically, has been underrepresented in the Beeson Program and in aging research more broadly. Two Scholars who join this Beeson class are supported in collaboration with the Center for Aging Research and Development in Ireland (CARDI)\(^1\), and they are also investigating aspects of predicting and preventing frailty in older adults.

Another remarkable feature of the 2015 Beeson Scholars is that, among the U.S. Scholars, 5 out of 7 are women. In the field of medicine generally, there is much concern that women have not achieved the same levels of advancement as men. Clearly, in aging, there are opportunities for both men and women—and it’s also a field that has been very effective in attracting women investigators and then providing them with opportunities to become leaders within the field.

We are delighted to introduce here the 2015 Beeson Scholars. Their stellar accomplishments, and their continued growth, enrich both the knowledge and the pool of leadership to carry our field forward.

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\(^1\) In September 2015 The Centre for Ageing Research and Development in Ireland (CARDI) became the Ageing Research and Development Division within the Institute of Public Health in Ireland (IPH).
NIA Trains Future Leaders with the Beeson Award

One of the major goals of the Beeson Program is to encourage and assist the development of future leaders in the field of aging by supporting faculty members early in their careers to gain additional research training as needed and to establish independent programs in aging research. The Beeson Awards are included among the career development award programs from the National Institutes of Health (NIH) known as “K” awards. What distinguishes the Beeson Awards is the idea of leadership training. In the last year, the National Institute on Aging (NIA) has taken steps to strengthen this leadership focus.

The 2017 Request for Application (RFA) opens eligibility to applicants who:
• are early-stage investigator eligible, meaning that they are in their first 10 years of research following the end of their research training.
• have had prior career development awards or are currently on a career development award. In previous years, people with prior or concurrent K awards were excluded.

This follows on changes made in 2016, including the creation of a new K award number for the Beeson program, the K76. The program also was renamed as the Paul B. Beeson Emerging Leaders Career Development Awards in Aging.

“It’s a natural for somebody with a regular career development award to go on to a Beeson Award if they want to learn about leadership and then take a leadership position,” says Robin Barr, PhD, Director of NIA’s Division of Extramural Activities.

The review committee seeks candidates who are both building a track record in aging research and demonstrating leadership potential, for example, by having been chief resident or taking on organizational leadership.

“We want a mix of people pursuing research and advancing the science in aging,” says Dr. Barr. “We want PhD’s, and we also want physicians and other health professional scientists involved because they have an important perspective from working with patients. That perspective is vital to advancing our health sciences.”

Former Beeson Scholars are already taking high-level roles in healthcare. For example, one former Beeson Scholar is making a national impact by working with the U.S. Department of Justice to develop state-level guidelines on elder mistreatment. The Centers for Medicare and Medicaid Services have funded another former Beeson Scholar to establish a program for the clinical care of Alzheimer’s patients across the Midwest.

Says Dr. Barr, “They are R01 funded scientists who contribute to research in the field, but they are also going on to have considerable clinical leadership and to advance healthcare in the country.”

Highlights from the 2016 Beeson Meeting

Over 100 current and former Beeson Scholars, mentors, NIA staff, and foundation supporters convened in Itasca, Illinois last year for the program’s annual meeting.

Organized by AFAR, the two-day meeting is designed to share research progress and enhance scholarship and leadership through poster sessions, panels, networking, and one-on-one-mentoring.

For updates on Beeson Scholars in the news, please visit www.afar.org or follow AFARorg on Facebook and Twitter.
It is more important than ever to support, promote, and disseminate the science that guides us in providing optimal care for our elders. Today’s Beeson Scholars work in a daunting political climate that poses extraordinary challenges. Yet our current and future Beeson Scholars must succeed and flourish, and the work must go on.

Each year, with the Beeson Award, AFAR provides security and stability for a new cohort of talented investigators as they forge their careers in academic medicine. The program also has created a powerful leadership network. Nurturing leadership among the physicians with clinical, academic, and scientific expertise will help ensure that our growing older population will receive optimal care.

To date the Beeson Program has supported 225 Scholars and their mentors. This report highlights the exciting work of the Beeson Scholars who joined the program in 2015. The research of these outstanding professionals provides a robust grounding for improving health and healthcare, and for their future careers in gerontology and geriatrics.

Richard W. Besdine, MD
AFAR Medical Officer
Feeling groggy in the hours after waking up from anesthesia often occurs for a variety of reasons including medications and the stress of surgery. But for about 15 percent of older adults, post-operative mental fog persists for days, weeks, and even months after surgery. Ultimately these changes can affect their ability to participate in rehabilitation, follow their doctor’s instructions, take medications, and increase their risk of falls. With more than 40 million Americans already over the age of 65, who have increasing needs for surgery as they age, post-operative cognitive dysfunction, or POCD, is taking a significant toll on older adults.

“In line with the common concern that residual medications may be a ‘smoking gun,’ I started off by comparing anesthesia drugs to see if one was advantageous over the other in terms of delirium and post-operative cognitive function,” says Stacie Deiner, MD, MS. Delirium refers to severe confusion and other symptoms that can manifest—and that resolve—within several days after surgery.

“We found, squarely, no advantage to one medication over another” says Dr. Deiner. But during these studies she and her colleagues also recorded patients’ brain activity while under anesthesia, using a technique called processed EEG. There, they discovered a hint that some characteristics of the brain waves might be associated with cognitive issues.

That observation led to Dr. Deiner’s Beeson research. “Basically, we don’t know whether more, or deeper, anesthesia is better or worse,” she explains. As a Beeson scholar she is investigating what level of anesthesia protects people from POCD.

The study is enrolling 175 patients age 65 years and older who are scheduled for elective major surgery other than heart surgery. Before their procedure, patients take a battery of tests that evaluate two kinds of cognitive abilities—memory and executive function, which includes thinking speed, judgment, and language. Study participants take the tests again three months and one year after surgery.

During surgery, Dr. Deiner monitors her patients’ brain activity with processed EEG. Depending on the “depth” of anesthesia, brain waves can vary from a pattern that looks like someone who is comatose, with almost no electrical activity, to nearly the activity of someone who is awake and thinking.

“People feel that general anesthesia is like sleep,” notes Dr. Deiner, “but it actually is not like normal dreaming sleep at all. It’s much more like coma. And you can make an argument that quieting down someone’s brain waves could be helpful because there’s less metabolic activity from the cells, and less is demanded from the cells that have to produce the brain waves. Or you could say that maybe it’s harmful. Maybe there’s something important about maintaining the process of electrical activity.”

Dr. Deiner’s study is beginning to point to some answers. “What we’re looking to see is whether the brain wave pattern during anesthesia—the depth—influences whether people have later problems with their memory, or their judgment and processing speed.” The study also evaluates how people with these different types of cognitive dysfunction recover their physical function—their ability to walk, take part in social activities, and cook for themselves, among other things.

So far, it appears that greater depth of anesthesia protects against cognitive changes; more patients with memory and executive function issues had the “lighter” anesthesia.

Dr. Deiner’s career illustrates the crucial role of the Beeson Program in launching independent scientists who take diverse paths to research on aging. Curiosity led her from private practice in anesthesia to a position in academia, and participation in a geriatrics study. Then a grant from the National Institute on Aging helped her transition to aging research. Now, the Beeson Award supports work that will provide a basis for future funding and becoming an independent investigator.

“The most remarkable thing is the ability to network at the annual meeting,” says Dr. Deiner. “I’ve gotten lots of great feedback on the work I’m doing, and I keep in touch with other Beesons during the year.”
Car accidents, playing football, military service, falling down—all can lead to a blow to the head that results in a person feeling dazed or confused, having a gap in memory, or even losing consciousness. Any one of these symptoms after a blow to the head may indicate that the person has suffered a traumatic brain injury (TBI), a condition that impacts nearly 2 million Americans every year.

Increasingly, doctors recognize that sustaining a TBI in young adulthood raises a person’s risk for dementia, Parkinson’s, and other neurodegenerative diseases later in life. Yet the causes of memory and movement symptoms, their course of development, and why some people are resilient and others decline over time, are largely unknown.

“As a dementia neurologist, I became interested in the long-term consequences of TBI through my clinical work at the San Francisco Veterans Affairs Medical Center,” says Raquel Gardner, MD. She applied to the Beeson Program in order to study cognitive, movement, and mood symptoms in retired military veterans who had decades-old TBIs. “First we need to evaluate the clinical symptoms to better characterize what actually happens to older adults with TBI,” she says. “Then we can dig deeper by examining genetic and lifestyle factors, biomarkers in blood, or changes on brain scans to understand mechanisms and to figure out why some people are resilient while others are not. Only then can we harness this information to develop treatments to optimize long-term brain health after exposure to TBI.”

To understand the long-term effects of TBI in a broader population, Dr. Gardner has analyzed data from the US Health and Retirement Study, a national survey of aging. Her research is finding that in this group, as well as in military veterans, people with prior TBI tend to develop more problems with movement—climbing stairs or walking—than with memory. Furthermore, people with more severe injuries tended to develop worse problems later.

Dr. Gardner discovered an unanticipated benefit to joining the network of Beeson Scholars. “When you get an award, or you’re planning for a grant, you meet all these people and then you discover new areas of research, and knowledge gaps—really critical areas for research that you didn’t know existed,” she says. “While I was planning my Beeson proposal, I spent time with one of my mentors, neurosurgeon Geoffrey Manley, MD, PhD, at our local county hospital. I was just amazed by how many patients are admitted to the hospital for TBI who are over the age of 65.” This led her to expand the project’s scope to include older adults with recent TBI.

“It’s a huge public health problem,” she adds. “And even though it’s such a common condition, and we have increasing numbers of older adults coming to the hospital for TBI, mostly from falls, we really have almost no guidelines about how to treat them.” Some hospitals treat TBI aggressively, with surgery, while others will not even offer aggressive treatment to older adults.

With research using existing datasets and a pilot clinical study, Dr. Gardner is mapping the way to a better understanding of the consequences of TBI in older adults as well as how to predict their recovery over several years. Eventually, she says, “we’ll be able to give an evidence-based answer, when a patient’s family asks, ‘Is mom going to recover?’”

The consequences of decades-old TBI in older adults and the difficulties of those with recent injuries “are two very different things,” says Dr. Gardner. For both, her ultimate goals are to improve care and find strategies to prevent post-TBI neurodegenerative disease.

In the meantime, the Beeson Program supports her work in many ways. In addition to mentors who have helped her generate new ideas, as a Beeson Scholar Dr. Gardner also has had the opportunity to complete a certificate program in clinical research methods and biostatistics. This additional accreditation “has been extremely useful for my research,” she says.
More than 5 million Americans live with Alzheimer’s disease, and many more have dementia that goes undiagnosed. Mild cognitive impairment (MCI) can include difficulties with memory, language, thinking, and judgment that may not interfere with a person’s daily life. Yet it, too, often goes undiagnosed, and up to 60 percent of people with MCI develop Alzheimer’s within three years.

Primary care doctors are on the front lines of assessing cognitive changes in older adults. But when doctors are pressed for time, life-threatening—and treatable—issues like high blood pressure and cholesterol often tend to take priority.

In addition, says Katherine Gifford, PsyD, “there’s a lack of tools for quickly assessing cognition, and no gold standard. Physicians also may feel uncomfortable asking a patient questions when there is no treatment for Alzheimer’s dementia.”

These observations led Dr. Gifford to her Beeson project: creating a questionnaire to help primary care providers readily identify patients at risk for cognitive impairment or with early signs of it. The key, according to her research, is to ask patients to evaluate themselves.

It turns out that when people complain that their memory is slipping, it’s not just talk.

“I found that people who are cognitively healthy at the time of asking about their memory, those who said they had a problem with their memory were two times more likely to go on to have cognitive problems three years later,” she says. “And if their spouse or their loved one also reported a change, then that risk doubled.”

But not everyone who complains about memory issues develops MCI or dementia. In a pilot study with more than 200 participants, Dr. Gifford began testing a questionnaire to see what questions about such “subjective cognitive decline” were meaningful.

“The crux of my Beeson research is to make sure that the questions are valid,” says Dr. Gifford. “Are they actually assessing changes in the brain that are related to Alzheimer’s disease, or the earliest signs of Alzheimer’s?”

The more than 300 study participants, aged 60 to 92, are enrolled in a broader longitudinal study, the Vanderbilt Memory & Aging Project. Half had normal cognition and half had MCI at the start of the study. They complete a questionnaire directed at self-perceptions of memory, take a battery of cognitive tests, have a brain MRI, and have blood drawn at baseline, and after 18 and 36 months. Because heart health and brain health are closely related, they also undergo vascular testing such as an echocardiogram.

The current study began with 52 questions, with the goal of whittling down this number to the 10 that relate most closely to pathological or abnormal changes in the brain. In part, Dr. Gifford does this through statistical ranking of questions as easy (Have you noticed any changes to your memory?) or difficult (Have you ever gotten lost in a familiar area?).

In addition, questions are tied to biomarkers. For example, if a person answers yes to a particular question, are they more likely to have amyloid in the brain or cerebrospinal fluid, or smaller hippocampal volume on a brain MRI—all signs relating to Alzheimer’s? In an iterative process, the researchers also test different versions of the questionnaire to find the questions that give the most valuable responses.

Ultimately, the tool should be “an easy set of questions to ask, about somebody’s perceptions about memory—a nurse or office assistant could ask them,” says Dr. Gifford, and provide a basis for making referrals for further testing.

“I feel very fortunate to have this opportunity,” she adds. “The Beeson Award pushes you to the next level, with the guidance of a mentor, to be able to obtain funding—and also to be able to pay that forward by having your own trainees later in your career.”
When critically ill patients are rushed into an intensive care unit (ICU) at a hospital, medical personnel spring into action to save lives. “We have all this technology,” says May Hua, MD, “more machines than you could ever imagine—machines to replace your heart, your lungs, your kidneys.”

“I became an anesthesiologist because I wanted to practice critical care,” she continues. “As a fellow, I realized I was getting great training to use all this technology to keep people alive. But when it came to low-tech aspects of care—communication and asking people if they really wanted this level of care—it seemed that there was a lot of room for improvement.”

Yet asking such questions is important. In a typical ICU, half the patients are over the age of 65, and being there changes the trajectory of their lives, says Hua. People who survive often have general disability that hinders their ability to be independent. They can’t walk as far, don’t have as much strength, and can develop cognitive difficulties. And in fact, high-intensity treatment in the ICU may not align with the desires of older adults who have a poor prognosis.

As a result, many hospitals have made palliative care available to patients in the ICU—care that helps make treatment goals clear and often prioritizes managing symptoms and pain. “We know that when people understand they have a poor prognosis, they often don’t want very aggressive care,” says Dr. Hua. Studies of individual hospitals have found that treatment intensity in the ICU decreases when palliative care is available. The idea has broad appeal: patients get the care they want, physicians are not providing care that is potentially futile, and costs are reduced for hospitals and insurers.

But whether the successes of single institutions can be expanded to other settings remains an open question. Even at her home institution, which has several ICUs, Dr. Hua found wide variation in the use of palliative care—2 percent of patients in the cardiothoracic ICU received a palliative care consultation, whereas nearly 10 percent did in the medical ICU. So what happens when more hospitals put palliative care in place?

Dr. Hua’s Beeson research addresses this question: knowing that hospitals have different cultures, and that palliative care is complicated—involving a team that may include social workers, physical therapists, counselors, and others—can palliative care be successfully scaled up?

To get a birds-eye view of the problem, Dr. Hua spent her first year as a Beeson Scholar assembling and merging administrative data for all discharges from the nearly 200 hospitals in New York State. Included are details on patients and clinical care, as well as hospital size, number of surgeries performed, and other characteristics giving an indication of treatment intensity at each institution.

Her goal is to see whether patients cared for in a hospital with a palliative care program have a different intensity of treatment—in terms of length of stay, invasive procedures, dialysis, and other measures—compared to hospitals that don’t have a palliative care program.

To balance this data-driven perspective, Dr. Hua is also interviewing two to three dozen palliative care and ICU providers—attending physicians, nurses, and others—to ask what factors they feel impact the use of palliative care services in the ICU setting. In other words: what makes people “on the ground” either use the services or shy away from them?

Beyond supporting her research, the Beeson Program provides “great opportunities for networking,” says Dr. Hua. “One of the most fun things about research is that you get to be part of an amazing community, and you feed off of one another, and collaborate with each other. After the annual meeting, you feel invigorated and ready to go back out there and do your work!”

May Hua, MD
Assistant Professor of Clinical Anesthesiology, Columbia University Medical Center

Mentor: Guohua Li, MD, DrPH

Determinants of Critical Care Intensity for Hospitalized Older Adults: The Effect of Hospital-Based Palliative Care Services
Forgetfulness may be the first outward sign of Alzheimer’s disease, but scientists now know that the brain changes underlying the disease can begin decades before a person notices difficulty with memory. And by that time, the memory centers in a person’s brain are already filled with toxic deposits of amyloid beta protein, and twisted fibers of another protein called tau.

In addition, doctors have long been aware of another early sign of Alzheimer’s: unintentional weight loss. Seeing patients brought this home to Makoto Ishii, MD, PhD, who is both a laboratory neuroscientist and a practicing neurologist. In particular, he says, “While I was a resident, my grandmother was diagnosed with Alzheimer’s. I saw clearly first hand that before the cognitive decline, she was losing weight.”

“No one really knew what to make of it,” he says. “Many people just assumed that as patients’ cognitive and memory skills declined, they were just not eating. But the fact that it can occur 5 or 10 years prior to any memory symptoms, suggested to me it wasn’t just because of memory problems.”

As a PhD student, Dr. Ishii had studied how the brain regulates body weight, and the role of the hormone leptin in this process. Most Alzheimer’s research had focused—logically—on changes to the brain’s memory center, or hippocampus. But the hypothalamus controls body weight. So Dr. Ishii began laboratory studies to investigate whether Alzheimer’s also affected this brain area.

Dr. Ishii found that mice engineered to develop key features of Alzheimer’s had significantly low body weight even before amyloid beta plaques began to build up in their brains. The mice also had low levels of leptin compared to normal animals. In addition, Dr. Ishii discovered that a key subtype of neuron in the hypothalamus was malfunctioning—it was not responding to leptin and other metabolic signals.

Dr. Ishii’s Beeson research delves deeper into these molecular studies of weight loss in mouse models of Alzheimer’s. At the same time, he is working to translate these findings to the clinic. To that end, he is studying a group of about 160 cognitively normal people including many, based on biomarkers in their cerebrospinal fluid, who are at high risk to develop Alzheimer’s. Over time, he will analyze their blood plasma and cerebrospinal fluid for markers linked to changes in body weight regulation.

“Whatever is triggering Alzheimer’s disease, is, we think, affecting the hypothalamus early,” says Dr. Ishii. “It’s been woefully understudied on a clinical level and much less on a molecular level. We want to better understand this manifestation on a molecular level. By doing so, we believe we can find a way to intervene that will benefit our patients.”

Ultimately the research could lead to a new biomarker for detecting Alzheimer’s disease early. Such a biomarker would help identify appropriate study participants for clinical trials of potential therapies. And when new therapies become available, it would help doctors determine which patients will benefit from them.

Dr. Ishii’s research also offers new approaches to therapy. It may be that reversing weight loss can slow Alzheimer’s progression. “Obviously it won’t be a cure, but even coming up with a good symptomatic treatment, or something that might help delay the progression, might be very beneficial in the clinic,” he says.

Networking with other Beeson Scholars and alumni has broadened Dr. Ishii’s “disease specific and neurological perspective” on aging, he says. “At the Beeson meeting I can talk to people in different fields, from the geriatricians, to epidemiologists, to basic scientists like me. It’s a small meeting too, where you get to know everyone. Afterward you can just call up anyone, and say ‘Hey, I have this idea, what do you think?’ and exchange ideas and collaborate.”
Every year the US Food and Drug Administration (FDA) approves new drugs based on the results of clinical trials that establish safety and effectiveness. But certain groups of people aren’t included in clinical trials because the risk of harm is too great—older adults are one of these groups, and especially frail older adults.

Although many new drugs could potentially help older people, those who are frail could require different dosing, or experience more severe side effects than healthier individuals. As a consequence, “physicians who are treating frail older people are reluctant to put somebody on a brand new drug whose safety and effectiveness have not been confirmed in this vulnerable subgroup,” says Dae Hyun Kim, MD, MPH, ScD.

So how can clinicians and others predict whether new medications will be safe for older adults? That’s where the field of pharmacoepidemiology comes in—a field that studies populations to understand how new drugs and other therapies are being used, and their safety, effectiveness, and adverse events after FDA approval.

Dr. Kim is a pharmacoepidemiologist with first-hand experience as a geriatrician in assessing frailty in older adults. A few years ago he started a prospective study to better understand how older adults fare after heart surgery. In this ongoing study, he has found that frailty status may predict mortality and functional decline, and could inform how physicians assess surgical risk and prognosis.

“That was really a motivating example,” he says. “If I can predict outcomes after cardiac surgery after frailty assessment, can I do similar things for drug safety?”

Dr. Kim looked to administrative claims data, mainly from Medicare, for answers. He quickly discovered a challenge: “Medicare administrative claims don’t have detailed clinical information. And there is no diagnosis code for frailty. So we don’t know if a patient requires help with their activities of daily living, or how frail they are. This is important information a physician considers when prescribing a medication to older patients. But it’s missing in the claims data set.”

However, the datasets do reveal useful information such as prescriptions filled for a particular drug over time, diagnoses, doctor visits, and other ways that people use health care that provide insight into their overall health. For his Beeson research, Dr. Kim is creating a frailty score that can be calculated from this data. Then the score can be used to classify subgroups of older individuals based on their frailty level.

“With this score we will be able to do more safety studies of drug use in older populations,” says Dr. Kim. “Physicians are making an educated guess about whether a new treatment will be safe in frail older adults. I want to be able to confirm that is the case.”

Dr. Kim is now testing how well his frailty score works by comparing data on warfarin and a new anticoagulant, as well as a traditional diabetes drug and a new one that physicians tend to prescribe to frail patients. Ultimately, the frailty score is intended to improve research that uses large administrative databases to compare the use of new therapies in populations, and to ensure that differences are not due to differences in the frailty of the populations.

To take the next step in his research, and help launch his career as an independent investigator, Dr. Kim has collaborated with a senior investigator in the Beeson network to submit an R01 grant to the National Institutes of Health. “Among all the meetings I go to, the Beeson meetings are the most helpful,” he says. “The peer networking and the informal mentoring are really valuable.”
Dementia is the most feared, and the most costly, disease of aging, affecting more than 5 million Americans and as many as 50 million people worldwide. Recent research suggests that about a third of dementia cases could be prevented by changes in lifestyle—for example, increasing exercise, quitting smoking, and controlling high blood pressure and diabetes.

Could changes in diet also prevent cognitive decline? Claire McEvoy, PhD, RD, is tackling this question with her Beeson research. “We know that changes in diet quality can have profound effects on vascular health,” she says, “and we know that vascular and cognitive health are closely linked.”

“I’m using a range of research methods to figure out which type of diet—combination of foods or nutrients—could help to preserve cognition as we get older,” says Dr. McEvoy. “My ultimate goal is to develop effective public health dietary recommendations to offer protection against cognitive decline during aging.”

Dr. McEvoy worked for a decade in clinical nutrition, helping people make changes to their diet to optimize healthy aging. Her patients inspired her interest in cognition, she says. “Patients were really interested in what dietary changes could improve brain health, but there wasn’t much research evidence available.”

For her Beeson research, Dr. McEvoy is making use of data from several large population studies that have collected information on both diet—in particular, adherence to a Mediterranean diet—and cognition. The Mediterranean diet—rich in fruits, vegetables, whole grains, nuts, olive oil, and fish—already has been proven to have benefits for vascular and metabolic health.

These studies include data on populations of different ages who’ve been followed for up to 30 years. The pathological changes underlying dementia are known to begin decades before any symptoms of cognitive change are evident. “Looking at risk relations between diet and cognition across different populations with a wide age-span, will help us to understand the most salient time to intervene with preventive dietary strategies.”

Dr. McEvoy is analyzing these data in order to discern dietary patterns, and to look at whether adherence to a high quality dietary pattern such as the Mediterranean diet has an impact on cognitive function, risk of cognitive impairment, and incidence of dementia. In some cases this includes neuroimaging data showing changes in brain structures. Her findings based on the nationally representative US Health and Retirement Study have already shown strong links between adherence to the Greek Mediterranean diet and better cognitive function.

However, clinical trials are needed to find out whether changes in diet can ward off cognitive decline. Dr. McEvoy has begun recruiting study participants for such a trial, to be carried out in Northern Ireland. She also has developed educational materials to guide people in easy, low-cost ways to change their eating habits toward a Mediterranean diet.

The study participants have been newly diagnosed with mild cognitive impairment and half will receive the Mediterranean diet intervention. Dr. McEvoy will follow them for one year to see if they can achieve the dietary changes toward a Mediterranean diet and whether these changes impact their cardiovascular and cognitive health. The results will inform the design of larger dietary intervention trials.

Dr. McEvoy notes that her research has evolved during her time as a Beeson Scholar from focusing solely on the Mediterranean diet to looking at different types of dietary patterns in populations. Despite the attention it has received, “the Mediterranean diet may not be the most optimal dietary pattern for brain health,” she says. “We do need to examine other dietary patterns as well.”

Through the Beeson Program, Dr. McEvoy has valued the opportunity to network and engage with clinicians and researchers in other fields. “I’m the only dietician who is part of the program,” she says. “The Beeson meeting is a great opportunity to engage and learn from the diverse range of scholars dedicated to optimizing healthy aging and care for older people.”
Why do some people live to be 100 or older, remaining active and mentally sharp, while most of us do not? The short answer, according to both conventional wisdom and recent research: good genes.

Discovering those genes, and understanding how they work and interact to promote a long and healthy lifespan is the aim of research started nearly 20 years ago by scientists at Albert Einstein College of Medicine. Ultimately, what they learn could lead to drugs that mimic the effects of so-called longevity genes.

The initial studies focused on 500 people between the ages of 95 and 112 and their children. A new group of study participants has since been added who are aged 65 and over, and whose parents lived, or are living, past 95. Sofiya Milman, MD, is leveraging this research infrastructure to validate the findings of the first studies, and to ask more detailed questions about specific genes.

“We believe that people who are offspring of centenarians carry genes that protect them from age-related diseases,” says Dr. Milman. Such genes make them less likely to develop, for example, Alzheimer’s, type 2 diabetes, and heart disease—or to develop them at a later-than-average age.

But genes are not simple on-off switches. Rather, they regulate proteins and molecular pathways, with many genes interacting. Researchers have long known that genes that control growth hormones, called GH and IGF1, play a role in regulating aging. Laboratory animals lacking the genes live longer, for example, as do animals with low levels of GH/IGF1 signaling.

“I’m trying to understand what genes in particular regulate this GH/IGF1 pathway,” says Dr. Milman. To this end, her Beeson research focuses on genetic studies of the new cohort of children of centenarians and an age-matched control group. Study participants come in for annual tests of physical and cognitive health, so the researchers can follow their trajectories as they age.

Dr. Milman’s study is characterizing genes one at a time within the GH/IGF1 pathway to see what effect they have on markers measured in blood samples, and is also looking at the interactions of multiple genes. With a technique called whole exome sequencing it’s possible to analyze variability in each individual participant.

Growth hormone levels change throughout a person’s lifespan—rising from birth through the teenage years, and tapering off with increasing age after that. Beyond giving children their growth spurt, the hormone also helps muscles grow and is associated with tissue repair.

In earlier research, Dr. Milman and colleagues showed that lower levels of growth hormone in older adults were associated with longer lifespan. Her Beeson study is finding that low IGF-1 also increases healthspan. “Female centenarians who have lower levels manifest better cognitive function,” she says.

“We also did not find any detriment to muscle function,” says Dr. Milman, contrary to what might be expected from low levels of a muscle-maintaining hormone. The finding helps address a concern that low growth-hormone levels could exacerbate the loss of muscle tissue that typically comes with aging. It also calls into question the practice of some physicians of prescribing growth hormone to increase vigor in older adults.

A benefit of the Beeson Program is how it brings together Scholars with diverse skills and backgrounds, says Dr. Milman. “I think as our science advances, and as the technology advances, it becomes very difficult for a single individual to really keep up with all of it. You’ll find very few investigators who can really do cutting edge science alone. We just don’t possess all of the skills that are needed to move the science. That speaks to our need to work together to tackle problems that are of mutual interest.”
Long before an older person has a fall or develops cognitive difficulties, subtle changes may be taking place in their blood pressure, kidney function, blood glucose levels, or other measures of how well the body keeps its systems in balance.

Individually, these physiological changes don’t indicate a disease, and they might not seem serious. But taken together, could they predict which healthy older adults are at higher risk of frailty and even death? If so, identifying and monitoring such subclinical signs could open opportunities to intervene.

“Frailty measures, like grip strength and speed of walking, often tend to be focused on changes in function,” says Matthew O’Connell, PhD. But behind signs of frailty that affect daily life are less obvious physiological changes. With his Beeson research, Dr. O’Connell is using data to put these less-understood changes on a scientific footing, in order to “predict changes in function, and validate some different markers of physiological aging.”

Orthostatic hypotension—loosely defined as low blood pressure on standing that lasts more than a minute—has provided Dr. O’Connell with an opening wedge into studying these physiological changes. This condition is common in older adults, and has long been known to increase a person’s risk of falling. In addition, repeated swings in blood flow—as blood-pressure dips on standing and is then brought back to normal—could damage organs, including the kidneys, heart, and brain.

In research that laid the groundwork for what would become his Beeson project, Dr. O’Connell and his colleagues established reference data on blood pressure stabilization in older adults. By analyzing precisely measured blood pressure data from some 5,000 participants in The Irish Longitudinal Study on Ageing (TILDA), they found that impaired ability to stabilize blood pressure increases with age and affects more than 40 percent of people over the age of 80.

Carrying this research further, as a Beeson Scholar, Dr. O’Connell and colleagues analyzed data relating chronic kidney disease to blood pressure, finding that poor kidney function doubles the likelihood that a person will have sustained orthostatic hypotension.

As part of his Beeson Award, Dr. O’Connell also spent six months at the Center for Aging and Population Health at the University of Pittsburgh. During his time there, he used data from the US Health Aging and Body Composition Study to investigate a broad range of physiological measures—changes in blood pressure, glucose levels, lung function, cognitive function and kidney function—and how they change over the course of 10 years, and predict mortality among adults in their 70s.

Cognition is the next area that Dr. O’Connell will analyze through data from TILDA to relate blood pressure to brain Magnetic Resonance Imaging (MRI) scans and measures of brain blood flow. The goal is “to link these peripheral markers, which we believe reflect what’s going on in the brain, more closely to what might actually be happening in the brain,” he says.

During his Beeson fellowship, Dr. O’Connell also will compare data on the health of older adults in Northern Ireland with those in the Republic of Ireland. “The work to date suggests there’s a big difference in health, north and south, but it’s all self reported,” he says. “One of the things to do would be comparing more objective health measures. When we can more closely match the datasets and actually start to adjust for things like levels of disease and availability of care, we might start to explain what the differences are and what’s causing them.”

Ultimately, better measures of a range of physiological changes that take place with aging could make a difference in healthcare for older adults. Says Dr. O’Connell: “In the longer term there may be possibilities of using these biomarkers to screen people for markers of functional decline, with the potential for interventions.”
Beeson Scholars

2017
Miles Berger, MD, PhD
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Jonathan Graff-Radford, MD
Mayo Clinic

Charles Brown, MD
Johns Hopkins University

Lauren Ferrante, MD
Yale University

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2016
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Anthony Rosen, MD, MPH
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Andrew Teich, MD, PhD
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2015
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