# 2018 Beeson Annual Meeting

## Program Book

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2018 ANNUAL MEETING

THE BALLANTYNE HOTEL
NOVEMBER 1 – 4, 2018

NOTE: Wireless Code in the meeting rooms: Beeson

#Beeson2018 #BeesonScholar
@AFARorg
AGENDA

THURSDAY, NOVEMBER 1, 2018

3:00 p.m.   Hotel Check-in Time

4:45 – 5:45 p.m.  Registration / Reception
Ballantyne B Foyer

5:45 – 7:00 p.m.
Ballantyne AB

WELCOME AND KEYNOTE ADDRESS

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

INTRODUCTION OF NEW SCHOLARS AND TRAVEL STIPEND Awardees

Marie Bernard, MD
Deputy Director, National Institute on Aging

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

KEYNOTE ADDRESS

Regional Vulnerability as a Key to Alzheimer’s Disease versus Cognitive Aging
Scott Small, MD
Boris and Rose Katz Professor of Neurology,
Director, Alzheimer’s Disease Research Center; 2000 Beeson Scholar
Columbia University Medical Center

7:00 – 9:00 p.m.
Ballantyne AB

FRIDAY, NOVEMBER 2, 2018

7:00 – 9:00 a.m.
Ballantyne CDE

8:00 – 9:00 a.m.
Ballantyne AB

BREAKFAST

SPEED NETWORKING

Please have breakfast first, or bring it with you into the meeting room.

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?

Introduction: Lauren Ferrante, MD, MHS, Yale School of Medicine
9:00 – 9:15 a.m.
Ballantyne B Foyer

9:15 – 10:45 a.m.
Ballantyne AB

**PLANNING YOUR NEXT GRANT**

**Introduction: Angela Jefferson, PhD, Vanderbilt University Medical Center**

You got your Beeson Award, or perhaps you already have an R01. Great, but what’s next? This particular session focuses on how to strategically apply for funding from the NIH appropriate to the stage in your career. The session will start with an overview, followed by breakout sessions that will be highly interactive and co-led by two to three facilitators.

**Katherine Hartmann, MD, PhD**
Associate Dean, Clinical and Translational Scientist Development
Deputy Director, Institute for Medicine & Public Health
Director, Graduate Studies in Epidemiology
Professor, Obstetrics and Gynecology & Medicine
Vanderbilt University Medical Center

**BREAKOUT SESSIONS:**

How to apply, and the timing for, an R award after having received a K award:  
**Katherine Hartmann, MD, PhD** and **Alex Smith MD, MS, MPH**, Discussants
Main Meeting Room, Ballantyne AB

How to renew an RO1:  
**Thomas Gill, MD**, and **Angela Jefferson, PhD**, Discussants
Meeting Room – Union

How to apply for Alzheimer’s disease research funding for non-AD investigators:  
**Terri Fried, MD** and **Sei Lee, MD, MAS**, Discussants
Meeting Room – York

10:45 – 11:15 a.m.
Ballantyne B Foyer

11:15 a.m. – 12:15 p.m.
Ballantyne AB

**DEVELOPING EFFECTIVE, MESSAGE-DRIVEN PRESENTATIONS AND POSTERS**

Posters are commonly used to present research findings at academic meetings. Often, researchers fail to recognize the unique nature of the format, which is a hybrid of a published paper and an oral presentation. This session will discuss how to create research posters that convey core takeaways to varied audiences and how to hone your poster “pitch” for maximum engagement.

**Introduction: Thomas Gill, MD, Yale School of Medicine**

**John Beilenson**
President
Strategic Communications and Planning (SCP) - [www.aboutscp.com](http://www.aboutscp.com)

12:15 – 1:15 p.m.
Ballantyne CDE

1:15 – 3:15 p.m.

**FREE TIME / MENTORING ACTIVITIES**

*Note: A private session is scheduled for the NIA staff and travel stipend awardees in Morrison.*
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). Meeting participants who are not presenting are encouraged to join any of the groups.

Group 1: Union A, **Moderator: Sean Morrison**
Group 2: Union BC, **Moderator: Jeremy Walston**
Group 3: York A, **Moderator: Cynthia Carlsson**
Group 4: York B, **Moderator: Amy Jo Kind**

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 – 6:15  Small group poster viewing with 2017 Scholars (Posters 1 - 5). Discussant **Manish Shah**
6:15 – 6:45  Odd numbers attend their poster
6:45 – 7:15  Even numbers attend their poster

DINNER

SATURDAY, NOVEMBER 3, 2018

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

**PLEASE NOTE:** Today’s sessions will be held in the Fairway Ballroom

GRADUATING SCHOLARS PRESENTATIONS: GROUP 1

**Introduction:** Liana Apostolova, M.D., MSc, FAAN, University of Indiana School of Medicine

**Alexander Panda, MD, PhD**
Assistant Professor Pulmonary & Critical Care Medicine
Tufts University School of Medicine

**Gerardo Moreno, MD**
Associate Professor in Family Medicine
University of California, Los Angeles

**William Hu, MD, PhD**
Associate Professor of Neurology
Emory University
DEMENTIA-RELATED RESEARCH FOR NON-DEMENTIA RESEARCHERS: HOW DO BEESON SCHOLARS POSITION THEMSELVES TO TAKE ADVANTAGE OF AD FUNDING THROUGH NIA OR OTHER INITIATIVES?

While a number of Beeson Scholars conduct Alzheimer's and dementia-related research, many other Beeson Scholars do not, and this session aims to inform these attendees on recent advances in the field and for them to consider opportunities in the field.

Introduction: Sanjay Asthana, MD, University of Wisconsin School of Public Health

Jennifer Manly, PhD
Professor
Taub Institute for Research on Alzheimer's Disease and the Aging Brain
Columbia University Medical Center

Jeffrey Kaye, MD
Professor of Neurology
Oregon Health and Sciences University

Edward Koo, MD
Professor of Neurosciences
University of California, San Diego and
Professor of Medicine and Physiology
National University of Singapore Yong Loo Lin School of Medicine

Robin Barr, DPhil
Director, Division of Extramural Activities
National Institute on Aging

11:30 a.m. – 12:00 p.m
Fairway Foyer

BREAK AND GROUP PHOTO

12:00 – 12:40 p.m.
Fairway Ballroom

GRADUATING SCHOLARS PRESENTATIONS: GROUP 2

Introduction: Kristin Yaffe, MD, University of California, San Francisco

Ozioma Okonkwo, PhD
Assistant Professor of Medicine,
University of Wisconsin School of Medicine and Public Health

Donovan Maust, MD
Assistant Professor, University of Michigan

12:40 – 2:45 p.m.
Carolina

BOXED LUNCH – CONSULTANCIES AND AIMS PAGE WORKSHOPS (SIGN-UP ONLY)
If you signed up for a workshop or consultancy, please bring your lunch to the meeting room.

Aims Page Workshop Group 1: Harris
Aims Page Workshop Group 2: Bradford
Consultancies: Morrison

3:00 – 6:30 p.m.
FREE TIME/ MENTORING ACTIVITIES

6:30 – 9:00 p.m.
Rose Garden

DINNER

Enjoy after dinner s’mores and wine around the fire pit. Camp songs encouraged.
SUNDAY, NOVEMBER 4, 2018

Don’t forget the time change! Please turn your watches back one hour.

6:30 – 8:30 a.m.
Carolina

8:30 a.m.

ADJOURN

12:00 p.m.

HOTEL CHECK-OUT TIME

SAVE-THE-DATE
The 2019 Beeson Annual Meeting will be held November 19 – 23 at the Hyatt Regency Tamaya Resort in Santa Ana Pueblo, New Mexico.
### Main & Upper Level Event Spaces

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### Other Amenities

- **A**: The Spa at Ballantyne
- **B**: Veranda Bar
- **C**: Concierge
- **D**: Guest Reception
- **E**: Event Design Center
- **F**: Business Center
- **G**: Ballroom Balcony
- **H**: Grand Staircase
- **I**: Private Dining Room
- **J**: Loading Docks
- **K**: Gallery Restaurant
- **L**: Gallery Bar
- **ST**: Stairs
- **EV**: Elevator(s)
- **Women’s Restroom**
- **Men’s Restroom**

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**Diagram:**

- **Main Lobby**
- **Ballroom Entrance**
- **Great Room Entrance**
- **Main Entrance**
- **Entrance to Outdoor Pool**
- **Main & Upper Level Event Spaces**
## Lower Level Event Spaces

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### Other Amenities

- **A**: Tennis Courts
- **B**: Outdoor Pool Bar
- **C**: Outdoor Pool
- **D**: The Spa at Ballantyne
- **E**: Indoor Pool
- **F**: Pool/Fitness Locker Rooms
- **G**: Fitness Center
- **H**: Golf Facility
- **I**: Golf Locker Rooms
- **J**: Golf Pro Shop
- **EV**: Elevator(s)
- **ST**: Starbucks
- **Women’s Restroom**
- **Men’s Restroom**

*Entrance to Outdoor Pool Area is located in Main Level of The Spa at Ballantyne.*
1. The Ballantyne Hotel & Lodge
2. The Spa at Ballantyne
3. Outdoor Pool
4. Tennis Court
5. Spa Walking Trail
6. Dana Rader Golf School
7. Aloft Charlotte Ballantyne
8. The Lodge Tennis Courts
9. The Lodge at Ballantyne
10. The Cottage at Ballantyne
11. The Golf Club at Ballantyne

DINING AND RETAIL:

12. Gallery Restaurant
13. Ballantyne Commons East
14. Ballantyne Village
15. Conlan Circle
16. Ballantyne Quad

17. Staybridge Suites Charlotte Ballantyne
18. Courtyard by Marriott Charlotte Ballantyne

THE BALLANTYNE HOTEL & LODGE

704 248 4000 telephone  704 248 4005 facsimile
10000 BALLANTYNE COMMONS PARKWAY, CHARLOTTE, NC 28277
theballantynehotel.com
Paul B. Beeson Emerging Leaders Career Development Awards in Aging Program

The Program is sponsored by:


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

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<tr>
<th>Committee</th>
<th>Friday, Nov 2 1:15 - 2:15 pm</th>
<th>Friday, Nov 2 2:15 - 3:15 pm</th>
<th>Saturday, Nov 3 3:00 - 4:00 pm</th>
<th>Saturday, Nov 3 4:00 - 5:00 pm</th>
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<td>Malaz Boustani</td>
<td>Kathryn Callahan</td>
<td>Hillary Lum</td>
<td>Andrea Gilmore-Bykovsky</td>
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<td>May Hua</td>
<td>Charles Brown</td>
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<td>Nathan Brummel</td>
<td>Jennifer Portz</td>
<td>Tony Rosen</td>
<td>Dae Hun Kim</td>
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<td>Rasheeda Hall</td>
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<td>Kristine Yaffe</td>
<td>Lauren Ferrante</td>
<td>Katherine Gifford</td>
<td>Miles Berger</td>
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<td>Raymond Yung</td>
<td>Sofiya Milman</td>
<td>Caroline Stephens</td>
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2014 Scholars have not been assigned to mentors. Contact mentors directly to arrange to meet at other times during the meeting.

### Assignments

One of 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.
### 2014 Scholars

<table>
<thead>
<tr>
<th>Name</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>
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<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>
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<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>
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<tr>
<td>Lipska, Kasia</td>
<td>Yale University</td>
<td>Predicting Severe Hypoglycemia among Older Adults with Diabetes</td>
<td>Ken Covinsky/SCHOLAR NOT ATTENDING</td>
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<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>
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<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/SCHOLAR NOT ATTENDING</td>
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<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>Unroe, 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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### 2015 Scholars

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<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>
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<tr>
<td>Gifford, Katherine</td>
<td>Vanderbilt University</td>
<td>Cognitive Complaints in Aging Adults</td>
<td>Kristine Yaffe</td>
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<td>Deiner, Stacie</td>
<td>Icahn School of Medicine at Mount Sinai</td>
<td>Optimizing postoperative cognition in the elderly</td>
<td>Wes Ely/Cynthia Carlsson</td>
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<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>
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<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/SCHOLAR NOT ATTENDING</td>
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<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/Ken Covinsky</td>
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<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>
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### 2016 Scholars

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<td>Brummel, Nathan</td>
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<td>LONG TERM OUTCOMES OF PHYSICAL ACTIVITY IN OLDER ADULTS WITH CRITICAL ILLNESS</td>
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<td>Cooper, Zara</td>
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<td>BEYOND 30-DAYS: PATIENT-ORIENTED OUTCOMES AMONG OLDER ADULTS AFTER EMERGENCY GENERAL SURGERY</td>
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<td>INVOLVING OLDER ADULTS IN DECISION MAKING FOR SKIN CANCER</td>
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<td>SLEEP QUALITY AND HUMAN AMYLOID-BETA KINETICS</td>
<td>Liana Apostolova</td>
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<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>
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<td>Pereira, Ana</td>
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<td>ENHANCING GLUTAMATE TRANSPORT IN AGE-RELATED COGNITIVE DECLINE AND ALZHEIMER'S DISEASE</td>
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<td>IDENTIFYING INJURY PATTERNS AND FORENSIC BIOMARKERS DIAGNOSTIC OF PHYSICAL ELDER ABUSE</td>
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<td>REGULATORY MECHANISMS IN A HOMEOSTATIC MODEL OF GERIATRIC VOIDING PROBLEMS AND INCONTINENCE</td>
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<td>AN INTEGRATIVE ANALYSIS OF DNA METHYLATION; TRANSCRIPTOMIC CHANGES; AND COGNITIVE</td>
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<td>Neuro-inflammation in postoperative cognitive dysfunction: CSF and fMRI studies</td>
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<td>Monitoring Cerebral Autoregulation in Patients Undergoing Traumatic Hip Fracture Surgery to Improve Postoperative</td>
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<td>Improving aging in place for older adults living in subsidized housing</td>
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<td>Callahan, Kathryn</td>
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<td>Identifying Frailty in Primary Care: Implementation of an Electronic Medical Record-Based Frailty Index</td>
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<td>Dementia and Decision-Making for Older Adults without Surrogates</td>
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<td>Novel Approaches to Identifying and Engaging Disadvantaged Patients with Alzheimer's Disease (AD) in Clinical Research</td>
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<td>Improving cancer screening in older adults with limited life expectancy</td>
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<td>Aging-associated dysregulation of the hypoxia pathway limits skeletal muscle regeneration</td>
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<td>Charles</td>
<td>Brown</td>
<td>Johns Hopkins University</td>
<td>Monitoring Cerebral Autoregulation in Patients Undergoing Traumatic Hip Fracture Surgery to Improve Postoperative Outcomes</td>
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<td>Nathan</td>
<td>Brummel</td>
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<td>Long Term Outcomes of Physical Activity in Older Adults with Critical Illness</td>
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<td>Stacie</td>
<td>Deiner</td>
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<td>Optimizing postoperative cognition in the elderly</td>
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<tr>
<td>Lauren</td>
<td>Ferrante</td>
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<td>The PREDICT Study (PRE-ICU Determinants of Post-ICU FunCTional Outcomes among Older Adults).</td>
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<td>Goyal</td>
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<td>Geriatric Conditions in Health Failure</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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<tr>
<td>May</td>
<td>Hua</td>
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<td>Determinants of Critical Care Intensity for Hospitalized Older Adults: the effect of hospital-based palliative care services</td>
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<td>Sophia</td>
<td>Wang</td>
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<td>Ankuda</td>
<td>Icahn School of Medicine at Mount Sinai</td>
<td>Health Care Use after Functional Disability</td>
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<td>Andrew</td>
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<td>Yale University</td>
<td>Dementia and Decision-Making for Older Adults without Surrogates</td>
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<td>Katherine</td>
<td>Gifford</td>
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<td>Cognitive Complaints in Aging Adults</td>
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<td>Andrea</td>
<td>Gilmore-Bykovskyi</td>
<td>University of Wisconsin-Madison</td>
<td>Novel Approaches to Identifying and Engaging Disadvantaged Patients</td>
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<td>Non-Surgical Management of Urinary Incontinence in Older Women</td>
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<td>Janey</td>
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<td>Ohio State University</td>
<td>Cancer and Aging Resiliency: CAREing for Older Adults with Cancer</td>
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<td>Anthony</td>
<td>Rosen</td>
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<td>Physical Elder Abuse</td>
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<td>Nancy</td>
<td>Schoenborn</td>
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<td>Improving cancer screening in older adults with limited life expectancy</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</td>
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<td>Intervention</td>
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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: 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 Workshops

**Group 1**  
Room: Harris

**Moderators:**  
Sanjay Asthana  
Jeff Caterino  
Cathleen Colon-Emeric

**Scholars**  
Nathan Brummel  
Katherine Gifford  
Jennifer Lai  
Carolyn Presley  
Sophia Wang

**Group 2**  
Room: Bradford

**Moderators:**  
Fred Blow  
Chris Callahan  
Cari Levy

**Scholars**  
Rebecca Brown  
May Hua  
Janey Peterson  
Nancy Schoenborn  
Kelly Trevino  
Alejandra Casillas (observer)
2018 Beeson Scholars

Rebecca Brown, MD, MPH, Assistant Professor of Medicine, University of Pennsylvania: Improving aging in place for older adults living in subsidized housing

Kathryn Callahan, MD, Assistant Professor, Wake Forest School of Medicine: Identifying Frailty in Primary Care: Implementation of an Electronic Medical Record-Based Frailty Index

Andrew Cohen, MD, DPhil, Assistant Professor of Internal Medicine (Geriatrics), Yale University: Dementia and Decision-Making for Older Adults without Surrogates

Guido Falcone, MD, ScD, MPH, Assistant Professor of Neurology, Yale School of Medicine: Genetic analyses of radiological severity, short-term functional outcome and long-term health status in spontaneous Intracerebral hemorrhage

Andrea Gilmore-Bykovskyi, PhD, RN, Assistant Professor, University of Wisconsin-Madison: Novel Approaches to Identifying and Engaging Disadvantaged Patients with Alzheimer’s Disease (AD) in Clinical Research

Rasheeda Hall, MD, Assistant Professor of Medicine, Duke University Medical Center: Deprescribing for Older Dialysis Patients

Biren Kamdar MD, MBA, MHS, Assistant Clinical Professor, University of California, San Diego School of Medicine: Multicomponent Intervention to Improve Delirium and Sleep-Wake Rhythms in Older ICU Patients

Jennifer Portz, PhD, MSW, Assistant Professor, Colorado State University: Social Convoy Palliative Care (Convoy-Pal) Mobile Health for Older Adults with Advanced Heart Failure

Nancy Schoenborn, MD, Assistant Professor of Medicine, Johns Hopkins University: Improving Cancer Screening in Older Adults with Limited Life Expectancy

Indranil Sinha, MD, Assistant Professor of Surgery, Harvard Medical School/Brigham and Women’s Hospital: Aging-Associated Dysregulation of the Hypoxia Pathway Limits Skeletal Muscle Regeneration

2018 Travel Awardees

Claire Ankuda, MD, MPH, Assistant Professor, Icahn School of Medicine at Mount Sinai

Alejandra Casillas, MD, MSHS, Assistant Professor of Medicine in Residence, UCLA David Geffen School of Medicine
Parag Goyal, MD, MSc, Assistant Professor of Medicine, Weill Cornell Medicine

Candace Parker-Autry, MD, Assistant Professor, Female Pelvic Medicine and Reconstructive Surgery, Wake Forest School of Medicine

Carolyn Presley, MD, MHS, Assistant Professor, The Ohio State University Comprehensive Cancer Center

Sophia Wang, MD, Assistant Professor of Clinical Psychiatry, Indiana University School of Medicine
BIOGRAPHICAL SKETCH

NAME: Rebecca T. Brown, MD, MPH

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

POSITION TITLE: Assistant Professor of Medicine, Perelman School of Medicine of the University of Pennsylvania; Attending Physician, Corporal Michael J. Crescenz VA Medical Center

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
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<th>FIELD OF STUDY</th>
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<tr>
<td>Harvard College, Cambridge, MA</td>
<td>B.A.</td>
<td>06/1999</td>
<td>English and American Literature</td>
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<tr>
<td>Harvard Medical School, Boston, MA</td>
<td>M.D.</td>
<td>06/2005</td>
<td>Medicine</td>
</tr>
<tr>
<td>University of California, San Francisco, CA</td>
<td>N/A</td>
<td>06/2008</td>
<td>Internal Medicine Residency</td>
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<tr>
<td>Harvard Medical School, Boston, MA</td>
<td>N/A</td>
<td>06/2011</td>
<td>Geriatric Medicine Fellowship</td>
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<td>Harvard School of Public Health, Boston, MA</td>
<td>M.P.H.</td>
<td>11/2011</td>
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<tr>
<td>University of California, San Francisco, CA</td>
<td>N/A</td>
<td>06/2013</td>
<td>Geriatrics Research Fellowship</td>
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</table>

A. Personal Statement

I am an Assistant Professor of Medicine in the Division of Geriatric Medicine at the University of Pennsylvania. My research focuses on optimizing functional status among socioeconomically vulnerable older adults. A substantial body of my work has examined the epidemiology and outcomes of functional impairment and other geriatric conditions among vulnerable older populations, with a methodologic focus on using primary data collection as well as secondary analysis of large clinical data sources and national surveys to answer research questions in this topic area. My most recent work builds upon these epidemiologic findings by focusing on developing interventions to optimize function for vulnerable older adults in both clinic and community settings. I currently hold a K76 Beeson Advanced Career Development Award from the NIA focused on improving function and independence for older adults living in federally subsidized housing, as well as a 5-year VA Quality Enhancement Research Initiative (QUERI) grant focused on improving management of functional impairment among older adults in primary care settings.

B. Positions and Honors

Positions and Employment

2013- Assistant Professor of Medicine, UCSF, and Staff Physician, SFVAMC
2018- Assistant Professor of Medicine, University of Pennsylvania, and Staff Physician, Corporal Michael J. Crescenz VA Medical Center

Other Experience and Professional Memberships

2009-11 Resident Representative, Geriatric Medicine Committee, Massachusetts Medical Society
2009- Board of Directors, Hearth, Inc.: Ending Elder Homelessness, Boston, MA
2009- Member, American Geriatrics Society
2009- Member, Society for General Internal Medicine
2010- Member, Gerontological Society of America
2013- Member, Steering Committee, Junior Faculty Special Interest Group, American Geriatrics Society
2013- Member, Research Committee, Society for General Internal Medicine
2014-2018 Member, Clinical Research Workgroup of the San Francisco VA Research and Development Committee
2015- Member, Geriatrics & Extended Care Electronic Functional Assessment Taskforce, Central VA Office of Geriatrics & Extended Care Services

Selected Honors (last 5 years)

2013 New Investigator Award, Merck/American Geriatrics Society (AGS)
C. Contribution to Science (primary)

1. Epidemiology of geriatric conditions in vulnerable populations.
   Traditionally, geriatric conditions such as functional impairment, cognitive impairment, and falls have been understood to affect adults age 65 and older, and particularly the “oldest old.” A major theme of my research has been investigating whether these conditions develop at earlier ages in socioeconomically disadvantaged populations. One example of this work is a paper I published which showed that homeless adults age 50 years and older had rates of geriatric syndromes similar to or higher than those of housed adults 20 years older. This work has raised awareness about the impact and outcomes of geriatric conditions in vulnerable populations, and is informing efforts to develop appropriate services for vulnerable adults, such as “aging adapted” permanent supportive housing programs.


Complete List of Published Work:
https://www.ncbi.nlm.nih.gov/sites/myncbi/1Luw1ylqjtr5x/bibliography/40123589/public/?sort=date&direction=ascending

D. Ongoing Research Support

**K76-AG057016-01A1 (Brown)**
NIH/NIA
*Improving Aging in Place for Older Adults Living in Subsidized Housing*
The goal of this proposal is to develop effective strategies to identify at-risk individuals in subsidized housing and to deliver targeted interventions to improve functioning and aging in place.

**QUE 15-283 (Brown)**
10/01/15-09/30/20
Department of Veterans Affairs Quality Enhancement Research Initiative (QUERI)
*Implementation of Standardized Measurement of Functional Status for Older Veterans*
The goal of this project is to determine barriers and facilitators to routine measurement of functional status in VA settings and use of these data by clinicians and operations; to develop and implement standardized protocols to measure and use these data; and to measure the impact of our implementation process.

**R01AG041860 (Kushel)**
06/01/17-05/31/22
NIH/NIA
*Aging Among the Homeless: Social Isolation, Function, and Institutional Care*
The major goal of this grant is to establish a cohort of 350 homeless adults aged 50 and older and examine geriatric conditions, health and healthcare outcomes through a life course perspective in order to improve the delivery of clinical services and align policies and programs with the needs of this high risk population.
Role: Co-Investigator
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: Callahan, Kathryn E.

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

POSITION TITLE: Associate Professor of Internal Medicine/Gerontology and Geriatric 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>
<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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<tr>
<td>Princeton University, Princeton, NJ</td>
<td>A.B.</td>
<td>2001</td>
<td>Psychology and Theater</td>
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<tr>
<td>Mt. Sinai School of Medicine, New York, NY</td>
<td>M.D.</td>
<td>2005</td>
<td>Medicine</td>
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<td>Brigham and Women’s Hospital, Boston, MA</td>
<td>Residency</td>
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<td>Internal Medicine</td>
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<td>Mt. Sinai School of Medicine, New York, NY</td>
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<td>2010</td>
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<tr>
<td>Wake Forest University, Winston-Salem, NC</td>
<td>M.S.</td>
<td>2014</td>
<td>Clinical and Population Translational Science</td>
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</table>

A. Personal Statement

I am a board-certified geriatrician and clinician-scholar, and my career goal is to develop, implement, and evaluate health systems interventions to improve quality of care for older adults. For this Beeson Award application, I will leverage my content expertise as a geriatrician, my background in developing and mentoring quality improvement interventions, and my training in robust research methods and strategies, to lead the development and implementation of an electronic medical record (EMR)-based Frailty Index (eFI) in partnership with primary care practices in the Wake Forest system.

1. Callahan KE; Lovato L; Miller ME; Marsh AP; Fielding RA; Gill TM; Groessl EJ; Guralnik J; King AC; Kritchevsky SB; McDermott MM; Manini T; Newman AB; Rejeski WJ. Self-Reported Physical Function as a Predictor of Hospitalization in the LIFE Study. In press, Journal of the American Geriatrics Society.


B. Positions and Honors

Positions and Employment

2010–2017 Assistant Professor, Section on Gerontology and Geriatric Medicine, Department of Internal Medicine, Wake Forest School of Medicine, Winston-Salem, NC

2017–present Associate Professor, Section on Gerontology and Geriatric Medicine, Department of Internal Medicine, Wake Forest School of Medicine, Winston-Salem, NC

Other Experience and Professional Memberships
2001- Member, American Geriatrics Society
2004- Member, Alpha Omega Alpha Honor Society
2005- Member, American College of Physicians; Fellow since 2016
2012 Certification, Institute for Healthcare Improvement

Board Certification
2008 Internal Medicine
2010 Geriatric Medicine

Selected Honors
2004 Alpha Omega Alpha National Honor Society and Gold Humanism in Medicine Honor Society
2005 Ellen Parker Memorial Award for Community Service in Geriatrics, Mount Sinai School of Medicine
2005 American Medical Women’s Association Award, Mount Sinai School of Medicine
2011 John A. Hartford Foundation Scholar Award, Hartford Center on Excellence in Geriatric Medicine

C. Contribution to Science
1. My health systems research explores the contribution of cognitive, functional, and frailty assessment to the healthcare outcomes of older adults. My current research (two manuscripts under review) focuses on implementing functional assessment and frailty measures into primary care practice.
   a) Callahan KE; Lovato L; Miller ME; Marsh AP; Fielding RA; Gill TM; Groessl EJ; Guralnik J; King AC; Kritchevsky SB; McDermott MM; Manini T; Newman AB; Rejeski WJ. Self-Reported Physical Function as a Predictor of Hospitalization in the LIFE Study. In press, Journal of the American Geriatrics Society.
2. Prior research in QI and learning health systems focused on physician learners’ gaps in knowledge, skills, and delivery of quality care for older adults.

Complete List of Published Work in MyBibliography:

D Ongoing Research Support
Identifying Frailty in Primary Care (Callahan, PI 75%) $900,000 07/01/18-06/30/23
NIH/NIA K76 “Beeson” Award
This leadership award focuses on career development for leaders in aging. The project would develop and implement a frailty metric in primary care in a Next Gen ACO
NAME: Cohen, Andrew Benjamin

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

POSITION TITLE: Assistant Professor of Medicine (Geriatrics)

EDUCATION/TRAINING

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<td>University of Oxford</td>
<td>DPhil (PhD)</td>
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<td>University of Pennsylvania School of Medicine</td>
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<td>New York-Presbyterian Hospital/Weill Cornell Medical Center</td>
<td>Internship and Residency</td>
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<td>Yale School of Medicine</td>
<td>Fellowship</td>
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<td>Geriatrics</td>
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A. Personal Statement

I am a geriatrician whose work aims to improve surrogate decision-making for older adults with dementia. My current research focuses on individuals with dementia who are “unbefriended” because they have impaired capacity and no suitable family member or friend available to make decisions on their behalf. The population of such persons is expected to increase dramatically over the next two decades as unprecedented numbers of older Americans enter later life outside nuclear family units. In my early work, I have developed methods to identify unbefriended patients in our medical system and to assess guardianship, which is currently the default mechanism by which a decision-maker is selected for them. The work supported by the Beeson award seeks to improve decision-making for this vulnerable population by laying the groundwork for an intervention to identify persons at risk of becoming unbefriended before they lose capacity and to elucidate their values and preferences ahead of time. This involves the development of a tool to capture the core domains that should shape treatment decisions if dementia develops. Given the growing recognition that models of advance care planning need to be modified to meet the needs of all persons with dementia, my hope is that the tool developed in this work can eventually be adapted for broader use, to capture key information about a person’s wishes even when a family member is expected to be available to make decisions.

B. Positions and Honors

Positions and Employment

| 2005-2006 | Instructor in English, University of Pennsylvania |
| 2013-2015 | Fellow, Yale Program in Geriatric Clinical Epidemiology and Aging-Related Research |
| 2015-2016 | Instructor in Geriatrics, Yale School of Medicine |
| 2016-     | Assistant Professor in Geriatrics, Yale School of Medicine |

Selected Honors

| 1997       | Phi Beta Kappa |
| 1999-2002  | Marshall Scholarship |
| 2001       | Gates Scholarship (declined) |
| 2005-2009  | Merit scholarship, University of Pennsylvania School of Medicine |
| 2012       | A. Lee Winston Award, Weill Cornell Medical Center |
| 2015       | Butler-Williams Scholar, National Institute on Aging |
| 2017       | New Investigator Award, American Geriatrics Society |
C. Contribution to science (primary)

Guardianship is the default mechanism for identifying a surrogate decision-maker when a person has impaired capacity, no legally-appointed health care proxy, and no suitable family members or friends available. Because centralized data are not kept about persons under guardianship, there has been little empirical work about medical decision-making for this vulnerable population. Through a series of projects, I have worked to address this gap in our knowledge. My first study involved an examination of state laws governing end-of-life decisions by guardians. It showed that these laws are highly inconsistent and led to a proposal for a multidisciplinary effort to develop clear standards. For the second project, I developed a method to identify persons under guardianship using data from the Department of Veterans Affairs (VA). I employed this method to describe a population-based sample of such persons that is more than 10 times larger than any previously studied. A third study, also using VA data, demonstrated that persons who are not nuclear family members are often listed as patients’ next of kin. Because non-nuclear family members are not recognized by all state surrogate consent statutes, these persons are potentially at risk for becoming unbefriended and requiring guardianship. To gain a better knowledge of the legislative and regulatory issues associated with this work, I participated in the inaugural Hartford Change AGEnts Policy Institute. I am currently using a large VA dataset to compare end-of-life treatment for nursing home residents under guardianship to those with family members available to make decisions. I am also organizing a white paper, involving a national group of key stakeholders, dedicated to the particular issues faced by unbefriended patients in nursing homes.

A complete listing of my publications is located at: http://www.ncbi.nlm.nih.gov/sites/myncbi/1Piu7LGUGP0Av/bibliography/48543824/public/?sort=date&direction=des

D. Research Support

Ongoing Research Support

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<td>Paul B. Beeson Emerging Leaders Career Development Award in Aging Dementia and Decision Making for Older Adults without Surrogates</td>
<td>08/15/18</td>
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<td>Establishing the Need for a Public Guardian in Massachusetts</td>
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Enhancing Engagement in Advance Care Planning

Completed Grant Support

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<th>End Date</th>
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<td>Cohen</td>
<td>Grants for Early Medical/Surgical Subspecialists’ Transition to Aging Research (GEMSSTAR) Guardianship and Medical Decision Making for the Unbefriended Elderly</td>
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<td>04/30/19</td>
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<td>Cohen</td>
<td>The Donaghue Foundation – Another Look Program End-of-Life Care for Nursing Home Residents with Professional Guardians</td>
<td>03/01/18</td>
<td>02/28/19</td>
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<td>P30 AG021342</td>
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<td>07/01/18</td>
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</table>
BIOGRAPHICAL SKETCH

NAME: Guido J. Falcone

eRA COMMONS USER NAME: gfalcone

POSITION TITLE: Assistant Professor, Department of Neurology, Yale University School of Medicine

EDUCATION/TRAINING

<table>
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<th>DEGREE</th>
<th>Completion Date</th>
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<tr>
<td>University of Buenos Aires, Buenos Aires, Argentina</td>
<td>M.D.</td>
<td>12/2003</td>
<td>Medicine</td>
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<tr>
<td>FLENI*, Buenos Aires, Argentina</td>
<td>Residency</td>
<td>05/2008</td>
<td>Neurology</td>
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<tr>
<td>Harvard School of Public Health, Boston MA</td>
<td>M.P.H.</td>
<td>05/2009</td>
<td>Quantitative Methods</td>
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<td>Harvard School of Public Health, Boston MA</td>
<td>Sc.D.</td>
<td>05/2014</td>
<td>Genetic Epidemiology</td>
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<td>Fellow</td>
<td>06/2016</td>
<td>Neurocritical Care</td>
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* FLENI: Foundation for the Fight Against Neurological Diseases

A. Personal Statement
The proposed research focuses on intracerebral hemorrhage, the most severe manifestation of cerebral small vessel disease. We propose to develop an automated pipeline to measure neuroimaging markers of brain injury in intracerebral hemorrhage and conduct genetic analyses to identify novel biological mechanisms and therapeutic targets related to radiological severity and subsequent outcomes in this disease. We will combine machine learning, cloud-computing, and advanced genetic and neuroimaging analysis to study the genetic underpinnings of primary and secondary injury, short term functional outcomes, and long-term clinical status in intracerebral hemorrhage. Our discoveries will have important applications to other aging-related conditions linked to cerebral small vessel disease, including vascular cognitive impairment and dementia, small vessel (lacunar) ischemic stroke and parkinsonism.

I am a neurologist, neurointensivist and genetic epidemiologist with expertise in population genetics applied to cerebral small vessel disease. Between residency and fellowship, I completed a Masters of Public Health (concentrating in Quantitative Methods) and a Doctorate in Epidemiology at Harvard School of Public Health, the latter with minors in Epidemiology and Biostatistics. During my final year as a doctoral student, I also completed the Specialized Program of Translational Research in Acute Stroke (SPOTRIAS) Fellowship, an NIH-sponsored training program specifically designed to equip physicians with analytical tools and practical experience related to translational sciences.

Leveraging my dual training as a clinician and investigator, my career goal is to become an independent genetic epidemiologist with a research program focused on cerebral small vessel disease and a research strategy that integrates genetic, neuroimaging and outcomes data to identify novel biological mechanisms and therapeutic targets in this condition. I am particularly interested in the genetic contribution to phenotypes other than risk. Supported by two competitively awarded grants – the Yale Pepper Scholar Award and the Neurocritical Care Society Research Fellowship - I currently lead a research program that focuses on studying the genetic underpinnings of age-onset in several aging-related diseases linked to cerebral small vessel disease. The research and career development components of this Beeson proposal, focused on studying the genetic underpinnings of brain injury in intracerebral hemorrhage, constitute a natural next step given the research interests outlined above.

B. Positions and Honors

Positions and Employment

- **2009-2003** Teaching assistant, Physiology, University of Buenos Aires School of Medicine
- **1999-2003** Teaching assistant, Pathology, University of Buenos Aires School of Medicine
- **2008-2009** Junior Attending Physician, F.L.E.N.I., Buenos Aires, Argentina
- **2009-2011** Full time doctoral student at Harvard School of Public Health
- **2011-2013** Full time Research Fellow, Department of Neurology, Mass General Hospital
- **2013-2014** SPOTRIAS Fellow, Department of Neurology, Mass General Hospital
- **2014-2016** Neurocritical Fellow, Department of Neurology, Mass General Hospital
- **2011-** Associated Researcher, Broad Institute of MIT and Harvard
- **2016-** Assistant Professor, Department of Neurology, Yale University School of Medicine
- **2016-** Staff Neurointensivist, Yale-New Haven Hospital
Professional Memberships
12/14- American Academy of Neurology
01/14- Neurocritical Care Society
06/13- America Society of Human Genetics
06/10- American Heart Association

Selected Honors and Committees
2008 Highlight Session of Special Topics, American Academy of Neurology Annual Meeting
2009-2010 Inter American Development Bank Scholarship (studies at Harvard)
2009-2010 Fulbright Scholarship (studies at Harvard)
2009-2010 Fortabat Scholarship (studies at Harvard)
2010-2011 Harvard School of Public Health Scholarship
2012 Travel Award for Junior Investigators – International Stroke Conference
2013 Neurology Award for the Clinical Research Day Abstracts - MGH Clinical Research Day
2013 Travel Award for Junior Investigators – Neurocritical Care Society Meeting
2013 Travel Award for Junior Investigators – International Stroke Genetics Consortium Meeting
2012- Data Analysis Committee member, International Stroke Genetics Consortium
2016- Steering Committee Member, International Stroke Genetics Consortium
2016- co-Chair, Cerebrovascular Disease Knowledge Portal (www.cerebrovascularportal.org)
2016- co-Chair, Critical Care Neurology & Stroke Research program
2016- Member, Neurocritical Care Society Research Committee
2016- Member, Neurocritical Care Society Annual Meeting Research subcommittee

C. Contributions to Science (Selected peer-reviewed papers)
1. Identification of new genetic risk factors for cerebrovascular disease. Population genetics offers a powerful tool to identify novel biological pathways involved in human disease. Inherited genetic variation provides numerous “experiments of nature” that connect genes to disease. Biological processes utilizing proteins encoded by these genes can then be explored as potential pathogenic mechanisms. This is a promising approach in stroke and intracerebral hemorrhage (ICH) because genetic variation contributes substantially to their risk, severity and outcome. Working within the construct of the International Stroke Genetics Consortium (ISGC), I have identified three novel genetic risk factors for ICH: (1) a narrow region in chromosome 1q22 encompassing PMF1, a gene that codes for a key component of mitosis, and SLC25A44, a gene that codes for a mitochondrial carrier protein; (2) the burden of hypertension-related alleles acting in combination, and (3) the epsilon variants within the APOE gene, specifically for warfarin-related ICH. I have also contributed to several other major studies in ischemic stroke and ICH that have identified additional genetic risk factors for these conditions.


A. Personal Statement
I am an Assistant Professor at the University of Wisconsin-Madison School of Nursing and the Wisconsin Alzheimer’s Disease Research Center. My career goal is to become a leading independent clinician-scientist whose research expands access to effective care and therapies for people living with and at risk for Alzheimer’s disease and related dementias (ADRD) through advances in disease detection, research participation, and care delivery. Consistent with this goal, my research has focused on identifying and addressing determinants of poor clinical outcomes and utilization disparities among vulnerable populations with ADRD. Much of this research has addressed the needs of disadvantaged and vulnerable groups during high-risk points in the care continuum, such as hospitalization, critical illness, and post-acute care transitions.

My current research, and the focus of my K76 award, centers around testing novel strategies to address disparities in disease detection and research participation among individuals with ADRD from disadvantaged backgrounds during hospitalization. Building upon my prior work, which has characterized narrative electronic health record (EHR) data reflecting symptoms of cognitive impairment, I plan to validate an EHR-based Phenotype Model to facilitate semi-automated screening for ADRD during hospitalization, and to test a tailored approach to research engagement surrounding acute care episodes.

B. Positions and Honors

Positions and Employment
2014 – 2016 Advanced Fellow, William S. Middleton VA Hospital, Madison, WI
2016 – pres. Assistant Professor, University of Wisconsin-Madison School of Nursing; Wisconsin Alzheimer’s Disease Research Center, Madison WI

National Leadership Positions
2012 – 2014 Intervention Workgroup, CMS Initiative to Improve Behavioral Health and Reduce the Use of Antipsychotic Medications in Nursing Home Residents
2016 – 2018 Promising Practices Committee Lead, Veterans Health Administration National Inpatient Care for Veterans with Complex Cognitive, Mental Health and Medical Needs Task Force
2015 – pres. Grant Reviewer, American Nurses Foundation Research Grant

C. Contributions to Science
1.) My research has identified predictors of and barriers to effective management of non-cognitive symptoms in people with ADRD. I have co-authored several invited commentaries on non-cognitive symptoms in ADRD and contributed to seminal state of the science papers in this area.
2.) I have led and contributed to a range of studies addressing the intersection between vulnerability and cognition across the pre-clinical to symptomatic ADRD spectrum for vulnerable groups and those at risk for cognitive decline.

3.) My contributions to the investigation of outcomes associated with poor discharge communication for high-risk geriatric populations have advanced our understanding of transitional care needs among vulnerable groups.

4.) I have designed and implemented methodological and interventional strategies to improve acute care delivery and access to research for patients with ADRD, frequently harnessing the EHR to drive improvements in care.

Complete List of Published Work in MyBibliography (34 publications): (link)

D. Research Support (Selected)

Ongoing Research Support

Title: Novel Approaches to Identifying and Engaging Disadvantaged Patients with Alzheimer’s Disease in Clinical Research
Dates: 09/2018 – 06/2023
Sponsor: NIH/NIA 1K76AG060005-01 (Beeson Award)
Role: Principal Investigator

Title: Race, Neighborhood Socioeconomic Disadvantage, and Risk for 30-Day Rehospitalization among Medicare Beneficiaries with Alzheimer’s Disease
Dates: 07/2018 – 06/2019
Sponsor: NIH/NIMHD 3R01MD010243-04S1
Role: Co-Investigator
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>6/2015</td>
<td>Nephrology Fellowship</td>
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<tr>
<td>Durham Veterans Affairs Medical Center, Durham, NC</td>
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<td>6/2015</td>
<td>Advanced Fellowship in Geriatrics</td>
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A. Personal Statement
I am a physician-scientist with expertise 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. I have experience in observational study design, including prediction modeling and longitudinal data analyses, as well as, psychometric evaluation and qualitative analyses. I currently lead a prospective study of 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. This study along with its concurrent qualitative study with key stakeholders 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 award extends on this work towards a pilot deprescribing intervention for dialysis units. Through these experiences, I am developing expertise and uncovering evidence to support design, testing, and implementation of new models of care that target outcomes for older dialysis patients.

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
7/2018-Present Assistant Professor, Duke University School of Medicine
Honors

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
2017  NIA/American Federation for Aging Research Paul Beeson Annual Meeting Travel Award
2017  Doris Duke Charitable Foundation Fund to Retain Clinical Scientists Award
2018  American Geriatric Society Presidential Poster Award Geriatric Medicine in Other Specialties
2018  NIA Paul B. Beeson Emerging Leaders Career Development Award in Aging
2018  American Society of Nephrology - Amos Medical Faculty Development Program Award

C. Contributions to Science

1. 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, three 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

1K76AG059930-01 (PI:Hall) 8/1/2018-5/31/2023
Deprescribing for Older Dialysis Patients
The major goals of this project are: 1) to develop an evidence-based strategy to reduce inappropriate prescribing in older dialysis patients and 2) to solidify Dr. Hall’s skill development in large administrative datasets, pharmacoepidemiologic cohort studies, applied qualitative methods, and clinical trials.

Doris Duke Charitable Foundation Grant 2015207 1/1/2018- 12/31/2018
Fund to Retain Clinical Scientists
This grant provides supplemental funds for prospective data collection and qualitative methods designed to inform design of a pilot study of geriatric assessment in dialysis units.
**NAME:** Kamdar, Biren Bharat

**POSITION TITLE:** Assistant Professor
Division of Pulmonary, Critical Care and Sleep Medicine
University of California, San Diego (UCSD)

### EDUCATION/TRAINING

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<td>Clinical Investigation</td>
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<td>Fellowship</td>
<td>06/2014</td>
<td>Pulmonary/Critical Care</td>
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**A. Personal Statement**

I am a clinician-scientist specializing in adult pulmonary and critical care medicine. My career goal is to make novel and relevant scientific contributions to improve and understand sleep, sleep-wake rhythms and delirium in critically ill patients. This issue is particularly relevant for older ICU patients, who are predisposed to delirium, poor sleep quality, and misaligned sleep-wake rhythms, placing them at high risk for post-ICU impairments. As older adults now comprise the majority of critically ill patients and a rapidly expanding proportion of ICU survivors, ICU-based interventions are needed for this vulnerable population. With my NIA Beeson Career Development Award, I plan to extend my prior NIH NRSA-supported pilot ICU sleep promoting intervention and KL2-supported actigraphy research to evaluate a multicomponent intervention program targeting older ICU patients. With the support of my mentoring team, my K76 will involve implementation and testing of the intervention in two ICUs in the UCSD Health System. As a novel method to reduce delirium and improve nighttime sleep quality in older ICU patients, this intervention aims to align sleep-wake rhythms by coupling components of my prior nighttime-focused sleep promoting intervention with a robust daytime intervention, derived from components of the Hospital Elder Life Program and interventions developed by members of my mentorship team. K76 career development activities will focus on (1) sleep-wake rhythms and aging, (2) advanced actigraphy methods, (3) intervention development, and (4) implementation science and healthcare leadership. My K76 aims to provide the key experiences necessary to achieve independence, and provide a foundation for future R01-funded interventions to improve delirium, sleep and sleep-wake rhythms in older critically ill patients.

**B. Selected Positions and Honors**

**Employment**

- 8/2013-7/2015 Clinical Instructor, University of California, Los Angeles (UCLA), Los Angeles, CA
- 8/2015-7/2018 Assistant Professor, University of California, Los Angeles (UCLA), Los Angeles, CA
- 8/2018-Current Assistant Professor, University of California, San Diego (UCSD), San Diego, CA

**Selected Experience / Professional Memberships**

- 2000, 2001 Head Teaching Assistant, Stanford University Sleep and Dreams Course (450+ students)
- 2016-2018 Director, Center of Excellence, UCLA Division of Pulmonary and Critical Care Medicine
- 2017-2018 Physician Champion for Patient Mobility, UCLA Health Patient Wellness Initiative
- 2012-Current International Sleep in the ICU Taskforce
- 2013-Current American Delirium Society (member)

**Selected Honors**

- 2010/2015/2018 National Institutes of Health Loan Repayment Program Award
- 2016 Nominee, UCLA Internal Medicine Housestaff Full-Time Faculty Teaching Award

**C. Selected Contributions to Science**

**1. Promoting sleep in critically ill patients**

During my PCCM fellowship at Johns Hopkins, I designed and led a novel sleep promoting intervention in the Johns Hopkins Hospital (JHH) medical intensive care unit (MICU). With support of an interdisciplinary stakeholder team, this mentored, NIH Kirschstein NRSA-supported effort involved implementation of a
multifaceted intervention to minimize nighttime disturbances and promote sleep in critically ill MICU patients. This 28-week, 433-patient effort was the first published study to support the notion that a sleep promotion “bundle” could improve cognition in the ICU. Overall, this effort resulted in several peer-reviewed manuscripts, and posters and oral presentations at international meetings. Finally, we conducted two sub-analyses exploring the association of sleep quality on the development of delirium and participation in physical therapy in the ICU.


2. Evaluating methods to measure sleep in the ICU setting
As part of my NIH Kirschstein NRSA-supported multifaceted sleep promoting intervention in the JHH MICU, I performed a sub-study regarding patient-nurse interrater reliability of the Richards-Campbell Sleep Questionnaire (RCSQ). Because only alert patients can complete the RCSQ, this sub-study aimed to evaluate the reliability of nurse proxies at completing the RCSQ on their patients’ behalf (i.e., if patients were delirious). We found that nurses overestimated patient sleep quality on the RCSQ, highlighting a need for other methods to measure sleep in the ICU. At UCLA, I built on this work via a KL2-supported project evaluating the feasibility of 48-hour wrist actigraphy in MICU patients. Overall, 97% of enrolled patients completed 48-hour actigraphy recordings, supporting the feasibility of actigraphy for future projects. To extend this work, we conducted two systematic reviews on the use of actigraphy to evaluate sleep (published) and activity (manuscript in preparation) in the ICU. Additionally, we are conducting an advanced analysis of clinical characteristics associated with actigraphy-based activity levels in the ICU. Finally, I wrote an editorial emphasizing the need for sound and light measurement during hospital-based interventions to improve sleep-wake rhythms.


Complete List of 30 Published Works: www.ncbi.nlm.nih.gov/myncbi/browse/collection/40575015

D. Research Support

Ongoing:
NIA/NIH K76 AG059936 Kamdar (PI) 09/01/2018 – 05/31/2023
Paul B. Beeson Emerging Leaders Career Development Award in Aging
Multicomponent Intervention to Improve Delirium and Sleep-Wake Rhythms in Older ICU Patients

NIA/NIH R42 AG059451 Stapleton/Needham (PI) 04/01/2018 – 03/31/2020
Novel Arm Restraint for Critically Ill Patients to Reduce Immobility, Sedation, Agitation and Cognitive Impairment
Role: Co-Investigator

Completed in the last 3 years
NIH/NCATS UL1TR000124 Dubinett (PI) 07/01/2015 – 06/30/2018
UCLA Clinical and Translational Science Institute (CTSI) KL2 Career Development Award
A MICU Sleep Promotion Intervention Using Actigraphic Outcome Assessment
Role: CDA PI
APPLICANT BIOGRAPHICAL SKETCH

NAME OF APPLICANT: Jennifer Dickman Portz

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

POSITION TITLE: Assistant Professor, School of Social Work, Colorado State University, and Colorado School of Public Health, University of Colorado

EDUCATION/TRAINING

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<td>Boston College</td>
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<td>Interprofessional Palliative Care</td>
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A. Personal Statement

My long-term goal is to become a leader in developing and implementing digitally-supported palliative care that can be used by older adults with advanced illnesses and their “social convoy” (i.e. family members, informal and formal caregivers) to effectively improve patient-family centered health outcomes. As a geriatric social worker, I am uniquely suited to study the older adult digital-user within the context of the convoy to lead a fundamental change in the design of digital health for palliative care. I have over ten years of experience conducting research within community, academic and health care environments managing several technology-based chronic disease intervention studies. As a doctoral student, I was awarded two dissertation grants, and my research has consistently been funded since 2014. I was a co-investigator on three grants piloting self-management programs integrated with yoga for older patients with chronic pain and chronic stroke. I successfully competed for a NIA National Research Service Award in Palliative Care and Aging Research (T32) at the University of Colorado. As the first social worker to participate in the fellowship, my research focused on the investigation of two digital health platforms: a mobile application for monitoring symptoms of heart failure (the HF app prototype) and Kaiser Permanente’s patient portal, kp.org/My Health Manager. I was awarded a 3-year Career Development Award from the American Heart Association (AHA) to update the HF app prototype to integrate it more fully into the daily life and social interaction of older patients with heart failure. For the Beeson award, I will develop, refine, and test the Social Convoy Palliative Care (Convoy-Pal) mobile application, a new intervention that integrates the social convoy in digitally-supported palliative care to promote symptom management and quality of life among older adults with advanced heart failure. Please note a name change from Jennifer Marie Dickman to Jennifer Dickman Portz in 2011.

B. Positions and Honors

Positions and Employment

2013- Assistant Professor, School of Social Work, Colorado State University
2013- Affiliate Investigator, Institute for Health Research, Kaiser Permanente Colorado
2016-2018 Fellow, Palliative Care and Aging (T32), School of Medicine, University of Colorado Anschutz
2018- Assistant Professor, Colorado School of Public Health, University of Colorado Anschutz

Academic and Professional Honors

2007 Hartford Partnership Program for Aging Education Fellowship, John A. Hartford Foundation
2007 Geriatric Social Work Initiative, Boston College
2009 Graduate Studies Doctoral Fellowship, University of Denver
2009 Van R. Johnson Sutter Scholarship Award, Sutter Health
2010 Provost’s Doctoral Fellowship for Inclusive Excellence, University of Denver
2011 Enid O. Cox Doctoral Fellowship, University of Denver
2017 Tenure-Track Excellence in Teaching, nominee, College of Health and Human Sciences, Colorado State University
C. Contributions to Science

Much of my research investigates the design, adoption, utilization, and outcomes of digital health interventions for older adults. My earlier publications report some challenges to digital health experienced by older adults. However, much of my recent work establishes that older adults are interested in using digital health if the technology is well-designed, meaningful, and valuable to the user. One of my research priorities is the inclusion of patients and relevant stakeholders in the research, development, and implementation of health interventions. Health technologies are often developed without participation from relevant stakeholders and are then found obsolete, inoperable, or unimportant. An iterative development approach is essential for creating truly patient-caregiver centered digital tools.


Complete List of Published Work:

D. Research Support

Ongoing Research Support
NIA (K76AG059934) Portz (PI) 2018-2023
Social Convoy Palliative Care (Convoy-Pal) Mobile Health for Older Adults with Advanced Heart Failure

NCCIH (R34AT009688) Fruhauf (PI)/Portz (Co-I) 2017-2020
Merging Yoga and Self-Management to Develop Skills (MY-Skills)

Completed Research Support
American Heart Association (18CDA34110092) Portz (PI) 2018-2018
Cardiovascular Digital Health: The Heart Failure Symptom Tracker

NIA (5T32AG044296) Kutner (PI)/Portz (Fellow) 2016-2018
Multidisciplinary Research Training in Palliative Care

CSU Academic Collaborations
Portz (PI) 2017-2018
High Impact Experiential Learning: Social Work Practice

Council on Social Work Education
Portz (PI) 2016-2017
Social Work Engagement in Policy Practice at Colorado State University

CSU Prevention Research Center
Schmid (PI)/Portz (Co-PI) 2015-2016
Self-Management and Yoga After Chronic Pain

American Occupational Therapy Foundation (AOTFIRG13)
Schmid (PI)/Portz (Co-I) 2014-2015
Merging Yoga and Group Occupational Therapy (MY-OT)
NAME: Schoenborn, Nancy L

POSITION TITLE: Assistant Professor of Medicine and Oncology, Johns Hopkins University

EDUCATION/TRAINING

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A. Personal Statement

I am an Assistant Professor in the Johns Hopkins School of Medicine’s Division of Geriatric Medicine and Gerontology and a member of the Sidney Kimmel Comprehensive Cancer Center. My research goal is to enhance patient-centered care of older adults and has focused on incorporating life expectancy to individualize preventive care decisions. I have used qualitative studies to elicit preferences and perspectives from both clinicians and patients, and then evaluated the strength of patient preferences using novel stated-preference research methods in larger populations. My work has examined barriers that clinicians face when incorporating life expectancy in the care of older adults. I have also identified communication strategies that are preferred by older adults for clinicians to discuss stopping routine cancer screening. While older adults can be amenable to stopping routine cancer screening, they are significantly influenced by what the clinicians recommend and how the recommendation is framed. I have successfully obtained grant support from multiple sources, including a R03 from the NIA – the Grants for Early Medical/Surgical Specialists’ Transition to Aging Research (GEMSSTAR) award and a companion award from the T. Franklin Williams program, a Cancer Control Career Development Award from the American Cancer Society, and a Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) from the NIA to support my work. I was awarded the New Investigator Award by the American Geriatrics Society in 2016.

B. Positions

2011 – 2012 Instructor of Medicine / Chief Resident Department of Medicine, Johns Hopkins University School of Medicine
2014 – present Assistant Professor Division of Geriatric Medicine and Gerontology, Department of Medicine, Johns Hopkins University

Honors/Awards (selected)

2012-2014 The Donald W. Reynolds Foundation Scholar
2013-2015 The Picker/Gold Graduate Medical Education Challenge Grant Award
2014-2016 The John A. Hartford Foundation Scholar
2015-2018 T. Franklin Williams Scholar, American Geriatrics Society Health in Aging Foundation.
2015-2016 Johns Hopkins Emerging Women Leadership Program
2016 New Investigator Award, American Geriatrics Society
2016 Clinician Scientist Award, Johns Hopkins University.
2016-2018 Johns Hopkins KL2 Clinical Scholar
2018 The Lisa J. Heiser Award for Junior Faculty Contribution in Education, Johns Hopkins Institute for Excellence in Education
2018 The Paul B. Beeson Emerging Leaders Scholar, American Federation for Aging Research
2018 Publication (Schoenborn et al. JAMA IM.2017;177(8) 1121-1128) highlighted as among the Top 10 new articles in the 2018 American Geriatrics Society Annual Meeting Plenary.
C. Contributions to Science

**Work on incorporation and communication of prognosis to inform care decisions in older adults:** I examined the practice patterns regarding incorporating prognosis in the care of older adults among resident clinicians and found that there were significant opportunities for improvement. I led the design, implementation, and rigorously evaluated an educational intervention for internal medicine residents on how to incorporate prognosis to inform decisions in the care of older patients with multimorbidity. I then studied the views of practicing clinicians on incorporating long-term prognosis in the care of older adults and found that the clinicians often considered patient’s prognosis but the consideration was at times outweighed by other factors. I have also studied the preferences of older adults on how they prefer to discuss long-term prognosis in primary care and found most older adults did not wish to discuss life expectancy until last 1-2 years of life.


**Work focused on decision-making and communication around stopping routine cancer screening in older adults with limited life expectancy:** In synergy with my work on prognostication in general, I have specifically focused on the clinical decision of cancer screening in older adults. I examined in a qualitative interview study how older adults think about the decision to stop screening with life expectancy is limited. I found that older adults were amenable to stopping cancer screening in the context of a trusting relationship but did not always want to discuss life expectancy. In a national survey, I quantified older adults’ priorities when making cancer screening decisions and their preferences for how to discuss screening cessation. I also examined what strategies primary care clinicians used to discuss screening cessation.


D. Research Support

**1K76AG059984 - NIA**
Schoenborn (PI) 07/01/18 – 06/30/22
Improving Cancer Screening in Older Adults with Limited Life Expectancy

**American Cancer Society Cancer Control Career Development Award**
Schoenborn (PI) 07/01/16-06/30/19

**Completed Research Support**

**R03AG050912 – NIA (GEMSSTAR)**
Schoenborn (PI) 08/15/15-05/31/18

The T. Franklin Williams Scholars Program
Schoenborn (PI) 07/01/15-12/31/17

The Picker/Gold Graduate Medical Education Challenge Grant
Schoenborn (PI) 09/01/13-03/31/15

Maryland Cigarette Restitution Fund
Schoenborn (PI) 07/01/15-06/30/16

Johns Hopkins Older Americans Independence Center Pilot
Schoenborn (PI) 03/01/16-06/30/17
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: Indranil Sinha, MD

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

POSITION TITLE: Assistant Professor, Harvard Medical School; Plastic Surgeon, Department of Surgery, Brigham and Women’s Hospital

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>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
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<tr>
<td>University of California, Berkeley, CA</td>
<td>BA</td>
<td>05/01</td>
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<td>University of Michigan Medical School, MI</td>
<td>MD</td>
<td>06/06</td>
<td>Medicine</td>
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<td>Harvard Stem Cell Institute, Cambridge, MA</td>
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<td>06/11</td>
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<td>Harvard Plastic Surgery Residency, Boston, MA</td>
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<td>Plastic Surgery</td>
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<tr>
<td>Burn and Reconstructive Surgery Fellowship, Boston, MA</td>
<td></td>
<td>06/15</td>
<td>Plastic Surgery</td>
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A. Personal Statement
Current research in my laboratory focuses on determining the role of the hypoxia pathway in the regulation of skeletal muscle regeneration in a murine model of aging. Specifically, I am interested in the pathologic dysregulation of aryl hydrocarbon receptor nuclear translocator (ARNT, also known as hypoxia inducible factor-1β), which occurs with aging in skeletal muscle. Our preliminary data demonstrate: 1) skeletal muscle regeneration is severely diminished in old mice as compared to young mice, both in vivo and in vitro and 2) ARNT is significantly down-regulated in old skeletal muscle and leads to a corollary loss of muscle specific VEGF activity. Utilizing genetically modified mouse models of hypoxia signaling, we further demonstrate that muscle-specific loss of ARNT results in diminished skeletal muscle regeneration. Initial results were presented at the 2017 National Pepper Center Conference.

The current project builds on our intriguing preliminary results, which suggest that pathologic loss of ARNT may be a causative factor in loss of skeletal muscle regeneration with aging. The hypoxia pathway and its regulation of skeletal muscle regeneration is a novel finding. We thereby propose a series of experiments, utilizing genetically modified mice and pharmacologic activators, to critically evaluate this pathway in aging and to further define the mechanism. More broadly, loss of muscle regeneration may result in aging-associated sarcopenia, and identifying pharmacologic targets can potentially limit loss of muscle mass and independence in these patients. For my initial work regarding the hypoxia pathway and skeletal muscle regeneration, I was awarded the Eugenia Rosenberg Award for outstanding abstract by a Junior Faculty member at the annual Endocrine Society Meeting (study on obesity) and the Outstanding Junior Faculty Research Award by the Brigham Research Institute (study on aging).

Regarding my K76 project, I recently finished clinical training in Plastic and Reconstructive Surgery and am starting to establish my research lab. Much of my clinical practice focuses on reconstructive procedures in elderly patients. I am witness to the difficulties with rehabilitation in the post-operative period for these patients and am interested in pursuing research efforts to improve the care for these patients. Ultimately, I hope to translate our basic science studies into potential new therapies for our patients. Despite an arduous residency program, I maintained an interest in basic science research and continued to perform experiments during that time. As a faculty member, I currently have 50% protected time for research and have been productive in my first two years. I will increase this protected time for research to 75% during the time-period of my proposal.

My previous research training involved evaluating the effects of inflammation on skeletal muscle regeneration in a murine model of aging. In previous studies, we utilized fluorescence activated cell sorting to selectively isolate skeletal muscle precursors (SMP), based on their cell surface markers, to assess in vitro regeneration and utilized a cryoinjury model to assess in vivo regeneration. Previously supported by the NIH (NIA F32 AG034703) and mentored by Dr. Wagers, we demonstrated that muscle fiber, and not SMP, associated increase of NF-κB signaling, associated with aging, results in a loss of the regenerative-potential of skeletal muscle.
Utilizing similar methods to evaluate skeletal muscle regeneration, I next evaluated the hypoxia pathway in a model of aging. Work in this area is directly related to my previous training and I was awarded a Research and Education Core Award from the NIA funded Boston Pepper Center (NIA P30 AG031679). These studies are ongoing and provided the preliminary data for the current proposal.

My overall goal is to become a basic scientist and an academic Plastic Surgeon, with a major research and clinical focus on aging and muscle function.


*co-first author, #corresponding author

B. Positions and Honors

Positions and Employment
2014-15 Fellow, Burn Surgery, Brigham and Women’s Hospital
2014-16 Instructor, Harvard Medical School
2016- Assistant Professor, Harvard Medical School

Other Experience and Professional Memberships
2016 - American Society of Plastic Surgery Member
2017- Research and Education Committee Member
2018- Inservice Exam Committee Member (Comprehensive)
2016- Plastic Surgery Research Council Member
2016 - Claude D. Pepper Older Americans Independence Center Member
2018- Early Career Workgroup
2018 - Gerontological Society of America Member

Honors
2001 Phi Beta Kappa, University of California, Berkeley
2004 Lazar Greenfield Research Award, University of Michigan
2004 Alpha Omega Alpha, University of Michigan
2006 University of Michigan Dean’s Award for Outstanding Research
2006 University of Michigan C. Gardner Child III Award
2005-06 President, Alpha Omega Alpha at University of Michigan
2007 Harvard Medical School Excellence in Medical Student Teaching Award
2007 Brigham and Women’s Hospital Surgical Intern of the Year Award
2013 Resident Representative, Harvard Plastic Surgery Residency Program
2016 Brigham and Women’s Hospital Clinical Innovator Award
2017 Eugenia Rosenberg Award for Outstanding Abstract by Junior Faculty, Endocrine Society
2017 Brigham Research Institute Research Junior Faculty Award for Outstanding Research

Complete List of Published Work in MyBibliography (45 publications):
BIOGRAPHICAL SKETCH

NAME: Ankuda, Claire K., M.D., M.P.H.
eRA COMMONS USER NAME: cankuda
POSITION TITLE: Assistant Professor
EDUCATION/TRAINING:

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<td>B.S.</td>
<td>05/2007</td>
<td>Health Policy</td>
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<td>Harvard School of Public Health, Boston, MA</td>
<td>M.P.H.</td>
<td>06/2011</td>
<td>Quantitative Methods</td>
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<td>UVM College of Medicine, Burlington, VT</td>
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<td>Residency</td>
<td>06/2015</td>
<td>Family Medicine</td>
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<td>Fellowship, M.S.</td>
<td>06/2017</td>
<td>Health Services Research</td>
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<td>University of Michigan, Ann Arbor, MI</td>
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<tr>
<td>Mount Sinai Hospital, New York, NY</td>
<td>Fellowship</td>
<td>06/2018</td>
<td>Palliative Medicine</td>
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Personal Statement

I am an Assistant Professor at Mount Sinai in the Department of Geriatrics and Palliative Medicine. My overarching career goal is to be an independent clinician-investigator improving palliative care models for seriously ill older adults with functional disability. I am interested in older adults with functional disability as they have high levels of symptom and support needs, are at risk for high-cost and potentially burdensome medical care, and yet are often left out of disease-based models of palliative care. My proposed research utilizes existing data sets to identify the trajectories of utilization and potential opportunities to improve the quality of care for high-risk older adults with functional decline.

Through training during a MPH at the Harvard School of Public Health and a two-year fellowship in the Robert Wood Johnson Clinical Scholars Program at the University of Michigan, I have developed a foundation in both quantitative research methods and health policy. My specific methodology interests are in longitudinal analysis techniques, in particular multi-level modeling and applications of latent class analysis such as trajectory. I have first-authored nine publications in the field of geriatrics and palliative medicine, three of which have relied on existing data from the NIA-funded Medicare-linked National Health Aging Trends Study (NHATS) and Health and Retirement Study (HRS), referenced below. With the support of the National Palliative Care Research Center, over the next two years I will continue to build my analytic and policy skills and submit for a NIH K-award.

The following publications specifically highlight my experience to date in work on outcomes after functional disability for older adults and their caregivers:


A. Positions and Honors

Employment

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<td>2017-2018</td>
<td>Fellow, Brookdale Department of Geriatrics &amp; Palliative Medicine, Icahn School of Medicine at Mount Sinai (ISMMS)</td>
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<tr>
<td>2018-present</td>
<td>Assistant Professor, Brookdale Department of Geriatrics &amp; Palliative Medicine, ISMMS</td>
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Awards and Honors
2008    UVM College of Medicine First Year Research Award
2011    Issue Editor, AMA Virtual Mentor Ethics Journal
2012    John P. Fogarty Award for Leadership in Family Medicine
2015    Robert A. Graham Center Visiting Scholar
2017    AAHPM Research Scholar
2018    National Palliative Care Research Center Junior Investigator Award

Professional Societies and Public Advisory Committees
2012-present  Member, American Academy of Family Practice
2014-present  Member, American Academy of Hospice and Palliative Medicine (AAHPM)
2017-present  Member, American Geriatrics Society
2018-present  Chair, Early Investigator Forum, AAHPM
2018-present  Chair-elect, Primary Care Interest Group, AAHPM

C. Contributions to Science
My work has focused on the quality and care delivery for older adults with serious illness and functional
disability and their caregivers.  My primary scientific contributions have centered on the 4 following themes.

1. Caregiving patterns and outcomes after functional disability
I have used the Health and Retirement Study (HRS) and the National Health and Aging Study (NHATS) linked
to Medicare data to assess both caregiving patterns and overall outcomes after functional disability.  Under the
mentorship of Ken Langa and Deborah Levine at the University of Michigan and Amy Kelley at Mount Sinai, my
work has demonstrated the large burden of caregiving, as well as mortality and symptoms such as pain, after
functional decline.  I have demonstrated that there are disparities in receipt of caregiving based on
sociodemographic factors, as well as obesity, which has major implications for quality of care.  Finally, I have
demonstrated that caregiver factors such as fatigue and sadness are linked to higher patient healthcare
utilization and Emergency Department use.

a. Ankuda CK, Levine DA.  Trends in Caregiving Assistance for Home-Dwelling, Functionally Impaired

b. Ankuda CK, Harris J, Ornstein K, Levine SA, Langa KM, Kelley AS.  Caregiving for older adults with

c. Ankuda CK, Maust DT, Kabeto MU, McCammon RJ, Langa KM, Levine DA.  The association of

d. Ankuda CK, Levine DA, Ornstein KA, Langa KM, Kelley AS. Caregiving, recovery, and death after

2. Palliative care involvement in primary care
As a family physician, I am committed to improving serious illness care for the broad population of older adults
who are most commonly cared for by primary care physicians.  One focus of my work has been the
involvement of primary care physicians in palliative care and care at the end of life.  This work has been
conducted through close collaborations with the Robert Graham Center, which is the health services research
center of the American Academy of Family Physicians.  We have demonstrated that family physicians see
themselves as delivering palliative care and that in regions where primary care physicians are more involved in
the end of life there is less intensive medical care in the last 6 months of life.


b. Ankuda CK, Klink K, Petterson S, Wingrove P, Bazemore A.  Regional variation in primary care

3. Home-based palliative care
According to the recent Institute of Medicine report, Dying in America, access to palliative care in the home and
community is critical to the vision of comprehensive care for serious illness.  Given my focus of palliative care
for the general primary care population with functional decline, I am particularly interested in the specific needs
of patients in home-based primary care and how they may differ from patients in hospital-based palliative care
programs.  To this end, I collaborated with the Hospice of Michigan to conduct a mixed-methods study of their
home-based palliative program, At Home Support, to identify critical elements of the program. This work was funded by a Blue Cross Blue Shield of Michigan Clinician Investigator Award and was presented at multiple national research meetings as well as for the Medicare Palliative Care Affinity Group.


4. Hospice policy
The Medicare hospice benefit is the largest funding program for palliative care services and a critical mechanism for providing high-quality care at the end of life. Understanding the hospice benefit provides critical lessons for serious illness payment policy. My mentor Joan Teno and I conducted a study of the role of physician specialty in hospice referral, demonstrating increasing referrals for hospitalists which has implication for regional variation in hospice use. I have also partnered with colleagues at the Hospice of Michigan to explore how patient full code status influences hospice length of stay and live discharge rates.


Complete list of Published Work in MyBibliography:

D. Research Support

**Ongoing Research Support:**

NPCRC Junior Investigator Award (Ankuda)     07/01/2018-06/30/2020

*Patterns and Trajectories of Potentially Burdensome Utilization After Functional Disability*
This project will utilize large Medicare-linked survey databases to assess health care utilization trajectories after the onset of functional disability in older adults. The goals of the project are to describe the household factors associated with higher-expenditure and potentially high-burden trajectories of health care use.

Empire Clinical Research Investigator Program (Federman)     12/1/2017-11/30/2019

*ECRIP Center to Advance Care for Vulnerable Populations Through the Home*
This fellow training program provides support and mentorship to my research work on improving outcomes for high risk older adults with functional disability and serious illness.

Role: Fellow

5P30AG028741-07 (Ankuda )     08/01/2018-04/30/2019

*Claude D. Pepper Older Americans Independence Center at the Icahn School of Medicine at Mount Sinai*
This study utilizes the National Health and Aging Trends Study (NHATS) data linked to Medicare claims data to assess a range of claims-based measures of burdensome utilization after functional disability.

**Completed Research Support:**

Blue Cross Blue Shield of Michigan Foundation     Ankuda (PI)     07/01/2016-06/30/2017

*What Matters Most? Identifying Key Elements of a Home-Based Palliative Program in Michigan*
This award provided support for a mixed methods study of individuals and their caregivers in a home-based palliative care program in the Detroit region. The goals of the project were to identify the critical palliative care elements of the program. We identified four distinct program elements: medical support, social services, spiritual and emotional support and functional assistance, each with unique drivers of importance.

Harvard Translational Research in Aging Training Program     Mitchell (PI)     06/01/2011-08/30/2011

Under the mentorship of Dr. Susan Mitchell, I received support through this T32 funded program to investigate family involvement in decision making around infection treatment in nursing-home dwelling patients with advanced dementia.
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: Casillas, Alejandra

eRA COMMONS USER NAME: ACASILLAS

POSITION TITLE: Assistant Professor of Medicine in Residence

EDUCATION/TRAINING

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<td>Harvard College, Cambridge MA.</td>
<td>A.B.</td>
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<td>Harvard Medical School, Boston MA.</td>
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<td>06/2005</td>
<td>Medicine</td>
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<td>University of California San Francisco, San Francisco CA.</td>
<td>M.D.</td>
<td>06/2009</td>
<td>Internal Medicine Primary Care</td>
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<tr>
<td>University of California Los Angeles (UCLA) Fielding School of Public Health, Los Angeles CA.</td>
<td>M.S.</td>
<td>06/2011</td>
<td>Health Services</td>
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<tr>
<td>Robert Wood Johnson Clinical Scholars Fellowship at UCLA, Los Angeles CA.</td>
<td></td>
<td>07/2012</td>
<td>Community-Partnered Research Health Policy</td>
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A. Personal Statement

I am a primary care physician and health services researcher with a commitment to improving the quality of health care, and health services access for minority and immigrant populations in the United States. My training includes a Primary Care Internal Medicine residency at UCSF, a chief resident year at the UCSF Medical Center, the Robert Wood Johnson Clinical Scholars Fellowship at UCLA, and an MS in Health Services at the UCLA Fielding School of Public Health. From 2012-2016, my husband’s physics postdoctoral fellowship took my family to Switzerland, where I led research studies at the university hospitals in Geneva and Lausanne to help the Swiss Office of Public Health respond to the immigrant refugee crisis in Europe. My work in Switzerland largely focused on immigrant women’s health and the provision of “culturally-competent” (“culturally-sensitive”) care in Swiss health institutions. I returned to the United States in August 2016 to join the faculty at UCLA in the division of general internal medicine and health services. I returned in large part to be of service to my community again, having been raised in a low-income immigrant neighborhood of Los Angeles. My current projects are in partnership with the Los Angeles County Department of Health Services, where we are working to improve the deployment of bilingual, patient-centered digital health tools in the safety net for older and Limited English Proficient adults (LEP) with chronic disease, and better address the social determinants of health in the primary care county clinic setting in older vulnerable populations.


cultural skillfulness in a cross-sectional study. BMC Medical Education. February 2014.


B. Positions and Honors

Positions and Employment

2005-2006 Intern in Medicine, University of California Affiliated Hospitals, San Francisco, CA
2006-2008 Resident in Medicine, University of California Affiliated Hospitals, San Francisco, CA
2008-2009 Chief Resident in Medicine, University of California San Francisco Medical Center, San Francisco, CA
2009-2012 Fellow, Robert Wood Johnson Clinical Scholars Program, University of California Los Angeles
2012-2016 Senior Research Physician, Geneva University Hospitals, Geneva, Switzerland
2012-2013 Research associate, Institute of social and preventative medicine, Lausanne, Switzerland
2012-2015 Research associate, University of Lausanne Hospital, Lausanne, Switzerland
2016-present Assistant Professor, UCLA Division of General Internal Medicine, Department of Medicine, Los Angeles, CA

Honors

1997 NIH Student Fellow Award, Harbor-UCLA Medical Center Research and Education Institute
1997-2001 Radcliffe College Elizabeth C. Agassiz Certificate of Merit
1997-2001 Harvard College Dean’s List
1997-2001 Robert C. Byrd Honors Scholar
2001 Harvard College Magna Cum Laude in Neurobiology
2003 National Academy of Achievement Student Delegate
2003 CV Starr Scholar
2003 Paul and Daisy Soros Fellowship for New Americans
2003 Association of University Women Scholar
2003 Harvard Medical School Dean’s Community Service Award
2003 National Medical Fellowships Inc. Scholarship
2005 Massachusetts Medical Society Scholar
2009 NIH Loan Repayment Program Award
2010 Academy-Health Minority Scholar
2010 Best Research Abstract Poster Award, California Region SGIM Meeting
2016 HRSA, Faculty Loan Repayment Award

C. Contributions to Science

1. Cervical cancer affects minority populations at a higher rate, particularly Latina women in Los Angeles. With the advent of a new vaccine to prevent this fatal disease, I partnered with the Los Angeles County Office of Women’s Health and used their Human Papillomavirus (HPV) vaccine survey data to examine the relationship between sources of information and perceived effectiveness of the HPV vaccine among minority women. These findings led to another partnership with a medical foundation at the state level (California Medical Association Foundation, CMAF). As my main fellowship project, I helped to create a cervical cancer ethnic media campaign for California Latinas, working with multiple community partners and ethnic media in Los Angeles, who focused on Latina health. I developed this work into a full-fledged qualitative analysis to describe a framework for understanding the process of health reporting being used by Latino ethnic-media in the Los Angeles market. Our recommendations were presented as an oral presentation at the 2011 meeting for the American Public Health Association, and shared with health-
communication policy experts at CMAF, to develop tools that allow ethnic-media to deliver more effective and timely health news.


2. In addition to the work described above, I have an interest in addressing the stigma of mental health in immigrant populations. This body of work began at UCSF during my residency, where I conducted a secondary data analysis using data from the Multi-Ethnic Study of Atherosclerosis (MESA) and examined self-reported mental health outcomes between foreign and native born Latinos in the United States. Our research “debunked” the traditional dogma that immigrant Latinos are “protected” from mental health pathology when compared to the US-born. We found that immigrant Latinos reported equal or even higher levels of depression, anxiety, and anger symptoms compared to native-born Latinos in the United States. In Switzerland, I continued to address mental health among immigrants within the Swiss prison medicine system (where immigrants make up a large percentage of those detained). I worked on projects that addressed addiction, psychiatric disease burden and the evaluation of quality of care and harm reduction programs that responded to these prevalent mental health issues in the prison setting.


3. I also have an interest in chronic disease and management initiatives that emphasize patient-centered care. In Switzerland, I spent time leading analyses from a cross-sectional population-based study using self-reported data from adult diabetics, recruited from randomly selected community pharmacies. In this project, we focused on quality of care and quality of life outcomes among diabetics.


Complete List of Published Work in MyBibliography:
D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research

P30-AG021684 (PI: Carol Mangione) 07/01/17-6/30/18
NIH/NIA
Role: Pilot Investigator
First warning signs for cognitive decline: Self-reported memory problems and neuro-cognitive testing among middle-aged and older adults across race/ethnicity in the National Health and Nutrition Examination Survey (NHANES) and the Multi-Ethnic Study of Atherosclerosis (MESA)
The goal of this project is to: 1) use NHANES data to examine trends in self-reported memory problems by race/ethnicity, between 1999 and 2014, adjusting for demographic, clinical, and contextual (social + neighborhood) characteristics 1a) Among Latinos, to investigate the effect of nativity and acculturation on memory problems 2) To examine the correlation between self-reported memory problems and a neuro-cognitive test in NHANES and whether these associations differ by race/ethnicity 3) To examine the association of race/ethnicity with a neuro-cognitive test measure in the Multi-Ethnic Study of Atherosclerosis (MESA), and compare these findings to NHANES, examining the 10-year period difference in these associations

ULITR001881 (PI: Dubinett) 07/01/17-6/30/18
NIH/NCATS
Role: Pilot Investigator
First warning signs for cognitive decline: Self-reported memory problems and neuro-cognitive testing among middle-aged and older adults across race/ethnicity in the National Health and Nutrition Examination Survey (NHANES) and the Multi-Ethnic Study of Atherosclerosis (MESA)
The goal of this project is to: 1) use NHANES data to examine trends in self-reported memory problems by race/ethnicity, between 1999 and 2014, adjusting for demographic, clinical, and contextual (social + neighborhood) characteristics 1a) Among Latinos, to investigate the effect of nativity and acculturation on memory problems 2) To examine the correlation between self-reported memory problems and a neuro-cognitive test in NHANES and whether these associations differ by race/ethnicity 3) To examine the association of race/ethnicity with a neuro-cognitive test measure in the Multi-Ethnic Study of Atherosclerosis (MESA), and compare these findings to NHANES, examining the 10-year period difference in these associations

Centinela Valley Foundation (Harbor-UCLA grant) 11/30/2016-present
Role: Co-Investigator
Portals of change- A meaningful electronic health record portal for Limited English Proficient patients
Patient portals can improve quality, efficiency, and patient-centeredness of care. It is imperative that vulnerable minority communities experience a meaningful use of a patient portal, or we face the risk of widening existing health care gaps. This study will help us 1) assess and change the portal to best meet patient/staff/provider needs, 2) develop and evaluate innovative tools to facilitate its use, and 3) provide the above two services proficiently for Limited English Proficient patients. If done effectively, the LA County patient portal will be an innovative model for other systems serving diverse patients.

1R01MD006185-01A1 (PI: Morales) 01/04/2012-01/31/2016
NIHMD
Role: Co-investigator
Disparities in Chronic Illness Care for Patients with Language Barriers
This project was conducted at the Group Health Cooperative (GHC), a large, non-profit integrated health system in the Pacific Northwest with a long history of innovative health services research. Data for the study was collected from Group Health's electronic health systems, and by surveys in Chinese, Korean, Spanish,
Vietnamese, and English. Using data from this completed study, I am working to examine the effect of the GHC Internet refill system ("electronic patient portal") on medication adherence, and compare this association between Limited English Proficient and English Proficient patients.

**Completed Research Support**

Robert Wood Johnson Clinical Scholars Fellowship 07/01/2009-06/01/2012  
Role: Principal Investigator  
**Cultural Predictors of HPV Awareness, Attitudes and Vaccine Decision-Making: A telephone survey of Low-income, Minority Women in Los Angeles County**  
During my fellowship in the Robert Wood Johnson Clinical Scholars Program, I partnered with the Office of Women’s Health (OWH) in the Los Angeles Department of Public Health to help characterize the relationship between cultural variables (known to predict cervical cancer) and HPV knowledge and vaccine acceptability. We obtained information from low-income, minority women in LA County about the following topics: HPV infection knowledge; HPV vaccine awareness and place where respondent heard about vaccine (MD office vs. TV vs. radio, etc.); How the respondent makes decisions about whether to vaccinate a daughter against HPV (physician, vs. family and social network). This led to my primary analysis about social communication about the HPV vaccine and perceived vaccine effectiveness.

Robert Wood Johnson Clinical Scholars Fellowship 07/01/2009-06/01/2012  
Role: Principal Investigator  
**California Medical Association (CMA) Foundation, Cervical Cancer and HPV Project: A Partnership with Latino Ethnic Media to empower the community health messengers**  
Our project in Los Angeles included two components- outreach and trainings for LA health providers about messaging for cervical cancer prevention, and a partnership with Latino ethnic media to reach the Latina community throughout LA County about cervical cancer prevention. The CMA Foundation team integrated ethnic media journalists (with the help of our media partner- New America Media) into the LA Latina outreach project through small stipend-fellowships aimed at producing stories about cervical cancer in their communities. Key stakeholder roundtable meetings in December 2010 were a basis of introduction, identification of communication-related gaps, and discussion of story ideas and ways to integrate ethnic media into outreach activities. This project formed qualitative study that we conducted with individual Latino journalists about media messaging about health in the LA Latino community.
NAME: Goyal, Parag

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

POSITION TITLE: Assistant Professor of Medicine, Department 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>B.A.</td>
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<td>Psychological &amp; Brain Sciences</td>
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A. Personal Statement

I am a board-certified internist and cardiologist with advanced training in heart failure and cardiac transplantation, and a particular interest in caring for older adults. Already a member of the Geriatric Cardiology community, I seek to establish myself as a clinician-investigator and leader in this emerging discipline.

As an Assistant Professor of Medicine, I am working to grow my research program which focuses on characterizing potentially harmful medication prescribing patterns among older adults with heart failure, and developing strategies to combat issues like polypharmacy and the use of potentially-inappropriate medications. Toward this end, I am currently funded by the National Institute on Aging through an R03 known as the Grants for Early Medical/Surgical Specialists’ Transition to Aging Research (GEMSSTAR) to examine the impact of medication prescribing patterns on post-hospitalization outcomes among older adults with heart failure. I am also funded by the American Heart Association to study the potential harms of initiating neurohormonal antagonists among older adults following a hospitalization for heart failure. I have also received funding from the Fan Fox & Leslie R. Samuels Foundation, which has supported the founding and ongoing operational activities of a new Heart Failure with Preserved Ejection Fraction Program at Weill Cornell Medicine, a program that provides state-of-the-art cardiovascular care adapted to the unique needs
of older adults in whom geriatric conditions like frailty and cognitive impairment are common; our program is particularly focused on facilitating shared-decision making and has also engaged in deprescribing to promote and ensure patient-centered care for this especially vulnerable population.

B. Positions and Honors

Positions and Employment
- **2011-2012**: Housestaff President, Department of Medicine, Weill Cornell Medicine
  New York Presbyterian Hospital, New York, NY
- **2015-2016**: Chief Fellow, Cardiovascular Medicine, Weill Cornell Medicine
  New York Presbyterian Hospital, New York, NY
- **2017-**: Assistant Professor of Medicine, Weill Cornell Medicine, New York, NY
- **2018-**: Founding Director, Heart Failure with Preserved Ejection Fraction Program,
  Weill Cornell Medicine, New York Presbyterian Hospital, New York, NY

Other Experience and Professional Memberships
- **2013-**: Member, American Heart Association
- **2015-2017**: Fellow-in-Training Representative, Geriatric Cardiology Section Leadership Council
  American College of Cardiology
- **2017-**: Member, Heart Failure Society of America
- **2017-**: Member, American Geriatrics Society
- **2017-**: Chair, Early Career Professionals/Fellows-in-Training Working Group,
  Geriatric Cardiology Section, American College of Cardiology
- **2018-**: Member, Cornell Center for Health Equity Study Section
- **2018-**: Assistant Editor, ACC.org (Geriatric Cardiology Section)
- **2018-**: Trials Innovation Network Core Member, Weill Cornell Clinical & Translational Science Center
- **2018-**: Fellow, American College of Cardiology

Honors
- **2010**: Alpha Omega Alpha, University of Massachusetts School of Medicine Chapter
- **2011**: Young Investigators’ Competition Finalist, American College of Cardiology New York State Chapter
- **2013**: David B. Skinner Leadership Award, Department of Medicine, Weill Cornell Medicine
- **2013**: David E. Rogers Memorial Research Award, Department of Medicine, Weill Cornell Medicine
- **2015**: Quality Improvement and Patient Safety Award, Department of Medicine, Weill Cornell Medicine
- **2015**: Young Investigators’ Competition Finalist, American College of Cardiology New York State Chapter
- **2016**: Glorney-Raisbeck Fellowship Award in Cardiovascular Diseases, New York Academy of Medicine
- **2017**: Travel Award for “Pharmacotherapy in Older Adults with Cardiovascular Disease” Workshop,
  American College of Cardiology
- **2018**: Invited Participant for “Measuring Multimorbidity: Matching the Instrument and the Purpose” Workshop,
  National Institutes of Health
- **2018**: Invited Speaker for “Diagnostic Testing in Older Adults with CVD: Choosing Wisely” Workshop,
  American College of Cardiology
- **2018**: Loan Repayment Plan Award Recipient, National Institutes of Health
- **2018**: Travel Award for 2018 Beeson Annual Meeting, American Federation for Aging Research

C. Contribution to Science

1. Older adults with heart failure take a high number of medications, a condition known as polypharmacy.
   Polypharmacy is associated with a number of adverse outcomes, especially among older adults, but is poorly described among those with heart failure. To better characterize potentially-harmful medication patterns among older adults with heart failure, I have examined nationally-representative data of older adults with heart failure from the “National Health and Nutrition Examination Survey” (ambulatory patients).
and also from a subset of the Reasons for Geographic and Racial Differences in Stroke study (hospitalized patients) that I developed under the auspices of my GEMSSTAR (R03) award.


b. Kneifati-Hayek J, Kennel P, Bryan J, Safford MM, **Goyal P**. “Use of Heart Failure Exacerbating Medications Among Adults with Heart Failure.” Journal of Cardiac Failure (under review)

2. Older adults with heart failure have particularly poor outcomes following hospitalization. To identify potential opportunities to improve post-hospitalization outcomes, I have examined Medicare data, assembled a retrospective cohort based on local chart review at Weill Cornell, and conducted a prospective cohort which was supported by funding from the New York Academy of Medicine.

a. **Goyal P**, Loop M, Chen L, Brown TM, Durant RW, Safford MM, Levitan EB. “Causes and Temporal Patterns of 30-day Readmission Among Older Adults Hospitalized with Heart Failure.” *Journal of the American Heart Association*, 7 (9), 2018

b. Salata BM, Sterling M, Beecy AN, Ullal AV, Jones EC, Horn EM, **Goyal P**. “Discharge Processes and 30-day Readmission Rates of Patients Hospitalized for Heart Failure on General Medicine and Cardiology Services.” *American Journal of Cardiology*, 121(9):1076-1080, 2018


3. Heart failure with preserved ejection fraction represents a subtype of heart failure in which the pathophysiology and treatment are not well understood. To date, no single therapy has yet to demonstrate a consistent mortality benefit in this condition, an observation that may be related to its phenotypic heterogeneity. To address this issue, I investigated potential sources of heterogeneity and identified unique phenotypes of heart failure with preserved ejection fraction by examining a large all-payer nationally representative database.


4. Management of older adults with cardiovascular disease is complex, given the presence of multimorbidity, polypharmacy, and other geriatric conditions (e.g. frailty, cognitive impairment). I have collaborated with some of the pre-eminent leaders in Geriatric Cardiology to summarize some of the important diagnostic and therapeutic challenges of caring for older adults.


Complete List of Published Work in MyBibliography can be viewed here: http://www.ncbi.nlm.nih.gov/sites/myncbi/1XIPh8eRTQk5/bibliography/41412457/public/?sort=date&direction=descending

D. Additional Information: Research Support and/or Scholastic Performance

**Ongoing Research Support**

- **AHA 18IPA34170185**  
  Goyal (PI)  
  07/01/18 – 06/30/20  
  American Heart Association, Innovative Project Award  
  Title: Safety of Neurohormonal Antagonist Initiation Among Older Adults Following a Heart Failure Hospitalization  
  The goal of this study is to examine the association between initiating neurohormonal antagonists following a heart failure hospitalization and adverse post-hospitalization outcomes including mortality and readmission. Role: PI

- **Foundation Grant**  
  Goyal (PI)  
  07/01/18 – 06/30/20  
  Fan Fox & Leslie R. Samuels Foundation  
  Title: Heart Failure Preserved Ejection Fraction Program for the Aging  
  The goal of this study is to develop a new clinical program and research infrastructure to provide dedicated subspecialty care to older adults with heart failure with preserved ejection fraction (HFpEF). Role: PI

- **1U01HL130163-02**  
  Solomon (PI)  
  02/01/17 – 01/31/21  
  NHLBI  
  Title: INfluenza Vaccine to Effectively Stop Cardio Thoracic Events and Decompensated Heart Failure (INVESTED)  
  The goal of this study is to examine whether a high dose influenza vaccine can reduce cardiovascular events. Role: Site PI

- **1U01HL125511-02**  
  Velazquez (PI)  
  08/15/17 – 07/31/22  
  NHLBI  
  Title: ToRsemide compArison With furoSemide FORManagement of Heart Failure (TRANSFORM-HF)  
  The goal of this study is to compare torsemide versus furosemide as treatment for heart failure. Role: Site PI

- **R03AG056446-02**  
  Goyal (PI)  
  07/15/17 – 05/31/19  
  NIA  
  Title: Impact of Polypharmacy on Rehospitalization in Older Adults with Heart Failure  
  The goal of this study is to examine the association between polypharmacy and 30-day rehospitalization among older adults following a hospitalization for heart failure. Role: PI

- **Internal Funding**  
  Goyal (PI)  
  07/01/17-06/30/19  
  Weill Cornell Medicine, Department of Medicine  
  Title: Harmful Medication Patterns of Older Adults Hospitalized for Heart Failure  
  Major Goals: Characterization of harmful medication patterns (including potentially inappropriate medication use) among older adults with heart failure prior to, during, and following a hospitalization for heart failure. Role: PI

**Completed Research Support**

- **Delivery System Reform Incentive**  
  Goyal (PI)  
  09/01/17 – 04/01/18  
  New York Presbyterian Hospital  
  Title: Delivery System Reform Incentive Payments (DSRIP) Hospital Readmissions Project  
  The goal of this study is to develop interventions to reduce hospital readmissions for “high utilizers” with heart failure.
Role: PI

Foundation Grant  Goyal (PI)  07/01/16 – 06/30/17
New York Academy of Medicine
Title: Patient Identified Contributors to Readmission Among Older Adults with Heart Failure
The goal of this study is to identify patient-reported contributors to readmissions among older adults with heart failure.
Role: PI
NAME: Parker-Autry, Candace Y.
eRA COMMONS USER NAME (credential, e.g., agency login): CPARKERA
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.)

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<td>North Carolina Wesleyan College, Rocky Mount, NC</td>
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<td>Clinical Research Training Program, NIH</td>
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<tr>
<td>Wake Forest School of Medicine</td>
<td>MD</td>
<td>06/2006</td>
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<td>06/2010</td>
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<td>University of Alabama at Birmingham, Birmingham, AL</td>
<td>Fellow</td>
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A. Personal Statement
As a specialist in Female Pelvic Medicine and Reconstructive Surgery, I care for women with urinary incontinence (UI) and provide non-surgical and surgical treatment to decrease its debilitating impact on the physical and mental health of my patients. Urinary incontinence is the most common pelvic floor condition in women. Throughout my career, research training has been an integral component of my professional development. Through the intramural, translational, and clinical research training I obtained through the NIH, I secured skills in executing laboratory science, methodology in research design and implementation, team science, and national presentations. In addition, 12 months of my 3 year fellowship was spent solidifying my clinical research training through a CTSI clinical research certificate program. As a fellow, I participated in the implementation of NIH funded network trials and designed and implemented self-initiated clinical trials under the mentorship of Holly Richter, PhD, MD. As an Assistant Professor at Wake Forest, I have aligned with the institutional focus on cancer research. I plan to utilize my prior training in translational and clinical research to explore the relationship between UI and adjuvant radiation therapy used for the treatment of endometrial cancer. As a clinician investigator, my clinics are my laboratory and my patients provide me with the clinically relevant questions that will occupy my academic career developing novel and impactful therapeutic options through a multi-disciplinary approach.

B. Research Training/Positions/Honors
Research Training
2000-2002 Summer Intramural Research Training Program Pulmonary Critical Care Medicine Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD PI: Bernadette Gochuico, MD
Translational research utilizing bronchoalveolar lavage fluid obtained from patients with rheumatoid arthritis with and without pulmonary fibrosis to investigate potential therapeutic targets. I performed DNA/RNA isolation/purification, PCR, ELISA and Western Blot procedures to assist with this project. I was awarded the American Thoracic Society’s International Conference Minority Research Award and presented the research at this national meeting in 2002.

The National Institutes of Health (NIH) Medical Research Scholars Program (MRSP) formally known as the Clinical Research Training Program is a competitive, comprehensive, year-long research training program. I completed a translational research project investigating activation patterns of TGF-β signaling pathway in
stimulating extracellular matrix components important in uterine fibroid development to identify a therapeutic
target to decrease the inflammatory process. Coursework completed during that year included:
• Lectures on basic science, translational and clinical research topics that highlight the continuum of
discovery, as well as issues in bioethics, science policy and emerging technologies Training in the conduct
of human subjects research
• Clinical teaching rounds focusing on NIH research patients
• NIH Clinical Center courses such as "Introduction to the Principles and Practice of Clinical Research,"
"Ethical and Regulatory Aspects of Clinical Research," and “Writing and Publishing a Scientific Paper”

1/2012-6/2012  Clinical and Translational Research Training Certificate Program
Center for Clinical and Translational Science, University of Alabama at Birmingham
This 6 month intensive research training program provided didactic lectures on critical research topics and
techniques in addition to providing grant preparation and critique sessions. Specific pertinent course work
completed:
• Clinical Trials: Phase 1 & II clinical trials, Phase III clinical trials, post-marketing studies/recruitment and
retention principles,
• Epidemiology: Epidemiologic study design: Principles and examples, Case control studies, Cohort studies,
• Biostatistics: Design of clinical trials outcome measurements DSMB and options, Statistical analysis I,
• Statistical analysis II,
• Ethics: Role of PI in Clinical Research: Ethical Issues and Potential Conflicts, IRB orientation
• Outcomes Research: Health Services Research, Cost-effectiveness and medical decision making
• Behavioral Research: Survey development, Community based research
• Research Presentations of concepts
• Clinical Genetics Research: Overview of Genetics and Genomics, Gene Identification, Genetics of common
disorders, personalized medicine
• Dissemination of results: Transmission of research findings, Abstracts for applications, conferences,
manuscripts, Critical review of the literature
• Grant Writing and Funding Opportunities: NIH grant review (mock review session), A tour through an RO1

8/2010-12/2010  Biostatistics 611 – Graduate level biostatistics course at the University of Alabama
at Birmingham, Birmingham Alabama.

2/2011-7/2012  EXXCELLENCE in Clinical Research Course, The Foundation for EXXCELLENCE in
Women’s Health Research, Henderson, NV
A six-day course intensive course with mixture of didactic sessions, independent reading, group work, and
class discussion targeting the major types of epidemiologic studies, clinical research methods, and data
analysis taught since 1987 by the expert and engaging team of Drs. David Grimes and Kenneth Schulz.

Positions and Employment

2017-    Section Head, Female Pelvic Medicine and Reconstructive Surgery
2013 -    Assistant Professor, Wake Forest School of Medicine, Department of Obstetrics and
Gynecology, Winston-Salem, NC
2014 -    Course Director, Urogynecology, Year 4 Clerkship, Wake Forest School of Medicine, Winston-
Salem, NC
2014 - 2016  Liaison Committee on Medical Education Task Force Subcommittee, Wake Forest School of
Medicine, Winston-Salem, NC
2015 -    OB/GYN Faculty Representative (Elected), Faculty Representative Council, Wake Forest
Baptist Health, Winston-Salem, NC
2015 -    Intramural Research Support Committee, Wake Forest School of Medicine, Winston-Salem,
NC
2015 - 2016  Course Co-Director, Year 2 Medical Student Reproductive Health Block, Wake Forest School
of Medicine, Winston-Salem, NC
Other Experience and Professional Memberships

Member, Association of Professors of Gynecology and Obstetrics
Member, Society for Gynecologic Surgeons
Member, American Urogynecologic Society
Member, American College of Obstetrics and Gynecology
Member, International Urogynecology Association

Honors

1997 Omicron Delta Kappa Honors Circle, The National Leadership Honor Society
1997 GlaxoSmithKline Women in Science Scholarship, Glaxo Foundation
1997 North Carolina Wesleyan College President Scholar, Wesleyan College
1997 Phi Eta Sigma Honor Society, National Honor Society
1997 Black Women in Sisterhood for Action Scholar, BISA
2001 American Thoracic Society International Conference Minority Research Award, American Thoracic Society
2001 National Medical Fellowship Award, National Medical Fellowship
2008 American Urogynecologic Society's Resident Scholar Award, American Urogynecologic Society
2015 Research Career Development Core Junior Faculty Scholar, Claude D. Pepper Center for Older Americans Independence Center, Wake Forest School of Medicine
2015 Butler-Williams Scholars Program in Aging, National Institute on Aging, National Institutes of Health, Bethesda, MD
2016 Center for Translational Science Scholar, Wake Forest School of Medicine

C. Contribution to Science

1. Exploring the effect of vitamin D nutritional status on urinary and anal incontinence: As a Fellow in Female Pelvic Medicine and Reconstructive Surgery (2010-2013), my interest in how diet impacts pelvic floor function was stimulated by a NHANES cohort study that revealed that pelvic floor conditions were associated with lower levels of vitamin D. Vitamin D nutritional status was reaching its peak in importance in 2010-2014 as a recent Institute of Medicine focus revealed the pandemic of insufficient and deficient vitamin D and its potential impact on musculoskeletal and overall health. Urinary and anal incontinence are the most common pelvic floor conditions related directly to musculoskeletal health for which vitamin D and calcium homeostasis is important. Working under the mentorship of Dr. Richter (Urogynecology) and Dr. Markland (Geriatrician), we conducted multiple retrospective cohort studies of women seeking care for a pelvic floor conditions. Our data revealed that vitamin D insufficiency was present in 51% of our clinic population and women with insufficient vitamin D had more severe impact of their urinary incontinence on their quality of life in addition had more episodes of fecal incontinence.


2. Exploring the impact of urinary and bowel incontinence on changes in physical performance in older women: As an Assistant Professor in Fellow in Female Pelvic Medicine and Reconstructive Surgery (2013-current), I aligned with our Claude D. Pepper Center on Health Aging to begin to explore the inter-relationship between urinary incontinence, bowel incontinence, and physical function and skeletal muscle
strength and function. I have conducted two retrospective cohort studies using the Health, Aging, and Body Composition participants to prospectively evaluate this relationship. The first study investigated the impact of developing urinary incontinence on changes in physical function and the development of sarcopenia. This study revealed a noteworthy observation that physical performance (as determined by the short physical performance battery) and standing balance time declined significantly in older women who developed urinary incontinence symptoms over time. In addition, this association may be impacted by the higher chance of developing sarcopenia alongside developing urinary incontinence. The second study included older women and men with baseline bowel incontinence and followed the changes in physical performance over time. Similar to those with urinary incontinence, a greater decline in function, balance, and chair stand speed was observed in adults with bowel incontinence over time compared to their peers without bowel incontinence. This research is funded by a GEMSSTAR R03 and support from the Wake Forest Claude D. Pepper Center on Healthy Aging.


3. Characterizing perioperative bowel function and the role of pre-operative bowel preparation in vaginal reconstructive surgery: Perioperative bowel function is a source of anxiety for women as they prepare for definitive correction of pelvic floor anatomic reconstruction for pelvic organ prolapse. In addition, surgeons assumed that bowel preparation was needed to prevent intra-operative stooling. There was little guidance for surgeons regarding pre- or post-operative counseling for patients. We conducted a single-blind randomized controlled trial of mechanical bowel preparation. Our findings suggested that intra-operative assessment of the rectum did not differ based on randomization assignment. In addition, bowel preparation was associated with greater abdominal cramping, hunger, cramping, and fatigue preoperatively, thus resulting in less perioperative satisfaction. This data supports that pre-operative bowel preparation is not necessary.


Bibliography:


D. Additional Information: Research Support and/or Scholastic Performance

On Going Research Support:

12/2016 – Current Exploring the Role of Functional Impairment and Sarcopenia on the Non-Surgical Management of Urinary Incontinence in Older Women
1 RO3 AG056460-01 PI: Parker-Autry GRS #44988
BIOGRAPHICAL SKETCH

NAME: Presley, Carolyn J. MD MHS

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

POSITION TITLE: Assistant Professor of Medicine (Section of Medical Oncology)

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
Large knowledge gaps exist in patient-centered decision-making, treatment outcomes, and functional assessment of older adult oncology patients. There is a clear and obvious need for research designed to improve the care and outcomes of our growing population of older adults with cancer as the geriatric population is the fastest growing cancer demographic in the United States. I created the first ABIM-approved geriatric oncology fellowship curriculum at Yale, which I completed in June of 2016. In June of 2017, I completed a Masters in Health Sciences degree at Yale University within the Robert Wood Johnson Clinical Scholars Program sponsored by the VA Connecticut Healthcare System. With this final degree program in the RWJ CSP, I completed coursework and research training in biostatistics, epidemiology, research ethics, and outcomes research, while serving as an Instructor in the Division of Medical Oncology/Department of Internal Medicine at the Yale School of Medicine. As of 9/01/2017, I am an Assistant Professor in the Division of Medical Oncology/Department of Internal Medicine at The Ohio State University Comprehensive Cancer Center and The James Cancer Hospital/Solove Research Institute. I am a thoracic and geriatric oncologist, specializing in the care of older adults with lung cancer.

My goal is to become an independent clinician-researcher combining both excellent patient care and translational research to advance the care of older adults with lung cancer. My main research objectives are to optimize functional status and minimize treatment burden of older adults with lung cancer using geriatric assessment-directed interventions, integrated geriatric onco-palliative care delivery models, and a deeper understanding of aging biological mechanisms. Currently I am starting an embedded palliative care clinic within my thoracic oncology clinic and a geriatric oncology consult clinic. Both clinics are uniquely designed to meet the needs of older adults with cancer.

B. Positions and Honors

Positions

2009-2012 Intern/Resident of Internal Medicine, Yale New Haven Hospital, New Haven, CT
2012-2016 Subspecialty Fellowship, Medical Oncology/Hematology/Geriatrics, Yale School of Medicine/Yale New Haven Hospital, New Haven, CT
2015-2017 Robert Wood Johnson Clinical Scholar Program, Yale School of Medicine/VA Connecticut Healthcare System
2016-2017 Instructor of Medical Oncology, Yale University School of Medicine, New Haven, CT
2017-present Assistant Professor of Medicine, Division of Medical Oncology, The Ohio State University Comprehensive Cancer Center and The James Cancer Hospital/Solove Research Institute, Columbus, OH

Other Experience and Professional Memberships

2009-present Cancer Outcomes, Public Policy, Effectiveness Research (COPPER) Center
2009 Gold Humanism Society
2012-present American Society of Clinical Oncology
2012-present American Society of Hematology
2012-present Cancer and Aging Research Group
2014-present American Geriatrics Society
2017-present Cancer Control Program, The Ohio State University Comprehensive Cancer Center

Honors and Distinctions

2005 Presidential Scholarship, Dean’s list, Honors Program, University of Minnesota
2005-2006 Albert Schweitzer Fellowship Award
2005-2007 Urban Health Scholars Award
2009 Syvertsen Scholar: the highest honor from Dartmouth Medical School
2010 Southeast Center of Excellence in Geriatric Medicine Resident Award Summit
2012 Gold Humanism Honor Society
2012 Yale Health and Life Sciences Case Study Competition Winner
2012 Gary Vernon Ralph Memorial Humanitarianism in Medicine Award
2012 The Ralph I. Horwitz Research in Residency Award
2012 Yale Johnson and Johnson Global Health Scholar
2012 Cancer and Aging Research Group (CARG) U13 Conference “Young Investigator”.
2013 ASCO/AACR Workshop: Methods in Clinical Cancer Research Award
2015 Cancer and Aging Research Group (CARG) U13 Conference “Young Investigator”.
2015 Conquer Cancer Foundation Oncology Trainee Travel Award
2016 Pepper OAIC Junior Faculty Scholar Award
2016 American Society of Clinical Oncology (ASCO) Young Investigator Award
2016 National Institute of Aging (NIA) Butler Williams Scholar Award
2016 Yale Hematology/Oncology Fellowship Research Excellence Award
2018 Pelotonia Junior Investigator Award
2018 OSU Paul Calabresi Scholar Award

C. Contribution to Science

1. Improving care for older adults with cancer. By the year 2030, over 60% of all cancer diagnoses will occur in adults over the age 65 years, the fastest growing age demographic both within the United States and worldwide. My research focuses on improving the evidence base for the advancement of comprehensive cancer care for older adults. This research focuses on determining complications and treatment burden of cancer therapeutics including radiation, surgery, and systemic therapy. This body of work has explored the use of brachytherapy in older women with early-stage breast cancer, racial disparities in prostate cancer treatment, and the treatment burden of curative therapy for early-stage non-small cell lung cancer.


2. Risk stratification and functional decline among older adults with advanced non-small lung cancer: Treatment options for advanced non-small cell lung cancer (NSCLC) are rapidly expanding. Medical oncologists are faced with the challenge of advising elderly patients on the treatment options that maximize prolongation of life while maintaining quality of life. While this dilemma applies to all patients, it is particularly difficult in the older adult population, due to a paucity of dedicated clinical trial data, which leads to both undertreatment and overtreatment biases. Understanding that the majority of older adults with advanced NSCLC and no actionable molecular alteration will die within 12 months of diagnosis, I have developed a comprehensive conceptual framework incorporating components of functional status, risk of chemotherapy toxicity, and patient care preferences to improve risk stratification among older adults with advanced non-small cell lung cancer. This work provided the foundation for the first geriatric oncology clinical trial in advanced lung cancer at the Yale Cancer Center. Currently, I am working on a pilot prospective cohort study to determine aging-specific clinical and biologic candidate risk factors for the development of functional decline and worsening disability among older adults with lung cancer.


3. Evaluation of aggressive end-of-life measures among Veterans with advanced lung cancer receiving integrated hospice and cancer treatment “concurrent care” vs. fee-for-service Medicare beneficiaries with advanced lung cancer. We need to improve end-of-life (EOL) care for patients with advanced lung cancer. Most patients with serious illness prefer to die at home, yet over 55% of patients experience in-hospital deaths. In addition to being inconsistent with patient’s health care goals, aggressive end-of-life care is also associated with high healthcare expenditures. Understanding how concurrent hospice care with active cancer therapeutics affects healthcare expenditures and variation in end-of-life care would greatly influence the
new Medicare Care Choices pilot payment model. This research was funded by the Yale Lung Spore Career Development Award. Currently, we are implementing a pilot study of embedded palliative care concurrent with oncology care in our Thoracic Oncology Program at OSU.

Complete List of Published Work in myBibliography:

D. Research Support

Ongoing Grant Support:

NIH Loan Repayment Program (PI: Presley) 08/16/2018–06/31/2020
“The Aging Immune System, Treatment Response, and Functional Decline among Older Adults with Lung Cancer”
Role: Principal Investigator

Pelotonia Junior Investigator (PI: Presley) 07/01/2018–06/31/2020
Resiliency among Older Adults Receiving Lung Cancer Treatment: ROAR-LCT
The Ohio State University Comprehensive Cancer Center
Role: Principle Investigator

5K12 CA133250-09 (PI: Byrd) 03/01/2018–05/31/2019
OSU K12 Training Grant for Clinical Faculty Investigators
Objective 1: To provide individualized faculty level training to ensure a cadre of translational medical doctors and basic science researchers who can collaborate with each other to design and implement hypothesis-driven experimental therapeutic research directed at patients with cancer. Objective 2: To provide applicants with a core course work of biostatistical, pharmacology, pharmacodynamic, clinical trial, grant writing, and professional education classes that will assure successful transition to faculty level positions focused on experimental therapeutics at academic NCI-designated cancer centers.
Role: Paul Calabresi Scholar

The Ohio State University Center for Clinical and Translational Science (PI: Presley)
Richard P. and Marie R. Bremer Medical Research Fund
William H David Endowment for Basic Medical Research
“The Aging Immune System, Treatment Response, and Functional Decline among Older Adults with Lung Cancer”
Role: Principal Investigator

Completed Grant Support

Lung SPORE Career Development Award (PI: Presley) 07/01/2016-09/30/2017
Yale Cancer Center, Yale School of Medicine
Project: “End-of-Life Care in the Veteran’s Health Administration vs. Fee-for-Service Medicare among Patients with Advanced Lung Cancer

Robert Wood Johnson Foundation (PI: Krumholz) 07/01/2015-06/30/2017
Full salary support for both research and obtainment of a masters in health sciences through the Yale University School of Medicine.

Conquer Cancer Foundation Young Investigator Award (PI: Presley) 07/01/2016-06/30/2017
American Society of Clinical Oncology
Project: “Functional trajectories before and after a new cancer diagnosis among older community-dwelling adults”

John A. Hartford Foundation 07/01/2014-06/30/2016
Yale Center of Excellence (PI: Tinetti)
Project: “The treatment burden of Medicare beneficiaries with stage I non-small cell lung cancer”
The goal of the Yale Center of Excellence is to increase the number of physicians pursuing academic careers in geriatrics and aging research.
Role: Scholar, Hartford Center of Excellence; and Lead Investigator, project listed above.
NAME: Wang, Sophia

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

POSITION TITLE: Assistant Clinical 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.)

<table>
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<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
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<tr>
<td>Harvard University, Cambridge, MA</td>
<td>AB</td>
<td>06/2000</td>
<td>Biochemical Sciences</td>
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<tr>
<td>Massachusetts General Hospital, Charlestown, MA</td>
<td>Howard Hughes Medical Student Research Fellowship</td>
<td>06/2005</td>
<td>Basic Research in Stroke</td>
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<tr>
<td>Mount Sinai School of Medicine, New York, NY</td>
<td>MD</td>
<td>05/2007</td>
<td>Doctorate of Medicine</td>
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<tr>
<td>Mount Sinai School of Medicine, New York, NY</td>
<td>Residency</td>
<td>06/2011</td>
<td>General Psychiatry</td>
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<tr>
<td>James J. Peters VA (affiliated with Mount Sinai School of Medicine), New York, NY</td>
<td>VA Research Fellowship</td>
<td>06/2012</td>
<td>Neurosciences, Cognitive Disorders</td>
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<tr>
<td>University of California, San Francisco, CA</td>
<td>Clinical Fellowship</td>
<td>06/2013</td>
<td>Geriatric Psychiatry</td>
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</tbody>
</table>

A. Personal Statement

Dr. Wang is an Assistant Professor of Clinical Psychiatry at Indiana University (IU), and an Implementation Scientist at the IU Center of Health Innovation and Implementation Science. She also serves as the medical director of the Older Adult Mental Health Clinic at the Richard L. Roudebush VAMC (Indianapolis, IN), an academic affiliate of IU. Her aging research career began in Alzheimer’s disease and other related dementias (ADRD) and has now expanded to include delirium and ICU survivorship. Dr. Wang’s publications below reflect her broad knowledge of geriatric psychiatry, ADRD, and ICU delirium. Her primary research interest is understanding the intersection of delirium and ADRD.


B. Positions and Honors

Positions and Employment
2013 - 2015 Staff Psychiatrist, Durham VA Medical Center, Durham, NC
2014 - 2015 Assistant Professor, Duke University Medical Center, Durham, NC
2015 - Staff Psychiatrist, Medical Director of the Older Adult Mental Health Clinic, Richard L. Roudebush VA Medical Center, Indianapolis, IN
2015 - Assistant Clinical Professor, Department of Psychiatry, Indiana University School of Medicine (IUSM), Indianapolis, IN
2015 - Implementation Scientist, Center for Health Innovation and Implementation Science, IUSM, Indianapolis, IN.

Medical Licenses
2009 - 2012 Medical License, NY (License No. 252751)
2012 - Medical License, CA (License No. 120591)
2013 - 2015 Medical License, NC (License No. 2013-01557)
2015 - Medical License, IN (License No. 01074927A)

Board Certifications
2011 - 2021 General Psychiatry (Certificate No. 3323)
2014 - 2024 Geriatric Psychiatry (Certificate No. 63832)

Professional Memberships
2007-current American Psychiatric Association (APA)
2010-current American Association of Geriatric Psychiatry (AAGP)
2015-current American Delirium Society

Honors
2000 Magna cum laude, Biochemical Sciences, Harvard College
2003 American Medical Association (AMA) Seed Grant recipient
2009 American Psychiatric Association Fourteenth Annual Research Colloquium for Junior Investigators
2009 Brain Camp Participant, NIMH
2009 NIMH Outstanding Resident Award
2010 American Association of Geriatric Psychiatry, Geriatric Mental health Foundation Honors Scholars
2010 Brain Camp Participant, NIMH
2010 Summer Institute, NIA
2013 American Association of Geriatric Psychiatry Member-In-Training Honorable Mention for Research
2013 American Psychiatric Association/Lilly Resident Research Award
2014 Reynolds Mini-Fellowship Participant for Leadership and Scholarship
2014 Summer Research Institute in Geriatric Psychiatry Research Participant, NIMH
2016 Delirium Bootcamp Participant
2016 Delirium Bootcamp Award Recipient
2018 Hartford-Jeste Award for Future Young Leaders in Geriatric Psychiatry

C. Contributions to Science

1. Post-intensive care syndrome (PICS) is defined as the long-term cognitive, psychiatric, and physical sequelae of critical illness. About 19-40% of all ICU survivors have significant psychiatric symptoms after their critical illness. Dr. Wang’s work showed that higher levels of psychiatric comorbidity in survivors of ICU delirium is associated with a poorer quality of life. She also found that nearly one-third of ICU survivors have either untreated or inadequately treated post-ICU depression. ICU survivors who had post-ICU
depression were also more likely have a history of depression or antidepressant treatment prior to their ICU hospitalization.


*Both authors equally contributed to this article.


2. Identification of potentially modifiable risk factors for Alzheimer’s disease may help to develop novel clinical approaches to prevent or treat these risk factors to reduce the incidence of Alzheimer’s disease. Epidemiologic evidence suggests that cardiovascular risk and physical activity may be two possibly modifiable risk factors in older adults. Dr. Wang’s work showed that even subtle elevation of cumulative cardiovascular risk adversely affected global memory performance in older women. Then in a cohort of oldest old women (85 + years old), She found that physical activity is associated with lower risk of dementia and higher performance on global cognition, category fluency, and executive functioning but not memory, phonemic fluency, or attention.


3. Matrix metalloproteinases (MMPs) are enzymes which remodel the extracellular matrix as part of critical developmental, physiological, and pathological processes. Most studies have focused on the harmful effects of MMP’s in acute ischemic stroke, but a deeper understanding is needed to develop successful treatments for ischemic stroke. Dr. Wang’s work showed that statins (drugs which lower cholesterol) can decrease the pathologic MMP-9 response through the cholesterol-independent Rho kinase pathway; this pathway may have potential for future therapeutic development. She also showed while the well-characterized, initial rise of MMP’s is harmful, the second, smaller rise of MMP’s may have potentially beneficial effects for neurogenesis and angiogenesis, which suggests a more complex role for MMPs in ischemic stroke.


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

**D. Additional Information: Research Support and/or Scholastic Performance**
Ongoing Research Support

1R01HL131730-01A1 (NHLBI)          01/10/17-12/31/21
KHAN, BABAR (PI)
Mobile Critical Care Recovery Program (m-CCRP) for Acute Respiratory Failure (ARF) Survivors
Role: Consultant

AZ160032—Department of Defense (DoD)       07/1/17-06/30/20
FOWLER, NICOLE (PI)
The Aging Brain ANSWERS Program
Role: Co-investigator

UL1TR001108—Indiana Clinical and Translational Science Institute 02/15/17-02/15/19
Community and Urban Health Program Development Team
WANG, SOPHIA (PI)
Feasibility Studies for a Mixed Methods Study of a Model for Survivors of Critical Illness
Role: Principal Investigator

P30 AG010133—National Institute of Aging (NIA)       07/01/16-06/30/21
SAYKIN, ANDREW (PI)
Indiana University Alzheimer’s Disease Center
Role: Co-investigator

CSP #590—VA Cooperative Study       07/01/15-08/01/19
LIANG, MATTHEW (PI)
Lithium for Suicidal Behavior in Mood Disorders
Role: Co-investigator for Indianapolis Site

Completed Research Support

Society of Critical Care Medicine          04/01/17-04/01/18
KHAN, BABAR (PI)
THRIVE Post-ICU Clinic Collaborative
Role: Co-investigator
A. Personal Statement
I am a physician scientist with training and expertise across multiple disciplines associated with aging and neuroscience, including clinical neurology, patient-oriented research, neuropsychological analysis, biomarker discovery & validation, neurochemistry, and health services research. I lead a modern laboratory to develop novel diagnostic and prognostic biomarkers for Alzheimer's disease, frontotemporal lobar degeneration (FTLD) subtypes, and Lewy body disease. I am the first to identify a reproducible CSF biomarker for FTLD associated with lesions immunoreactive to TDP-43 (FTLD-TDP), a novel mechanism of disease in FTLD associated with mutations in the progranulin gen, race-associated differences in CSF aging and Alzheimer's biomarkers between older African Americans and Caucasians, and evidence of aging-associated inflammatory changes (“inflammaging”) in the CSF. I have also spearheaded the inclusion of PWD in research question development, developed a new scale on public stigma related to dementia, and generated two research priority documents on dementia inclusive and friendly communities. I have a patent on CSF-based diagnosis of dementia, was the developer of a standardized research lumbar puncture tray, and serve as a consultant or reviewer for national and international CSF biomarker analysis initiatives. I have had continuous federal and private (national and regional) support since 2008, and collaborate widely with clinicians, scientists, civil societies, as well as Persons with Dementia and Carers across multiple backgrounds and nations.


B. Positions and Honors
Positions and Employment
2010-2018  Assistant Professor, Department of Neurology, Emory University, Atlanta, GA
2018- Associate Professor, Department of Neurology, Emory University, Atlanta, GA

Other Experience and Professional Memberships

2005- Member, American Academy of Neurology
2010-2011 Member, CSF Project Group, Foundation for NIH/Alzheimer's Disease Neuroimaging Initiative, 2010-2011
2012 NIH/NINDS Study Section: Neurological Sciences and Disorders B, ad hoc reviewer
2012-2013 Cluster editor, Biomarkers in Alzheimer’s disease, Acta Neuropathologica
2013- Member, American Neurological Association
2014-2018 NIH/NIA Study Section: Clinical Neuroscience and Neurodegeneration, ad hoc reviewer
2014 Co-chair, American Academy of Neurology annual meeting scientific session
2015- State of Florida Ed and Ethel Moore Alzheimer’s Disease Research Program, ad hoc reviewer
2015- Member, International Society to Advance Alzheimer’s Research and Treatment
2015- Editorial Board, Alzheimer’s & Dementia: Diagnosis, Assessment, and Disease Monitoring
2016- World Dementia Council Finance Global Team
2017-2018 Dementia Action Alliance (US), Board of Directors
2018- NIH/NIA Study Section: Clinical Neuroscience and Neurodegeneration, standing reviewer

Honors

2008 Henry W. Woltman Award for Excellence in Clinical Neurology, Mayo Clinic
2008 Award for Excellence in Neurologic Research, Basic Research, Mayo Clinic
2008 American Academy of Neurology Corporate Roundtable Clinical Research Training Fellowship
2012 American Neurological Association Junior Academic Neurologist Scholarship
2013 Paul B. Beeson Career Development Award in Aging Research
2017 Salzburg Global Fellow in Innovations in Dementia Care and Dementia-Friendly Communities

C. Contribution to Science

1. AD markers: My interest in CSF non-beta-amyloid, non-tau biomarkers (NANT) or AD was born out of the observation that amyloid and Tau levels did not change over time and did not predict prognosis in AD patients. I was one of the first in the AD biomarker field to use multiple independent and complementary methods to identify novel CSF biomarkers, and the multi-analytical strategy has now become the norm in multiple biomarker groups. My laboratory now focuses on using NANT biomarkers to identify AD staging markers and endophenotypes, and to explore new pathogenic mechanisms in AD and related diseases.


2. Biomarker discovery and validation in different populations: It is recognized that clinical AD phenotypes and their associations with genetic variants differ between Caucasian and non-Caucasian populations, yet most fluid biomarker studies have resulted from predominantly Caucasian, North American populations. My group performed the first comparative fluid and imaging AD biomarker studies in older African Americans and Caucasians, and work is on-going to fully characterize the relationship between cognition, genetic variants, CSF biomarkers for AD and endothelial dysfunction, and race.


3. FTLD markers: I have led various discovery and validation studies to identify clinical, neuropsychological, imaging, and fluid biomarker based distinction between the two main FTLD subtypes. We have identified the only validated CSF biomarker for FTLD-TDP, and contributed the largest number of samples towards the discovery of novel C9ORF72 biomarkers.


4. From biomarkers to mechanisms: Biochemical alterations in plasma and CSF can inform disease pathogenesis and endo-phenotypes beyond diagnosis. My laboratory has identified biological factors which influence CSF Aβ42 and tau levels through protein-protein interaction. We continue to explore tau phosphorylation and lysosomal alterations related to novel mechanisms implicated in FTLD-TDP, as well as genetic and metabolic alterations giving rise to unique CSF biomarker profiles in African Americans.


D. Research Support

Pending
R01 AG054991-A1 (Hu, PI) 11/1/2018-10/31/2023 3.6 calendar
Beyond haploinsufficiency - Differential effects from distinct nonsense progranulin mutations
The major goals of this application are to validate mutation-specific inflammatory phenotypes in asymptomatic and symptomatic carriers of GRN mutations; and determine the relationship between mutant progranulin, wildtype progranulin, and TDP-43 oligomers.
Role: PI

Ongoing Research Support

Federal
K23 AG042856 (Hu, PI) 9/1/2013-6/31/2018 6 calendar
Paul B. Beeson Career Development Award in Aging - Early CSF detection of FTLD
The major goal of this career development award is to identify technical and biological factors which influence the performance of novel biomarkers which can distinguish between the two major FTLD subtypes, and determine whether CSF changes can be detected in prodromal healthy subjects carrying FTLD mutations.
Role: PI

P50 AG025688 (Levey, PI) 5/1/2015-4/30/2020 1.8 calendar
Project 1: Alzheimer's Biomarkers and Endothelial Dysfunction in Caucasians and African Americans
The major goal of this project is to expand recruitment of African American and Caucasian seniors to undergo novel CSF and MRI analyses to determine the longitudinal effects of race, genetics, small vessel disease, endothelial dysfunction, and Alzheimer's disease on cognition.
Role: Project 1 PI

R01 AG054046 (Hu, PI) 7/1/2016-6/30/2021 3 calendar
NIH/NIA
CSF and imaging biomarkers of neuro-inflammation in Alzheimer’s disease
The major goals of this project are to validate CSF cytokine changes associated with different AD stages; determine PET and MRI correlates of neuro-inflammation through TSPO PET ligands and ultra-small paramagnetic iron oxide; and associate CSF immunophenotyping analysis.
Role: PI

Non-federal
Patterson Family Foundation (Hu, PI) 11/1/2016-10/31/2019 0.5 calendar
The goal of this project is to validate biomarkers predictive of progression in mild cognitive impairment not associated with Alzheimer’s disease.
Role: PI

Morgan Family Foundation (Hu, PI) 6/1/2017-5/30/2019 0.5 calendar
The goal of this project is to identify genetic regulators of CSF biomarker levels in healthy people in middle and older ages, to better develop a multi-modal biomarker normative database.
Role: PI

18F-AV-1451-A16 (Hu, site PI) 1/11/2016-1/11/2022 0.12 calendar
Avid Radiopharmaceuticals
The goal of this project is to compare ante-mortem tau PET imaging with post-mortem tau quantitation.
Role: site PI

Completed Research Support
O Wayne Rollins Research Fund (Hu, PI) 7/1/2016-7/1/2017
The major goal of this project was to determine whether CSF Alzheimer’s biomarkers were correlated with cognitive impairment in multiple sclerosis.
Role: PI

TauRX (Hu, site-PI) 9/1/2013-4/30/2017
A double-blind, placebo-controlled, randomized parallel group, 12-month safety and efficacy trial of LMTM in subjects with behavioral variant frontotemporal dementia
Role: site PI

NACC Collaborative Project Grant (Hu, PI) 7/1/2013-6/30/2015
NIH/NIA
Multi-center validation of cerebrospinal fluid non-amyloid, non-Tau biomarkers for Alzheimer’s disease
The major goal of this project is to validate the association between 12 CSF non-amyloid, non-Tau biomarkers with the diagnosis of Alzheimer’s disease as well as the stage and progression rates of cognitive impairment at three sites, including Emory University, University of Pennsylvania, and Washington University at St. Louis.
Role: PI

HERCULES Pilot (Hu, PI) 4/1/2014-3/30/2015
NIH/NIEHS
Metabolomics in Alzheimer’s disease – genes, environment, and inflammation
The major goals of this project were to determine whether AD was associated with higher levels of man-made chemicals, and to test whether environmental chemical levels were related to genetic polymorphisms and inflammatory changes.
Role: PI

R21 AG043885 (Hu, PI) 7/1/2013-6/30/2016
NIH/NIA
African American Mild Cognitive Impairment – CSF and Neuro-imaging Biomarkers
The major goal of this project is to determine if endothelial dysfunction contributes to cognitive impairment in African Americans in race-independent and race-dependent mechanisms by comparing CSF and imaging profiles of AD among African Americans and non-Hispanic white subjects with normal cognition, mild cognitive impairment, and Alzheimer's disease.
Role: PI
BIOGRAPHICAL SKETCH

NAME: MAUST, DONOVAN T

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

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING

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<th>INSTITUTION AND LOCATION</th>
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<tr>
<td>The College of William &amp; Mary; Williamsburg, VA</td>
<td>BS</td>
<td>05/2001</td>
<td>Biology, International Relations</td>
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<tr>
<td>Johns Hopkins Univ School of Medicine; Baltimore, MD</td>
<td>MD</td>
<td>05/2007</td>
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<tr>
<td>University of Pennsylvania; Philadelphia, PA</td>
<td>Resident</td>
<td>06/2011</td>
<td>Adult Psychiatry</td>
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<tr>
<td>University of Pennsylvania; Philadelphia, PA</td>
<td>Fellow</td>
<td>06/2013</td>
<td>Geriatric Psychiatry</td>
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<tr>
<td>University of Michigan; Ann Arbor, MI</td>
<td>MS</td>
<td>05/2014</td>
<td>Health and Healthcare Research</td>
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A. Personal Statement

I am a fellowship-trained, board-certified geriatric psychiatrist, Assistant Professor of Psychiatry at the University of Michigan (U-M), and Research Scientist with the VA Ann Arbor Center for Clinical Management Research. During my first year on faculty I completed additional training in health services research by completing the Masters in Health and Health Care Research offered by the U-M site of the Robert Wood Johnson Clinical Scholars Program. The broad, overarching goal of my developing research portfolio is to ensure that older adults with mental health and cognitive disorders receive targeted, timely, and appropriate intervention. Through a Paul B. Beeson Career Development Award in Aging Research (K08), I used national VA administrative claims data to develop a risk-prediction model to identify older adults with dementia at high-risk for potentially preventable hospitalization. Work on my Beeson [1] and participating in the Michigan State Dementia Coalition to update the state’s Dementia Plan provided key background for my NIA R01, for which we will complete a 50-state analysis of patient, community, and caregiver determinants of potentially inappropriate medical care for older adults with dementia using Medicare claims as well as the NHATS (National Health and Aging Trends Study) and NSOC (National Study of Caregiving) surveys.

While my Beeson research project primarily focused on targeting medical care for older adults with dementia, another primary clinical and research interest is in understanding the drivers and consequences of psychotropic prescribing to older adults [2,3]. While such prescribing is the most common modality of mental health treatment provided, it is often not evidence-based and may reflect limited access to psychosocial or other alternative interventions. I am the PI of two projects in this area. The first, a VA IIR (R01-equivalent), is a mixed-methods analysis of the Psychotropic Drug Safety Initiative to identify facility strategies that have led to reductions in benzodiazepine prescribing to older Veterans [4]. The second is a NIDA-funded R01 that will analyze the patient, provider, and community factors that influence new benzodiazepine prescribing to older adults and then identify those adults most at-risk for adverse outcomes.


B. Positions and Honors

Positions and Employment
2007 - 2011 Resident and Chief Resident, Department of Psychiatry, University of Pennsylvania; Philadelphia, PA
2012 - 2013 Attending Geriatric Psychiatrist, Pennsylvania Hospital, University of Pennsylvania; Philadelphia, PA
2013 - Assistant Professor, Department of Psychiatry, University of Michigan; Ann Arbor, MI
2013 - Research Scientist, Center for Clinical Management Research, VA Ann Arbor Healthcare System; Ann Arbor, MI
2015 - Attending Psychiatrist, Consult/liaison Psychiatry Service, VA Ann Arbor Healthcare System; Ann Arbor, MI

Other Experience and Professional Memberships
2007 - Member, American Psychiatric Association
2009 - Member, American Association for Geriatric Psychiatry
2015 - 2016 Member, American Academy of Neurology and American Psychiatric Association Dementia Update Measure Development Work Group

Honors
1999 Harry S. Truman Scholar from federal government for leadership, academic achievement, community service, and desire to pursue a career in public service
2000 Phi Beta Kappa, *summa cum laude*, The College of William & Mary
2009 Outstanding Resident Award, National Institute of Mental Health
2010 Geriatric Mental Health Foundation Honors Scholar
2011 Laughlin Fellow, The American College of Psychiatrists
2012 Summer Research Institute, National Institute of Mental Health
2014 Paul B. Beeson Career Development Award in Aging Research
2017 Advanced Research Institute, National Institute of Mental Health
2017 Hartford-Jeste Award for Future Leaders in Geriatric Psychiatry, American Psychiatric Association
2018 Barry Lebowitz Early Career Scientist Award, American Association for Geriatric Psychiatry

C. Contribution to Science

1. Epidemiology of psychotropic use among older adults. Based on my clinical work, a long-standing area of interest is the nature and appropriateness of outpatient mental health care for older adults, with a specific focus on psychotropic use in non-specialty settings. This work began with primary data collection while I was a psychiatry resident at the University of Pennsylvania and has continued with analysis of nationally-representative surveys including the National Ambulatory Medical Care Survey. This work has helped highlight the extent of psychotropic use among older adults, much of which is in the absence of significant psychiatric symptoms or a mental health diagnosis and is provided by non-psychiatric providers.
2. Benzodiazepine use among older adults. My more recent work on psychotropic prescribing among older adults has focused specifically on benzodiazepine prescribing alone and in combination with other central nervous system (CNS)-active medications. This work has primarily used the National Ambulatory Medical Care Survey and has highlighted that, despite growing concerns about safety, benzodiazepine prescribing to older adults is increasing. My coauthors and I were also the first to report that CNS-active polypharmacy is growing among older adults. This potentially inappropriate prescribing is more common among white older adults and rural-dwelling older adults, while combination prescribing of opioids and benzodiazepines is worryingly common.


3. Influence of caregivers on medical care received by patients with dementia. I began my Beeson K08 with the hypothesis that the behavioral and psychological symptoms of dementia (BPSD) would be associated with increased healthcare utilization and costs of patients with dementia. In fact, BPSD themselves are not associated with patient utilization. Rather, it is caregiver distress in response to these symptoms that are associated with increased costs and utilization. While this is intuitive clinically, this finding had not been demonstrated previously using claims data. In addition, as a co-author on another analysis that used the Health and Retirement Study and was not limited to patients with dementia, we contributed additional evidence that healthcare expenditures are higher for patients of distressed caregivers. These are among the first studies to demonstrate the impact that caregivers have on the medical care that older adults receive.


4. Impact of health policy on care of older adults with mental and cognitive disorders. Finally, I am interested in how healthcare system organization and policy influence the quality and type of mental health care older adults receive. I wrote one of the first articles to address the implications of accountable care organizations (ACOs) for adults with mental health conditions. In work using Medicare Part D, we have demonstrated that increasing mood stabilizer use has been a potentially unintended consequence of the CMS National Partnership to Improve Dementia Care in Nursing Homes primary
focus on reducing antipsychotic prescribing. My coauthors and I also reported that several states have legalized use of medical marijuana for the treatment of agitation related to Alzheimer's dementia.


Complete list of published work in MyBibliography:

**D. Research Support**

**Ongoing Research Support**

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<tr>
<td><strong>Leveraging large-scale national data to understand, reduce, and prevent benzodiazepine-related harms among older adults</strong></td>
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<tr>
<td>The goals of this proposal are: 1) describe the patient, provider, and community characteristics associated with BZD initiation and continuation; 2) among prescription BZD users, determine specific risk factors associated with BZD misuse and BZD-related overdose; these data will be used to develop a clinical prediction tool; and 3) conduct semi-structured interviews with providers and patients to package and script the use of the clinical prediction tool for primary care providers seeking to engage high-risk BZD use patients.</td>
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<td><strong>Leveraging large-scale national data to understand, reduce, and prevent benzodiazepine-related harms among older adults</strong></td>
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<tr>
<td>The goals of this administrative supplement are to: 1) specifically examine predictors of benzodiazepine initiation and continuation to older adults with dementia in the community and in long-term care; and 2) determine the associated of benzodiazepine use with incident dementia.</td>
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<th>Maust (PI)</th>
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<td>NIH/NIA</td>
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<tr>
<td><strong>Patient, Caregiver, and Regional Drivers of Potentially Inappropriate Medical Care for Dementia: Building the Foundation for State Dementia Policy</strong></td>
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<td>The aims of this proposal are to: 1) Identify patient and community factors associated with potentially inappropriate care delivered to community-dwelling adults with age-related dementia and establish accurate national and state-level estimates of this care; 2) Determine the contribution of additional patient clinical, functional, caregiver, and caregiving characteristics to potentially inappropriate care relative to the effect of location; and 3) Develop an evidence-based policy making guide for dementia that we will use to interview state aging policy officials.</td>
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<th>VA HSR&amp;D, IIR 16-210</th>
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<th>02/2018 – 01/2022</th>
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<tr>
<td><strong>Addressing inappropriate benzodiazepine prescribing among older Veterans</strong></td>
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<td>The aim of this mixed methods project is to identify VA facilities that successfully reduce new and chronic benzodiazepine prescribing and identify “best practices” that can be used in a variety of organizational contexts (i.e., among both high and low performing organizations).</td>
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VA HSR&D, IIR 15-330  Kales (PI)  01/2017 – 06/2020

*Unintended Consequences: The Impact of VA Antipsychotic Reduction Efforts in Dementia*

The goals of this study are 1) determine system-level VA national in psychotropic use among patients with dementia since the first black-box warning (2005) to 2014; 2) examine variables that may be associated with AP prescribing in dementia; and 3) validate additional quality indicators for VA patients with dementia.

Role: Co-Investigator

NIMH 1R01MH109531  Meara (PI)  09/2016 – 06/2020

NIH/NIMH

*Mental Health Care under New Payment Strategies*

In this project, we are using organization surveys paired with claims data to examine how different payment contracts and organizational characteristics influence the quality of care and population health outcomes of patients with mental illness.

Role: Co-Investigator

**Completed Research Support**

Donaghue Foundation  Maust (PI)  11/2016 – 10/2018

*Unintended Effects of Antipsychotic Reduction in Nursing Homes*

In 2012, the Centers for Medicare & Medicaid Services launched the National Partnership to Improve Dementia Care in Nursing Homes (CMSNP), which emphasized “person-centered dementia care” but only measured antipsychotic use. In this project, we are using a national 20% Medicare sample including Part D prescription data to determine the impact of CMSNP on antipsychotic prescribing and whether it led providers to shift to alternative, unmeasured psychotropic medications.

Role: PI

Ravitz Foundation  Maust (PI)  12/2015 – 10/2018

*Reducing Inappropriate Benzodiazepine Use among Older Adults*

The purpose of this study is to determine whether direct-to-patient education, coupled with behavioral health collaborative care, is: 1) acceptable to patients prescribed chronic benzodiazepines; 2) leads to a reduction in their average daily dose.

Role: PI

NIA 1K08AG048321  Maust (PI)  08/2014 – 03/2018

NIH/NIA, American Federation for Aging Research, The John A. Hartford Foundation, and The Atlantic Philanthropies

*Preventable Hospitalization in Dementia: The Impact of Neuropsychiatric Symptoms*

This project, a Beeson Career Development Award, explores whether the neuropsychiatric symptoms of dementia are associated with potentially preventable hospitalization (PPH) and uses national VA administrative data to develop a risk prediction model for 30-day risk of PPH.

Role: PI

MI Health Endowment Fund  Kales (PI)  01/2017 – 12/2017

*Enhancing Michigan Workforce Capacity for Behavioral Dementia Care Using the DICE Approach*

The goal of this project is to train formal and informal caregivers of people with dementia in the State of Michigan in an innovative, evidence-based approach (“DICE”) to assess and manage the behavioral and psychological symptoms of dementia.

Role: Co-Investigator
A. Personal Statement

I am a family medicine physician at UCLA and a clinician investigator with health services and outcomes research training and expertise with research on the implementation of interventions in health systems, diabetes in older adults, and Latino health disparities. I have conducted and led community partnered research studies among Latinos receiving care in community health centers and investigated the impact of social determinants of health (e.g., food insecurity) on healthcare outcomes. I am the co-director for the Community Liaison Core for the UCLA NIH/NIA funded UCLA Resource Center for Minority Aging Research (RCMAR). As part of this center, I mentor junior faculty and conduct research focused on health disparities among minority older adults. I led a team that successfully implemented clinical pharmacists into primary care teams in more than 30 UCLA Health community primary care offices and conducted quasi experimental studies that found that our clinical interventions reduced polypharmacy, improved cardiovascular risk factor control, and reduced healthcare utilization among older and middle aged adults. I have also designed and led the evaluation of a large community-based intervention consisting of a social worker and community health worker to improve the health and healthcare of an ethnically diverse cohort of older adults in the greater Los Angeles metro area. I am also active in teaching medical students and residents and practice primary care in a UCLA-Los Angeles Department of Health Services (LADHS) comprehensive health center.

B. Positions and Honors

Positions and Employment

2007-2009  Fellow, Robert Wood Johnson Clinical Scholars Program at UCLA, Los Angeles, CA
2007-2009  Clinical Instructor, Department of Family Medicine, UCLA, Los Angeles, CA
2010-2013  Assistant Clinical Professor, Department of Family Medicine, UCLA, Los Angeles, CA
2013-2017  Assistant Professor in Residence, Department of Family Medicine, UCLA, Los Angeles, CA
2017-  Associate Professor, Department of Family Medicine, UCLA, Los Angeles, CA

Other positions and leadership

2016  Faculty Director, Program in Medical Education – Leadership and Advocacy (PRIME-LA)
2018  Associate editor, Annals of Family Medicine
2018  Board of Directors, American Board of Family Medicine (ABFM)

Honors

2007  Robert Wood Johnson Foundation Clinical Scholar
2012  Paul B. Beeson Career Development Award in Aging
C. Contribution to Science

1. My contributions address health disparities in diabetes. My research has increased our understanding of social determinants of health and how they impact healthcare for Latinos with diabetes. My studies have examined the impact that social factors such as food insecurity, limited-English proficiency, and neighborhood problems have on intermediate and patient-centered outcomes. Much of my diabetes research was conducted in community health center systems. I also co-chaired a national expert panel, which revised the American Geriatrics Society (AGS) Guidelines for the Care of the Older Adult with Diabetes. This work deepened my expertise on the control and management of cardiovascular risk factors among older adults with diabetes and has greatly influenced my research as it applies to Latinos and other minorities with diabetes.

   
   
   

2. My contributions also address community partnered research as they relate to minority health disparities. Many of my research studies have been conducted with community partners to help increase the dissemination and scale-up potential. I am the co-director of the Community Liaison Core for the UCLA Resource Center for Minority Aging Research (RCMAR) and mentor and facilitate young investigators with community partnered aspects of their research.

   
   
   

3. My research contributions also address the impact of limited-English proficiency on healthcare for Latinos and my studies include investigations of the impact of doctor-patient language concordance on high quality care for Latinos with limited-English proficiency. I completed studies investigating the impact of interpreters on patient receipt of important medication information among Spanish-speaking Latinos who participated in the RWJ Hablamos Juntos (Together We Speak) multi-site national demonstration project. My work has increased our understanding of the role a patient’s limited-English has on diabetes and other patient-centered outcomes. My research has also examined the predictive relationship between a physician’s non-English fluency and eventual practice in an underserved community.


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


**D. Research Support**

**Ongoing Research Support**

NIH/NIA #2P30 AG021684-16 Mangione (PI) 9/2018 – 6/2023

*Resource Centers for Minority Aging Research / Center for Health Improvement of Minority Elderly (RCMAR /CHIME).* The goal of this center is to create a program that will contribute to the reduction in health disparities for African American & Latino elders by training and mentoring junior-level minority faculty who will advance their careers by conducting research on minority elders. 5% effort

Role: Co-Director of Community Liaison Core.

Center for Medicare and Medicaid (CMS) Mangione (PI) 7/2016 – 6/2020

*Clinical pharmacists in patient centered medical home primary care teams.*

The goal of this project is to evaluate the contribution of clinical pharmacists in primary care practices on diabetes care and utilization outcomes. 10% effort.

Role: Co-PI

NIH/NIDDK #1R18DK105464-01 Duru/Mangione (PIs) 06/2015 – 05/2020

*A Cluster-Randomized Trial of Pharmacist-Coordinated Implementation of the DPP*

The goal of this project is to investigate the effectiveness of clinical pharmacist in delivering a decision aid to patients with pre-diabetes. This study will engage patients with prediabetes in a shared decision-making process about treatment options, specifically intensive lifestyle change, use of metformin, or both. Ambulatory pharmacists will work with the patients using a decision support tool. 5% effort

Role: Co-Investigator

**Completed Research Support**

NIH-NIA #1K23AG042961 Moreno (PI) 9/2012 –5/2018

Paul B. Beeson Career Development Award

*Health IT decision support to improve medication management safety and quality*

This Mentored Patient-Oriented Career Development Award provides Dr. Moreno the resources to focus his research on aging and to obtain additional research training needed to become an independent principal investigator. The goal of this project is to address patient’s barriers to care among those with diabetes and multiple chronic health issues and polypharmacy. 70% effort.

Role: PI

American Federation for Aging Research (AFAR) Moreno (PI) 9/2012 –8/2017

*Health IT decision support to improve medication management safety and quality*

The goal of this project is to address patient’s barriers to care among those with diabetes and multiple chronic health issues and polypharmacy. 10% effort.

Role: PI
NIH/NIA #P30 AG021684 Mangione (PI) 7/2012 – 6/2017
Resource Centers for Minority Aging Research / Center for Health Improvement of Minority Elderly (RCMAR /CHIME). The goal of this center is to create a program that will contribute to the reduction in health disparities for African American & Latino elders by training and mentoring junior-level minority faculty who will advance their careers by conducting research on minority elders. 5% effort
Role: Co-Director of Community Liaison Core.

Center for Medicare and Medicaid (CMS) Mangione/Moreno (PI) 7/2011 – 6/2016
Delivery System Reform Incentive Pool (DSRIP)
Medication therapy management using clinical pharmacist consultations and EMR clinical decision support for patients with diabetes. The goal of this project is to embed clinical pharmacists in primary care practices and improve diabetes care and cardiovascular risk factors outcomes.
Role: Co-PI

NIH-NIMHD #R01 MD006185 Morales (PI) 04/2012 – 03/2016
Disparities in Chronic Illness Care for Patients with Language Barriers (Group Health Research Institute). The goal of this research study was to examine how limited English proficiency among Latinos and Asian Americans with type 2 diabetes, hypertension, and hypercholesterolemia is associated with medication adherence.
Role: PI for UCLA subaward

American Geriatrics Society (AGS) Moreno (PI) 0 /2012 – 05/2013
Evidence-based update of the AGS 2003 clinical guidelines for the care of the older adult with diabetes
Role: PI

NIH #UL1TR000124 Moreno (PI) 07/2012 – 06/2013
Clinical & Translational Science Institute (CTSI)
Developing New Paradigms for the Recruitment of Minority Elders Using Community-Based Participatory Research
Role: PI

California Endowment Moreno (PI) 03/2010-03/2012
Improving Diabetes Care and Community Health in the Central Valley
The goal of this grant is to research how social determinants of health are associated with control of intermediate cardiovascular risk factors and glycemic among Latinos with type 2 diabetes and to disseminate policy findings from this partnered research study to community and regional stakeholders.
Role: PI

NIH/NIA #P30 AG021684 Mangione (PI) 09/2009-12/2011
Supplement to Promote Diversity in Health-Related Research
Resource Center for Minority Aging Research/Center for Health Improvement in Minority Elders (RCMAR/CHIME)
Role: Junior Faculty Recipient
NAME: Ozioma C. Okonkwo, PhD

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

POSITION TITLE: Assistant Professor of Medicine, University of Wisconsin School of Medicine and Public Health

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>
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<tbody>
<tr>
<td>University of Ibadan</td>
<td>B.A.</td>
<td>2000</td>
<td>Philosophy</td>
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<tr>
<td>University of West Georgia</td>
<td>M.A.</td>
<td>2003</td>
<td>Psychology</td>
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<tr>
<td>University of Alabama at Birmingham</td>
<td>M.A.</td>
<td>2005</td>
<td>Clinical Psychology</td>
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<tr>
<td>University of Alabama at Birmingham</td>
<td>Ph.D.</td>
<td>2009</td>
<td>Clinical Psychology</td>
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<tr>
<td>Brown Medical School</td>
<td>Internship</td>
<td>2008-2009</td>
<td>Clinical Psychology</td>
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<tr>
<td>Johns Hopkins University School of Medicine</td>
<td>Postdoctoral</td>
<td>2009-2011</td>
<td>Clinical Neuropsychology</td>
</tr>
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</table>

A. Personal Statement
I am an NIA Paul B. Beeson K23 awardee and an NIH Early Stage Investigator. My research agenda comprises two interconnected themes: (1) examining how alterations in brain and fluid biomarkers (such as cerebrospinal fluid β-amyloid) place some cognitively-normal individuals on a pernicious trajectory that culminates in probable Alzheimer's disease, and (2) generating new knowledge concerning the modulation of the link between brain/fluid biomarker changes and cognitive decline by both modifiable (e.g., physical exercise, cognitively-stimulating activities) and non-modifiable (e.g., genetic vulnerability) factors. My research has always involved strong multidisciplinary teams, providing opportunities to demonstrate a consistent commitment to conducting high-quality, patient-oriented, aging research. The ultimate goal of my work is translational—the identification of people at greatest risk for Alzheimer's disease and the development of therapeutic strategies for decreasing their risk. The proposed study is a natural fit with my research focus, and a longitudinal extension of the cross-sectional work that has come out of my lab till date. Over the last 7 years, I have led several studies related to physical activity, cardiorespiratory fitness, and AD (including being the Site PI for the NIH-funded Exercise in Adults with Mild Memory Problems (EXERT) Clinical Trial, U19 AG010483). This will be my first R01 award, and the findings generated from the proposed study will be used to launch my development into an accomplished, independent aging researcher focused on lifestyle approaches to AD prevention. The papers below exemplify my prior work related to the current R01 proposal.


B. Positions and Honors

Positions and Employment

2008-2009  Predoctoral intern, Department of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University, Providence, Rhode Island

2009-2011  NIH T32 postdoctoral fellowship, Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, Maryland

2011-2012  Assistant Scientist, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin

2012 –  Assistant Professor, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin.

2013 –  Faculty Trainer, Neuroscience Training Program, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin.

2017 –  Faculty Trainer, Cellular and Molecular Pathology Graduate Program, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin.

Honors

2000  Top graduand, Department of Philosophy, University of Ibadan, Nigeria.

2006  Merit Fellowship, University of Alabama at Birmingham, Birmingham, Alabama

2007  Outstanding graduate student in Medical Psychology, University of Alabama at Birmingham, Birmingham, Alabama

2007  Overall outstanding graduate student in Psychology (across 3 doctoral programs), University of Alabama at Birmingham, Birmingham, Alabama

2007  NINDS Exceptional Summer Student Award, National Institutes of Health, Bethesda, Maryland

2007  Dean’s award for Excellence in Research by a Graduate Student, University of Alabama at Birmingham, Birmingham, Alabama

**This award is given annually to only one graduate student.

2008  Selection to attend the 5th annual NIA-sponsored Advanced Psychometrics Methods in Cognitive Aging Research Workshop, University of California, Santa Cruz, California

2009  Samuel B. Barker Award for Excellence in Graduate Studies at the doctoral level, University of Alabama at Birmingham, Birmingham, Alabama

**This award is given annually to only one graduating PhD student.

2010  Selection to attend the NIA Summer Institute on Aging Research, Aspen Wye River Conference Center, Queenstown, Maryland

2011  Travel scholarship to attend the 6th Human Amyloid Imaging meeting, Miami, Florida

2013  Competitive selection for the 2nd annual Charleston Conference on Alzheimer’s Disease, Charleston, South Carolina. 2014

**1 of 15 applicants chosen from a nation-wide selection process.

2013  NIA Paul B. Beeson Career Development Award in Aging Research (K23)

2013-2016  Centennial Scholar, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin


2014  Best Oral Presentation award, Alzheimer’s Imaging Consortium, 2014 Alzheimer’s Association International Conference, Copenhagen, Denmark

** This award was for our very first work in physical activity and AD risk, Okonkwo et al. Neurology 2014


2015  Panel member, NIH-NIA Neuroscience of Aging Study Section (NIA-N)


2015-2016  NIH-NIA Special Emphasis Panels ZAG1 ZIJ-1 (J4), ZAG1 ZIJ-1 (J5), ZAG1 ZIJ-1 (O2), ZAG1 ZIJ-1 (O4), ZAG1 ZIJ-1 (J3)


2016  Vilas Faculty Early Career Investigator Award, University of Wisconsin, Madison, Wisconsin.
2016 Early Career Award, National Academy of Neuropsychology.
2017 Early Career Impact Award, Federation of Associations in Behavioral and Brain Sciences
2017 Guest Editor, Special Issue on Reserve and Resilience in Alzheimer’s Disease, Brain Imaging and Behavior
2017 Invited Speaker, Cognitive Aging Summit III, National Institutes of Health, Bethesda, Maryland
2017 – Panel member, NIH Clinical Neuroscience and Neurodegeneration Study Section (CNN)

Professional Memberships
2002 – American Psychological Association
2002 – American Psychological Association Division 40, Neuropsychology
2004 – Gerontological Society of America
2009 – International Neuropsychological Society
2010 – National Academy of Neuropsychology
2010 – International Society to Advance Alzheimer Research and Treatment
2010 – Society for Neuroscience
2012 – Researchers against Alzheimer’s
2012 – Prevent Alzheimer's Disease 2020
2012 – Member, Grants Committee, National Academy of Neuropsychology
2012 – Member, Science Advisory Committee, American Psychological Association Division 40

Scientific Peer Review
2012 – Reviewer for the Alzheimer’s Association International Research Grant Program
2013 – Reviewer for the National Academy of Neuropsychology Clinical Research Grants Program
2013 – Reviewer for the American Psychological Association Division 40 Early Career Pilot Awards
2015 – Reviewer for the Wisconsin Alzheimer’s Disease Research Center Pilot Grants Program
2015 – Reviewer for the NIH-NIA Neuroscience of Aging Study Section (NIA-N)
2017 – Reviewer for the NIH Clinical Neuroscience and Neurodegeneration Study Section (CNN)
2017 – Reviewer for Alzheimer's Research UK

C. Contribution to Science
1. I led research that, for the first time, showed that cognitively-normal middle-aged adults with a parental history of Alzheimer’s disease harbor deleterious changes in brain structure and function, long before the expected manifestation of Alzheimer symptoms. Those findings helped provide compelling evidence that family history of Alzheimer’s disease confers measurable risk for the disease, and challenged the prevailing model of Alzheimer biomarkers by demonstrating that alteration in critical brain structures likely occurs much earlier than postulated.

2. Although physical activity has been known to favorably impact cognitive function and risk of symptomatic Alzheimer’s disease, there is little evidence that it influences the underlying pathophysiology of Alzheimer’s disease. We showed for the first time that high levels of physical activity in midlife dampens the known adverse effect of age on key brain biomarkers of Alzheimer’s disease such as amyloid burden, glucose metabolism, and hippocampal volume. This provided an indication of the pathways by which physical activity might ameliorate lifetime risk for clinical Alzheimer’s disease. We have also shown that cardiorespiratory fitness influences brain health, cognitive function, and mood.
5. Clinical trials in prodromal Alzheimer's disease have largely been unsuccessful. One key reason for this unfortunate outcome is that the trials are often populated with persons who either do not have underlying Alzheimer pathophysiology or lack other characteristics that make them likely to progress to symptomatic Alzheimer's disease within the typical duration of clinical trials. I have been part of a team of investigators at the forefront of devising ways to conduct more efficient clinical trials by using neuroimaging/biomarker data and novel machine learning approaches to develop enrichment features that drastically reduce the number of subjects needed to detect treatment effects in such trials, while boosting statistical power. These enrichers are


3. Similar to the above contribution, whereas it has been widely known that persons with high educational attainment are generally less likely to develop Alzheimer’s disease and related dementias, the underlying reason for this has remained elusive. Work from my lab demonstrated for the first time that intellectual enrichment accruing from higher educational attainment provides resilience against the deleterious effect of aging on cerebrospinal fluid biomarkers of Alzheimer’s disease; thereby suggesting a pathway through which educational attainment favorably alters lifetime risk for symptomatic Alzheimer’s disease. We have likewise shown that engagement in cognitively-stimulating activities boosts brain volume and cognitive function in middle-aged, at-risk individuals.


4. With a team of collaborators, I have conducted several studies documenting brain and biomarker changes among persons in the preclinical and prodromal stages of Alzheimer’s disease, and how these changes induce decline in cognitive and functional status. These studies have been instrumental in characterizing the sequence of early pathophysiological and behavioral changes that culminate in clinically-manifest Alzheimer’s disease.


5. Clinical trials in prodromal Alzheimer’s disease have largely been unsuccessful. One key reason for this unfortunate outcome is that the trials are often populated with persons who either do not have underlying Alzheimer pathophysiology or lack other characteristics that make them likely to progress to symptomatic Alzheimer's disease within the typical duration of clinical trials. I have been part of a team of investigators at the forefront of devising ways to conduct more efficient clinical trials by using neuroimaging/biomarker data and novel machine learning approaches to develop enrichment features that drastically reduce the number of subjects needed to detect treatment effects in such trials, while boosting statistical power. These enrichers are
designed to also double as outcome measures in the trials, since they are closely linked to the underlying biology of the disease.


**Public Listing of Publications in My Bibliography**


**D. Research Support**

**Ongoing**

<table>
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<tr>
<th>K23AG045957</th>
<th>Okonkwo (PI)</th>
<th>2013-2018 (NCE to 2019)</th>
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<tr>
<td>NIH/NIA</td>
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<tr>
<td>Title: Early detection of asymptomatic middle-age adults at risk for AD</td>
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<tr>
<td>Goal: The primary goal of this project is to identify the neurodegenerative footprint of Stage 3 preclinical AD and determine its prognostic value in asymptomatic middle-aged adults.</td>
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<td>Role: Principal Investigator</td>
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<tr>
<td>Title: Genetic and lifestyle determinants of cognitive resilience in midlife</td>
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<tr>
<td>Goal: The primary goal of this project is to investigate a discrete set of genetic and lifestyle factors that might confer resilience to the adverse effects of core AD pathologies in at-risk middle-aged adults.</td>
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<td>NIH/NIA</td>
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<tr>
<td>Title: Exercise in adults with mild memory problems (EXERT)</td>
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<td>Goal: The primary goal of this project is to evaluate the effects of physical exercise on cognition, functional status, brain health, and Alzheimer’s disease biomarkers in adults with a mild memory impairment.</td>
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<td>Role: Site Principal Investigator</td>
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<tr>
<td>Title: Longitudinal assessment of physical activity and AD biomarkers in an at-risk cohort</td>
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<tr>
<td>Goal: To elucidate the longitudinal relationship between physical activity and biomarkers of AD.</td>
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<th>Extendicare Foundation</th>
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<tr>
<td>Title: Cardiorespiratory fitness and AD biomarkers in an at-risk cohort</td>
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<tr>
<td>Goal: To investigate associations between aerobic capacity and cerebrospinal fluid biomarkers of AD in middle-aged adults with risk factors for AD.</td>
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**Completed (within last 3 Years)**

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<th>NIRGD-305257</th>
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<tr>
<td>Alzheimer’s Association</td>
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<tr>
<td>Title: Aerobic exercise for AD prevention in at-risk middle-aged adults</td>
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<tr>
<td>Goal: To determine whether aerobic exercise modifies brain and cognitive changes in middle-aged adults with family history of AD.</td>
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<td>NIA/NIH Diversity Supplement</td>
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<tr>
<td>Title: Neuromorphometric alterations in middle-aged adults with family history of Alzheimer’s disease: Relationship to genetic variants</td>
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<tr>
<td>Goal: To examine hippocampal shape changes, cortical thinning, and their association with genetic variants in people at risk for AD.</td>
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<tr>
<td>Role: Principal Investigator</td>
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</table>
Alexander Panda

Scientist II
Assistant Professor Pulmonary & Critical Care Medicine

Alexander Panda

Kreuzschule Dresden, Germany
B.A. 06/1987
Biochemical Sciences

Alexander von Humboldt University zu Berlin, Germany
M.D. 12/1999
Medicine

Johns Hopkins School of Public Health, Baltimore, MD
M.P.H. 06/2001
Epidemiology

Yale University Graduate School of Arts and Science
Ph.D. 12/2012
Investigative Medicine

A. Personal Statement

My research focuses on defects of the innate immunity arm in older adults. We recently demonstrated a generalized defect in TLR function in DCs from older individuals. The Beeson award helped me to study the mechanism of decreased TLR function in dendritic cells of older adults. After the transfer of my Beeson grant to Tufts Medical School I have focused on respiratory infections in the elderly and established the only bronchoscopy program for research purposes in healthy older adults in the New England area. This program is interdisciplinary and open to all researches focusing on lung pathology. More recently I am focusing on the effects of vitamin E in preventing respiratory infections. I was able to lend my expertise to research groups looking at specific disease states such as preeclampsia or legionnaires disease. I mentored several fellows who published their research in internationally recognized scientific journals. I am fully committed to studying the mechanisms of defects in immunity in older adults in order to explain the deterioration of immunity seen in older adults, and aid in the rational development of novel treatments and vaccines geared specifically towards older adults. My research will benefit almost two million older adults hospitalized with an infectious disease each year in the United States. I am trained and board certified in Infectious and in Pulmonary & Critical Care Medicine. I am currently a scientist at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) and an Assistant Professor of Medicine in the Section of Pulmonary and Critical Care Medicine/Tufts University School of Medicine. I am currently funded by a private industry grant and have submitted several grants to NIA, which are currently under review. The following publications specifically highlight my research on defects of immunity in older adults:

B. Positions and Honors

Position
01/99 - 12/99  Clinical Fellow in Medicine, Geriatric Medicine, Charité Hospital, Medical Faculty of the Alexander von Humboldt University zu Berlin, Berlin, Germany
06/01 - 06/04  Intern, Junior Resident, and Senior Resident, Internal Medicine, Albert Einstein College of Medicine, New York City, NY
06/04 - 06/06  Clinical Fellow in Medicine, Infectious Diseases Section, New York University School of Medicine, New York City, New York
06/06 - 06/10  Clinical Fellow in Medicine, Yale School of Medicine, Section of Pulmonary and Critical Care Medicine, New Haven, CT
07/10 - 08/12  Brookdale Leadership in Aging Fellow, Yale University School of Medicine, Section of Pulmonary and Critical Care Medicine, New Haven, CT
08/12 - 07/13  Paul B. Beeson Fellow, Yale University School of Medicine, Section of Pulmonary and Critical Care Medicine, New Haven, CT
08/13 - 06/18  Paul B. Beeson Fellow / Scientist II HNRCA, Assistant Professor of Medicine, Section of Pulmonary and Critical Care Medicine, Tufts University School of Medicine
07/18-        Scientist II HNRCA, Assistant Professor of Medicine, Section of Pulmonary and Critical Care Medicine, Tufts University School of Medicine

Honors
1999  Graduation summa cum laude, Alexander von Humboldt Universität zu Berlin, Germany
1999  Robert Koch Award of the Charité, Medical Faculty of the Humboldt University Berlin, Germany
1999  von Leyden Memorial Medal of the Berlin Society of Internal Medicine, Germany
1995  Recipient of a Scholarship of the German Academic Exchange Service (DAAD) to conduct research at the Johns Hopkins Medical Institutions
1999  Recipient of a Scholarship from the German Academic Exchange Service (DAAD) to study at the London School of Hygiene and Tropical Medicine
2000  Fully funded M.P.H. student at the Johns Hopkins School of Public Health, Scholarship awarded by the German Academic Exchange Service (DAAD)
2001  Max Bürger Award of the German Society of Gerontology
2003  Travel Grant of the Infectious Diseases Society of America for “excellence in abstract submission
2005  Travel Grant of the Infectious Diseases Society of America for “excellence in abstract submission
2006  Travel Grant of the Infectious Diseases Society of America for “excellence in abstract submission
2007  Special citation for Fellows in Training by the Infectious Diseases Society of America for the “caliber of abstract submitted”
2007  Travel Grant of the Infectious Diseases Society of America for “excellence in abstract submission
2008  Travel Grant of the Infectious Diseases Society of America for “excellence in abstract submission
2008  Vision Grant Award from the Preeclampsia Foundation
2009  Travel Grant of the Infectious Diseases Society of America for “excellence in abstract submission
2010  Brookdale Leadership in Aging Fellow
2013  Beeson Fellow (Paul Beeson Career Development Award in Aging Research)
C. Contribution to science

1. It has long been evident that older individuals are at increased risk for morbidity and mortality from infectious diseases. While it is likely that comorbid conditions contribute to the observed increase in mortality (e.g. relative tissue ischemia from vascular disease exacerbating intestinal track inflammatory disorders), it is clear that impaired host defenses associated with aging also contribute to increased morbidity and mortality. For example, the impact of influenza is disproportionately high in older individuals, with 90% of the approximately 30,000-40,000 annual deaths in the US attributed to influenza occurring in individuals over age 65. Currently available non-living influenza vaccines are of relatively low efficacy, giving an average of around 75% protection in a 4 year trial. Levels of protection induced are markedly lower in the elderly, and have been shown to be as low as 23%. Particularly given the recent emergence of atypical influenza strains, there is an important need to understand alterations in immune response in the context of aging.

Until recently little was known about alterations in human TLR function in older individuals. Our work has advanced the field by providing the most comprehensive analysis of the effects of aging on TLR function (cytokine production and costimulatory protein expression) and expression to date. We believe there is innovation in the links we have demonstrated between TLR function and influenza vaccine antibody response, and in the discovery of elevated basal cytokine levels in DCs from older, but not young individuals. Such cytokine dysregulation has facilitated the integration of models of innate immune immunosenescence with those indicating an age-associated heightened pro-inflammatory environment. There is also innovation in our approach to understanding the basis of the age-associated changes in TLR expression observed in our studies; our data indicate that the endoplasmic reticulum (ER)-localized protein PRAT4a, which has been shown to be crucial for surface expression and the proper intracellular localization of multiple TLRs, is decreased in expression in PBMCs from older, compared to young individuals. This suggests a previously unanticipated role for chaperone proteins in age associated alterations of TLR function.


Complete List of Published Work in MyBibliography:

D. Research Support

Ongoing Research Support

DSM
Private Industry Grant (PANDA)
Age associated defects of TLRs on human alveolar macrophages 07/01/2017 – 6/30/2020
The goals of this grant are to determine age associated defects in TLR function on human alveolar macrophages.

Completed Research Support

NIA/AFAR
Paul B. Beeson Clinical Scientist Development Award in Aging (K08)
1K08AG042825-01 (Panda) 08/15/12 – 06/30/18
**Age associated defects in localization and trafficking of Toll-like receptor 1**
The goals of this grant were to determine age associated defects in TLR 1 function.

The Preeclampsia Foundation
Vision Grant Award (Panda) 01/01/09 – 12/31/09
**Characterization of TLR patterns in blood from preeclamptic women**
The goals of this grant were to characterize TLR induced cytokine production in women with preeclampsia.
Role: PI

Brookdale Foundation
Brookdale Leadership in Aging Fellowship (Panda) 07/01/10 – 06/30/12
**Altered innate immune functioning of dendritic cells in elderly humans**
The goals of this grant were to determine age associated defects in TLR function.
Role: PI

NIAID/NIH
K08 - 1K08AI087876-01A1
**Characterizing TLR Function of Human Dendritic Cells in the Elderly** 07/01/12 – 6/30/17
(returned because of overlap with Beeson award)
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.
Throughout his life, John Beilenson has been inspired by the power of the printed (and more recently the electronic) word.

The grandson of the founders of Peter Pauper Press, a small printing and publishing company in Westchester County, New York, he learned to set type by hand in elementary school and wrote sports, first for his local Gannett paper in high school and then in college. After graduating, he completed the intensive Radcliffe Publishing Procedures course and was poised to serve as the third generation of Beilensons to run the family business.

Instead, a friend recommended him for a public affairs job in New York City government, and during the next 30 years, he has gone on to work for or with a wide range of government agencies, nonprofit organizations, and foundations and to help these groups use communications for social good. He also earned a Master’s in Communications Studies from UNC-Chapel and founded the North Carolina Media Institute, which trained grass-roots environmental activists in advocacy and communications skills.

Today, Beilenson is President of Strategic Communications and Planning (SCP), a full-service, socially responsible consulting firm in Wayne, PA, with specialties on both ends of the age spectrum, children and older adults. In the aging field, SCP’s clients include the Grantmakers In Aging, the American Federation for Aging Research, and several geriatrics innovators at the University of California – San Francisco, Indiana University, Johns Hopkins University, and Mount Sinai Medical Center. In a volunteer capacity, Beilenson is a board member and former chair of Surrey Services for Seniors, a local nonprofit center serving more than 6,000 older adults in Southeastern Pennsylvania.

“Communications, whether in person, in print, or on the Web, is powerful,” he says. “It is how we connect. And it is in the context of these connections—these relationships, large and small—that we learn and ultimately make change.”

February 2018
Katherine E. Hartmann, MD, PhD

Dr. Hartmann is Associate Dean for Clinical & Translational Scientist Development at Vanderbilt and leads Education, Training, and Career Development for the CTSA and two additional career development programs. She is also Deputy Director of the Institute for Medicine and Public Health with oversight of the core graduate programs aligned with the Vanderbilt CTSA. The hallmarks of her leadership in career development for researchers are steadfast interdisciplinary focus and service to investigators. The latter is achieved by providing cross-cutting, practical resources such as internally-funded career development awards; two monthly seminar series tailored to career stage; workshops on timely topics like rigor and reproducibility, and sex and gender biology in research design; work-in-progress and peer mentoring groups; manuscript sprints; an institutional library of more than 150 funded grants; grant pacing workshops; internal study sections providing more than 135 reviews each year; and coordination of translational science pathways to facilitate individualized didactic and experiential learning in six foundational areas of translational research. For mid-career faculty and mentors resources include assistance with K24 and K12 grant development; workshops on topics such as guiding mentees in developing realistic career timelines and obtaining minority supplements; and conducting annual confidential mentor evaluations and providing aggregated feedback. Her office supports tracking systems to evaluate, gather suggestions, and continuously improve resources, and to measure outcomes for career development programs that serve more than 350 funded trainees each year. Dr. Hartmann is embedded in activities that reach across the entire trajectory of research careers from an intensive program in our public schools to support STEM experience, through initiatives to engage senior faculty in collaborative research in new areas. Her own research expertise includes conduct of large cohorts, behavioral interventions, clinical trials, assessment of medical tests, and quantitative methods. She currently chairs the NIH Pelvic Floor Disorders Network. In life, she is a wife, mother of four adult children, fitness fanatic, and dedicated greyhound rescue volunteer.
Jeffrey Kaye is the Layton Endowed Professor of Neurology and Biomedical Engineering at Oregon Health and Science University (OHSU). He directs ORCATECH - the National Institute on Aging (NIA) - Oregon Center for Aging and Technology and the NIA - Layton Aging and Alzheimer’s Disease Center at OHSU. Dr. Kaye has focused over the past two decades on the question of why some individuals remain protected from functional decline or dementia with advancing age while others succumb at much earlier ages. This work has relied on a number of approaches ranging across the fields of genetics, neuroimaging, physiology and continuous life-activity monitoring. He leads several longitudinal studies on aging and clinical trials including the ongoing the Intelligent Systems for Detection of Aging Changes (ISAAC), the Life Laboratory, the Ambient Independence Measures for Guiding Care Transitions, and the Collaborative Aging (in Place) Research using Technology (CART) studies all using pervasive computing and sensing technologies for assessment and developing interventions directed toward transitions signaling imminent health and functional change. He is also a principal investigator for the Integrated Analysis of Longitudinal Studies of Aging (IALSA), an international effort to harmonize aging and dementia data for improved analysis. Dr. Kaye has received the Charles Dolan Hatfield Research Award for his work. He is listed in Best Doctors in America. He serves on many national and international panels and boards in the fields of geriatrics, neurology and technology including as a commissioner for the Center for Aging Services and Technology (CAST), on the Advisory Council of AgeTech West, the International Scientific Advisory Committee of AGE-WELL Canada, and Past Chair of the International Society to Advance Alzheimer’s Research & Treatment (ISTAART). He is an author of over 400 scientific publications and holds several major grant awards from federal agencies, national foundations and industrial sponsors.
NAME: Edward H. Koo

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

POSITION TITLE: Professor of Neurosciences

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>Amherst College, Amherst, MA</td>
<td>B.A.</td>
<td>1976</td>
<td>Biology</td>
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<tr>
<td>Duke University School of Medicine, Durham, NC</td>
<td>M.D.</td>
<td>1980</td>
<td>Medicine</td>
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A. Personal Statement

Edward Koo’s laboratory is interested in cell and molecular biological questions related to Alzheimer’s disease pathogenesis, neurodegeneration, and aging in the brain as well as translational research in Alzheimer’s disease therapeutics. His current research focuses on the physiological and pathological functions of the amyloid precursor protein (APP), pathways related to Aβ generation, and the mechanisms of synapse loss in aging and in Alzheimer's disease where he uses cellular and molecular biological approaches as well as animal models to study AD-relevant pathophysiology. His previous studies also focused on biology of Presenilins and Alzheimer’s disease therapeutics based on γ-secretase modulators. Until January 2016, he co-directed the Shiley-Marcos Alzheimer’s Disease Research Center with Dr. Douglas Galasko, where they both oversaw and supervised the overall operations of the Center. He stepped down when he took a second position at the National University of Singapore, now splitting time between the two institutions but still maintaining his UCSD lab and mentoring students and postdoctoral fellows. He was the previous director of an institutional T32 award on the Neuroplasticity of Aging.

Positions and Honors

POSITION AND EMPLOYMENT

| 1976-1977 | Research Assistant in Embryology (Prof. Oscar E. Schotté), Amherst College |
| 1980-1981 | Resident in Pathology, Duke University Medical Center |
| 1981-1982 | Resident in Medicine, NC Memorial Hospital, UNC-Chapel Hill |
| 1982-1985 | Resident to Chief Resident in Neurology, University of California, San Francisco |
| 1985-1990 | Resident and Fellow in Neuropathology, Johns Hopkins University School of Medicine |
| 1990-1991 | Assistant Professor, Dept. of Pathology, Johns Hopkins University School of Medicine |
| 1991-1996 | Assistant to Associate Professor, Dept. of Pathology, Harvard Medical School; Associate Neurologist and Neuropathologist, Brigham and Women’s Hospital, Boston |
| 1996- | Associate Professor to Professor, Department of Neurosciences, University of California, San Diego |
| 2013- | Professor, Departments of Medicine and Physiology, National University of Singapore, Yong Loo Lin School of Medicine, Singapore |

CERTIFICATION
B. Contribution to Science

I. Cell biology of the amyloid precursor protein (APP)

My laboratory has long been interested in the biology of APP, as it is the precursor of the amyloid β-protein (Aβ) that is hypothesized to play a seminal role in Alzheimer’s disease (AD). I have been fortunate to be involved in the initial characterizations of APP processing and trafficking since the cloning of the APP gene in 1987.


II. Pathways of Aβ generation

Given the proposed importance of Aβ in AD pathophysiology, I have focused on the pathways of Aβ generation, primarily from the cell biology perspective. Results from these efforts have contributed significantly to our understanding of Aβ production.


III. Presenilin biology

The presenilins play a central role in AD pathophysiology as it represents the core catalytic activity of the γ-secretase complex. However, it has interesting pleiotropic effects and we have delineated some of these non-amyloid properties.


IV. γ-secretase modulation

Together with Todd Golde, our labs were the first group to identify compounds that have the ability to preferentially lower the production of the putatively amyloidogenic and pathogenic Aβ42 species. This has led to a new avenue of Alzheimer therapeutics by targeting only Aβ42 peptides, rather than non-discriminant inhibition of all γ-secretase activity, as seen in γ-secretase inhibitors that have target specific adverse effects in humans.


V. Cell death and neurodegeneration

Neurogeneration involves both neuronal death and loss of synapses, the latter hypothesized to play a major role in cognitive impairment seen in AD. We have focused our efforts in two ways: identified a potentially cytotoxic pathway mediated by APP that is initiated following cleavage in the cytosolic domain, putatively by caspases, and the mechanisms of Aβ induced synaptic injury. The latter is the focus of the currently funded awards from NINDS.


A complete list of my publications can be found on:

C. Research Support

**Ongoing Research Support**

1RO1 NS084324 Koo/Leutgeb (MPI) 04/01/14 - 03/31/19
Mechanisms of abeta induced dysfunction in hippocampal neuronal circuitry
This new ROI application is a joint MPI proposal by Drs. Koo and Leutgeb, both from UCSD to investigate hippocampal neuronal circuitry using newly developed mouse models of amyloid toxicity.
Role: PI

5 P50 AG05131 Brewer (PI) 04/01/14 - 03/31/19
Alzheimer’s Disease Research Center
Dr. Koo participates in this P50 Award as key personnel in the Clinical and Administrative Cores.
Previously, he served as co-Director together with Dr. Galasko.
Role: Collaborator

NMRC/STaR 009/2012 Koo (PI) 10/01/13 – 09/30/19
Synaptic injury in Alzheimer disease: mechanisms and treatments
Role: PI
NAME: Manly, Jennifer Jaie

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

POSITION TITLE: 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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<tr>
<td>University of California, Berkeley,</td>
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<td>05/1991</td>
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<td>Berkeley, CA</td>
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<td>University of California, San Diego/</td>
<td>PHD</td>
<td>06/1996</td>
<td>Clinical Psychology/</td>
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<td>SDSU, San Diego, CA</td>
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<td>Brown University, Providence, RI</td>
<td>Other training</td>
<td>08/1996</td>
<td>Internship</td>
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<tr>
<td>Columbia University, New York, NY</td>
<td>Postdoctoral Fellow</td>
<td>07/1998</td>
<td>Neuropsychology</td>
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</tbody>
</table>

A. Personal Statement

I am a neuropsychologist whose expertise is detection of cognitive impairment, MCI, and dementia among racially and ethnically diverse older adults. As the co-PI of the WHICAP Offspring Study, I am well suited for participation as a co-investigator on this proposal. My graduate and postdoctoral training provided a background in longitudinal study design and neuropsychological assessment of ethnically, linguistically, and educationally diverse people. As PI on a number of NIA- and Alzheimer’s Association-funded grants, I have established expertise in the areas of early life determinants of MCI, AD, and cognitive aging, and social and biological risks for cognitive impairment among diverse middle aged and older adults. My research has explored educational experience and risk for MCI, AD and cognitive decline, as well as measurement of cognitive function and health among African Americans and Hispanics. As the co-PI of REGARDS, and the PI of the School Quality in Project Talent Aging Study and the multi-site African American AD Genetics Study, I have expertise in recruitment, characterization of biological, genetic, and environmental risk factors, and data analysis of large community-based cohorts. In summary, my research has contributed significantly to knowledge about the educational, biological, and genetic mechanisms of disparities in MCI and dementia.

B. Positions and Honors

Positions and Employment

1995 - 1996 Intern in Clinical Neuropsychology, Brown University, Providence, RI
1996 - 1998 Postdoctoral Fellow, Columbia University, Department of Neurology, G.H. Sergievsky Center, and Taub Institute for Research on Alzheimer's Disease and the Aging Brain, New York, NY
1998 - 2006 Assistant Professor, Columbia University, Department of Neurology, G.H. Sergievsky Center, and Taub Institute for Research on Alzheimer's Disease and the Aging Brain, New York, NY
2006 – 2018 Associate Professor, Columbia University, Department of Neurology, G.H. Sergievsky Center, and Taub Institute for Research on Alzheimer's Disease and the Aging Brain, New York, NY
2018 - Professor, Columbia University, Department of Neurology, G.H. Sergievsky Center, and Taub Institute for Research on Alzheimer's Disease and the Aging Brain, New York, NY

Selected Other Experience and Professional Memberships

1991 - Member, International Neuropsychological Society
1995 - Member, Society for Clinical Neuropsychology (Division 40 of the American Psychological Association)
1995 - 2014 Member, American Psychological Association
1995 - 2014 Member, NIH Adult Psychopathology and Disorders of Aging (APDA) Study Section
2001 - 2008 Editorial Board, Neuropsychology
2005 - 2007 National Board Member, Alzheimer’s Association
2005 - 2010 Editorial Board, Alzheimer’s Disease and Associated Disorders
2001 - 2007 Member, NIH Adult Psychopathology and Disorders of Aging (APDA) Study Section
2005 - 2008 Editorial Board, Neuropsychology
2005 - 2007 National Board Member, Alzheimer’s Association
2005 - 2010 Editorial Board, Alzheimer’s Disease and Associated Disorders
2006 - 2012 Chair of Continuing Education Program, International Neuropsychological Society
2006 - 2012 Council Representative, American Psychological Association Division 40 (Society for Clinical Neuropsychology)
2007 - 2010 Member, American Psychological Association Board of Scientific Affairs
2011 - 2015 Member, HHS Advisory Council on Alzheimer’s Research, Care, and Services
2012 - Member, Alzheimer’s Association Medical and Scientific Advisory Board
2016 - Publications Committee Chair, International Neuropsychological Society

Honors (selected)

2002 Early Career Award, American Psychological Association Division 40 (Society for Clinical Neuropsychology)
2005 Fellow, American Psychological Association Division 40 (Society for Clinical Neuropsychology)
2006 Early Career Award, National Academy of Neuropsychology
2014 Tony Wong Diversity Award for Outstanding Mentorship, National Academy of Neuropsychology

C. Contributions to Science

1. Clarification of role of cultural and educational experience in cognitive test performance

Neuropsychological tests are used to diagnose and characterize cognitive impairment associated with neurological, psychiatric, and medical conditions such as Alzheimer’s disease, stroke, head injury, epilepsy, and mental illness. In order to accurately detect cognitive impairment, we must first know the “normal” or “expected” limits of test performance for individuals. Neuropsychologists have traditionally compared performance against normative values that adjust for age and years of education; however, using these methods, ethnic minorities are more likely to be misdiagnosed or misclassified as having cognitive impairment as compared to Caucasians. Dr. Manly has been a leader in addressing this problem through examination of the role of cultural and educational experience in cognitive test performance. Within people of the same racial classification, those with cultural experiences that are dissimilar to “majority American culture” obtain lower scores on neuropsychological tests (Manly et al., 1998). Dr. Manly confirmed the importance of educational experience by showing that within African American elders, those who attended elementary school in Southern, rural, segregated schools performed more poorly on
cognitive tests than those who attended school in integrated, Northern, urban schools (Liu et al., 2015). The effect of school setting was independent of years of education (highest grade achieved), suggesting that measuring education by years alone, and matching ethnic groups on this basis, is inadequate (Sisco et al., 2015). Dr. Manly demonstrated that African Americans were more likely to have reading skills significantly below their self-reported education level, and that this correlated with significantly lower scores on cognitive tests (J Int Neuropsychol Soc 2002; 8: 341-348). The analysis of these variables set a new standard in neuropsychology for accounting for quality of education, not just quantity of formal schooling. Dr. Manly’s work demonstrated that discrepancies in quality of education can explain differences in test performance between African Americans and Whites.


2. Literacy, cognitive aging, and Alzheimer’s Disease

Dr. Manly’s work has shed light on link between level of literacy and risk for developing cognitive decline and AD. Dr. Manly demonstrated that among elders with no formal education, literacy level was a major predictor of cognitive test performance (J Int Neuropsychol Soc 1999; 5:191-202). When assessed over several years, those with low levels of literacy had a steeper decline in both immediate and delayed recall of a word list (J Clin Exp Neuropsychol 2003, 25: 680-690) and in the general cognitive domains of memory, executive function, and language as compared to those with high literacy.


3. Mild cognitive impairment in a diverse population cohort

Most of what we know about risks for Alzheimer’s disease and cognitive decline results from research on White, well-educated older adults who have presented to specialty memory disorders clinics. Dr. Manly’s research has contributed to our knowledge of the course and outcome of cognitive decline, Mild Cognitive Impairment (MCI), and dementia among ethnically and educationally diverse older adults. She implemented criteria for MCI, which is the transition state between normal aging and AD, among ethnically diverse English and Spanish speaking elders (Manly et al., 2005), and then described the longitudinal outcomes and incidence of MCI in the same cohort (Manly et al., 2008). Dr. Manly participated in work on the course and etiology of dysexecutive MCI (Huey et al., 2013), and has validated telephone instruments for the identification of MCI in ethnically and linguistically diverse older adults (Manly et al., 2011).


4. Bilingualism and cognitive aging and dementia

Several research studies have reported a relationship between bilingual status and lower risk of developing Alzheimer's Disease, or delayed onset of the disease. However, this prior work has almost exclusively been carried out in selected clinical samples using cross-sectional data. Dr. Manly's research team (Zahodne et al, Neuropsychology, 2014; 28:238-46) demonstrated that in a longitudinal, prospective study that allowed for direct, standardized observation of cognitive performance and determination of date of dementia onset among bilingual and monolingual older adults matched on key experiential variables, there was no advantage of bilingualism for maintenance of cognitive function or development of dementia.


5. Advanced Methodological Approaches to Understanding Disparities in Cognitive Aging and Dementia

Cross-sectional differences in cognitive test performance across racial and ethnic groups across the life span and older age have been well-documented, but the implications of these studies are limited by potential measurement bias, selection bias, and lack of data on longitudinal trajectories of cognitive change. Factors that help to explain racial/ethnic group disparities in cognitive function at baseline are becoming better understood, but the influence of these variables on trajectories, if any, is less clear. Dr. Manly has been an influential participant in efforts to clarify these issues, including investigations of construct validity of neuropsychological measures (Siedlecki et al., 2010) among Spanish and English speakers, demographic influences on retest effects (Gross et al., 2015), use of instrumental variables in understanding the role of education on cognitive outcomes (Nguyen et al., 2016), and use of cross-sectional data in multiple cohorts to understand the influence of survival bias on magnitude of racial disparities.


d. Siedlecki KL, Manly JJ, Brickman AM, Schupf N, Tang MX, Stern Y. Do neuropsychological tests have the same meaning in Spanish speakers as they do in English speakers?. Neuropsychology. 2010 May;24(3):402-11. PMID: 20438217.


D. Additional Information: Research Support and/or Scholastic Performance
Ongoing Research Support (selected)

P30AG059303  Manly/Luchsinger (PIs)  04/01/2018-03/31/2023
Columbia Center for Interdisciplinary Research on Alzheimer's Disease Disparities (CIRAD)
The goal of CIRAD is to provide mentoring and career development, support for pilot studies, training in
health disparities, and interdisciplinary collaboration to investigators from under-represented backgrounds
who are pursuing ADRD research, and to support and accelerate research on the biological, behavioral,
sociocultural, and environmental mechanisms of ADRD disparities so that they can be narrowed or
eliminated.
Role: MPI

R01AG58067  Brickman/Manly (PIs)  07/01/2018 - 06/30/2023
Tau PET imaging in racially/ethnically diverse middle-aged adults
The purpose of this study is to examine the extent to which tau deposition is related to cognitive function, to
determine whether tau deposition varies across racial/ethnic groups, and to determine the extent to which
cerebrovascular disease is associated with tau pathology in midlife
Role: MPI

U01NS041588  Howard/Manly (PIs)  09/01-01-31/23
Etiology of Geographic and Racial Differences in Stroke (REGARDS)
This study investigates the mechanisms of disparities in incidence of stroke and cognitive impairment.
Role: MPI

RF1AG054070  Manly/Brickman (PIs)  07/01/16-06/30/21
Offspring Study of Mechanisms for Racial Disparities in Alzheimer’s Disease
The overall aim of this study is to identify biological and sociocultural mechanisms of racial/ethnic disparities
in cognitive function among middle-aged people with and without a parent with Alzheimer’s Disease.
Role: MPI

RF1AG056164  Manly (PI)  09/15/16-08/31/21
School Quality and Racial Disparities in Alzheimer’s Disease in Project Talent
This project will evaluate the later life health effects of school characteristics and educational outcomes from
adolescence and test the potential life-course mechanisms through which school quality may reduce AD risk.
Role: PI

RF1AG054023  Mayeux (PI)  09/01/16-08/31/21
Genetic Epidemiology of Cerebrovascular Factors in Alzheimer's Disease
Investigates the shared genetic influences of cardiovascular risk factors, cerebrovascular disease and AD.
Role: Co-Investigator

R01AG049810  Bondi (PI)  03/15/16-02/28/21
Re-Visiting MCI and Preclinical AD Diagnosis to Inform Future Biomarker Studies
Seeks to improve Mild Cognitive Impairment (MCI) diagnosis, subtype characterization, and operationalization.
Role: Co-Investigator

R01AG054520  Brickman/Zahodne  08/01/17-05/31/22
Resilience Mechanisms Underlying Racial/Ethnic Disparities in Alzheimer’s Disease
The overall aim of this longitudinal study is to identify new, modifiable mechanisms of racial/ethnic disparities in
Alzheimer’s disease (AD) among a multi-ethnic cohort of approximately 2,000 older adults.
Role: Co-investigator

R01AG055299  Luchsinger  07/01/17 – 04/30/22
Are there ethnic differences in brain amyloid and tau in the seventh decade of life?
Goals: to compare in-vivo Alzheimer’s neuropathology across Blacks, Hispanics, and Whites in Northern
Manhattan.
Role: Co-Investigator
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: Scott Allen Small, M.D.

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

POSITION TITLE: Professor of 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.)

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A. Personal Statement
Influenced by my early research experience in Eric Kandel’s lab (Small SA et al, Science, 1989; Small SA et al, Journal of Neuroscience, 1992; Zhuo M, Small SA et al, Science, 1993), my lab focuses on disorders that affect the hippocampal circuit. The lab is organized around the principle of ‘regional vulnerability’. We hypothesize that different regions of the hippocampal circuit are vulnerable to different disorders, and that pinpointing vulnerable and resistant regions can provide pathogenic insight (reviewed in, Small SA, Neuron, 2014). Accordingly, I have constructed my lab to have two divisions that work together toward this common goal. The first is a neuroimaging division in which we perform functional and structural MRI studies in human and animal models, designed to identify patterns of regional vulnerability in the hippocampal circuit (reviewed in, Small et al, Nature Reviews Neuroscience, 2011). The second is a ‘wet lab’ division in which we identify molecular pathways underlying the patterns of regional vulnerability, and then validate these pathways in animal models and cell culture (reviewed in Small SA, Neuron, 2014).

It was via the principle of regional vulnerability that my lab established an anatomical double-dissociation, within the hippocampal circuit, between Alzheimer’s and normal aging. We then relied on these anatomical findings to establish molecular and mechanistic dissociations between Alzheimer’s and normal aging. Most important, in my view, is our linking retromer-dependent endosomal trafficking to Alzheimer’s disease, which based on other findings is now considered a pathogenic cellular mechanism (reviewed in, Small et al, Trends in Neurosciences, 2017)

Most recently, my lab has relied on these anatomical and mechanistic dissociations to begin a drug discovery programs for Alzheimer’s disease (based on, Mecozzi et al, Nature Chemical Biology, 2014), and therapeutic programs for Cognitive Aging (based on, Brickman et al, Nature Neuroscience, 2014).

B. Positions and Honors.
Positions and employment
1992-1993 Medical Internship, Internal Medicine, UCLA Medical Center. Los Angeles, California
1993-1995 Neurology Residency, Columbia Presbyterian Medical Center, New York, NY
1995-1996 Chief Resident, Columbia Presbyterian Medical Center, New York
1996-1998 Fellowship in Neurobehavior, Columbia Presbyterian Medical Center, Sergievsky Center, New York, NY
1999-2007 Herbert Irving Assistant Professor of Neurology, Columbia University, School of Physicians and Surgeons, New York, NY
2007-2010 Associate Professor of Neurology, Columbia University, School of Physicians and Surgeons, New York, NY
2010-2012 Professor of Neurology, Columbia University, School of Physicians and Surgeons, New York, NY
2013 Boris and Rose Katz Professor of Neurology, Departments of Neurology and Radiology Columbia University, School of Physicians and Surgeons, New York, NY
2016 Research Scientist, New York State Psychiatric Institute, New York, NY

Honors/Awards
B.A, summa cum laude, NYU; University Award for Distinguished honors Thesis, Founders Day Award for highest bracket of scholastic, NYU; Irving Center Scholar Award, Columbia University; AFAR Paul Beeson Physician Faculty Scholar in Aging Research Award; Jan Swammerdam Lecture in Neuroscience, University of Amsterdam; McKnight Neuroscience of Brain Disorders Award; Elected to the Memory Disorders Research Society. McKnight Neuroscience of Brain Disorders Award; The Derek Denny-Brown Young Neurological Scholar Award, American Neurological Association; The Harold and Golden Lamport Award for Excellence in Clinical Science Research, Columbia University; The Larry Benardo Memorial Lecture. SUNY Downstate Medical Center. Director, Alzheimer’s Disease Research Center, Columbia University.

C. Contribution to Science
1) Optimized a neuroimaging variant designed to map hippocampal dysfunction across species.
The regions of the hippocampal circuit are tiny, a few millimeters in dimension. Moreover, many disorders that affect the hippocampal circuit start by causing ‘cell sickness’ without, or before, ‘cell death’. Therefore, the lab dedicated its first few years to ‘R&D’, setting out to optimize and develop high-resolution variants of functional MRI specifically designed to map dysfunction in the hippocampal circuit, in patients and animal models. Publications from this period include:

2) Anatomically dissociated Alzheimer’s Disease from Cognitive Aging. Once we optimized a fMRI variant that can pinpoint dysfunction within the hippocampal circuit, we applied this approach to Alzheimer’s patients across different stages of disease, to healthy subjects across the life span, and to animal models of Alzheimer’s and aging. Collectively, the series of studies showed that two hippocampal regions—the entorhinal cortex and the dentate gyrus—establish an anatomical double-dissociation between Alzheimer’s and cognitive aging.


**3) Mechanistically dissociated Alzheimer’s Disease from Cognitive Aging.** Guided by the anatomical dissociations, we first identified and then validated that retromer-dependent endosomal trafficking is linked to Alzheimer’s disease. In the case of cognitive aging, we identified molecules linked to CREB-dependent histone metabolism, and together with the Kandel lab, showed that it plays a causal role in age-related memory decline.


**4) Cognitive Aging Therapeutics.** Guided by the anatomical and mechanistic dissociations, we have begun investigating behavioral interventions (i.e., exercise or diet) that are designed to ameliorate cognitive aging.


**5) Alzheimer’s Disease Drug Discovery.** Guided by the anatomical and mechanistic dissociations, we have begun a drug discovery program for Alzheimer’s disease.


Complete List of Published Work in MyBibliography:
D. Research Support

Ongoing Research Support:

P50 AG08702 (Small)  
NIH/NIA  
Director of the Alzheimer's Disease Research Center

R61 MH112800 (Small)  
NIH/NIMH  
Glutamate reducing interventions in schizophrenia

U01 AG016976 (Small)  
University of Washington Subcontract

R01 AG042317 (Abeliovich)  
NIH/NIA  
Human induced neuronal stem cell models of familial Alzheimer’s disease
To determine the mechanism for altered endosomal trafficking in Familial Presenilin mutant Alzheimer’s disease models.

W81XWH-14-1-0236 (Small/Sloan)  
DoD  
Hippocampal and Cognitive Function, Exercise and Ovarian Cancer: A Pilot Study
In this application, we propose to investigate the possibility that standard chemotherapy regimen used to treat ovarian cancer leads to memory impairment because it arrests the normal processes of neurogenesis, the growth of new nerve cells, in this brain region.

R01 MH105355 (Small/Neria)  
NIH/NIMH  
The overarching goal of the study is to use a functional magnetic resonance imaging (fMRI) paradigm of conditioned-fear generalization, skin conductance response (SCR), and machine learning analytic methods in order to identify a neural signature of trauma-related psychopathology that can potentially serve as an objective measure of pathology and functional impairment, and a novel target for neuroscience informed treatments of functionally impaired trauma exposed populations.

R01 MH113861-01 (Girgis)  
NIH/NIMH
The Neurobiology of Violence in a Psychosis-Risk Cohort
The goal is to determine how to best ask about thoughts of violence, obtain comprehensive assessment of symptom correlates of violent thoughts and actions, and investigate relationships between violent thoughts and brain abnormalities
Role: Co-Investigator

Completed Research Support

IIRP N09G-26 (Small/Sloan)  
NYSTEM  
Exercise and Neurogenesis
We propose to apply a variant of fMRI to a large sample of older subjects to test whether exercise training enhances cognitive function by increasing function in the dentate gyrus.

MARS CU09-1744 (Small)  
MARS  
Understanding the Potential Role of CF With Regard To Brain Function and Cognition
To study the role of cocoa flavanol [CF] consumption in the context of brain function, cognition, and age-related memory decline.
Histone acetylation and cognitive aging

The goal of this proposal is to understand: A) Why Alzheimer’s disease targets specific areas of the brain more than others? B) Whether disease-related dysfunction in one targeted brain region influences dysfunction in others? Answers to these questions will contribute to developing effective therapeutic interventions.

Longitudinal Imaging of Patients at Clinical Risk for Psychosis
In this proposal we will use a variant of functional brain imaging that can detect disease-associated dysfunction in small regions of the brain and apply this to patients at clinical risk for psychosis who are followed prospectively for clinical and brain imaging outcomes. The main project goal is to definitively test the hypothesis of hippocampal hyperfunction as a pathogenic driver in schizophrenia and related disorders.

In vivo validation of the retromer complex as a key component of Alzheimer’s disease etiology
Establish a link between retromer dysfunction and tau toxicity.

Exercise, Age-Related Memory Decline, and Hippocampal Function
The goal of this proposal is to conduct a randomized controlled trial of the effects of aerobic training on cognitive decline and to investigate the role of the hippocampus in mediating this effect.

Targeting retromer dysfunction: a convergent mechanism in familial and sporadic PD
The overarching goals of the present proposal are A.) To further detail mechanisms by which LRRK2 and other PD-related genes regulate vesicular trafficking in cells, and identify potential therapeutic targets and B.) To develop in vitro and in vivo models and tools, including drug-like reagents, for further studies regarding potential therapeutic targets such as VPS35.
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Investigating Neuroinflammation Underlying Postoperative neurocognitive dysfunction, delirium and brain connectivity changes: An INTUITive Observational Cohort Study to Understand the Role of Neuroinflammation in Postoperative Delirium and Cognitive Dysfunction

Miles Berger, Jeffrey Browndyke, David Murdoch, Eugene Moretti, Mary Cooter, Cliburne Chan, David Williams, Michael J. Devinney, Roberto Cabeza, Harvey J. Cohen, Heather Whitson, Kent Weinhold, Joseph P. Mathew

Many investigators have theorized that postoperative cognitive dysfunction and delirium in older adults may be caused by central neuroinflammation. Animal models of these disorders suggest that a postoperative influx of peripheral blood monocytes into the brain, driven by increases in monocyte chemoattractant protein 1 (MCP-1), causes postoperative memory deficits. However, to date no human studies have evaluated whether there are increases in MCP-1 levels and monocyte influx within the CNS of older surgical patients, and/or whether these processes play a role in postoperative cognitive dysfunction or delirium. To evaluate these questions, we have initiated the K76-funded study Investigating Neuroinflammation Underlying Postoperative neurocognitive dysfunction, delirium and brain connectivity changes (INTUIT). INTUIT is a 4 year observational cohort study in which 200 older adults undergoing major non-cardiac, non-neurologic surgery complete pre- and post-operative cognitive testing, delirium screening, fMRI imaging, and blood and CSF sampling. MCP1 levels and monocyte numbers in these CSF samples are measured by multiplex ELISA and polychromatic flow cytometry, respectively. These CSF data will then be combined with cognitive testing and fMRI imaging data to determine the role of MCP1 and monocyte increases in both postoperative cognitive dysfunction and delirium, and postoperative connectivity changes within the brain’s default mode network.

By 10/2018, >50 INTUIT patients have been enrolled in the 1st year of K76 funding. Here we summarize characteristics of these 50 patients (Table 1) and show data on postoperative changes in CSF MCP-1 levels (Fig 1) and monocyte numbers (Fig 2), delirium rates, and postoperative cognition (Fig 3) in this initial INTUIT patient group.

Additionally, we have also performed intraoperative 32 electroencephalogram (EEG) recordings on a subset of INTUIT patients to identify EEG complexity/entropy changes in response to anesthesia that may predict postoperative cognitive resilience. Here we also provide representative examples of these EEG complexity/entropy analyses (Fig 4), from this NIA UH2 funded project.

Taken together, INTUIT will characterize neuroinflammatory mechanisms hypothesized to play a role in postoperative cognitive dysfunction and delirium (and in their underlying alterations in brain network connectivity), and may identify real-time neurophysiologic predictors of postoperative cognitive resilience. Thus, this work has the long-term potential to improve postoperative brain health outcomes for the >16 million older Americans who undergo anesthesia and surgery each year.
Cognitive Decline after Delirium in Patients Undergoing Cardiac Surgery


Background: Delirium is common after cardiac surgery and has been associated with morbidity, mortality, and cognitive decline. However, there are conflicting reports on the magnitude, trajectory, and domains of cognitive change that might be affected. We hypothesized that patients with delirium would experience greater cognitive decline at 1-month and 1-year after cardiac surgery compared to those without delirium.

Methods: Patients who underwent coronary artery bypass and/or valve surgery with cardiopulmonary bypass were eligible for this cohort study. Delirium was assessed using the Confusion Assessment Method. A neuropsychological battery was administered before surgery, at 1-month, and 1-year later. Linear regression was used to examine the association between delirium and change in composite cognitive Z-score from baseline to 1-month (primary outcome). Secondary outcomes were domain-specific changes at 1-month and composite and domain-specific changes at 1-year.

Results: The incidence of delirium in 142 patients was 53.5%. Patients with delirium had greater decline in composite cognitive Z-score at 1-month (greater decline by -0.29; 95%CI -0.54 to -0.05; p=0.020), and in the domains of visuoconstruction and processing speed. From baseline to 1-year, there was no difference between delirious and non-delirious patient in change in composite cognitive Z-score, although greater decline in processing speed persisted among the delirious patients.

Conclusions: Patients who developed delirium had greater decline in a composite measure of cognition and in visuoconstruction and processing speed domains at 1-month. The differences in cognitive change by delirium were not significant at 1-year, with the exception of processing speed.
Title: The Relative Burden of Disability after an ICU versus Non-ICU Hospitalization among Older Adults: a Matched Cohort Study

Authors: Lauren E. Ferrante, M.D., M.H.S.; Margaret A. Pisani, M.D. M.P.H.; Terrence E. Murphy, Ph.D.; Linda S. Leo-Summers, M.P.H.; Thomas M. Gill, M.D.

Institution: Yale School of Medicine, Department of Internal Medicine, New Haven, CT

Key words: disability, critical illness, intensive care unit, rehabilitation

Rationale: Critical illness often leads to new or worsening disability in older persons, but little is known about its effect relative to less severe insults such as hospitalization without ICU admission. Our objective was to evaluate the relative burden of disability incurred after ICU versus non-ICU hospitalizations among older adults.

Methods: From a cohort of 754 initially nondisabled community-dwelling adults, we matched 337 non-ICU hospitalizations (controls) to 173 ICU hospitalizations (cases), using a 2:1 ratio. Matching factors included sex, age (+/- 4 years), calendar year of admission (+/- 4 years), and pre-hospital function (+/- 1 disability on 13-point scale). Participants were evaluated monthly for disability in 13 functional activities from 1998-2015. The analytic sample included those who survived to the first monthly disability assessment after hospital discharge. We evaluated the effect of ICU hospitalization, compared with non-ICU hospitalization, on the disability count over the 6 months after hospital discharge using a multivariable Poisson regression model. Covariates included the matching factors, race, education, body-mass index, depressive symptoms, cognitive impairment, number of chronic conditions, and slow gait speed.

Results: Key characteristics of the two groups prior to ICU/hospital admission were comparable. The mean ages of cases and controls were 82.6 and 82.7 years, respectively. In the month prior to admission, the median disability count in both groups was 3 (interquartile range 1, 6). The Figure provides the least-squares mean number of disabilities (adjusted for covariates), accompanied by standard errors, for ICU and non-ICU hospitalizations over the 6 months after hospital discharge, with the pre-hospitalization value included as a reference. The disability count was considerably higher in the month after an ICU than non-ICU hospitalization. The difference in disability count between the two groups diminished gradually over time, leading to only a small difference at 6 months. From month 1 to month 6 after hospital discharge, 24 cases and 18 controls died. In the multivariable analysis, ICU hospitalization was associated with a 33% greater burden of disability over the 6 months after hospital discharge (relative risk [RR] 1.33, 95% confidence interval [CI] 1.21, 1.46).

Conclusions: Disability is markedly increased after an ICU versus a non-ICU hospitalization, and the overall burden of disability over 6 months is 33% greater after discharge from an ICU hospitalization - yet our post-acute rehabilitation model is the same for both groups. Additional rehabilitative efforts are warranted for the growing population of older ICU survivors.
Incidence of cerebral microbleeds in the aging population

Authors; Jonathan Graff-Radford MD, David S. Knopman MD, Clifford R. Jack Jr MD, Ronald Petersen MD, and Kejal Kantarci MD

Departments of Neurology and Radiology Mayo Clinic, Rochester, MN

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). We analyzed 651 Mayo Clinic Study of Aging participants age 50 years and older (55% male) with 3T MRI scans with at least two separate T2* Gradient recall echo sequences from October 2011-August 2017. 87% underwent C-11-Pittsburgh Compound-B (PiB) PET scans. An inverse probability weighting approach was used to convert our observed rates to population incidence of CMBs. Age specific incidence rates for CMBs were calculated by Poisson regression. Using structural equation models (SEMs), we assessed the impact of amyloid load and baseline CMBs on future CMBs after considering the direct and indirect age, sex, and APOE effects.

Results: The mean age (SD) of participants was 69.8 (10.0) years at baseline MRI scan. One hundred eleven participants (17%) had at least one baseline CMB. The mean (SD) of the time interval between scans was 2.7 (1.0) years. The overall population incidence rate for CMBs was 11.6 per 1000 person years, increasing with age from 1.2 new CMBs per 1000 person years from age 50-69 to 39.1 per 1000 person years from age 70 and older. Using Poisson regression, the incidence rates increased with age and the presence of baseline CMBs. The SEMs showed that (1) increasing age at MRI or carrying an APOE4 allele is associated with more amyloid at baseline, and higher amyloid in turn increases the risk (hazard) of a new lobar CMB; (2) the presence of CMBs at baseline increases the risk of a lobar CMB and has a larger effect size than amyloid load; (3) increasing age at MRI is associated with more CMBs at baseline, which in turn increase the risk (hazard) of a new deep CMB.

Conclusions: The incidence rate for CMBs increases significantly with age. Age and APOE4 carrier status act through amyloid load to increase the risk of subsequent lobar CMBs, but the presence of baseline CMBs is the most important risk factor for future CMBs.
Assessing Technical Feasibility and Acceptability of Providing Telehealth Palliative Care in Nursing Homes

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Victoria Wertz, MS, RN¹
Nhat Bui, MS, RN, PHN, AGNP²
Edyssa Uy, MS, RN, AGNP³
Pamela Barrientos, MS¹
Daniel David, PhD, RN¹
Sei J. Lee, MD, MAS⁴,⁵
Christine Ritchie, MD, MSPH, FACP, FAAHPM⁴

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² Asian Health Services
³ City of Hope
⁴ University of California, San Francisco – School of Medicine, Division of Geriatrics
⁵ San Francisco VA Medical Center

Nursing homes (NHs) are increasingly the site of death for older adults with serious illnesses, many of whom have unmet palliative care (PC) needs. Given PC workforce limitations, leveraging alternative approaches such as technology-based tools is critical to addressing these gaps. Use of telehealth to provide NH PC has been extremely limited, only focusing on end-of-life care. No studies to date have examined how it can be used to proactively deliver PC expertise/support to NH residents, families, and staff. We conducted 6 feasibility tests of telehealth PC in 3 NHs with 19 residents, families, providers and staff (53% female, 47% white, 79% age 50+). None had prior experience with telehealth. 100% were comfortable with the video visit and could see themselves using it in the near future (74% for own care; 90% for family care). 84% strongly believed technology could improve communication between patients/families/providers; 74% strongly believed technology could improve care coordination between NHs and hospitals. 37% rated audio quality fair, 63% good/very good. 47% rated visual quality fair, 47% good/very good. NH telehealth PC is technically feasible and acceptable, providing an innovative opportunity to improve access to needed NH PC services and supports.

KEY WORDS: nursing home, palliative care, telehealth, feasibility
Title: How well can we prospectively identify older adults with serious illness and high health care expenditures?

Authors: Claire K. Ankuda, MD, MPH; Partha Deb, PhD; Evan Bollens-Lund, MA; Katherine Ornstein, PhD; Amy Kelley, MD, MSHS.

Institution: Icahn School of Medicine at Mount Sinai, One Gustave L. Levy Place, Box 1070, New York, NY 10029

Abstract:

Objective: To prospectively identify highest-cost older adults with serious illness.

Data Sources: Health and Retirement Study (HRS), 2000-2012

Study Design: We fit a finite mixture model (FMM) on total Medicare expenditures one year after incident serious illness to determine underlying subgroups (classes) and compared it to generalized linear and ordinal least squares models in predicting year two costs. We then evaluated the characteristics, mortality, and utilization of individuals most likely to belong to each latent class based on their posterior probabilities of class membership.

Data Collection: We identified individuals with incident serious illness, defined as severe medical illness or functional disability, and followed Medicare expenditures.

Principal Findings: FMM revealed five latent classes. Individuals assigned to each class by posterior-weighted predictions had average 12-month expenditures of $872, $4,021, $13,313, $41,000 and $110,000. FMM was superior to GLM and OLS in fitting year one expenditures and predicting year two expenditures. While rates of most comorbidities and utilization outcomes were higher in higher-utilization classes, caregiving and functional disability demonstrated a U-shaped distribution along expenditure classes.

Conclusions: Health care use after the onset of serious illness is heterogeneous. Health systems can use FMM with clinical and utilization data to predict and characterize highest-cost individuals.

Key Words: end-of-life care, palliative care, geriatrics, health economics
Development of a firearm storage decision aid

Marian E. Betz MD, MPH; Christopher E. Knoepke, PhD, MSW; Bonnie Siry, MSS; Ashley Clement, MSW; Deborah Azrael, PhD; Stephanie Ernestus, PhD; Daniel D. Matlock, MD, MPH

University of Colorado School of Medicine / Harvard Injury Control Research Center
VA Eastern Colorado Geriatric Research Education and Clinical Center

Key words: dementia, suicide, firearm, decision-making

Background: We developed a web-based decision aid for firearm storage in cases of suicide risk. Now we seek to adapt that tool for use in cases of dementia, by: 1) clarifying decision needs among older firearm owners and caregivers of people with dementia (PWD) about home firearm access; 2) identify accurate, unbiased, and acceptable approaches for content and messaging; and 3) develop a web-delivered decision aid for reducing firearm access in the context of dementia.

Methods: Following international standards, we used stakeholder interviews to develop a decision aid for the decision, “what option(s) to choose to reduce home access to firearms for an adult at risk of suicide.” Participants were adults with: personal or family history of suicidal ideation or behaviors; firearm ownership or employment in a firearm range or store; involvement in suicide prevention field; or work as emergency department or other healthcare provider. Next, we will interview additional stakeholders to adapt the decision aid for dementia; targeted groups will include older adult firearm owners (cognitively intact), caregivers/family members of PWD, and clinicians and leaders in dementia.

Results: Through 64 interviews, we created the “Lock to Live” decision aid for adults with suicide risk, which includes: 1) introduction specifying the decision; 2) clarification of preferences and logistics; 3) table of storage options; and 4) summary with specific next steps. The final tool had high user acceptability and we are testing it in a pilot randomized controlled trial.

Conclusions: Should the “Lock to Live” decision aid prove useful in a pilot feasibility trial and subsequent testing, it could enhance lethal means counseling and help prevent firearm suicide. Similarly, a decision aid tailored to safety considerations in dementia (especially firearm access) could reduce the risk of injury or death, reduce caregiver stress, and simultaneously promote dignity and respect for PWD.
Improving Aging in Place for Older Adults Living in Subsidized Housing

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The ability to live comfortably, safely, and independently in one’s own home and community – often called “aging in place” – is a key component of quality of life for older adults. Yet the ability to age in place is severely compromised among the nearly 3 million older adults living in federally-subsidized housing, who are at disproportionate risk for nursing home admission compared to this general population. This elevated risk is driven largely by functional and cognitive impairments, and compounded by limited access to family supports that can identify and address these impairments. Although some resources are available to help these vulnerable older adults to age in place, these programs have not been found to decrease rates of nursing home placement or to affect other key aspects of aging in place, including functioning and quality of life. Thus, there is a crucial need to develop more effective strategies to identify at-risk individuals in subsidized housing and to deliver targeted interventions to improve functioning and aging in place. The objective of this proposal is to address this gap by completing the following 3 aims: (1) determine barriers and facilitators to implementing a two-component intervention to improve aging in place for older adults living in subsidized housing, and to use these findings to adapt and refine the intervention; (2) determine the feasibility and accuracy of a case-finding program for identifying residents at high risk for nursing home admission; and (3) determine the feasibility and preliminary effectiveness of the Function-Focused Care intervention for improving function in residents at high risk for nursing home admission. Methods: Using qualitative interviews with key stakeholders from 4 subsidized housing sites in the Philadelphia area, we will first identify barriers, facilitators, and needed adaptations to (a) a case-finding program to identify high-risk older adults; and (b) the Function-Focused Care intervention to improve functioning in high-risk individuals. We will then pilot test this adapted intervention in 2 housing sites in Philadelphia and determine its feasibility and preliminary effectiveness. Measures of feasibility for Aims 2 and 3 will include recruitment, retention, intervention fidelity, and acceptability. For Aim 2, we will assess the accuracy of a case-finding program conducted by building staff for identifying older residents at high risk for nursing home admission, compared to a reference standard of research-collected data. For Aim 3, we will assess preliminary effectiveness by examining change from baseline to 6 months for the primary outcome of functional status. We will assess function using both an objective measure (Short Physical Performance Battery) as well as a self-reported measure of ability to perform activities of daily living. Relevance/public health significance: Completing these aims will provide valuable preliminary data which will inform an R01 application employing this intervention, to be submitted in Year 3 of the K76 award. If successful, this intervention could have a transformative impact for vulnerable older adults living in subsidized housing, enhancing their freedom to live in the least restrictive setting while also decreasing costs for long-term care.
Associations between markers of inflammation and frailty in survivors of hospitalization for critical illness

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RATIONALE
Chronic inflammation is associated with frailty, but triggers of inflammation are unclear. Hospitalization, particularly that for critical illness, is associated with the development of frailty, but underlying mechanisms by which acute and critical illness may result in frailty, are unclear. Hospitalizations for critical illness are the most severe type and characterized by high levels of inflammation. The effect of inflammation during critical illness on the subsequent development of frailty is unclear. We hypothesized that higher levels of pro-inflammatory markers during critical illness would be associated with more severe frailty in survivors of critical illness.

METHODS
To test these hypotheses, we enrolled patients with respiratory failure and/or shock from the medical or surgical intensive care units (ICU) from 5 centers. We obtained plasma samples on study days 1, 3, and 5. We measured levels of CRP, IL-6, IL-8, IL-10, TNF-, sTNFR1 using commercially available assays. In survivors, we assessed frailty using the Clinical Frailty Scale (CFS) score (range 1 [very fit] to 7 [severely frail], scores >5 represent clinical frailty). We used linear regression with inverse probability weighting to determine the independent association between log-10 transformed mean biomarker levels and CFS scores at follow-up, adjusting for enrollment CFS score, age, years of education, sex, and coexisting illnesses.

RESULTS
We enrolled 978 patients who were a median [IQR] of 62 [53-72] years old with an APACHE II of 24 [18-30]. We assessed frailty in 585 out of 670 (77%) survivors at 3 months and 439 out of 595 (74%) at 12 months. After adjusting for covariates, no markers were associated with CFS scores at 3 months. At 12 months, higher levels of IL-10 and TNF- were associated with lower CFS scores. (-0.1 [95% CI -0.3 to 0.7], p=0.02; -0.2 [95% CI -0.3 to -0.04], p=0.04, respectively). No other markers were associated with frailty at 12 months.

CONCLUSIONS
In this large, multicenter cohort of survivors of critical illness, markers of inflammation did not demonstrate consistent, clinically significant associations with CFS scores. Future longitudinal studies exploring associations between the persistence of acute inflammation following critical illness and using the biologically-based frailty phenotype are needed.
Frailty Screening Using the Electronic Health Record within a Medicare Accountable Care Organization

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BACKGROUND. A system for identifying frail patients within a health system is key to implementing and tracking the impact of interventions for this population. In England, the accumulation of deficits model for frailty has been used in the British National Health Service to develop an Electronic Health Record (EHR) frailty index (eFI), and the eFI has been incorporated into British guidelines for frailty management. However, a frailty index (eFI) EHR-based approach has yet to be adapted or assessed for use in the United States.

METHODS. We constructed an adapted eFI extracted for patients in our Medicare Accountable Care Organization (ACO, N=12,798) using previously described EHR variables (n = 60) such as encounter diagnosis codes, laboratory values, medications, and Medicare Annual Wellness Visit (AWV) data on function. We constructed an adapted eFI and examined its prospective association with mortality, health care utilization, and injurious falls.

RESULTS. The overall cohort was 55.7% female, 85.7% white, with a mean age of 74.9 (SD=7.3) years. In the prior 2 years, 32.1% had AWV data. The eFI could be calculated for 9,027 (70.5%) ACO patients. Of these, 4,257 (47.2%) were classified as pre-frail (0.10<eFI≤0.21) and or 3,427 (38.0%) frail (eFI>0.21). Accounting for age, comorbidity, and prior healthcare utilization, the eFI was independently predicted all-cause mortality, inpatient hospitalizations, emergency department visits, and injurious falls (all p<0.001). Having at least one functional deficit captured from the AWV was independently associated with an increased risk of hospitalizations and injurious falls, controlling for other components of the eFI.

CONCLUSIONS. Construction of an eFI within the context of a managed care population is feasible and can help to identify vulnerable older adults without adding to clinician or patient burden. Future work is needed to test whether a tool like the eFI can be used to effectively target interventions tailored to the health needs of persons with frailty.
Title: Portals of change- A meaningful portal experience for aging English and Limited English Proficient patients with cardiovascular disease risk in the Los Angeles safety net

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Background: Online health portals (patient portals) allow patients to manage their care from the convenience of an Internet-connected device. Driven by the improved patient outcomes associated with portal use, and the incentives of the 2009 HITECH Act, portal implementation has expanded into the safety net. However, little attention has been paid to the factors that affect portal accessibility by the vulnerable patients served by these health systems—particularly those who are older and Limited English Proficient (LEP).

Methods: The Los Angeles (LA) Department of Health Services (DHS), the second largest safety net in the nation, launched its first portal, and one of the few bilingual English-Spanish interfaces in existence, in March 2015. We conducted eight semi-structured focus groups with LA DHS primary care patients with cardiovascular disease (CVD) risk and their caretakers from June-July 2017. Our aims were to examine portal perception/awareness and to generate strategies to increase uptake. We used open coding to identify themes and examined these across English and LEP groups.

Results: Of the 46 participants, 37 were patients and 9 caretakers; 23 English-speaking, 23 Spanish-speaking (LEP). Mean age was 57 years. All patients had DM and/or HTN. Most were African-American (22%) or Latino (63%), and female (59%). Over half had an annual income <$10K, yet 78% of English-speaking and 65% of LEP participants reported having at-home internet access. The most common of 10 major themes identified was: perceived portal benefit. Though most participants were not aware of a portal, they foresaw a positive impact on their health and daily life after watching a video demonstrating the DHS portal’s tools (i.e. med refills). Both LEP and English-speakers anticipated less travel to clinics, less time wasted on phone, and less missed visits with a portal. LEP participants, in particular, noted the potential to “bypass” communication barriers via the bilingual portal’s direct access to health information—thus feeling more prepared for clinical encounters and allowing LEP family members to be more easily engaged in the patient’s health. Another major theme was meaningful implementation: community outreach about the portal, and physician validation were more frequently mentioned implementation strategies among the LEP.

Conclusions: Older safety net participants identified concrete benefits to the portal, and emphasized the need for portal engagement that offered accessible education, support, and resources in clinical and community settings. As noted by LEP patients, the portal offers an additional opportunity to engage the patient and family in their primary language with trusted and important health information, and should be further developed in this capacity for this vulnerable population.

Key Words: patient portal, digital divide, electronic health, health disparities, LEP, vulnerable patients
Guardianship and End-of-Life Care for Nursing Home Residents with Advanced Dementia
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Background:
A growing number of adults with dementia have no family or friends to make decisions for them and are represented by court-appointed surrogates, known as professional guardians. Anecdotal evidence suggests that professional guardians avoid difficult decisions or choose aggressive treatment by default. This phenomenon, however, has not been studied systematically. We sought to evaluate the relationship between the presence of a professional guardian and the type and intensity of end-of-life care received by decedent nursing home residents with advanced dementia.

Methods:
We performed a retrospective cohort study involving veterans who died from 2011-13. We obtained administrative data from the Department of Veterans Affairs (VA) and the Centers for Medicare and Medicaid Services and then used Minimum Data Set assessments to identify decedent veterans who were nursing home residents and had advanced dementia. We applied methods developed in prior work to determine which veterans had professional guardians. This involved searching specific fields in VA administrative data for forms of the words “guardian” and “conservator,” then conducting detailed chart reviews. Decedent patients with professional guardians were matched in a 1:4 ratio to decedent patients without professional guardians on the basis of age, gender, race, and type of nursing facility (VA vs. non-VA nursing home). We used multivariable logistic regression to examine the relationship between type of decision-maker and our primary outcome, which was ICU admission in the last 30 days of life. Our secondary outcomes included mechanical ventilation in the last 30 days of life and feeding tube placement in the last 90 days of life. Covariates included Charlson comorbidity score and nursing home for-profit status. We also used data from the Dartmouth Atlas to adjust models for regional end-of-life care intensity.

Results:
There were 149 decedent patients with professional guardians and 596 matched decedent patients without professional guardians. In both groups, the mean age was 82.9 (SD 7.2) years, 97% were men, and 19% were non-White. ICU admission occurred for 17.5% of patients with professional guardians and for 13% of the control group (adjusted OR 1.3; 95% CI 0.78, 2.1). Mechanical ventilation occurred for 8.1% and 4.9%, respectively (adjusted OR 1.7; 95% CI 0.8, 3.4), while feeding tube placement occurred for 6.7% and 7.1%, respectively (adjusted OR 0.9; 95% CI 0.4, 1.8). None of these differences was statistically significant.

Conclusions:
Although several forms of high-intensity end-of-life care were more common among patients represented by professional guardians, these differences were not statistically significant, in part because high-intensity care was more common in the control group than we had anticipated. Work is needed to determine the factors that contribute to aggressive care in all patients with advanced dementia.
Optimizing postoperative cognition in the elderly

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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.

Currently we have recruited 173/177 major noncardiac surgery patients over the age of 65; 160 with 3 month follow up to date. In this abstract we present an interim analysis of patients 132/177. The median age is 71 years old, 66% are female, with 16 years of education. Dropout rate is 9%. All patients underwent a neuropsychiatry battery of tests prior to surgery and at 3 months after surgery. The tests included: California Verbal Learning (CVLT), Trails A and B, Digit Span Forward and Backwards, Logical Memory Test, WAIS digit symbol test, Category Fluency (Animal and Vegetables). We scored the tests at baseline and 3 months and created composite scores based on cluster analysis. 3 clusters emerged, one represented by executive function (Trails, Digits, WAIS, and Boston Naming), CVLT, and Memory/Language (Logical Memory, Category Fluency). At 3 months, 34.2% of patients experienced some type of decline of at least 1SD in any cluster , 13.3% executive function, 16.7% CVLT, 15.8% memory language composite (some overlap between groups). 15% of patients experienced decline at the 1.5 SD level. With respect to IADLs after surgery, 31% had decline in 2 or more IADLs. The most impacted included the ability to do housework, drive, shop, keep social appointments, and find belongings. Cognitive impairment significantly increased the odds of IADL difficulties, patients with any decline were more than 3x more likely. As a secondary analysis, we have looked at patient’s subjective sense of impairment and found that it is not very sensitive but relatively specific (24%, 92% respectively).

We will continue to recruit to our goal of 177 patients- and should be adequately powered for the primary outcome given the amount of POCD 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 and also pain, frailty, and depression. We will also analyze our EEG data to understand the role of burst suppression in cognitive decline after surgery.
Genetic Overlap Between Alzheimer’s Disease and Spontaneous Deep Intracerebral Hemorrhage

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Background: Alzheimer’s Disease (AD) and spontaneous intracerebral hemorrhage (ICH) in lobar brain regions share the APOE epsilon variants as a genetic risk factor. It remains unknown whether AD also shares genetic risk factors with ICH compromising deep brain regions, caused by hypertension-related cerebral small vessel disease. We sought to determine whether the cumulative burden of common genetic variants (CGV) associated with AD (other than APOE) influences the risk of deep ICH.

Methods: We utilized a genetic risk scores (GRS) to model the cumulative burden of AD-related CGVs. This GRS was constructed using an approach that combines summary statistics from CGVs known to influence the exposure (AD) and outcome (ICH) of interest. Summary statistics for AD and ICH were acquired through the International Genomics of Alzheimer’s Project and the Cerebrovascular Disease Knowledge Portal, respectively. For AD (derivation dataset), we abstracted summary statistics for independent CGVs associated with AD risk at p<5x10E-8. For ICH (testing dataset), we abstracted summary statistics from a meta-analysis of five genetic studies of this condition.

Results: We identified 19 independent CGVs associated with risk of AD in the derivation dataset (study population 17,008 AD cases and 37,154 controls). Summary statistics were available for 14 of these CGVs in the ICH testing dataset (study population 3,026, mean age 67 [SD 10], female sex 1,362 [45%]). Each additional standard deviation of the AD-based GRS was associated with 40% increase in risk of deep ICH (OR 1.41, 95%CI 1.07 - 1.75; p=0.04). The AD-based GRS explained 0.2% of the variance in deep ICH risk.

Conclusions: The cumulative burden of CGVs linked to AD risk (other than APOE) is associated with risk of deep ICH. Further research is needed to identify the specific genetic risk loci that mediate this association.
Title: A Comparison of Subjective Cognitive Decline Tools

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Objective: Subjective cognitive decline (SCD) is a promising marker of preclinical dementia, proposed as Clinical Stage 2 of the Alzheimer’s disease (AD) continuum. Many SCD measures exist but there is no gold standard assessment tool. We compared the performance of multiple SCD tools to differentiate amyloid status and clinical progression in cognitive unimpaired older adults.

Participants and Methods: Cognitively unimpaired Vanderbilt Memory & Aging Project participants free of clinical stroke (n=160, 73±7 years) completed the Memory Functioning Questionnaire (MFQ), Everyday Cognition (ECog), Cognitive Difficulties Scale (CDS), and Vanderbilt 46-item SCD measure (V-SCD; developed using latent variable modeling for assessment of SCD in older adults for screening of AD). Clinical progression was defined using change in overall Clinical Dementia Rating score at 18-month follow-up (stable (n=128) vs. conversion (n=32)). Amyloid status was determined in a subset (n=83) that completed a baseline lumbar puncture for AB42 acquisition (pg/mL; positive<530 (n=17), negative>531, (n=66)). Area under the receiver operating characteristic (AUC) curve for each SCD tool was used to measure accuracy of discrimination between amyloid status and clinical progression.

Results: For discriminating amyloid status, AUC values ranged from 0.69-0.57 with the V-SCD tool showing the highest performance. For clinical progression, AUC ranged from 0.80-0.69 with the total SCD showing the highest performance, followed by V-SCD (AUC=0.76). ECog showed the lowest AUC for both outcomes. Unpaired and paired comparisons revealed no statistical differences in AUC values between the V-SCD SCD and all other SCD tools (p-values>0.13).

Conclusions: SCD measures demonstrate good performance for discriminating amyloid status and disease progression. Results highlight the potential utility and advantage of the V-SCD measure to screen for AD.

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Unstructured clinical documentation reflecting cognitive and behavioral dysfunction: toward an EHR-based phenotype for cognitive impairment

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Key Words: Text Mining, Electronic Health Record, Narrative Text, Dementia, Cognitive Impairment

Background: Despite the high risk for negative outcomes among patients with dementia and/or delirium during acute illness, cognitive impairment is under-detected during hospitalization. Electronic health record (EHR)-based phenotypes for identifying symptoms of cognitive impairment demonstrate clear potential to increase recognition, inform point of care decision-making and enable proactive interventions. Exclusive reliance on structured EHR data (i.e. medications, ICD codes) in phenotype derivation may systematically overlook high-risk groups who are less likely to receive early diagnosis/treatment, including racial and ethnic minorities. Thus, this study examined unstructured data reflecting symptoms of cognitive impairment in the acute-care EHRs patients with dementia from two hospitals.

Design: Retrospective cohort study.

Sample: Non-hospice Medicare beneficiaries with dementia and primary discharge diagnoses of pelvis/hip/femur fracture or stroke discharged from two hospitals to sub-acute care (N=343).

Methods: Clinician reviewers identified and classified unstructured EHR data using standardized criteria. Relevant narrative text was descriptively characterized and evaluated for key terminology.

Results: Most patient EHRs (90%) had narrative text reflecting cognitive and/or behavioral dysfunction common in CI that were reliably classified (κ 0.82). Of the 2,444 narrative statements reviewed, 56% used vague or general descriptors of cognitive/behavioral dysfunction (i.e. ‘poor mental status’, ‘decreased cognition’) as opposed to diagnostic terminology. Seventy-seven percent of these statements represented descriptions of cognitive function, whereas 23% included descriptors of behavior (i.e. ‘agitated’ ‘restless’).

Conclusions: Findings from this preliminary derivation study suggest that inpatient clinicians use specific terminology in unstructured EHR data fields to describe common symptoms of cognitive impairment. This terminology can inform the design of EHR-based phenotypes for cognitive impairment and merit further investigation in more diverse, robustly characterized samples.
Background and Objectives:
Myriad factors can lead to a high number of medications in older adults with heart failure (HF). This is concerning because taking at least 10 medications (condition known as polypharmacy) is associated with adverse outcomes. We aimed to examine medication patterns, including polypharmacy, of older adults hospitalized with heart failure.

Methods:
We created a unique cohort of older adults aged ≥ 65 years with an adjudicated HF hospitalization from the Reasons for Geographic and Racial Differences in Stroke (REGARDS) study, a geographically diverse observational cohort of 30,228 community-dwelling adults. To characterize participants and medications taken at hospital admission and prescribed at discharge, we performed a rigorous chart review of medical records from each eligible hospitalization. We defined polypharmacy as ≥10 medications. We classified all medications into 3 groups—heart failure-related (HF-related), non-HF cardiovascular-related (non-HF CV), and non-cardiovascular (non-CV) related. We examined medication patterns among the entire cohort, as well as key subgroups based on the presence of geriatric conditions; geriatric conditions included cognitive impairment (6-item screener score <5), poor functional status (SF-12 Physical Composite Scale score [PCS] <30), history of falls, and hypoalbuminemia (albumin ≤3.3 gram/deciliter). We also examined usage patterns of HF-exacerbating medications, based on their presence on the 2016 American Heart Association scientific statement on medications that may induce or precipitate HF.

Results:
We examined 848 hospitalizations. The mean age was 77 years. The prevalence of polypharmacy was 47% at hospital admission, and 58% at hospital discharge. Between hospital admission and discharge, 60% had an increase in the number of medications, 23% had a decrease, and 17% had no change. This pattern was similar among those with geriatric conditions including cognitive impairment, poor functional status, history of falls, and hypoalbuminemia. Notably, the median number of HF-related medications, non-HF CV medications, and non-CV medications all increased between admission and discharge.

We also found that the prevalence of medications that can exacerbate HF remained similar between admission and discharge. The prevalence of HF-exacerbating medication use at admission was 40%. By hospital discharge, just 18% had a decrease in the number of HF-exacerbating medications prescribed, 19% continued on the same number, and 12% had an increase in the number. Consequently, the prevalence at discharge was largely unchanged at 36%.

Conclusion:
There are several important findings from our work. First, polypharmacy is common among older adults hospitalized with heart failure. Second, medication burden frequently increases following a HF hospitalization, leading to an increased prevalence and severity of polypharmacy, a condition associated with myriad adverse outcomes. Third, the number of HF-related, non-HF CV-related, and non-CV related medications prescribed all increased following a hospitalization; while the number of medications with known potential to worsen HF stayed the same. Taken together, our observations underscore the need to develop strategies for a rigorous and thoughtful approach to managing medications of older adults hospitalized for HF.
Title: Functional Status Change in a Survivor Cohort of Older Dialysis Patients

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Keywords: quality of life, frail elderly, geriatric nephrology, acute care utilization

Background: Little is known about self-reported functional status among older adults who survive the first 6 months of dialysis. Our objective was to assess SF-12 physical component score (SF-12 PCS) change over a year and associated risk factors in a survivor cohort of older dialysis patients.

Methods: This is a cohort study of adults aged ≥ 65 years receiving hemodialysis for ≥ 6 months in 2012 and 2013. For individuals with two SF-12 PCS measures at least 300 days apart, we calculated SF-12 PCS change score such that a negative number indicated decline, with clinically relevant change defined as ≥ 3 points. To identify risk factors associated with SF-12 PCS change, we fit a multivariable linear regression model adjusting for demographics, dual eligibility status, time on dialysis, Charlson comorbidity index, access type, albumin, Kt/V, hemoglobin, and hospitalization rate between the two PCS assessments. Post-hoc multivariable logistic regression was used to assess associations of covariates with the odds of being among the 25% with greatest decline, and the odds of experiencing a severe SF-12 PCS decline of ≥ 10 points.

Results: Among 1,371 cohort members, mean age was 79.9±4.5 years old. Average SF-12 PCS change in one year was minimal (-0.9±9.6), but 39.3% (n=539) and 32.2% (n=442) had clinically relevant PCS decline and improvement, respectively. Age, race, access type, and dialysis vintage were not associated with SF-12 PCS change. However, absence of hospitalization between SF-12 PCS scores lowered odds of being in the quartile with greatest decline (more than 6.65 points) (OR 0.74, 95% CI: 0.56, 0.98).

Conclusions: In a survivor cohort of older hemodialysis patients, it was more common for SF-12 PCS decline than improvement in a year. One potentially modifiable risk factor for substantial SF-12 PCS decline is occurrence of any hospitalization.
Association between the Implementation of Hospital-Based Palliative Care and Use of Intensive Care during Terminal Hospitalizations

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

**Rationale:** Despite studies suggesting that the provision of high intensity care at the end-of-life may not be concordant with the majority of patients’ values, use of intensive care at the end-of-life is still highly prevalent. The use of palliative care has been advocated as a way to mitigate this treatment intensity. However, whether implementation of hospital-based palliative care services is associated with less frequent use of high intensity care at the end-of-life is unknown.

**Objective:** To determine whether implementation of hospital-based palliative care is associated with decreased intensive care unit (ICU) utilization during terminal hospitalizations where patients died.

**Methods:** Retrospective cohort study of adult patients in New York State hospitals that either implemented or never had a palliative care program between the years 2008-2014. A difference-in-differences analysis using multilevel regression was used to assess the effect of implementing a palliative care program on ICU utilization during terminal hospitalizations.

**Results:** Of 77,331 patients who died in 54 hospitals, 41,493 (54.7%) received care in a hospital that implemented a palliative care program. Use of ICU during terminal hospitalizations was frequent (50.8% for patients cared for in hospitals that implemented palliative care vs. 46.0% for hospitals did not). Patients who received care in a hospital after implementation of hospital-based palliative care were less likely to receive intensive care during terminal hospitalizations in comparison to patients cared for in hospitals that never had a palliative care program (adjusted rate ratio (aRR) 0.91 [0.83-0.99], p=0.03).

**Conclusions:** Implementation of hospital-based palliative care was associated with a small but measurable decrease in the use of intensive care during terminal hospitalizations.
The exact pathogenesis of Alzheimer’s disease (AD) remains unclear; however, a leading hypothesis is that accumulation of amyloid-beta (Aβ) peptides derived from the amyloid precursor protein (APP) leads to the neurodegeneration and eventual dementia in AD (Lancet 388:505, 2016). As recent failures in AD therapeutic trials highlight that effectively treating AD once dementia develops may be difficult, understanding the earliest manifestations of AD is critical (Alzheimer’s Res Ther, 9:60, 2017). One of the earliest signs of AD is metabolic dysfunction of unclear mechanisms resulting in accelerated early body weight loss that precedes the mental decline during the preclinical stage of AD, where Aβ and tau pathologically accumulate but prior to any significant cognitive impairment (Arch Neuro 63:1312, 2006; Sci Rep, 7:1225, 2017). Furthermore, loss of body weight in AD also correlates with disease severity and mortality (J Am Geriatr Soc 46:1223, 1998). Interestingly, 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. We hypothesize that early accumulation of Aβ peptides, prior to plaque formation, can lead to hypothalamic dysfunction in neurons necessary for the regulation of systemic metabolism and alter important signaling molecules derived from adipocytes (adipokines). To test our hypothesis, we use genetic mouse models to elucidate the underlying cellular and molecular mechanisms and human studies to verify these findings and to further identify clinically relevant novel markers of metabolic dysfunction. 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, and, importantly, abnormal hypothalamic responses to the low adiposity state (J. Neurosci 34:9096, 2014). Recent studies from our laboratory have found that Aβ can disrupt the function of neuropeptide Y/agouti-related peptide (NPY/AgRP) neurons in the hypothalamus, which are critical regulators of body weight and metabolism, by increasing intracellular calcium levels. This intracellular calcium dyshomeostasis was caused by Aβ-mediated modulation of voltage-gated L-type calcium channels leading to aberrant hyperactivity and neuronal dysfunction. Furthermore, we have identified adipocyte dysfunction in this mouse model, suggesting that early Aβ pathology can result in disruption of a hypothalamic-adipose tissue axis resulting in early systemic metabolic dysfunction. Consistent with these mouse studies, in our clinically relevant human studies, cognitively intact subjects that have cerebrospinal fluid (CSF) evidence for Aβ pathology consistent with the preclinical stage of AD were found to have altered levels of circulating adipokines that were associated with CSF Aβ1-42 levels. Collectively, these studies suggest that early accumulation of Aβ can disrupt hypothalamic neuronal pathways resulting in body weight/systemic metabolic deficits and altered adipokine signaling 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.
Actigraphic evaluation of patient activity profiles in a medical ICU

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Background: In the intensive care unit (ICU) setting, critically ill patients often experience prolonged bedrest and inactivity, contributing to adverse outcomes including ICU-acquired weakness. To prevent these outcomes, ICUs are now adopting efforts to mobilize patients early, including interventions to minimize sedation and duration of mechanical ventilation. Informing these efforts is important, and wrist actigraphy may be a feasible and non-intrusive method to evaluate patient activity in the ICU. However, in critically ill patients, actigraphy has been used infrequently despite its growing use in other populations.

Methods: We performed 48-hour wrist actigraphy in eligible (age ≥ 18, expected ICU stay ≥ 24 hours, available wrist, not moribund) and consenting medical ICU (MICU) patients. Actigraphy-based activity levels were summarized over 30-second epochs, and stratified based on pre-admission and ICU variables including age, gender, BMI, Sequential Organ Failure Assessment (SOFA) scores, mechanical ventilation and sedation status, and presence of restraints. Zero-inflated Poisson regression was used to compare differences in patient activity based on baseline and ICU variables.

Results: Among 34 Medical ICU (MICU) patients undergoing 48-hour actigraphy, 11 (32%) were >65 years old, 32 (94%) were walking at baseline, and 9 (38%) received mechanical ventilation during their stay. The 185,595 epochs of actigraphy data demonstrated that all patients were profoundly inactive, with 122,865 (65%) epochs reflecting an activity level of zero (including 70,759 of 120,775 [59%] zeroes during typical waking hours of 06:00am to 10:00pm). Across the 48-hour recording period, mean (SD) activity levels per epoch did not differ substantially by mechanical ventilation status, but were significantly lower in patients who were older (15 [41] mean activity per epoch for age >65 versus 18 [44] for age 51-65 and 25 [60] for age ≤ 50, p=0.04 for trend), not walking at baseline (versus walking, 10 [24] versus 20 [50], p≤0.001), overweight or obese (versus normal weight, 14 [38] and 11 [34] versus 22 [50], p=0.005 for trend), ever restrained (versus never, 9 [34] versus 22 [52], p=0.01) or with average daily SOFA scores ≥ 8 (9 [32] versus 24 [56] for 3.3-8.0 and 25 [54] for ≤3.3, p=0.04 for trend). Higher mean activity levels were observed from 06:00am-10:00pm (24 [54] versus 13 [39] from 10:00pm-06:00am, p=0.001); this daytime-nighttime difference was substantially less pronounced in patients who were older, non-white, not walking at baseline, overweight or obese, ever sedated or restrained, and with average daily SOFA scores ≥ 8.

Conclusions: While wrist actigraphy in the MICU demonstrated that older, overweight/obese, non-ambulatory, sicker and restrained patients were less active, we observed profound inactivity among all patients. In the ICU setting, actigraphy may be useful for measuring activity in patients at risk for adverse immobility-related outcomes and as an outcome assessment tool for ICU mobilization efforts.
Pravastatin for Primary Prevention in Older Adults: Restricted Mean Survival Time Analysis

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ABSTRACT

Background: A recent analysis of the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial-Lipid-Lowering Trial (ALLHAT-LLT) yielded inconclusive results regarding the use of pravastatin for primary prevention of coronary heart disease (CHD) in older adults. Restricted mean survival time (RMST), which summarizes treatment effect in terms of the event-free time in a fixed time period, may be more useful than hazard ratios for communication of treatment effect with older patients.

Design: Secondary analysis of the ALLHAT-LLT trial.

Setting: Ambulatory setting.

Participants: 2,867 adults ≥65 years (mean age, 71 years; 49% female) free of cardiovascular disease.

Intervention: Pravastatin 40mg daily (n=1,467) vs usual care (n=1,400).

Measurements: We estimated the difference in RMSTs (95% confidence interval [CI]) for total and CHD-free survival between pravastatin and usual care groups over the 6-year trial period. We also used parametric survival models to estimate the RMST differences projected over 10 years.

Results: Over 6 years, patients treated with pravastatin lived, on average, 33.7 fewer days than usual-care patients (RMST: 2008.1 vs 2041.8 days; RMST difference, -33.7 days; 95% CI, -67.0 to -0.5; p=0.047). Pravastatin-treated patients lived, on average, 18.7 more days free of CHD over 6 years than usual-care patients, but this difference was not statistically significant (RMST: 2088.1 vs 2069.4 days; RMST difference, 18.7 days; 95% CI, -10.4 to 47.8; p=0.209). The 10-year projection showed that pravastatin-treated patients would live 108.1 fewer days (95% CI, -204.5 to -14.1; p=0.028) than usual-care patients, although treated patients would gain 77.9 days (95% CI, 3.8 to 159.6; p=0.046) of CHD-free survival.

Conclusion: RMST provides an intuitive and explicit way to express the effect of pravastatin therapy on CHD-free and overall survival in older adults free of cardiovascular disease. This measure allows a more personalized interpretation of the benefits and risks of a medical intervention for decision-making.
Physical Frailty after Liver Transplantation

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\textbf{ABSTRACT}

Frailty is prevalent in liver transplant candidates, but little is known of what happens to frailty \textit{after} liver transplantation. We analyzed data for 214 adult liver transplant recipients who had $\geq 1$ frailty assessment using the Liver Frailty Index (LFI) at 3-(n=178), 6-(n=139), or 12-(n=107) months post-transplant [higher values=more frail]. “Frail” and “robust” were defined as LFI $\geq 4.5$ and $<3.2$. Median pre-LT LFI was 3.7, and was worse at 3-months (3.9; $p=0.02$), similar at 6 months (3.7; $p=0.07$), and improved at 12 months (3.4; $p<0.001$). The % who were robust pre- and 3-, 6-, and 12-months post-transplant were 25%, 14%, 28%, and 37%; the % frail were 21%, 21%, 10%, and 7%. In univariable analysis, each 0.1 pre-transplant LFI point more frail was associated with a decreased odds of being robust at 3- (OR 0.75), 6- (OR 0.77), and 12-months (OR 0.90) post-transplant [$p\leq 0.001$], which did not change substantially with multivariable adjustment. In conclusion, frailty worsens 3 months post-transplant and improves modestly by 12 months, but fewer than 2 of 5 patients achieve robustness. Pre-transplant LFI was a potent predictor of post-transplant robustness. Aggressive interventions aimed at \textit{preventing} frailty pre-transplant are urgently needed to maximize physical health after liver transplantation.
Beeson 2018 Linos Abstract: Development of a patient decision aid for the management of superficial basal cell carcinoma (BCC) in older adults

Background: Basal cell carcinoma (BCC) is a slow-growing, rarely lethal skin cancer that predominantly affects people 65 years or older. A range of treatment options exist for BCC, but there is little evidence available to guide patients and providers in selecting the best treatment option for an individual patient. This is particularly critical for adults with limited life expectancy, who may face more challenges from certain treatment options than from the BCC itself.

Objectives: This study outlines the development of a decision aid (DA) that can be used by patients, caregivers, and providers to assist in shared decision-making for patients with low risk BCC who have a limited life expectancy.

Methods: Using the International Patient Decision Aids Standards (IPDAS) Collaboration framework, we used feedback from focus groups and semi-structured interviews with patients and providers to develop an initial prototype of the DA. We subsequently conducted cognitive interviews with additional patients and providers to test the comprehensibility and usability of the prototype and iteratively updated the prototype to arrive at our final product.

Results: Over the development process, we created eighteen different iterations using feedback from 24 patients and 34 providers, including both general dermatologists (n=21) and geriatricians (n=13). Four key issues arose in the development process including: 1) Addressing fear of cancer; 2) Communicating risk and uncertainty; 3) Values clarification; and 4) Time lag to benefit.

Conclusions: Our DA has been designed to support patients with limited life expectancy in making decisions about their low risk BCC together with their doctors. In designing this tool, we identified key ways in which this shared decision-making tool could be best adapted for this specific condition and patient population.
Decreased NREM sleep slow wave activity is strongly associated with increased tau pathology in preclinical/very mild Alzheimer disease

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Abstract
In Alzheimer disease (AD), deposition of insoluble amyloid-β (Aβ) is followed by the intracellular aggregation of tau in the neocortex and subsequent neuronal cell loss, synaptic loss, brain atrophy, and cognitive impairment. By the time even the earliest clinical symptoms are detectable, Aβ accumulation is close to reaching its peak and there is almost always some neocortical tau pathology. The period in which AD pathology is accumulating in the absence of cognitive symptoms has been termed “preclinical” AD and is a potential target for therapeutic intervention. Sleep is increasingly recognized as a potential marker for AD pathology and future risk of cognitive impairment. Previous studies in animal models and humans have associated decreased non-rapid eye movement (NREM) sleep slow wave activity (SWA) with Aβ deposition. In this study, we assessed participants enrolled in longitudinal studies of aging with standardized cognitive testing, imaging, CSF AD biomarkers, and sleep monitoring with a single-channel EEG device worn on the forehead. After adjusting for multiple covariates such as age and sex, we found that NREM SWA has an inverse relationship with AD pathology, particularly tauopathy, and that this association was most significant at the lowest frequencies. Since our study cohort was predominantly cognitively normal, this suggests that changes in NREM SWA, especially at 1-2 Hz, are able to discriminate tau pathology and cognitive impairment either before or at the earliest stages of symptomatic AD.
Longevity has a substantial genetic component and genetic alterations that result in attenuated growth hormone/insulin-like growth factor-I (GH/IGF-I) signaling have resulted in extended lifespan and health-span not only in model organisms but also in humans. However, IGF-I levels do not always reflect IGF-I function over the long-term, because levels fluctuate with physiologic stress or can be elevated, but not fully active, in carriers of certain gene mutations. Thus, using a genetic approach to characterize GH/IGF-I signaling offers multiple advantages over simple measures of hormone levels. It can provide information about GH/IGF-I exposure over a lifetime and also can help distinguish between hormonal elevations that result from augmentation vs. attenuation of pathway. However, prior studies that evaluated the effect of genetic influence on GH/IGF-I signaling have focused on single genetic variants or additive models of genetic variants without accounting for inter-connectivity between the genes in the pathway. Gene interactions that occur on the pathway level are important to consider because an inhibiting variant at the bottom of the pathway may be more functionally important than an activating variant at the top of the pathway. We devised a novel genetic computational approach that integrates multiple functional gene variants within the GH/IGF-I pathway in a score that predicts IGF-I level. The study was conducted in 175 subjects from the Longevity Genes Project (LGP), a cohort of centenarian families and controls who had both whole genome sequencing (WGS) and IGF-I level measurements available. The analysis focused on 11 genes along the GH/IGF-I pathway that regulates IGF-I production (termed GH signaling pathway), beginning with GHRH and culminating with IGF-1R, including GHGHR, POU1F1, PROP1, SST, GH, GHR, JAK2, STAT5B, and IGF-1 in between. In this analysis, the GH pathway function was scored using variants called from WGS data and the scores were correlated with measured IGF-I levels. Among all 4,863 variants called in the regions of the aforementioned 11 genes, 51 were coding variants, whose deleteriousness was assessed by Combined Annotation Dependent Depletion (CADD). Both the number of coding variants within each gene and their deleteriousness showed great variation. Three genes had only one coding variant, while IGFIR had 15. The CADD scores varied from ~0 (not deleterious) to ~34 (very deleterious). We calculated the gene score for each subject by summing the CADD scores of the coding variants within that gene. We then calculated the pathway score for each subject by adding or subtracting gene scores, depending on the directional effect of a gene on the IGF-I level. To avoid scoring bias in favor of large genes, we normalized the scores of different genes to the scale of 0 - 1 by dividing each gene score by the maximum score for the same gene observed within the cohort. Our analysis revealed a statistically significant inverse linear relationship between IGF-I levels and the pathway score, controlling for age and sex (p=0.03). By contrast, there was no significant correlation between the IGF-I level and the score of individual variants or genes; thus, indicating that a pathway score is a much better predictor of IGF-I level than individual variants or genes.
Exploring the role of Physical Function Impairment and Sarcopenia on the non-surgical management of incontinence in older women

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Urinary incontinence (UI) is prevalent geriatric syndrome among community dwelling older women. UI is often linked with other geriatric syndromes such as falls and physical function impairment; though our understanding of this inter-relationship is poor. We have previously reported that as women age and develop UI, their physical performance declines to a greater extent compared to their peers who do not develop UI. More specifically, women who developed UI had worsening standing balance measures. It is imperative that we improve our understanding of how UI inter-relates with physical function impairment and falls because our population is evolving to be dominated by older females and treatment of UI may likely require consideration of function.

Currently, our non-surgical treatment of UI includes behavioral therapy to include pelvic floor muscle exercises (PFME). PFME were originally established to prevent and treat UI symptoms in young, post-partum women. It has evolved to become the crux of non-surgical treatment of UI in older women. Yet, current PFME therapy has not evolved to consider common aging-related changes in physical and functional performance and decline in muscle health. We assume that successful therapy may be dependent on the presence of normal skeletal muscle of the pelvic floor. Thus, it is plausible that sarcopenia or physical functional or cognitive impairment may negatively impact the efficacy of PFME.

We are conducting a prospective cohort study to characterize the impact functional impairment, sarcopenia, and cognitive impairment on the efficacy of a standardized PFME regimen to treat UI symptoms in community-dwelling older women. We hope to identify risk factors in functional/cognitive status and sarcopenia that contributes to failure of PFME to treat UI in older women. Our results may provide innovative data on the linked relationship between UI and physical function and cognitive impairment. The role of sarcopenia in this relationship is novel, and may explain how UI and functional impairment are linked geriatric syndromes. The potential unveiling of deficiencies in PFME as the non-surgical therapy for UI in older women is our focus. We plan to use the data to refine non-surgical therapy for older women with UI by developing a synergistic exercise-based functional intervention targeting skeletal muscle health beyond the pelvic floor as well we learn of other areas of weakness identified through this study. This innovative intervention will target older women at risk for failing current PFME therapy due to functional impairment and/or sarcopenia and administered to account for cognitive impairment. Our overarching goal is to enhance the non-surgical treatment of UI symptoms in older women by integrating muscle function beyond the pelvic floor in a novel intervention to improve the daily function of older incontinent women.
Long-term outcomes after coronary angioplasty: Does race/ethnicity matter?

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The overall purpose of this study was to evaluate differences in aggregate clinical outcomes at 2 years post-angioplasty among minority vs. non-minority patients and specifically, to compare risk-adjusted rates of aggregate outcomes including, mortality, myocardial infarction, class III-IV angina, severe ischemia on non-invasive testing, repeat procedures (angioplasty or coronary artery bypass graft (CABG) surgery) and stroke. Further, this study sought to determine whether there were differences in baseline clinical and psychosocial variables between minority and non-minority patients.

The data for this study were derived from an NHLBI-funded randomized controlled trial, the Healthy Behavior Trial, which enrolled 660 elective or urgent angioplasty/stent patients who had undergone their procedure in the cardiac catheterization laboratory at the New York Hospital between October 1999 and March 2001. All patients were enrolled immediately following the angioplasty procedure and followed by telephone every three months for two years. In total, 628 patients were included in this secondary data analysis. The minority group was composed of 77 African-Americans and 59 Latinos (n=136) and the non-minority group was composed of 492 self identified Caucasians. The overall mean age of patients was 62.9 ± 11.5 years (range 33-92) and 28% were female. With respect to demographic differences between the minority and non-minority groups, minority patients were significantly more likely to be female (46% vs. 22%, p<0.0001) and not to have completed high school (32% vs. 9%, p<0.0001). With respect to differences in clinical characteristics between the two groups, minority patients were more likely to have a history of peripheral vascular disease (27% vs. 17%, p=0.016), diabetes (46% vs. 20%, p<0.0001), hypertension (65% vs. 54%, p=0.022) and to have greater baseline comorbidity, as measured by the Charlson index (p=0.0001). In addition, the minority patients reported a greater burden of cardiovascular comorbidity at baseline when compared to the non-minority patients (p=0.018), but a similar amount of non-cardiovascular comorbidity. There were no differences in procedural characteristics between the two groups.

Overall, 47.1% of the patients in the minority group experienced a complication compared to 34.8% of non-minority patients (p=0.013). The most common complication was class III-IV angina, which was reported by 37.8% of minority patients and 18.4% of non-minority patients (p<0.0001). At two years, rates of mortality, myocardial infarction, severe ischemia and stroke were similar between the 2 groups. However, with respect to anginal symptoms, patients in the non-minority group were more likely to report improvement in their anginal symptoms while minority patients were more likely to report that their angina had remained unchanged or had gotten worse (p<0.0001).

Two risk adjustment models, the Wu model and the Mick model were tested on our dataset. The Wu model was not a significant predictor of the aggregate clinical outcomes, but the Mick model predicted two year aggregate clinical outcomes (odds ratio 1.12, 95% CI 1.07-1.17, p <0.0001). Minority status remained a strong predictor of outcome when loaded with the Mick score (odds ration 1.73, 95% CI 1.14-2.62, p <0.0094). Finally, a logistic regression model was created to adjust for baseline differences in the minority and non-minority patients to see if differences in aggregate clinical outcomes at two years remained. In this regression model, the baseline demographic (female sex, minority status and low education) and clinical factors (peripheral vascular disease, hypertension, diabetes, cancer, smoking, comorbidity) that differed between the minority and non-minority groups were loaded as independent variables. In this model, an interaction term (cardiovascular comorbidity*minority status) was loaded as a risk factor into the model. In this analysis, only cardiovascular comorbidity*minority status was a significant predictor of two year aggregate clinical outcomes (odds ratio 1.71, 95% CI 1.17-2.59, p=0.008).

In conclusion, minority patients in this study reported significantly higher levels of cardiovascular comorbidity, which was related to significantly higher rates of clinical outcomes at two years when compared to non-minority patients.
Digital Health for Geriatric Palliative Care

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Key Words: digital health; health information technology; aging; palliative care; design thinking

Background: Digital health, the use of digital technology in health care for service delivery, health monitoring, transmission of health information, and clinical communication, offers a unique opportunity to support older patients with serious illness, their families, and clinicians with symptom assessment, self-management, and communication. Despite current uses in palliative care, digital health is underutilized and has great potential to improve quality of palliative care and patient and family outcomes. Research is needed to understand benefits, risks, barriers and facilitators to the adoption and use of digital health in palliative care.

Objective: Using a Design Thinking approach to developing potential digital health interventions for palliative care, we conducted a brainstorming session with palliative care providers to identify promising ideas for the use of digital health in geriatric palliative care.

Methods: The Design Thinking: Stage 3—Ideate brainstorming session included palliative care providers (N=24) including physicians, medical students and residents, clinical and research fellows, nurses, chaplains, social workers and art/music therapists from inpatient, outpatient, and community settings. We requested participants write down technology solutions they believed to be potentially beneficial for older patients, families, or providers. Participants then assembled into groups of 4-5 people to discuss and list their ideas on poster paper. Each group presented their suggestions for further idea generation. We assembled the final lists of ideas, and through a team-based analytic process, consolidated, defined, and refined the ideas.

Results: Digital tools offered through networking programs, social media, and coordinating centers for caregivers and family members were highlighted. Participants proposed applying current, popular digital programs, referring to platforms such as Match.com and Nextdoor, to the interests and needs of palliative care patients and caregivers. They also suggested creating new smart and voice command technologies. Participants noted the importance of adapting design strategies to older users. There was interest in digitalizing (via apps or websites) well known palliative care interventions such as dignity therapy and meditation.

Conclusions: Expanding and studying digital health applicability and effectiveness among older patients with serious illness, their families, and caregivers has potential. There are opportunities for industry-clinical partnerships to create, implement and study these digital solutions in palliative care. Focusing the digital system on patients and their families and caregivers, rather than patients alone, is important for palliative care-specific digital health.
The FITNESS Study: The Aging Immune System, Treatment Response, and Functional Decline among Older Adults with Lung Cancer

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Keywords: functional status, functional decline, lung cancer, biomarkers, treatment

Background: The majority of older adults with chronic disease, including cancer, prioritize remaining functionally independent over prolonged survival. Unfortunately, there is limited research to inform patients of their risk for functional decline and/or worsening disability during or after lung cancer treatment. Novel cancer therapeutics such as immune checkpoint inhibitors (ICIs) are transforming the way we treat lung cancer; yet ICIs have largely been tested in younger, healthier adults. Cancer clinicians have minimal research available to inform older adults whether they are more likely to benefit vs. experience harm from lung cancer treatment. This is in part due to an aging immune system and a lack of research focusing on functional status as an important patient-centered clinical outcome.

Methods: This is an ongoing prospective cohort study with planned enrollment of 50 adults ≥60 years of age newly diagnosed with non-small cell lung cancer (20 early-stage and 30 advanced-stage) receiving treatment from the James Thoracic Oncology Program. Study procedures include: a cancer-specific comprehensive geriatric assessment (Cancer and Aging Research Group: CARG CGA), monthly functional status assessments, the short physical performance battery (SPPB), and longitudinal biomarker specimen collection (blood and stool). Participants are assessed monthly at a regularly scheduled clinic visit for 16 functional activities. The surveyed 16 activities include: 7 activities of daily living: eating, grooming, bathing, dressing, walking, toileting, and transferring; 5 instrumental activities of daily living: shopping, housework, meal preparation, taking medications, managing finances; and 3 mobility activities: walk a quarter mile, climb a flight of stairs, or lift or carry 10lbs. For each activity, disability is defined as the need for personal assistance or inability to perform the activity. Participants are also evaluated for treatment toxicity, symptom burden, quality of life, disease response, and survival.

Anticipated Results: Based on our prior work, we anticipate functional status among older adults with lung cancer will be heterogeneous with some older adults experiencing no to severe disability after a new lung cancer diagnosis. We anticipate, the majority (>50%) of older adults will experience some degree of worsening disability and functional decline after the treatment start date. A subset of clinical and molecular biomarkers tested will predict worsening disability and functional decline. These may include: poor baseline functional status and physical performance as defined by the SPPB, depressive symptoms, poor disease response, severity of treatment toxicity, high mRNA transcript levels of regulatory T cells (FOXP3), high p16INK4a expression in the blood, and low levels of A. muciniphila in the stool.

Conclusions: The intersection between novel cancer therapeutics, biomarkers of immune aging, and functional status among older adults with lung cancer has yet to be determined and would inform both the biology of the aging immune system and patient-centered outcomes such as disease response, treatment toxicity, and functional decline. The FITNESS study will determine the feasibility of a multifactorial approach to predict the development of worsening disability and/or functional decline among older adults with lung cancer.
Examining Emergency Department Use and Hospitalization among Physical Elder Abuse Victims Using Medicare Advantage Claims Data

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Background: Limited previous research has suggested that elder abuse victims have increased rates of unscheduled health care, including emergency department (ED) use and hospitalization. Little is known, however, about the patterns of this increased utilization. The aim of this study was to explore the potential to use claims data to evaluate health care utilization of physical elder abuse victims.

Methods: We used data from Health Care Cost Institute (HCCI) insurance claims database to identify ED visits and hospitalizations among older adults with an ICD diagnosis suggesting potential physical elder abuse. The HCCI database contains detailed claims data for approximately 50 million individuals per year insured with Aetna, Humana, and UnitedHealthcare (including Medicare Advantage plans offered by the insurers) in all 50 states and the District of Columbia. Medicare Advantage (MA) enrollees in the HCCI database account for approximately 48% of all MA enrollees nationwide. For this analysis, we focused on patients aged ≥65 years who were continuously enrolled in an MA plan from 2011-2014 and who received at least one diagnosis during that period indicating possible physical abuse (using ICD-9 diagnostic codes of 995.80 - adult maltreatment, unspecified, and 995.81 – adult physical abuse). For each identified patient, we pinpointed the year in which the first diagnosis was received and generated counts of ED visits and of inpatient hospitalizations (for all causes) in each year. This analysis helps us examine the pattern of ED and inpatient use both before and after the receipt of the first diagnosis.

Results: From 2011-14, 0.024% of all beneficiaries received a diagnosis indicating possible physical abuse. Older adults on MA who were potential victims of physical elder abuse used the ED much more commonly than other older adults. 48.0% had ≥1 annual visit, more than double the percentage of 21.8% among all adults aged ≥65. Similarly, 22.4% had ≥2 annual visits, while only 8.2% of all older adults did. 6.5% were high frequency ED users (≥4 annual visits), compared to 3.3% of all Medicare beneficiaries. During the index diagnosis year, the percentages were much higher, suggesting that physical elder abuse, or at least detection, is associated with increased intensity of ED utilization. A slightly higher percentage of victims used the ED in the years before vs. years after the diagnosis. Findings for hospitalizations were similar. Among all older adults, 15.2% were hospitalized at least once annually, and 4.9% were hospitalized at least twice. Potential victims of physical elder abuse were much more commonly hospitalized (31.2% ≥ once and 13.5% ≥ twice), particularly in the index diagnosis year (48.8% ≥ once and 20.9% ≥ twice). As with ED visits, hospitalizations occurred in a greater percentage of potential victims in the years before vs. the years after diagnosis.

Conclusion: Substantial differences in unscheduled health care utilization exist between abuse victims and other older adults, with even higher usage during the year of physical abuse diagnosis. Further exploration using claims data has the potential to provide significant insights into the phenomenon, including potential opportunities for earlier identification and intervention. Additionally, the extraordinarily small numbers of cases identified using ICD coding demonstrate how under-diagnosed this phenomenon is. This suggests that alternative case finding strategies need to be developed for future research.
Influence of age, health and function on cancer screening in older adults with limited life expectancy

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KEY WORDS: geriatrics, cancer screening, health status, functional status

Background/Objectives: We examined the relationship between cancer screening and life expectancy predictors, focusing on the influence of age versus health and function, in older adults with limited life expectancy.

Design: Longitudinal cohort study

Setting: National Health and Aging Trends Study (NHATS) with linked Medicare claims.

Participants: Three cohorts of adults 65+ enrolled in fee-for-service Medicare were constructed: women eligible for breast cancer screening (n=2043); men eligible for prostate cancer screening (n=1287); men and women eligible for colorectal cancer screening (n=3759).

Measurements: We assessed 10-year mortality risk using 2011 NHATS data, then used claims data to assess 2-year prostate and breast cancer screening rates and 3-year colorectal cancer screening rates. Among those with limited life expectancy (10-year mortality risk >50%), we stratified participants at each level of predicted mortality risk and split participants in each risk stratum by median age. We assembled two sub-groups from these strata that were matched on predicted life expectancy: a “younger sub-group” with relatively poorer health/functional status and an “older sub-group” with relatively better health/functional status. We compared screening rates between sub-groups.

Results: For all three cancer screenings, the younger sub-groups (average ages 73.4-76.1) had higher screening rates than the older sub-groups (average ages 83.6-86.9); screening rates were: 42.9% versus 34.2% for prostate cancer screening (p=0.02), 33.6% versus 20.6% for breast cancer screening (p<0.001), 13.1% versus 6.7% for colorectal cancer screening in women (p=0.006), 20.5% versus 12.1% for colorectal cancer screening in men (p=0.002).

Conclusion: Among older adults with limited life expectancy, those who are relatively younger with poorer health and functional status are over-screened for cancer at higher rates than those who are older with the same predicted life expectancy.
Aging-associated loss of hypoxia signaling limits skeletal muscle regeneration

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Keywords: hypoxia signaling, skeletal muscle regeneration, aging

Purpose: Skeletal muscle regeneration is required for the maintenance of muscle mass in aging. Hypoxia signaling, including aryl hydrocarbon nuclear translocator (ARNT), is necessary to maintain regenerative potential. The present study evaluates whether loss of hypoxia signaling in aging directly limits skeletal muscle precursor (SMP) regenerative potential.

Methods: Young (Y, 8-12 weeks) and old (O, 21-23 months) mice were utilized to determine changes in regenerative potential and skeletal muscle hypoxia signaling that occur with aging. Regeneration was quantified using cross-sectional area (CSA) of regenerating fibers following cryoinjury. Whole muscle was utilized for immunoblotting, PCR, FACS sorting for skeletal muscle precursors (SMPs), and immunohistochemistry. To create a model of decreased hypoxia signaling, mice were created containing the human skeletal α-actin (HSA) Cre recombinase promoter crossed with a homozygous ARNT\textsuperscript{fl/fl} allele, to create mice with muscle specific loss of ARNT following activation. Experimentation regarding these mice were completed at 8-12 weeks of age. ML228, a pharmacologic ARNT mimetic, or vehicle control was injected by IP injection daily in aged mice to determine if muscle regeneration could be restored.

Results: SMP frequency and myogenic potential decrease dramatically in aging (p<0.01). CSA in regenerating fibers decreases by 40% in O mice as compared to Y following injury at 5 (p<0.01) and 10 (p<0.01) days post-injury. In whole, hind-limb skeletal muscle, we found that ARNT levels are 4.7-fold lower by PCR (p<0.01) and 5-fold lower by immunoblotting in O versus Y mice (p<0.01). Using a focused PCR array, we demonstrated that the majority of hypoxia response genes were at least 2-fold down regulated with aging. Young, tamoxifen-activated HSA-Cre ER ARNT\textsuperscript{fl/fl} mice, created to mimic the loss of hypoxia signaling in old mice, exhibit an 80%, skeletal muscle specific decrease in ARNT expression (p<0.01) and a 30% decrease in regenerating muscle fiber CSA at 5 (p<0.01) and 10 (p<0.01) days post-injury, as compared to littermate controls. ML228 administration resulted in a 30% increase in cross-sectional fiber area in aged mice at day 5 (p<0.01) versus aged mice treated with a vehicle control.

Conclusion: Hypoxia signaling declines with aging and contributes to loss of skeletal muscle regeneration. Restoring the hypoxia pathway may promote regeneration and prevent muscle loss in aging.
Urinary dysfunction is a significant contributor to social and physical morbidity in old age and a looming economic and environmental burden to society. In contrast to the current but problematic therapeutic model emphasizing the etiologic contribution of bladder tissue dysfunction, we have postulated that urinary control is the result of successful adaptation to multiple internal and external stressors. As a result, our overarching hypothesis is that urinary control deficits are systemic failures, and that age-associated loss of adaptive range within multiple systems increases the chance of adaptive failure. The mechanisms by which the bladder responds and feeds back to central control systems in the management of urine volumes are therefore important factors in the adaptive processes. In the past, we developed and used an aging mouse cystometric model to then discover that system sensitivity to bladder content declines with aging, not detrusor strength, in agreement with the limited available clinical data. Furthermore, factors key to bladder afferent sensitivity to volume are under active brain control, and thus a potentially key mechanism of adaptive control. We are currently interested in the role of the HCN ion channel as an integrator of paracrine and neuroendocrine control over bladder volume sensitivity, as loss of HCN with aging and subsequent loss of adaptability is observed in other systems. However, same-animal, age-dependent linkages of cognitive, brainstem/reflex, tissue, and structural domains needed to evaluate this adaptive model, are lacking. While tradition holds that bladder aging is characterized by local fibrosis, sarcopenia, loss of neurotransmitter responsiveness, detrusor weakness, and loss of control integrity, supportive data are not strong. We hypothesized that in an adaptive system, any age-related changes in structure and/or function domains would not be strongly associated with other domains, as ultimate performance is dependent upon cross-domain adaptive mechanisms. We therefore conducted the needed cross-domain studies in Young (2-4 mo), Mature (10-14 mo), Old (20-22 mo) and Oldest Old (26 mo) mice, evaluating the impact of age and sex within each domain, and seeking correlations across domains.

**METHODS:** C57bl/6 male and female mice from the NIA aging colony were used, in accordance with our IACUC-approved protocol. Behavioral/voiding spot assays in awake, freely roaming mice tested the cognitive domain of voiding control. These mice were then sequenced to Pressure/flow cystometry using continuous infusion under urethane anesthesia, to test the autonomic reflex/brainstem control domain. Following cystometry, bladders were harvested for either bladder strip myographic responses or histologic examination. At myography, tension responses to electrical field stimulation (neural), carbachol (muscarinic) and isoproterenol (adrenergic), tested the local tissue domain. Histologically, the structural domain was evaluated with light microscopy using H&E and Masson Trichrome sections. 2-way ANOVA was used to compare age and sex in each domain, and a correlation matrix of variables was constructed across domains.

**RESULTS:** Non-Oldest Old female mice are more likely to have larger voids in the periphery of the cage. Oldest Old females and males of all ages have smaller voiding spots distributed with no demonstrated central/peripheral pattern. At cystometry, intervoid interval, volume voided, wall stress at voiding initiation, and residual volumes increased with aging. 44% of Oldest Old mice did not respond to cystometric stress, developing a pattern of continuous leakage from a distended bladder (NonResponders) rather than a repeatable filling/voiding cycle (characteristic of Responders). While myographic data suggests male bladder strips were generally more sensitive to stimulation/relaxation, no significant differences were found among sex, age, or Responder/NonResponder groups. Detrusor thickness increased with maturation, and lamina propria was thickest in Young animals, but no aging-associated changes in bladder layer thickness, nuclear densities of the detrusor and urothelium, or collagen/muscle ratios were detected; sex differences were n.s.. Grouping sexes together in all Old and Oldest Old animals, no differences in any non-cystometric domain were detected between Responders and NonResponders. No consistent and statistically significant ($r>0.5$, $p<0.05$) correlations were found among variables across domains.

**CONCLUSIONS:** Our findings support a systemic, adaptive model of urinary control. Furthermore, sex may be a more important determinant of urinary function than age. Failure to tolerate the physiologic stress of cystometry could not be assigned to a single etiologic risk other than advanced age, therefore represents a systemic phenomenon of adaptive failure.
A Systems Biology Approach to Discovering Novel Drivers of Disease in AD

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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 predict which genes make up the regulon of a transcriptional regulator. We have used one such approach (ARACNe) with neuronal expression data and have identified master regulators (MRs) of synaptic dysfunction in Alzheimer’s disease (AD). As proof of principle, we have previously experimentally validated the top hit from this analysis (ZCCHC17, a nuclear protein that has been shown to interact with transcription factors and splicing factors). We have shown that ZCCHC17 is expressed in neurons, decreases early in AD, and that the ZCCHC17 human regulon is predictive of equivalent interactions between ZCCHC17 and homologous genes in rat neurons, which supports a conserved function. Here, we further investigate the neurophysiology of ZCCHC17 loss, and find that this leads to a hyperexcitable phenotype, in part through loss of potassium current. We have also recently been funded to use these computational tools to develop a high-throughput screening assay 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. Future work will leverage this technology to screen for drugs that can rescue synaptic dysfunction in AD through disease-relevant MR manipulation. In parallel, we are also developing a similar suite of computational tools to investigate microglial function, and ultimately, screen compounds to therapeutically modulate microglia using a similar high-throughput methodology.
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 and cost-effective psychological treatment for anxiety. However, CBT interventions have not been modified for 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 seven-session telephone-delivered CBT intervention designed specifically for anxiety in OACs and their primary informal caregivers. Sessions occur weekly for 45-50 minutes and are delivered individually to patients and caregivers by separate licensed social workers. Phase 3 was 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.

Phase 3 results: Results of the proof-of-concept evaluation 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. Patients (100%) and caregivers (100%) reported that one MAC session per week was an acceptable frequency. 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.

Progress over the past year: Recruitment for the Phase 4 pilot RCT was initiated over the past year. 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. Fifteen dyads have been enrolled; n=10 dyads have completed all study procedures. Preliminary descriptive statistics indicate that patients and caregivers in the usual care control condition experience increases in anxiety over time while patients/caregivers in the MAC condition experience stable and/or decreasing anxiety over time. As recruitment continues, we have initiated preparation of an R01 application to examine the efficacy of MAC, implementation outcomes and correlates of these outcomes, and the cost of providing MAC in a multi-site trial. The long-term goal of this research program is to develop an efficacious and scalable psychological intervention for anxiety can be successfully implemented in cancer care settings.

Keywords: Anxiety, Cancer, Older adult, Caregiver
Development and Testing of a Nursing Home Technology Interface – NIA STTR opportunities

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Nursing homes are an integral part of the health care and long term care sectors. Unfortunately, they are plagued by dysfunctions in quality of care and quality of communication. One recognized consequence of this dysfunction is inappropriate and avoidable transfers of patients from the nursing home to the hospital. In 2005, Medicare and Medicaid spent $2.7 billion on potentially avoidable hospitalizations of nursing home patients. Fortunately, nursing homes and hospitals have increasing interest and motivation to reduce these avoidable transfers. Despite growing interest in the long term care industry, there is a dearth of proven strategies and tools to reduce inappropriate and avoidable hospital transfers through improving quality of care.

We have recently demonstrated that both quality and costs can be improved in the nursing home setting. OPTIMISTIC is funded through a $30.3 million contract by the Centers for Medicare and Medicaid Services Center for Innovations. In the first four years, OPTIMISTIC served over 6,000 patients. Compared to control group nursing homes without OPTIMISTIC nurses, OPTIMISTIC nursing homes experienced a 25% reduction in all-cause hospitalizations and a 40% reduction in hospitalizations tied to common diagnoses considered “potentially avoidable.” The OPTIMISTIC clinical care model embeds specially trained nurses into facilities to deliver evidence-based interventions designed to enhance clinical care and address the drivers of avoidable hospital transfers. From the outset of the OPTIMISTIC project, our funders and stakeholders encouraged parallel activities to promote implementation.

Care Revolution, Inc. is an Indiana-based small business focused on revolutionizing the care of nursing home patients. Care Revolution, Inc. was founded by business development experts teamed with clinical and implementation experts at Indiana University to commercialize tools and methods developed as part of the OPTIMISTIC clinical demonstration project at Indiana University. We describe here the Phase I STTR focused on developing and demonstrating the feasibility and scalability of the OPTIMISTIC commercial technology. In Phase I, Care Revolution will collaborate with clinical partners, content experts, and a software developers to achieve the following Aims: (1) Develop the technology interface to a level sufficient enough for testing in Aim 2. (2) Pilot test the technology using tablets with nursing home nurses (5 from within the OPTIMISTIC project and 5 from nursing homes not involved in OPTIMISTIC). During Phase I, the team will explore feasibility of linking the OPTIMISTIC technology interface to EHR systems. At the end of the Phase I STTR, the team will have demonstrated the feasibility of the technology interface and its usability with nurses experienced in caring for nursing home patients. Phase II will focus on expanding the capabilities of the technology and demonstrating improved patient outcomes in a multi-center study in preparation for commercialization in a large market including nursing homes, health systems and payers.
Validation of a New Clinical Tool for Post–Intensive Care Syndrome

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Keywords: post-intensive care syndrome; intensive care unit; critical care; cognition; depression; post-traumatic stress disorder

Background Post–intensive care syndrome is defined as the long-term cognitive, physical, and psychological impairments due to critical illness. Objective To validate the Healthy Aging Brain Care Monitor Self-report as a clinical tool for detecting post–intensive care syndrome. Methods A total of 142 patients who survived a stay in an intensive care unit completed the Healthy Aging Brain Care Monitor Self-report and standardized assessments of cognition, psychological symptoms, and physical functioning. The Cronbach α was used to measure the internal consistency of the scale items. Validity between the Healthy Aging Brain Care Monitor and comparison tests was measured by using Spearman correlation coefficients. Patients with post–intensive care syndrome were compared with a sample of primary care patients (known groups validity) by using the Mann-Whitney test. All results were adjusted for age, sex, and education level. Results The total scale and all subscales had good to excellent internal consistency (Cronbach α, 0.83-0.92). Scores on the psychological subscale strongly correlated with standardized measures of psychological symptoms (Spearman correlation coefficient, 0.68-0.74). Results on the cognitive subscale correlated with the delayed memory measure (-0.51). Scores on the physical subscale correlated with the Physical Self-Maintenance Scale (-0.26). Patients with post–intensive care syndrome had significantly worse scores on subscales and total scores on the Healthy Aging Brain Care Monitor than did primary care patients. Conclusion The Healthy Aging Brain Care Monitor Self report is a valid clinical tool for assessing symptoms of post–intensive care syndrome.
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</table>
**Research Independence Timeline Worksheet**

This is an exercise to map a sequence of scientific activities anchored in grant preparation and publications. It is intended to drive reflection on timing of activities that move you towards independence. Your actual or desired starting time in a tenure track position is time zero. If you currently have a career development award indicate the duration.

Focus initially on intended timing of your next grant submission. You will need to check related funding organizations’ schedules for applications, review, and funding to estimate target resubmission and award dates. For NIH the calendar is available here: [https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/due-dates.htm](https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/due-dates.htm)

Make a legend to indicate each planned type of application: career development award (K, AHA, ADA, VA, etc), federal (R03, R01, NSF, AHRQ, etc), other (internal pilot, foundation, etc) with a symbol (diamond, circle, etc).

1) Mark the “grant submissions” line with a plausible time for submission of proposal(s) and type of proposal.

2) Mark the “grant resubmissions” line with the earliest resubmission date available.

3) Mark the “grant awards” line with a plausible start of funding if awarded.

4) Add the ideal timing of publications that inform the grants, indicate publication (not submission) timing, keeping in mind their relation to grant submission timing and your target journal’s time from review to acceptance (typically noted in the journal within publications).

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Paul B. Beeson
Emerging Leaders
Career Development
Awards in Aging

2018 Report featuring the 2016 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, 233 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.
With nine awardees, the 2016 Beeson Scholars are one of the larger classes of recent years—and they may also be the most diverse. They represent nine institutions and eight different disciplines. The class includes four women and five men. In addition, the scholars come from four racial and ethnic groups. This diversity, among scholars all committed to advancing aging research, makes our program strong.

It’s also remarkable that, with this class, we have our first Beeson Scholars in the fields of dermatology and gynecology. Another 2016 scholar is a trauma surgeon, one of the few surgeons in more than 20 years of the program. These new scholars have the exceptional opportunity to be leaders in bringing an aging focus to their respective disciplines.

We have been very successful in having former Beeson scholars in one field mentoring scholars in a different field—a necessity for new scholars in fields that are “young” in aging research, and an effective way of leveraging the wide network of Beeson alumni. More traditional within-discipline mentorship remains strong in the Beeson family as well. With the 2016 class, we have a third-generation Beeson scholar—mentored by a scholar who was in turn mentored by a member of the first Beeson class. The continued involvement of Beeson alumni in the program is a testament to its long-term value throughout a scientist’s career, and to the strength of our network in aging research.

As in most years, the 2016 Beeson scholars are pursuing diverse approaches to research, from the most basic to the most applied, and also translational research. There is a significant focus on Alzheimer’s disease, aligned with the National Institute on Aging’s increasing investment in this area. The Beeson program is clearly an outstanding mechanism to achieve major advancements in this field.

The scholars in this year’s stellar group demonstrate the wide opportunities within aging research broadly, and also within the specific areas that they investigate. We are delighted to introduce them here.
Late last year, the American Federation for Aging Research (AFAR) received funding from the National Institute on Aging (NIA) to support the Beeson Annual Meeting from 2017 to 2021. The grant comes as part of the National Institutes of Health (NIH) Research Conference Cooperative Agreement (or “U13”) Program. The NIA already is the primary sponsor of the Paul B. Beeson Emerging Leaders Career Development Awards in Aging with additional support from The John A. Hartford Foundation.

“The Beeson Program is special, and the Annual Meeting is the ‘special sauce’” says Kristine Yaffe, MD. “People love coming to it because it’s really small, people are engaged, and you’ve got different generations of scientists—you have some of the pioneers in the field, and you’ve got current leaders, and a lot of up and coming folks.” Dr. Yaffe and Thomas M. Gill, MD, wrote the grant together as multiple PIs.

“I can’t think of anything else like this meeting, in that it’s all aging related but it’s diverse,” adds Dr. Yaffe.

“This conference grant further strengthens the partnership with the NIA,” says Dr. Gill, who is chair of the Beeson Program Advisory Committee. Going forward, the Annual Meeting will feature a sub-theme aligned with one of the four divisions of the NIA. In 2018 the focus will be neuroscience, and Scott A. Small, MD, director of the Alzheimer’s Disease Research Center at Columbia University, will deliver the keynote address.

At subsequent meetings, participants will explore “mini-themes” of geriatrics and clinical gerontology, social and behavioral sciences, and the biology of aging. “These are all very important areas within aging research and gerontology more broadly. So this will provide the scholars with different perspectives and different opportunities across the four divisions within the NIA,” says Dr. Gill.

“Our hope is that we’ll have greater representation from the NIA scientists who we’re going to encourage to come to the meeting, to network and interact, and potentially collaborate, with the scholars,” he adds.

In another enhancement to the Annual Meeting made possible by the conference grant, early-stage investigators who are not yet advanced enough in their careers to be Beeson scholars can apply to attend the meeting. In 2017, six of these awards were made. “It’s a way of broadening our reach to underrepresented minorities and to people in specialties outside of geriatrics, who may not know much about the Beeson Program, and encouraging them to apply down the line,” says Dr. Yaffe.

“The annual meeting is an extraordinary opportunity for an outstanding group of scholars to meet each other and discuss their research in the company of mentors and NIA staff,” says Robin Barr, DPhil, director of the NIA Division of Extramural Activities. “It has repeatedly resulted in cross-disciplinary collaborations and new ideas being translated into exciting research. The atmosphere generated by a common determination to advance the field of aging and geriatrics to improve the health and well-being of older Americans is stimulating, invigorating, and just plain fun.”
Some 1.4 million older adults in the U.S. who are hospitalized in an intensive care unit (ICU) for critical illness each year survive. But their bouts with pneumococcal pneumonia, severe sepsis, and other illnesses represent a turning point: up to 75 percent will emerge with new or worsened disabilities that compromise their independence.

For decades, deep sedation and bed rest were believed to be necessary for treating critical illness, practices now known to leave patients in worsened physical and cognitive condition. Today patients are allowed to be awake more and to move around in the ICU. As a result, “some people can reduce the amount of disability they have when they leave the hospital,” says Nathan E. Brummel, MD, MSCI. “But we don’t know if that matters for them long-term.”

Dr. Brummel’s Beeson project is the first study to objectively quantify patients’ activity during critical illness and investigate how it is associated with disability, and with physical and cognitive function. The study will enroll 312 critically ill patients from medical and surgical ICUs at Vanderbilt University Medical Center. During their stay in the ICU, participants will wear a type of motion sensor, called an ActiGraph, which records their movement.

After three and twelve months, Dr. Brummel and his research team are following-up with in-person assessments of participants’ health, to find out how well they can move around, care for themselves, and take care of daily activities. They will also evaluate participants’ thinking and memory.

To better understand risk factors for disability after critical illness, Dr. Brummel is also seeking out the physiological mechanisms that underlie declines in a person’s ability to function. “The area that we are studying right now is inflammation,” he says, which is measured by biomarkers in blood samples drawn from participants at the time of hospital admission and shortly before discharge.

“Critical illness is a huge inflammatory insult,” he says. “It may be that some people resolve their inflammation and do well after critical illness, whereas others develop chronic inflammatory states leading to disability.”

Understanding these relationships “is an important step toward returning ICU survivors to independent function,” says Dr. Brummel, and the need is urgent. The number of people who are developing sepsis and who need mechanical ventilators has been increasing for a number of years.

Older adults account for part of this increase. But Dr. Brummel notes that overall, patients in the ICU are sicker—the number of people developing organ failures, including kidney and respiratory failure, is also rising. In addition, older adults who are frail before admission to the ICU have more difficulty afterward—and frailty, too, is not limited to people older than 65. In other research supported by his Beeson award, Dr. Brummel and colleagues found that about 20 percent of younger patients entering the ICU are frail, and these frail patients experience declines in function after a critical illness the same as older adults.

Yet most medical personnel in the ICU are not well versed in aging principles, including the risks of critical illness to older or frail patients. To “bring an aging message into the ICU,” Dr. Brummel is working with 2017 Beeson Scholar Lauren Ferrante, MD, MHS, of Yale University. In an endeavor that is true to the Beeson program’s goals of fostering emerging leaders and promoting collaboration, they have formed the Aging in Critical Care Interest Group within the American Thoracic Society, the largest international society of pulmonary and critical care doctors in the world.

“Aging research and geriatric care have not been the focus in the ICU,” says Dr. Brummel, “but they should be as the population ages.”
For older adults, the hazards of emergency surgery are well-documented: the risk of death is three times higher than after elective surgery, and two to seven times higher than for younger emergency surgery patients. Up to half of older adults experience complications after emergency surgery, and most are discharged to nursing homes.

Yet little is known about patients’ well-being beyond these specific surgery-related outcomes, usually evaluated 30 days after the procedure. “For older adults who may just have a number of months to live, that 30-day mortality number isn’t quite as valuable as, what will that time be like?” says Zara Cooper, MD, MSC, FACS. “We really don’t have any great understanding of, what will your function be like?” she continues. “What kinds of activities will you be able to do? Will you still be living at home versus being in a nursing facility? How many times will you be re-admitted to the hospital? And then, what is that experience like for your family?” These questions are critical for older adults, because maintaining function and independence often are what they value most.

Dr. Cooper’s Beeson research strives to enhance understanding of quality of life in the year after surgery. Ultimately, the goal is to help older people undergoing emergency surgery to be involved in making informed decisions about their care.

Identifying factors associated with better outcomes is the first step. To this end she is analyzing data from more than 650,000 Medicare claims, including survival, nursing home use, rehospitalization, and hospice use, among older adults 12 months after emergency surgery. Then she will compare the results to data from similar patients hospitalized for three common medical conditions: pneumonia, congestive heart failure, and heart attack.

This comparison could help in communicating with patients about the long-term impact of their surgery. In research that led up to her Beeson award, Dr. Cooper used Medicare data to investigate outcomes of patients with a broken neck sustained in a fall. She compared the results to those for patients with hip fracture.

“Both physicians and the lay public understand the impact of a hip fracture on an older adult,” says Dr. Cooper. But her study found that patients with cervical spine fracture were more likely to die—and this point of comparison proved especially helpful in bringing the future into focus during conversations with patients and families. “If you can relay the information to the family that this is worse than hip fracture, they seem to understand better what the impact will be,” she says.

For her Beeson research, Dr. Cooper is also using surveys to follow-up with a cohort of 150 older adults after emergency general surgery every three months for up to a year, “so that we can understand aspects of their trajectory, including cognition, physical function, symptoms, quality of life, and depression.”

With a smaller group of 20 patients and their care partners, Dr. Cooper is carrying out semi-structured interviews to elicit a more in-depth understanding of their experience—and identify ways to improve a host of issues that arise in the year after emergency surgery including doctor-patient communication, advance care planning, managing symptoms, negotiating transitions in care, and taking care of caregivers.

Dr. Cooper credits her Beeson mentors with helping to strengthen the methodology that guides her research, and with providing the opportunity to be involved in creating national standards of care for geriatric surgery patients. Mentorship through the Beeson award has “helped my work evolve toward thinking about those things specifically for palliative care and surgery,” she says, “which is a passion of mine.”
Each year American dermatologists treat tens of millions of slow-growing skin lesions, such as basal and squamous cell carcinoma, and actinic keratosis. These skin cancers and pre-cancers result from exposure to the sun over a lifetime, so it’s no surprise that they are more common among older adults.

But dermatology as a specialty does not yet tailor its practices to older adults, according to Eleni Linos, MD, MPH, DrPH. And a one-size-fits-all approach to treating skin lesions fails to account for the different needs, priorities, health issues, and life expectancies of older adults. “For many frail, older adults at the end of life, the risks of treatment of these low-risk but highly prevalent tumors may often outweigh the benefits,” says Dr. Linos. As a resident, she was struck by one patient in particular. “It was my job to call him every time I diagnosed yet another basal cell carcinoma, and tell him he had to come back in for surgery, again. I had to do this every couple of months, and I didn’t feel we were offering the best care given his other medical circumstances,” she says.

So with her mentors, Dr. Linos began to “think critically and in a data-driven way” about these issues. In research that preceded her Beeson award, she found that among older adults treated, mostly surgically, for skin cancer, more than a quarter said they had a problem afterward—a complication like bleeding or infection. “That number is huge,” she says, “even though not all of those were true medical complications the way a physician would classify them.”

Dr. Linos is testing the hypothesis that older adults who are fully informed and engaged in making decisions about their treatment will choose more conservative options for treating skin lesions. This choice would likely lead to fewer complications and better quality of life.

First, using the Health and Retirement Suvery, a national database, Dr. Linos is gathering data on how skin cancers are treated in patients who are nearing the end of life. She also is conducting focus groups and interviews with patients, caregivers, and physicians to better understand what they know about basal cell skin cancers and their preferences for treatment.

Ultimately the research will lead to an evidence-based tool to help patients, families, and caregivers make better decisions about their skin cancer treatment. “I’d love to be able to offer older adults with skin disease better care, and change the way we approach this problem with them so that it is much more a shared decision. I want patients to really be aware of risks and benefits and feel empowered to make decisions in the context of their own health.”

In addition to funding the research, the Beeson award supports career development, which played a role for Dr. Linos in her promotion to associate professor. She adds that, “The mentorship I have received as part of the Beeson program has been incredible—not only because of the inspiration and excitement that comes with joining this phenomenal group of researchers, but also because of the practical and focused advice I received,” she says. “The Beeson program has also taught me what exceptional mentorship looks like, so that I can pass this forward to my own mentees.” Dr. Linos was selected as a Tideswell Emerging Leader in Aging in 2018 and was invited to give the Keynote lecture at the 2018 annual meeting of the the British Association of Dermatologists in Edinburgh, UK on this topic.

As a trailblazer for geriatric dermatology, Dr. Linos has created the first American Academy of Dermatology (AAD) Geriatric Dermatology Expert Resource Group, which is planning to meet at the 2019 annual AAD meeting. She already has the opportunity to support junior researchers. “Before receiving the Beeson award I didn’t know of anyone interested in this field of geriatric dermatology, and now it feels like there’s just tremendous enthusiasm,” she says. “I hope this is the beginning of a field that will have major impact on the care of older adults with skin disease, and that I can continue to support other dermatologists to join the Beeson program in the future.”
“It’s been known for a long time that Alzheimer’s patients have a disturbed sleep-wake cycle,” says Brendan P. Lucey, MD. “They’re up at night, or they’re napping during the day. Anyone who has taken care of someone with Alzheimer’s can attest to that.”

In the last decade, research has found that that disrupted sleep can develop years in advance of Alzheimer’s dementia. It may even be a risk factor for the disease or a marker for the underlying changes in the brain.

In 2012, Dr. Lucey, a neurologist, joined the faculty of Washington University in St. Louis to work with two researchers who pioneered studies of the relationship between sleep and beta-amyloid protein, which forms the hallmark plaques found in the brains of people with Alzheimer’s disease (AD).

Both were former Beeson scholars. David Holtzman, MD, a member of the first Beeson class, was the first to show in laboratory animals that brain levels of beta-amyloid protein normally rise and fall with the sleep-wake cycle. Randall Bateman, MD, who was mentored by Dr. Holtzman, discovered a similar diurnal fluctuation in beta-amyloid in healthy people. Further studies showed that, in laboratory animals, sleep deprivation accelerates the formation of beta-amyloid plaques in the brain. The opposite holds true as well—inducing the animals to sleep more results in less beta-amyloid, and fewer plaques.

In a study underway before receiving his Beeson award, Dr. Lucey began testing the findings from animal studies in research with human subjects. He found that in people who were completely sleep-deprived, the overnight levels of beta-amyloid protein in cerebrospinal fluid (CSF) increased up to 30 percent compared to control participants who were allowed to sleep. The result suggests a mechanism by which disrupted sleep could increase the risk of AD.

“But no one is going to be completely sleep deprived for long enough to increase the risk of AD,” he says. “The missing piece is that no one has shown that in humans you can improve sleep and decrease beta-amyloid levels.”

Dr. Lucey’s Beeson research aims fill in that piece. With Drs. Holtzman and Bateman as his mentors in carrying the work forward, he says, “I’m a third generation Beeson Scholar; a Beeson grandson.”

Dr. Lucey’s study, which is enrolling 45 volunteers, parses the differences in CSF beta-amyloid between good sleepers and poor sleepers, and between poor sleepers who take a sleeping aid and those who don’t. For two weeks, study volunteers wear an actigraph, a device that measures activity and light exposure, on their wrists to monitor when they go to bed and to sleep. Each volunteer also keeps a sleep diary to back up this data.

“The end goal of these projects,” says Dr. Lucey, “is to provide the preliminary data to support doing a clinical trial using sleep to prevent beta-amyloid deposition or progression of beta-amyloid deposition.”

Once a person has dementia and sleep problems, it’s difficult to study the connections or to intervene. “What’s exciting about these developments,” says Dr. Lucey, “is to use sleep therapy to prevent Alzheimer’s.” Yet he cautions that, even if his Beeson project is successful, improving sleep likely will not be simple or disease-altering for all people at risk of AD.

About the Beeson program, Dr. Lucey says “the annual meeting is one of the best things about it. It’s always so exciting to interact with people who are doing great work. And I really like being exposed to aging research in areas that I’m not thinking about all the time.”
“I’ve personally seen how advance care planning can benefit the lives of my family members,” says Hillary Lum, MD, PhD. “During difficult conversations with my grandmother, I realized the importance of honoring her preferences, even when I wouldn’t have chosen that for myself. It’s important, as a physician, to really hear what someone wants—and make it easier for them to share that with the people around them.”

Although advance care planning helps people receive treatment that aligns with their values, only about a third of Americans have completed at least part of the process. In the healthcare system where she works, Dr. Lum says just 12 percent of people have an advance directive on file in their medical record.

Dr. Lum’s research aims to engage older adults in this process. “We really want to provide opportunities to make it easier for patients,” she says. To that end, she is testing the feasibility of group medical visits for advance care planning.

Supplementing one-on-one visits with group visits is an idea that has gained traction in recent years, especially for patients with chronic diseases. During group visits, medical staff can provide additional care and address patients’ questions at length. Family medicine practices are increasingly arranging group visits that allow people with a chronic disease, like diabetes, to find out how to manage their condition and learn from the experiences of others.

“We adapted that model to talking about advance care planning—even for individuals with very different health needs,” says Dr. Lum.

Advance care planning requires many steps, over time. In addition to having conversations with their doctors, people need to consider their own wishes and values, have conversations with family members, complete documents, and ensure that their documents are on file in their medical records.

“We recognized that patients often have questions that they aren’t able to get answered in the one-on-one clinic or by going to their lawyer,” says Dr. Lum. “Also, the support of the group dynamic is encouraging to patients. There’s an opportunity to learn from someone else’s situation.”

In earlier work, Dr. Lum demonstrated that participating in a prototype group visit for advance care planning increased family discussions and filing of documents in the medical record for older adults. Her Beeson project takes the next step toward standardizing this intervention.

This pilot study is evaluating whether the advance care planning group visit model is feasible and acceptable to patients, and also to primary care provider staff. It compares participants who take part in group medical visits with participants who receive advance care planning materials by mail. At three months and six months after baseline, the researchers will interview participants and examine their medical records to find out whether they have had conversations with family about their planning, and have documents on file. The research lays the groundwork for a larger scale, multi-site, randomized clinical trial of implementing the group visit.

In addition, Dr. Lum has developed an implementation manual, which takes into account her research team’s observations of how clinics might want to adapt the model to meet the needs of their patients or resources. For example, different patient populations or clinics may prefer particular advance directives or decision aids, require materials in different languages, or need materials written for varying levels of health literacy.

For Dr. Lum, the Beeson award has opened the door to collaborations with former Beeson scholars. In addition, she says, “one of the great things about having a career development award is the time and space to develop knowledge, research expertise, and leadership skills.”
While Ana Pereira, MD, was a medical student in Brazil, she had the opportunity to translate the classic textbook, *Principles of Neural Science*, by Nobel laureate Eric Kandel and colleagues. “I was fascinated by how complex the brain is,” she says, “and I really wanted to understand how memory, learning, emotion, language—all those cognitive processes—happen in the brain.”

That experience set her on the path to becoming a physician-scientist focusing on Alzheimer’s disease (AD), the most common neurodegenerative disorder, and one that dramatically affects cognition. “I knew I wanted to do research—and I wanted to expand my training so that I could do research that is also relevant to improving human health,” says Dr. Pereira.

Her work today investigates changes in the brain that occur with both aging and AD; in particular, deterioration of the brain’s synapses, the points of communication between neurons. The cells most affected are in areas that are critical to learning and memory, and use a chemical messenger called glutamate to carry signals across synapses. With aging, these connections weaken; and with AD, they are significantly lost.

Dr. Pereira is researching at the molecular level how synapses fail. It turns out that glutamate levels are regulated by another molecule, called glutamate transporter, which ferries glutamate to the synapse and ensures that it is in the right place, at the right time, and in the right quantity, for learning and memory to occur. In both aging and AD, the brain decreases its production of glutamate transporter.

Faulty glutamate signaling can have many consequences. For example, if glutamate spills into the wrong place, neurons can be damaged. Recent research also suggests that changes in glutamate activity can increase the toxicity of amyloid-beta and tau proteins in the brain, which are hallmarks of AD.

“If you can efficiently target the degenerating synapse, that could potentially have a very important impact in terms of cognition,” says Dr. Pereira. In research published before her Beeson award, she and colleagues studied glutamate signaling in the brains of aged rats. They found that boosting glutamate transporter could prevent age-related cognitive decline, and they discovered a mechanism to explain how synapses were strengthened.

Dr. Pereira’s Beeson project further investigates the role of glutamate transporter in cognitive aging and AD. In studies with laboratory mice genetically engineered to develop AD, she and coworkers are testing the effects of increasing glutamate transporter on cognition and on levels of beta-amyloid, tau, and other molecules. Other experiments focus on cognition in mice engineered to lack glutamate transporter to further understand its function.

Ultimately, new therapies for AD might be aimed at the glutamate transporter. In animal studies, Dr. Pereira and coworkers have increased glutamate transporter using riluzole, a drug that is FDA-approved to treat amyotrophic lateral sclerosis (ALS). They also are testing riluzole in a small clinical trial with participants already diagnosed with AD.

“Riluzole enhances these transporters, but modestly,” says Dr. Pereira. For a drug that could potentially treat AD, “we want something much more efficacious. So we have started a drug screening program for more efficient enhancement of the transporters.”

“Launching a scientific career depends on success at so many levels,” she adds, and the Beeson award helps with all of them. “You have to do great science, you have to collaborate with the right people, you have to navigate the process of writing successful grants.” At the Beeson annual meeting, “You get to know these people who are future leaders in aging very well. It’s critical for collaborations, and for getting advice. The Beeson scholars really form a community.”
A cognitively impaired older man arrives in a hospital emergency department with a large bruise around his left eye socket. The son who brought him in says the man fell, but a physical exam is inconsistent with this explanation. Was the bruise caused by an accident or an intentional injury? What happens next?

“Victims of elder abuse present to emergency medicine physicians commonly—but we’re treating their medical complaint and not identifying that they’re victims,” says Tony E. Rosen, MD. “Developing a multidisciplinary approach for doing this, and measuring its efficacy and impact, is an important future step in improving care for these victims.”

In fact, most elder abuse goes undetected, even though between 5 and 10 percent of older adults are the victims of neglect or physical, sexual, or psychological abuse. As the baby boomers age, the number of people affected will increase.

With his Beeson award, Dr. Rosen is developing a clinical prediction rule, a tool to help busy emergency department staff identify, report, and intervene in cases of elder abuse. Emergency departments are already on the front lines of screening for child abuse. In Rosen’s view they provide a unique opportunity to identify signs of elder abuse as well.

For example, because emergency visits are unplanned, medical staff can readily see if a patient’s personal hygiene needs have been regularly attended to. In addition, paramedics bringing in the patient often have had the opportunity to see inside the person’s home and could assess whether it is a safe environment. Nurses who provide bedside care have the opportunity to talk with, and observe, patients and family members. Patients also have conversations with technicians and others who transport them within the hospital.

Still, it can be difficult to be certain whether injuries are accidental or inflicted. Emergency department staff need both training and a reliable way to identify injury patterns, physical findings, and other signs associated with elder physical abuse. To create such a tool, Dr. Rosen is carrying out a prospective study to compare physical findings in abuse victims to those of geriatric patients who have been injured in accidental falls. He will add to that a comparison of laboratory and radiology exam results in the two groups.

Identifying and recruiting study participants is a team effort, carried out through partnerships with the New York City Elder Abuse Center, the New York City Department for the Aging, Adult Protective Services, prosecutors’ offices, and Emergency Medical Services, as well as through emergency department evaluation.

Within the emergency department, Dr. Rosen’s research is highly collaborative as well, utilizing the knowledge and participation of emergency medical services providers, triage providers, nurses, radiologists, radiology technicians, social workers, and case managers.

The project builds on Dr. Rosen’s long-term relationships with these experts and agencies, and his earlier research focusing on injury patterns gleaned from the legal files of cases of elder abuse. In those studies he and colleagues developed a comprehensive classification system for acute geriatric injuries and a protocol for standardized photography of acute injuries.

“For me, one of the exciting things about the Beeson Award has been joining such an extraordinary community of scholars that is focused on collaboration,” says Dr. Rosen. As a Beeson scholar, he also is pursuing formal training in forensic sciences and medico-legal investigation of death. In addition, the Beeson award provided him the opportunity to develop policy-making expertise by attending the John A. Hartford Foundation Policy Institute in Washington DC.

“Ultimately, we want to improve the ability of health care providers to identify and protect victims of physical elder abuse, who are among the most vulnerable older adults,” he says.
“Urinary symptoms, especially as we age, are a critically important problem,” says Phillip P. Smith, MD. “Urinary incontinence, frequent and urgent needs to urinate, and difficulty emptying, are distressing and costly, exceeding the total costs of all cancer care in the United States.”

However, although symptoms in older people contribute to social isolation and institutionalization, too often they have not received the attention they deserve. But attitudes towards urinary control problems are changing. “If our grandparents got wet, they chalked it up to old age. But I think the baby boomers and beyond are going to be highly intolerant of this problem,” says Dr. Smith.

Aggravating the problem is that available therapies are less than optimal, especially in the elderly. Dr. Smith points out that this might be because the idea behind current therapies is overly simplistic. “The idea that symptoms indicate overactive and underactive bladder muscle is clearly untrue,” says Dr. Smith. Furthermore, in research leading up to his Beeson award, he showed that the bladder muscle does not necessarily lose strength as it gets older, and confirmed that the sensitivity to what’s in the bladder actually decreases.

Dr. Smith’s Beeson research is investigating the aging bladder, and mechanisms why older people are more likely to become symptomatic. Dr. Smith has re-framed urinary control as an adaptive system. “Thinking of urinary symptoms as something wrong with the bladder is too limiting,” says Dr. Smith. “Urinary control is really evidence of an adaptive system working well,” he says. “It explains why some people do well and others don’t. Whether it’s genetic or environmental, some people just have better adaptive systems than others.” Designing new ideas for prevention and treatment means thinking less about what is wrong with the bladder, and more about what went wrong with the aging system.

In results of his Beeson research published this year, Dr. Smith describes a possible contributor to the risk of adaptive failure. In experiments with mice, he is investigating how a molecule called the HCN ion channel can affect how the bladder responds to brain control. HCN channels regulate electrical signals throughout the body, and were only recently found in the bladder. In other body systems, HCN declines with aging are paralleled by diminished adaptive reserve, leading Dr. Smith to suspect a similar problem in the bladder.

His research has confirmed that HCN channels play an important age-dependent role in brain control over bladder function, as well as discovering that there is a decline in HCN channels with aging. “The importance of these results is they provide evidence for a loss of controllability without requiring a sick or damaged muscle. We are hopeful that as we gain a better understanding of how this adaptive system works we will be able to define new treatment approaches,” says Dr. Smith.

Dr. Smith spent many years in clinical practice before pursuing basic science. Participating in the Beeson program has provided crucial mentoring and research support to make the transition to physician-scientist. “Too often clinicians and clinical research are too far removed from understandings of basic mechanisms, yet without a clinician’s input it is hard for the basic scientist to know the clinical relevance of their research directions. I believe real progress requires bridging that gap.”

“The Beeson program has provided me the critical opportunity to contribute to improving our science and thus care for our older patients.”
Aging is the number one risk factor for Alzheimer's disease (AD). And “diseases of aging tend to be really complicated,” says Andrew F. Teich, MD, PhD. “By the time you get into your 70s and 80s the slings and arrows of an entire life add up in a complex way.”

AD, for example, involves many changes in the brain that can take decades to manifest as dementia. More than any other change, however, a decline in synapses—the communication points between neurons in the brain—correlates best with memory loss and cognitive decline in AD.

What goes awry to cause brain synapses to break down in AD, and disrupt neuronal communication? Dr. Teich’s research places this question in the methodological crosshairs of computer science and molecular biology.

“The increasing amount of data that’s becoming available to medical researchers is really exciting,” he says. One type of data is called RNA sequencing data. All of the body’s cells contain the same genes, encoded in DNA. But only a portion of these genes are in use at any time, and which ones are “turned on” varies depending on the cells. RNA encodes a transient message of which genes are working, and RNA sequencing data provides a snapshot of cellular activities.

In studies that preceded his Beeson award, Dr. Teich analyzed RNA sequencing data from human brain tissue preserved in a brain bank. One result of this work was a better understanding of which genes orchestrate cellular communication at the synapses.

For his Beeson project, Dr. Teich is studying RNA sequencing data alongside well-known cellular hallmarks of AD in small pieces of brain tissue from patients with hydrocephalus. Patients with hydrocephalus sometimes undergo shunt surgery to facilitate drainage of excess cerebral spinal fluid that is causing the hydrocephalus. A tiny sample of brain tissue is sometimes removed during surgical installation of this shunt drain.

Hydrocephalus is unrelated to AD, but the aged patient population that typically undergoes this procedure is also at risk for developing Alzheimer's disease, and some of these patients show early signs of Alzheimer’s pathology. Dr. Teich and his coworkers are using sequencing technologies to screen this brain tissue, find out which genes are being disrupted, and tease out changes that correlate to known markers of AD progression.

The next question will be, “can we do something about that?” says Dr. Teich. “AD tends to hit at the end of life. But if we just delay the onset by 5 years, it’ll have an outsized impact on the total prevalence in our society.”

The Beeson award has “afforded me time to really build my identity as a physician-scientist,” says Dr. Teich. “My background is in computational biology, looking at how neurons process information, so I did a lot of work with big data sets. But I never dealt with sequencing data, or genetics or genomics. I really needed the time to learn how to analyze that kind of data.”

Dr. Teich also credits the Beeson annual meeting with playing a role in his research success. “It helps you in so many ways,” he says. “The best part about it is the people who come back. It’s so beneficial to the trainees to be in this really small meeting with all of these successful senior people, who can offer objective advice—but you also just get to know them. And then you know people around the country who you can contact when you have a question. That’s really useful.”
Beeson Scholars

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The National Institute on Aging (NIA), one of the 27 institutes and centers of the National Institutes of Health, leads a broad scientific effort to understand the nature of aging and to extend the healthy, active years of life. In 1974, Congress granted authority to form the National Institute on Aging to provide leadership in aging research, training, health information dissemination, and other programs relevant to aging and older people. The NIA’s mission is to support and conduct research on genetic, biological, clinical, social, and behavioral aspects of age-related diseases and conditions, including Alzheimer’s disease. The special problems and needs of older Americans, fostering the development of scientists in aging and communicating information about aging and advances in research on aging to the scientific community, health care providers, and the public are also vital to the Institute’s mission. Learn more at www.nia.nih.gov.

The American Federation for Aging Research (AFAR) is a national, nonprofit organization whose mission is to support and advance healthy aging through biomedical research. AFAR is devoted to creating the knowledge that all of us need to live healthy, productive, and independent lives as we grow older. Since 1981, AFAR’s grant programs have contributed over $178 million to the field of aging research, supporting more than 4,100 investigators and students. AFAR’s work has led to significant advances in our understanding of the processes of aging, age-related diseases, and healthy aging practices. Learn more at www.afar.org.

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