2019 Beeson Annual Meeting
Program Book

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  • 2019 Beeson Annual Report featuring the 2017 Scholars
2019 ANNUAL MEETING

HYATT REGENCY TAMAYA RESORT AND SPA
NOVEMBER 20 – 23, 2019

#Beeson2019 #BeesonScholar
@AFARorg
AGENDA

WEDNESDAY, NOVEMBER 20, 2019

LEADERSHIP: CREATING AND FINDING OPPORTUNITIES

Session for Travel Stipend Awardees and Clin-STAR participants.
Other meeting participants are welcome to join.

2:30 – 4:30 p.m.
Hawk BC

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

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

WELCOME

Harvey Jay Cohen, MD
AFAR Board Member, Past-President
Walter Kempner Professor of Medicine
Director Emeritus, Center for the Study of Aging and Human Development
Chair Emeritus, Department of Medicine
Duke University Medical Center

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

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

KEYNOTE ADDRESS

Donald Edmondson, PhD, MPH
Associate Professor of Behavioral Medicine (in Medicine and Psychiatry)
Director, Center for Behavioral Cardiavascular Health
Columbia University

7:00 – 9:00 p.m.
DINNER
Tamaya FGH

Introduction of New Beeson Scholars, Travel Stipend and Clin-STAR awardees.

Sue Zieman, MD, PhD
Medical Officer, Division of Geriatrics and Clinical Gerontology,
National Institute on Aging

THURSDAY, NOVEMBER 21, 2019

7:00 – 9:00 a.m.
BREAKFAST
Wolf

8:00 – 9:00 a.m.
SPEED NETWORKING (OPTIONAL)
Please note that participants in this session will not meet everyone. Have breakfast first or bring it with you to 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?

*Please help the organizers by moving to the next person when indicated.*

9:00 – 9:15 a.m.

**BREAK**

9:15 – 10:45 a.m.

**HOW TO BE A MENTOR/MENTEE?**

*Introduction: Miles Berger, MD, PhD, Duke University Medical Center*

*Moderator: Kristine Yaffe, MD, University of California San Francisco*

Successful mentor/mentee relationships should be fulfilling and beneficial for all involved. This session will explore how to develop more effective and productive mentor-mentee relationships. The moderated session will include an overview and panel discussion highlighting three mentor-mentee dyads. The session will be followed by breakout sessions.

**Breakouts Sessions are led by panel teams (45 minutes).**

*Tom Gill, MD, and Lauren Ferrante, MD, MHS, Yale School of Medicine:*

How to develop/evolve as a mentor/mentee. (Tamaya ABCD)

*George Kuchel, MD, and Phil Smith, MD, University of Connecticut Health:*

How to become independent from your mentor and how to navigate and deal with conflict. (Hawk AB)

*Cathleen Colon-Emeric, MD, and Rasheeda Hall, MD, Duke Medical Center:*

Interdisciplinary mentorship; effective mentorship for women and under-represented individuals in academic research. (Badger BC)

10:45 – 11:15 a.m.

**BREAK**

11:15 a.m. – 12:30 p.m.

**GRADUATING SCHOLARS PRESENTATIONS: GROUP 1**

*Introduction: Liana Apostolova, MD, MSc, FAAN*

Indiana University School of Medicine

*Marian (Emmy) Betz, MD, MHP*

Associate Professor, University of Colorado, Denver

*Eleni Linos, MD, DrPH*

Professor, Stanford University

*Daniel Kramer, MD*

Assistant Professor, Harvard Medical School

*Kelly Trevino, PhD*

Assistant Attending Psychologist, Memorial Sloan Kettering Cancer Center
12:30 – 2:00 p.m.
Wolf

**LUNCH**
With optional Consultancies or Aims page workshop (sign-up only)
If you signed up for a workshop or consultancy, to-go containers will be available at the luncheon buffet. Please take your meal to the meeting room.

Hawk A: Consultancies, Group 1
Hawk B: Aims Page workshop, Group 1

2:00 – 3:00 p.m.

**FREE TIME / MENTORING ACTIVITIES**
Note: A private session is scheduled for the NIA staff, travel stipend and Clin-STAR awardees in Badger BC.

3:15 – 5:00 p.m.

**DATA BLITZ!**
The academic equivalent of speed dating – a fast-track vehicle to understand research and possible synergies with others. Each session involves a research theme, with current scholars each presenting their research in five minutes or less – the time limit will be strictly enforced. Groups will be arranged by content area (assignments are in program booklet). Meeting participants who are not presenting are encouraged to join any of the groups.

Hawk A: Group 1, **Moderator: Cary Reid, MD, PhD**
Hawk B: Group 2, **Moderator: Raymond Yung, MD**
Hawk C: Group 3, **Moderator: Eddie Koo, MD**
Badger A: Group 4, **Moderator: Alison Huang, MD**
Elk: Group 5, **Moderator: Amy Kelley, MD**

5:00 – 7:00 p.m.
Tamaya E

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

5:00 – 5:30 – general viewing
5:30 – 6:00 – small group presentations – 2018 Scholars
   Group 1 - posters 1 to 5  - Donovan Maust, discussant
   Group 2 – posters 54 to 58 – Anne Kenny, discussant
6:00 – 6:30 – Odd numbers attend their poster
6:30 – 7:00 – Even numbers attend their poster

7:00 – 9:00 p.m.
Tamaya FGH

**DINNER**

**FRIDAY, NOVEMBER 22, 2019**

7:00 – 9:00 a.m.
Wolf

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

8:00 – 9:00 a.m.
Tamaya ABCD

**SPEED MENTORING**
By sign-up only. Please have your breakfast first or bring it with you into the meeting room.

This session provides an opportunity for the scholars to have brief, informal, but focused discussions with senior investigators outside their own institutions in aging research.

Please refer to the program booklet for assignments.
9:00 – 10:15 a.m.  
**Tamaya ABCD**

**GRADUATING SCHOLARS PRESENTATIONS: GROUP 2**

**Introduction:** Alison Moore, MD  
University of California, San Diego

**Kathleen Unroe, MD**  
Associate Professor, Indiana University

**Kasia Lipska, MD, MHS**  
Assistant Professor of Medicine, Yale University School of Medicine

**Phillip Smith, MD**  
Associate Professor of Surgery, University of Connecticut College of Medicine

**Jennifer Lai, MD, MBA**  
Assistant Professor of Medicine, University of California, San Francisco

10:15 – 10:45 a.m  
**BREAK**

10:45 a.m. – 12:00 p.m.  
**GRADUATING SCHOLARS PRESENTATIONS: GROUP 3**

**Introduction:** Cynthia Carlsson, MD, MS  
University of Wisconsin-Madison, School of Medicine and Public Health

**Constance Fung, MD, MSHS**  
Associate Professor of Medicine, University of California, Los Angeles

**Dae Kim, MD, MPH, ScD**  
Assistant Professor of Medicine, Harvard Medical School

**Andrew Teich, MD, PhD**  
Assistant Professor, Columbia University

12:00 – 1:30 p.m.  
**Wolf**

**LUNCH**  
With optional Consultancies or Aims page workshop (sign-up only)  
If you signed up for a workshop or consultancy, to-go containers will be available at the luncheon buffet. Please take your meal to the meeting room.

Hawk A: Consultancies, Group 2  
Hawk B: Consultancies, Group 3  
Hawk C: Aims Page Workshop, Group 2  
Puma BC: Aims Page workshop, Group 3

1:30 – 3:00 p.m.  
**Tamaya ABCD**

**SOCIAL AND BEHAVIORAL SCIENCES IN AGING RESEARCH**

**Introduction:** Nancy Schoenborn, MD, MHS  
Johns Hopkins University School of Medicine

This session aims to highlight recent advances in social and behavioral research in aging and the interrelationship with other areas of aging-related research.

**Moderator:** Dana Plude, PhD, National Institute on Aging, NIH

**Speakers:**  
**Donald Edmondson, PhD, MPH**  
Associate Professor of Behavioral Medicine (in Medicine and Psychiatry),  
Director, Center for Behavioral Cardiovascular Health,  
Columbia University
Sara J. Czaja, PhD
Professor of Medicine, Director, Center on Aging and Behavioral Research,
Weill Cornell Medicine

Amy Jo H. Kind, MD, PhD
Associate Professor, Director, Health Services and Care Research (HSCR) Program,
University of Wisconsin, Madison

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

6:30 – 9:00 p.m.
DINNER
Meet in the lobby starting at 6:15 pm for shuttle to the Cottonwoods. If you prefer, it is a short walk from the hotel, but it will be dark and there are coyotes (rattlesnakes are hopefully hibernating)!

SATURDAY, NOVEMBER 23, 2019

7:00 – 8:30 a.m.
BREAKFAST

8:30 a.m.
ADJOURN

12:00 p.m.
HOTEL CHECK-OUT TIME
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.
Hyatt Regency Tamaya Resort & Spa
Internet Instructions

American Federation for Aging Research

- Connect to the wireless network (SSID) called @Hyatt_Meeting
- Launch your Internet browser, follow the log on instructions on the portal page and enter the following access code: afar19

Need additional information?
For assistance please dial “0” from a house phone or telephone
Hyatt Regency Tamaya Resort & Spa Facility Map

Legend:
- Corn Maiden - Fine Dining
- Santa Ana Cafe - All Day Dining
- Plaza Bar & Grill - Poolside Dining
- Trading Post - Deli Dining
- The Stables at Tamaya - Trading Post, Horseback Riding, ATV Tours, Trolley Rides
- Galleria Tamaya - Shopping
## Program Advisory Committee Mentor Assignments

<table>
<thead>
<tr>
<th>Committee</th>
<th>Thursday, Nov 21 8:00 - 9:00 am</th>
<th>Thursday, Nov 21 2:00 - 3:00 pm</th>
<th>Friday, Nov 22 3:00 - 4:00 pm</th>
<th>Friday, Nov 22 4:00 - 5:00 pm</th>
<th>Friday, Nov 22 6:00 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where to meet</td>
<td>Breakfast</td>
<td>Hotel Lobby</td>
<td>Hotel Lobby</td>
<td>Hotel Lobby</td>
<td>Hotel Lobby</td>
</tr>
<tr>
<td>Liana Apostolova</td>
<td>Brendan Lucey</td>
<td>Allison Magnuson</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Malaz Boustani</td>
<td>Hillary Lum</td>
<td>Kathryn Callahan</td>
<td>Vee Phongtantuel</td>
<td>Andrea Gilmore-Bykovsky</td>
<td>Rebecca Brown</td>
</tr>
<tr>
<td>Cynthia Carlsson</td>
<td>Biren Kamdar</td>
<td>Matthew Schrag</td>
<td>Victoria Tang</td>
<td>Andrew Cohen</td>
<td></td>
</tr>
<tr>
<td>Tom Gill</td>
<td>Tony Rosen</td>
<td>Elizabeth Goldberg</td>
<td>Jennifer Portz</td>
<td>Meredith Greene</td>
<td>Melissa Wong</td>
</tr>
<tr>
<td>Alison Moore</td>
<td>Caroline Stephens</td>
<td>Nathan Brummel</td>
<td>Nancy Schoenborn</td>
<td>Lauren Ferrante</td>
<td></td>
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<tr>
<td>Nick Musi</td>
<td>Rasheeda Hall</td>
<td>Indranil Sinha</td>
<td>Rowena McBeath</td>
<td>Heidi Zapata</td>
<td>Guido Falcone</td>
</tr>
<tr>
<td>Kristine Yaffe</td>
<td>Jonathan Graff-Radford</td>
<td>Zachary Marcum</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Emily Finlayson</td>
<td>Zara Cooper</td>
<td>Charles Brown</td>
<td>Jason Roh</td>
<td>Lisa Kilpela</td>
<td>Miles Berger</td>
</tr>
</tbody>
</table>

### Assignments

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

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

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

2015 Scholars and 2016 Graduating Scholars have not been assigned to mentors. Contact mentors directly to arrange to meet at other times during the meeting.

11/18/2019
### 2015 Scholars

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
<th>Advisor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim, Dae Hun</td>
<td>Brigham and Women's Hospital</td>
<td>Development and Validation of a Frailty Index Using Claims Data for Pharmacoepidemiologic Studies in Older Adults</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Gifford, Katherine</td>
<td>Vanderbilt University</td>
<td>Cognitive Complaints in Aging Adults</td>
<td>Kristine Yaffe</td>
</tr>
<tr>
<td>Deiner, Stacie</td>
<td>Icahn School of Medicine at Mount Sinai</td>
<td>Optimizing postoperative cognition in the elderly</td>
<td>Wes Ely/Cynthia Carlsson</td>
</tr>
<tr>
<td>Ishii, Makoto</td>
<td>Weill Cornell Medical College</td>
<td>Pathobiology of Hypothalamic and Metabolic Dysfunction in Normal Aging and Alzheimer's Disease</td>
<td>Liana Apostolova</td>
</tr>
<tr>
<td>Gardner, Raquel</td>
<td>University of California, San Francisco</td>
<td>Traumatic Brain Injury and The Aging Brain: Predictors of Clinical Trajectories</td>
<td>Alison Moore</td>
</tr>
<tr>
<td>Hua, May</td>
<td>Columbia University Health Sciences</td>
<td>Determinants of Critical Care Intensity for Hospitalized Older Adults: the effect of hospital-based palliative care services</td>
<td>Wes Ely/Ken Covinsky</td>
</tr>
<tr>
<td>Milman, Sofya</td>
<td>Albert Einstein College of Medicine</td>
<td>Effect of longevity genomes on the GH/IGF-1 phenotype and disease-free survival</td>
<td>Raymond Yung/SCHOLAR NOT ATTENDING</td>
</tr>
</tbody>
</table>

### 2016 Scholars

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
<th>Advisor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brummel, Nathan</td>
<td>Vanderbilt University</td>
<td>LONG TERM OUTCOMES OF PHYSICAL ACTIVITY IN OLDER ADULTS WITH CRITICAL ILLNESS</td>
<td>Alison Moore</td>
</tr>
<tr>
<td>Cooper, Zara</td>
<td>Harvard Medical School</td>
<td>BEYOND 30-DAYS: PATIENT-ORIENTED OUTCOMES AMONG OLDER ADULTS AFTER EMERGENCY GENERAL SURGERY</td>
<td>Emily Finlayson</td>
</tr>
<tr>
<td>Linos, Eleni</td>
<td>University of California San Francisco</td>
<td>INVOLVING OLDER ADULTS IN DECISION MAKING FOR SKIN CANCER</td>
<td>Jean Kutner/Cynthia Carlsson/GRADUATING</td>
</tr>
<tr>
<td>Lucey, Brendan</td>
<td>Washington University School of Med</td>
<td>SLEEP QUALITY AND HUMAN AMYLOID-BETA KINETICS</td>
<td>Liana Apostolova</td>
</tr>
<tr>
<td>Lum, Hillary</td>
<td>University of Colorado Denver</td>
<td>REFINING AN ADVANCE CARE PLANNING GROUP VISIT INTERVENTION ? A NOVEL INTERVENTION TO ENGAGE</td>
<td>Malalz Boustani</td>
</tr>
<tr>
<td>Pereira, Ana</td>
<td>Rockefeller University</td>
<td>ENHANCING GLUTAMATE TRANSPORT IN AGE-RELATED COGNITIVE DECLINE AND ALZHEIMER'S DISEASE</td>
<td>Liana Apostolova/SCHOLAR NOT ATTENDING</td>
</tr>
<tr>
<td>Rosen, Anthony</td>
<td>Weill Cornell Medical College</td>
<td>IDENTIFYING INJURY PATTERNS AND FORENSIC BIOMARKERS DIAGNOSTIC OF PHYSICAL ELDER ABUSE</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Smith, Phillip</td>
<td>University of Connecticut</td>
<td>REGULATORY MECHANISMS IN A HOMEOSTATIC MODEL OF GERIATRIC VOIDING PROBLEMS AND INCONTINENCE</td>
<td>Raymond Yung/GRADUATING</td>
</tr>
<tr>
<td>Teich, Andrew</td>
<td>Columbia University Health Sciences</td>
<td>AN INTEGRATIVE ANALYSIS OF DNA METHYLATION, TRANSCRIPTOMIC CHANGES; AND COGNITIVE</td>
<td>Raymond Yung/GRADUATING</td>
</tr>
</tbody>
</table>

### 2017 Scholars

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
<th>Advisor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berger, Miles</td>
<td>Duke University Medical Center</td>
<td>Neuro-inflammation in postoperative cognitive dysfunction:CSF and fMRI studies</td>
<td>Emily Finlayson</td>
</tr>
<tr>
<td>Graff-Radford, Jonathan</td>
<td>Mayo Clinic</td>
<td>Cerebral Microbleeds in the aging population</td>
<td>Kristine Yaffe</td>
</tr>
<tr>
<td>Brown, Charles</td>
<td>Johns Hopkins University</td>
<td>Monitoring Cerebral Autoregulation in Patients Undergoing Traumatic Hip Fracture Surgery to Improve Postoperative</td>
<td>Emily Finlayson</td>
</tr>
<tr>
<td>Ferrante, Lauren</td>
<td>Yale University</td>
<td>The PREDICT Study (PRE-ICU Determinants of Post-ICU FunCTional Outcomes among Older Adults).</td>
<td>Alison Moore</td>
</tr>
<tr>
<td>Stephens, Caroline</td>
<td>University of California, San Francisco</td>
<td>Improving Palliative Care Access through Technology (ImPACt): A Multi-Component Pilot Study.</td>
<td>Alison Moore</td>
</tr>
</tbody>
</table>

### 2018 Scholars
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, Rebecca</td>
<td>University of Pennsylvania</td>
<td>Improving aging in place for older adults living in subsidized housing</td>
<td>Malaz Boustani</td>
</tr>
<tr>
<td>Callahan, Kathryn</td>
<td>Wake Forest School of Medicine</td>
<td>Identifying Frailty in Primary Care: Implementation of an Electronic Medical Record-Based Frailty Index</td>
<td>Malaz Boustani</td>
</tr>
<tr>
<td>Cohen, Andrew</td>
<td>Yale University</td>
<td>Dementia and Decision-Making for Older Adults without Surrogates</td>
<td>Cynthia Carlsson</td>
</tr>
<tr>
<td>Falcone, Guido</td>
<td>Yale School of Medicine</td>
<td>Genetic analyses of radiological severity, short-term functional outcome and long-term health status in spontaneous</td>
<td>Nicholas Musi</td>
</tr>
<tr>
<td>Gilmore-Bykovskiy, Andrea</td>
<td>University of Wisconsin-Madison</td>
<td>Novel Approaches to Identifying and Engaging Disadvantaged Patients with Alzheimer's Disease (AD) in Clinical Research</td>
<td>Malaz Boustani</td>
</tr>
<tr>
<td>Hall, Rasheeda</td>
<td>Duke University Medical Center</td>
<td>Deprescribing for Older Dialysis Patients</td>
<td>Nicholas Musi</td>
</tr>
<tr>
<td>Kamdar, Biren</td>
<td>University of California, San Diego School of Medicine</td>
<td>Multicomponent Intervention to Improve Delirium and Sleep-Wake Rhythms in Older ICU Patients</td>
<td>Cynthia Carlsson</td>
</tr>
<tr>
<td>Portz, Jennifer</td>
<td>Colorado State University</td>
<td>Social Convoy Palliative Care (Convoy-Pal) Mobile Health for Older Adults with Advanced Heart Failure</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Schoenborn, Nancy</td>
<td>Johns Hopkins University</td>
<td>Improving cancer screening in older adults with limited life expectancy</td>
<td>Allison Moore</td>
</tr>
<tr>
<td>Sinha, Indranil</td>
<td>Harvard Medical School/ Brigham and Women's Hospital</td>
<td>Aging-associated dysregulation of the hypoxia pathway limits skeletal muscle regeneration</td>
<td>Nicholas Musi</td>
</tr>
</tbody>
</table>

2019 Scholars

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goldberg, Elizabeth</td>
<td>Brown University</td>
<td>GAPcare II: The Geriatric Acute &amp; Post-Acute Care Coordination Program for Fall Prevention in the Emergency Department</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Greene, Meredith</td>
<td>University of California, San Francisco</td>
<td>Tailored Geriatric Assessment and Management for HIV Care Settings</td>
<td>Tom Gill</td>
</tr>
<tr>
<td>Kilpela, Lisa</td>
<td>University of Texas Health San Antonio</td>
<td>Binge Eating Spectrum Treatment in Older Women (BESTOW): An Investigation and Intervention-Tailoring Project</td>
<td>Emily Finlayson</td>
</tr>
<tr>
<td>Magnuson, Allison</td>
<td>University of Rochester</td>
<td>Mitigating Cancer-Related Cognitive Dysfunction in Older Adults with Breast Cancer</td>
<td>Liana Apostolova</td>
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<tr>
<td>Marcum, Zachary</td>
<td>University of Washington</td>
<td>Antihypertensives and the Aging Brain</td>
<td>Kristine Yaffe</td>
</tr>
<tr>
<td>McBeath, Rowena</td>
<td>Jefferson University</td>
<td>In Vivo Model of Human Enthesis Regeneration</td>
<td>Nicholas Musi</td>
</tr>
<tr>
<td>Phongtankuel, Veerawat</td>
<td>Weill Cornell Medical College</td>
<td>Developing and piloting a multi-component technology-based care intervention to address patient symptoms and caregiver</td>
<td>Malaz Boustani</td>
</tr>
<tr>
<td>Roh, Jason</td>
<td>Massachusetts General Hospital</td>
<td>Activin Type II Receptor Activity in Age-related Frailty and Heart Failure</td>
<td>Emily Finlayson</td>
</tr>
<tr>
<td>Schrag, Matthew</td>
<td>Vanderbilt University</td>
<td>Defective Lysosomal Membrane Fission Mediates Axonal Lysosome Accumulation in Dystrophic Neurites in Alzheimer's</td>
<td>Cynthia Carlsson</td>
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<tr>
<td>Tang, Victoria</td>
<td>University of California, San Francisco</td>
<td>Improving Outcomes of Older Adults with Psychosocial Vulnerability Undergoing Major Surgery</td>
<td>Cynthia Carlsson</td>
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<td>Wong, Melissa</td>
<td>University of California, San Francisco</td>
<td>Advancing Patient-Centered Decision Making in Older Adults with Lung Cancer: Incorporating Risk of Functional Decline into</td>
<td>Tom Gill</td>
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<tr>
<td>Zapata, Heidi</td>
<td>Yale School of Medicine</td>
<td>NLRP3 Inflammasome Activation and Mitochondrial Function in the Setting of Aging and HIV Infection</td>
<td>Nicholas Musi</td>
</tr>
<tr>
<td>First</td>
<td>Last</td>
<td>Institution</td>
<td>Project</td>
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<td>Advancing patient-centered decision making in older adults with lung cancer: Incorporating risk of functional decline into treatment discussions</td>
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<td>To promote healthy aging and improve QOL, health, and wellness in older women</td>
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<td>Ashwin</td>
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<td>Loneliness and Social Isolation in the last years of life</td>
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<td>Dementia and Decision-Making for Older Adults without Surrogates</td>
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<td>Elizabeth</td>
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<td>help OAs understand &amp; plan for cognitive risks of surgery.</td>
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### Consultancies

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<tr>
<th>Thursday, November 21</th>
<th>Friday, November 22</th>
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<td>12:30 - 2:00 pm</td>
<td>12:00 - 1:30 pm</td>
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<tr>
<td>Room: Hawk A</td>
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<td>Moderator: Sean Morrison</td>
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<td>Jennifer Carnahan</td>
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<tr>
<td>Memorial Sloan Cancer Center</td>
<td>Yale</td>
<td>Victoria Tang</td>
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**Other Attendees**

| Richard King           | Carmen Quatman      | Anne Kenny         |
| Ken Covinsky           | Donavan Maust       | Dan Matlock        |
| Eric Larson            | Carl Levy University of Colorado | Geoge Kuchel |
| Louise Walter          | Duke Han University of Southern California | Jennifer Martin |
| Dana Plude             | Bob Schwartz        | Al Shaw Yale University |
| Allison Magnuson       | Sue Zieman NIA      |                     |

**How a Consultancy Session works:**

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

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

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

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

We will follow a strict timetable, so that each person will have the same opportunity for constructive feedback.
Thursday, November 21, 2019
12:30-2:00 pm
Aims Page Workshop
Room: Hawk B

Moderators:
Julie Bynum and Marcel Salive

Participants
Jennifer Lai
Stacie Deiner
Zara Cooper
Miles Berger
Charles Brown
Rebecca Brown
Carmen Quatman

Observer
Lisa Kilpela
Friday, November 22, 2019
12:00-1:30 pm
Aims Page Workshop
Room: Hawk C

Group 2
Moderators:
Jeff Caterino
Manish Shah

Participants
John   Newman
Makoto Ishii
Brienne Miner
Mariana Murea
Friday, November 22, 2019
12:00-1:30 pm
Aims Page Workshop
Room: Puma BC

Group 3
Moderators:
Alexander Smith
Cathy Alessi

Participants
Dae Hyun       Kim
Jennifer       Portz
Fayron         Epps
Maile          Karris

Observer
Allison        Magnuson
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<td>Eddie Koo - 16</td>
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<td>Wong, Melisa</td>
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<td>Zapata, Heidi</td>
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<td>Allison Huang - 13</td>
<td>Stacie Deiner - 8</td>
<td>Itamar Abrass - 1</td>
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**Assignments by Mentor**

*Mentors, please sit at the assigned table number. We have scheduled 15 min for each session, but it will be ~12 minutes of discussion, allowing 3 minutes for mentees to move to the next mentor.*

<table>
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<th>Mentor</th>
<th>Mentee 1</th>
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<td>8:30-8:45</td>
<td>Melissa Wong</td>
<td>Elizabeth Goldberg</td>
<td>Matthew Schrag</td>
<td>Patricia Nguyen</td>
<td>Jason Roh</td>
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<td>8:45-9:00</td>
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<td>Eleni Linos</td>
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<td>Guido Falcone</td>
<td>Dae Kilpela</td>
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**Walter, Louise - 36**

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2019 Beeson Scholars

Elizabeth Goldberg, MD, Associate Professor, The Alpert Medical School of Brown University: GAPcare II: The Geriatric Acute & Post-Acute Care Coordination Program for Fall Prevention in the Emergency Department

Meredith Greene, MD, Assistant Professor, University of California San Francisco: Tailored Geriatric Assessment and Management for HIV Care Settings

Lisa Kilpela, PhD, Assistant Professor, University of Texas Health Science Center San Antonio: Binge Eating Spectrum Treatment in Older Women (BESTOW): An Investigation and Intervention-Tailoring Project

Allison Magnuson, DO, Assistant Professor, University of Rochester: Mitigating Cancer-Related Cognitive Dysfunction in Older Adults with Breast Cancer

Zachary Marcum, PharmD, PhD, Assistant Professor, University of Washington: Antihypertensives and the Aging Brain

Rowena McBeath, MD, PhD, Assistant Professor, Jefferson University: In Vivo Model of Human Enthesis Regeneration

Veerawat Phongtankuel, MD, Assistant Professor of Medicine, Weill Medical College of Cornell University: Developing and piloting a multi-component technology-based care intervention to address patient symptoms and caregiver burden in home hospice.

Jason Roh, MD, Staff Physician, Massachusetts General Hospital: Activin Type II Receptor Activity in Age-related Frailty and Heart Failure

Matthew Schrag, MD, PhD, Assistant Professor, Vanderbilt University School of Medicine: Defective Lysosomal Membrane Fission Mediates Axonal Lysosome Accumulation in Dystrophic Neurites in Alzheimer's Disease.

Victoria Lai-Yen Tang, MD, Assistant Professor, University of California, San Francisco: Improving Outcomes of Older Adults with Psychosocial Vulnerability Undergoing Major Surgery

Melisa Wong, MD, MAS, Assistant Professor, University of California, San Francisco: Advancing Patient-Centered Decision Making in Older Adults with Lung Cancer: Incorporating Risk of Functional Decline into Treatment Discussions
Heidi Zapata, MD, PhD, Assistant Professor, Yale School of Medicine: NLRP3 Inflammasome Activation and Mitochondrial Function in the Setting of Aging and HIV Infection

2019 Travel Awardees

Timothy Anderson, MD, MAS, Clinical Instructor, Beth Israel Deaconess Medical Center
Jennifer Carnahan, MD, MPH, MA, Assistant Professor of Medicine, Indiana University
Erica Diminich, PhD, Research Assistant Professor, Stony Brook University
Fayron Epps, PhD, RN, Assistant Professor, Emory University
Brienne Miner, MD, MHS, Assistant Professor of Medicine, Yale University
Liliana Ramirez Gomez, MD, Instructor of Neurology, Harvard Medical School

2019 Clin-STAR Attendees (2017 and 2018 GEMSSTAR Recipients)

Elizabeth, Dzeng, MD, PhD, MS, MPH, MPhil, Assistant Professor, University of California, San Francisco
Corey Fehnel, MD, MPH, FAAN, Assistant Professor of Neurology, Harvard Medical School
Tullika Garg, MD, MPH, FACS, Clinical Investigator, Geisinger Medical Center
Maile Karris, MD, Assistant Professor, University of California, San Diego
Ashwin Kotwal, MD, Clinical Fellow, University of California, San Francisco
Stefanie Krick, MD, PhD, Assistant Professor, University of Alabama at Birmingham
Mariana Murea, MD, FASN, Associate Professor of Nephrology, Wake Forest School of Medicine
Patricia Nguyen, MD, Assistant Professor, Stanford University
Ariela Orkaby, MD, MPH, Instructor in Medicine, Brigham and Women's Hospital
Carmen Quatman, MD, PhD, Assistant Professor, Ohio State University
Katie Schenning, MD, MPH, Assistant Professor, Oregon Health & Science University
Carolyn Seib, MD, MAS, Assistant Professor, Stanford University School of Medicine
Myrick Shinall, MD, PhD, Assistant Professor, Vanderbilt University
Elizabeth Whitlock, MD, MS, Assistant Professor, Anesthesia, University of California, San Francisco
NAME: Elizabeth Goldberg, MD, ScM

cERA COMMONS USER NAME (credential, e.g., agency login): egoldberg01

POSITION TITLE: Associate Professor of Emergency Medicine and Health Services, Policy & Practice

EDUCATION/TRAINING:

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<td>Sackler School of Medicine, Tel Aviv University, Tel Aviv</td>
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A. Personal Statement

My long-term career goal is to become an independent physician scientist and academic leader in the field of emergency department-based fall assessment and prevention. To achieve this goal, I have already developed strong mentorship relationships with researchers in emergency medicine, geriatrics and health policy, taken on leadership roles in my department, the institution, and state, and have experience serving as the PI of a NIA grant. The Beeson K76 award would allow me the time and resources to develop further expertise in leading multidisciplinary teams, digital health, longitudinal data analysis, clinical trials and qualitative methods.

Role on project: I am the principal investigator (PI) on this K76 award. I will assume the overall scientific and administrative responsibility for GAPcare II. I will oversee all components of the study’s implementation and chair weekly meetings of the research team. I will work with Dr. Merchant and Mor (primary mentors) weekly to develop my research skills and discuss continuous improvement of the study. I will meet with members of my advisory committee at least monthly to improve my content expertise and components of GAPcare II. Additionally, I will work on the analyses and interpretation of findings and the preparation of abstracts, manuscripts, and presentations from the research results.

Qualifications for this project: I am a practicing emergency medicine physician and past post-doctoral fellow in the Center of Gerontology and Aging Research. I am an Associate Professor of Emergency Medicine and Health Services, Policy & Practice, and an attending physician at the Rhode Island Hospital Emergency Department (ED), the Miriam Hospital ED, and the Hasbro Children’s ED. I completed a Master of Epidemiology at the Brown School of Public Health in May 2017. I am particularly well suited to serve as PI of this proposed work due to my experience completing my internship, residency, and chief residency at Brown University at the same clinical sites where I will do this project. Additionally, I have developed strong ties with the Division of Geriatrics through my role as the Director of Geriatric Emergency Medicine for our four-hospital health system. I am currently funded by a NIA R03 GEMSSTAR award that pilot tests a multidisciplinary fall prevention intervention (GAPcare I) and this K76 is an extension of this work. I have been the PI of prior ED-based prospective human subject studies (4.a,b,c below), cross-sectional ED-based studies (2.b), claims-based (1.a,b,c), and electronic health record (EHR) (1.d) analyses.

I have received multiple awards for improving geriatric ED care in the state (Geriatric Faculty Champion Award, Providence Business News 40 Under Forty Honoree, Rhode Island Medical Society 4 Under Forty Award, Physician C.A.R.E Award, Blue Cross Blue Shield Medical Expense Trend Summit Award), and as an emerging researcher and leader in the field of aging (NIA’s GEMSSTAR award, UCSF Tideswell Emerging Leader in Aging Scholar, Brown University Department of Emergency Medicine Translational Impact Award).
Collaborations with mentorship team: I have established key mentorship relationships both locally and nationally that will allow for continued academic productivity. For this project, Dr. Merchant will be my primary mentor. He is the PI of many R01 funded projects, which have had Rhode Island Hospital and Miriam Hospital as the major study sites. My aging-related research and health services mentor (co-primary mentor) Prof. Mor and I have collaborated on two investigations examining insurance plan switching behaviors in beneficiaries requiring nursing home care and care transitions. Drs. Mor and Merchant have had an excellent working relationship over the past 16 years. They and Dr. Resnik also serve as mentors on my NIA R03 GEMSSTAR award. For this K76 award I have an advisory committee that will expand my knowledge in qualitative methods (Dr. Shield), falls prevention and deprescribing of fall risk increasing medication (Dr. Berry), longitudinal data analysis and clinical trial methods (Dr. Gutman), and wearable technologies and digital health (Dr. Mankodiya).

Current and previous research related to the project: My research focus is on improving the care of older adults in the ED setting. I am the PI of GAPcare I, which is supported by a GEMSSTAR R03, and brings together a multidisciplinary geriatric-trained team to intervene after an older adult falls. This K76 award funds the logical next progression of this work, improvement of the GEMSSTAR intervention and adds an innovative component - technology-assisted fall outcome verification and longitudinal assessments of fitness. This K76 provides the time and resources to refine, fully develop, and pilot test this in-ED fall prevention protocol.

My other geriatric-focused research has included preliminary work for this K award, a cross-sectional study of older adults, their prior fall history, treatment and prevention. I have also conducted Medicare and EHR analyses to evaluate managed care practices and their impact on nursing home patients. This work focused on frail older adults undergoing a care transition after a “health shock” and was formative in developing the GAPcare intervention, which focuses on improved ED care for falls and aids transition back to the community.

Prior to my fellowship and shift to aging research my work focused on developing interventions for other highly prevalent and morbid cardiopulmonary conditions. These projects included trialing an asthma control and severity screening tool in the pediatric ED and identifying predictors of pediatric pneumonia in the international setting. I was also the PI of a study using ED-provided home blood pressure monitors to improve hypertension detection. Like GAPcare II this study recruited patients and physicians and collected data at multiple different follow-up periods.

B. Positions and Honors

Positions and Employment

2012 - 2013 Clinical Instructor and Chief Resident, Department of Emergency Medicine, Brown University
2013 - 2019 Assistant Professor of Emergency Medicine, Brown University
2013 - Attending Physician, Rhode Island/Miriam/Hasbro Children’s Hospital Emergency Departments
2018 - 2019 Assistant Professor of Health Services, Policy & Practice, Brown University
2019 - Associate Professor of Emergency Medicine and Health Services, Policy & Practice, Brown University

Other Experience and Professional Membership

2009 - 2012 Reviewer and Editor, Global Emergency Medicine Literature Review
2011 - 2012 Editor, Emergency Medicine Residents’ Association (EMRA) Research Committee Handbook
2011 - 2012 EMRA, Vice Chair of the Research Committee
2012 - 2013 EMRA, Chair of the Research Committee
2013 - 2015 Director of Resident Research, Department of Emergency Medicine
2014 - Chair, Brown Emergency Medicine Research Symposium
2014 - 2016 Reviewer, Academic Emergency Medicine
2014 - 2016 Chair, Didactic Committee, Academy for Women in Academic Emergency Medicine (AWAEM)
2016 - 2018 Geriatric Faculty Champion, Department of Emergency Medicine
2016 - 2018 Vice President of Education, AWAEM
2018 - Vice President of Corporate Development, AWAEM (oversees Research & Awards)
2018 - Director of Geriatric Emergency Medicine, Lifespan Health System, Rhode Island
2019 - Member-at-Large, Academy of Geriatric Emergency Medicine, SAEM

Honors

2016 Fellow, American College of Emergency Physicians
2016 Academy Health Travel Award, Brown University
2017 Providence Business News 40 Under Forty Honoree, Rhode Island
2017 Momentum Award, AWAEM
2017 UCSF Tideswell Emerging Leaders in Aging Scholar
2017 Geriatric Faculty Champion Award, Brown University
2017 Grants for Early Medical/Surgical Specialists’ Transition to Aging Award (NIA R03)
2017 Translational Research Impact Award, Brown University Department of Emergency Medicine
2018 & 2019 The Physician C.A.R.E Award, the Miriam Hospital, Rhode Island
2018 Blue Cross Blue Shield Medical Expense Trend (MET) Summit, 2nd Place Winner
2018 4 Under Forty Award, Rhode Island Medical Society
2018 Community Impact Award, Brown University Department of Emergency Medicine

C. Contributions to Science

1. Health services research on care transitions shaping regional and state-wide policy for older adults using Medicare and EHR data: During my post-doctoral fellowship, I developed expertise in health services research, health economics, and analysis of claims data. Together with Professor Mor, I wrote a manuscript examining temporal trends in mortality, plan switching, and nursing home use in Medicare patients (a). This work highlights how seniors’ choice in insurance coverage may change after a “health shock”. Through this collaboration, I gained experience with a difference-in-difference approach, nursing home fixed effects, and analyzing Medicare claims data. This work was featured on the Academy Health blog in April 2017. We did an additional analysis evaluating the role the managed care practice of “concentrating” patients in nursing homes and whether creating referral networks with nursing homes to aid care transitions is beneficial to patients and payers (b).

   Additionally, I collaborated with investigators at the Centers for Medicare & Medicaid Services’ (CMS) Quality Improvement Organization (QIO) for New England, to evaluate readmissions and present solutions to decrease readmissions (c). In another collaborative project with them, I analyzed nearly 500 patient encounters using EHR data to assess the completeness of the current nursing home to ED transfer form and implications on ED care (d). We found that functional and cognitive status are rarely indicated on forms, although they are major contributors to ED disposition decisions. This study resulted in a new transfer form. Our form is in the final stages of review by the Rhode Island Department of Health for statewide adoption. A second manuscript using this dataset which reports on transfer form length and the implications on ED length-of-stay is under review at Academic Emergency Medicine.


2. Geriatric emergency department research to improve the care of older adults with acute care needs: I presented my GEMSSTARR R03 GAPcare protocol and preliminary results at several conferences; 2018 SAEM/EMF grantee conference and the GEMSSTARR conference, and the American College of Emergency Medicine conference in 2019. Three manuscripts have resulted thus far from this work (a,b,c). We completed semi-structured interviews of our GEMSSTARR participants and their caregivers and this manuscript was published in a special edition on falls (c). I also conducted a cross-sectional study that surveyed older adults on their self-reported fall history, provided treatment and prevention, and perceived care needs (d).

3. Increased awareness of need of hypertension screening and treatment on adults across the lifespan in the ED setting: Hypertension (HTN) disproportionally affects older adults and EDs are important sites of screening and management for this silent disease. I completed several studies on asymptomatic elevated blood pressure and HTN screening in the ED; an evaluation of national trends in ED elevated blood pressure management in the US (a), a systematic review of ED management of asymptomatic elevated blood pressure (b), and an evaluation of mobile health (mhealth) technologies to improve HTN care and patient engagement (c). This manuscript focused on the benefits and limitations of sensor-based technology. After this manuscript was published, I was interviewed and featured on the Healthgrades website as an expert in HTN care. I also authored two methods manuscripts on HTN care (d, other in mybibliography).

4. Improved screening and evaluation of chronic diseases of critical public health importance across the lifespan: I have been the PI of prospective studies focusing on chronic disease screening, evaluation, and management at Brown University associated EDs, where GAPcare II will be conducted. I was the PI for
PACCI-ED, which adapted a validated Pediatric Asthma Control and Communication Instrument for ED use (a). For PACCI-ED I recruited patients and physicians, performed quality control on the data, organized research team meetings, and wrote the manuscript. I also was the PI of a prospective cohort study, which recruited patients with elevated blood pressure and compared their ED blood pressure to a gold-standard device (b). This work was critical in assessing whether the new CMS HTN screening quality measure would identify patients truly in need of follow-up for HTN. This study also provided important insights on ED attendings’ abilities to predict HTN and whether it is feasible to use ED-provided home blood pressure monitors to expedite a diagnosis of HTN (c, manuscript under review at Western Journal of Emergency Medicine).


5. **Helped highlight global research relevant to emergency care in the United States**: I developed two articles as the editor of the Global Emergency Medicine Literature Review to bring international research relevant to emergency medicine to the attention of clinicians in our field (a, b). I conducted a retrospective chart review examining predictors of pediatric pneumonia in Rwanda (c) and collaborated with Dr. Wilson to study patient perspectives on ED HTN screening and care in Jamaica (d).


**Complete List of Published Work:**

**D. Additional Information**

**Ongoing Research Support**

K76AG059983 (Goldberg) 9/1/19 – 8/31/23
National Institute of Health (NIA), Paul B. Beeson Emerging Leaders Career Development Award in Aging. GAPcare II: The Geriatric Acute & Post-acute Care Coordination Program for Fall Prevention in the Emergency Department.
Role: Principal Investigator

**Completed Research Support (past 3 years)**

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<td>Society for Academic Emergency Medicine Foundation and the Emergency Medicine Foundation GEMSSTAR for Emergency Medicine Supplemental Funding Award GAPcare</td>
<td>Role: Principal Investigator</td>
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<td>National Institute of Health (NIA), Grants for Early Medical/Surgical Specialists’ Transition to Aging (GEMSSTAR) GAPcare: The Geriatric Acute &amp; Post-acute Care Coordination Program for Fall Prevention in the Emergency Department.</td>
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<td>Home Blood Pressure Monitoring to Track Post-Discharge Blood Pressures in At Risk Individuals</td>
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<tr>
<td>Is Emergency Department Hypertension Predictive of Future Hypertension?</td>
<td>Role: Principal Investigator</td>
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NAME: Greene, Meredith L.

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

POSITION TITLE: Assistant Professor of Medicine

EDUCATION/TRAINING

<table>
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<tr>
<th>INSTITUTION AND LOCATION</th>
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<th>Completion Date MM/YYYY</th>
<th>FIELD OF STUDY</th>
</tr>
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<tr>
<td>Albion College, Albion, MI</td>
<td>BA</td>
<td>06/1999</td>
<td>Chemistry, Spanish</td>
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<tr>
<td>Wayne State University School of Medicine,</td>
<td>MD</td>
<td>06/2007</td>
<td>Medicine</td>
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<tr>
<td>University of California, San Francisco, CA</td>
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<td>06/2010</td>
<td>Internal Medicine</td>
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<td>University of California, San Francisco, CA</td>
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<td>06/2011</td>
<td>HIV Medicine/Research</td>
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<td>University of California, San Francisco, CA</td>
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<td>06/2012</td>
<td>Advanced Training in Clinical Research Certificate</td>
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<tr>
<td>University of California, San Francisco, CA</td>
<td></td>
<td>06/2015</td>
<td>Geriatric Medicine &amp; Research</td>
</tr>
<tr>
<td>University of California, San Francisco, CA</td>
<td></td>
<td>06/2015</td>
<td>Implementation Science Certificate</td>
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</table>

A. Personal Statement.

I am an Assistant Professor of Medicine in the Division of Geriatrics at the University of California San Francisco. I completed formal research and clinical training in both geriatrics and HIV medicine. My work has focused on describing aging related challenges facing older HIV-positive adults such as geriatric syndromes, functional impairment and polypharmacy as well as initial efforts to understand the role of geriatric assessment in HIV care. The latter remains a critically unanswered question as the population of older adults living with HIV continues to increase. My K76 proposal focuses on developing and testing a tailored geriatric assessment and initial management strategy to advance our knowledge of how to best integrate geriatric principles in HIV care settings.

B. Positions and Honors

Positions and Employment:
1999-2003  Research Associate, Pharmacia Corporation, Kalamazoo, MI
2007-2010  Resident, Internal Medicine, Primary Care, University of California San Francisco
2010-2011  Research Fellow, Division of HIV/AIDS, University of California San Francisco
2010-2012, 2013-2015 Clinical Instructor, Division of HIV/AIDS, University of California San Francisco
2012-2013  Clinical Fellow, Division of Geriatrics, University of California San Francisco
2011-2012, 2013-2015 Research Fellow, Division of Geriatrics, University of California San Francisco
2015-      Assistant Professor of Medicine, Division of Geriatrics, University of California San Francisco

Other Experience and Professional Memberships:
2011-      Member, American Geriatrics Society (AGS)
2011-      Member, American Academy of HIV Medicine (AAHIVM)
2014- Co-Medical Director of HIV-age.org, collaboration between AGS, AAHIVM, ACRIA
2016- Geriatric Medicine Consultant, National Clinician Consultation Center, Health Resources and Service Administration (HRSA) and Centers for Disease Control and Prevention (CDC)
2016 Peer Reviewer, South African Medical Research Council
2017 Peer Reviewer, HIV/AIDS Comorbidities Prevention and Healthy Living Canadian Institutes of Health Research

Honors:
1999 Phi Beta Kappa, Summa Cum Laude
2000-01 Pharmacia Special Recognition Award
2003-07 Clarence L. Remynse Scholarship
2004-07 Aesculapians Honor Volunteer Society
2004-06 O.B. Weed Endowed Scholars Fund Scholarship
2005 Dr. Morris S. Brent Award
2005 Michigan Campus Compact Outstanding Community Impact Award
2006 Alpha Omega Alpha Honor Medical Society
2006 Gold Humanism Honor Society
2007 The Class of 2007 Distinguished Service Award
2007 Janet M. Glasgow Memorial Achievement Citation
2007 The Class of 2007 Penfil Award
2012 Leonard Tow Humanism in Medicine Award
2012 AGS Presidential Poster Award for Best Poster in Geriatric Syndromes Category
2012 Hartford Center of Excellence Scholar
2014 Mack Lipkin Sr. Associate Member Award Finalist Abstract Session Participant
2014 UCSF Division of Geriatrics Incentives in Health Care Award
2014 Grantmakers in Aging Fellow
2015 UCSF Medical Center Team PRIDE Award
2016 Tideswell, AGS, and ADGAP Emerging Leaders in Aging Leadership Scholar

C. Contributions to Science

Expansion of our understanding of geriatric conditions in older adults living with HIV infection:
The number of older adults living with HIV continues to increase worldwide and there is a need to understand the aging related health challenges this population faces. My contributions have increased our understanding by applying a geriatric perspective to each project and utilizing a more comprehensive approach to describing geriatric conditions. For example, in a study examining polypharmacy we also examined geriatric prescribing measures such as potentially inappropriate medications and anticholinergic burden in a cohort of older HIV-positive adults. During my fellowship training, I developed my own cohort of HIV-positive adults age 50 and older to comprehensively describe geriatric syndromes in this population, expanding on the understanding of geriatric syndromes beyond just frailty. This work also examined both HIV related and traditional risk factors associated with having geriatric syndromes. We found that conditions usually seen in HIV negative adults 65 and older were seen in HIV-positive adults at relatively younger ages, suggesting that there may be earlier onset of age related outcomes among HIV positive adults. Early in my fellowship, I was the lead author on a clinically focused systematic review in JAMA that provided a comprehensive overview of some of the major geriatric conditions facing older HIV-positive adults and afforded me with in depth knowledge of the current literature in this topic area.

In addition to understanding the aging related health concerns facing older adults with HIV, we also need to understand if utilizing assessments originally designed in HIV-negative adults aged 70 or older will have the same utility and predictive ability in a relatively younger HIV-positive population. In collaboration with researchers at Johns Hopkins, I led a project looking at an objective measure of physical performance (the Short Physical Performance Battery) and demonstrated that in a group of HIV-positive and negative injection drug users with a median age of 51, this geriatric assessment still was able to predict 5 year mortality. This was one of the first studies to examine outcomes of the Short Physical Performance Battery in this population. A need also exists to begin to develop interventions for aging related concerns and understanding how geriatric assessments might be integrated into routine HIV clinical care. Utilizing my training in implementation science, I served as a co-PI on a demonstration project to directly integrate geriatric assessments into the HIV clinic at SFGH, of which two manuscript have now been published.


Complete List of Published Work in My Bibliography:

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

**Ongoing Research Support**

**05446 (Gandhi)**
01/01/2019 – 02/28/2022
Gilead Sciences
*HIV Age Positively: The Golden Compass Program – Helping Older Adults with HIV Navigate their Golden Years*
The goals of this project is to provide holistic care for people aging with HIV, seeking to 1) improve care for common cardiopulmonary comorbidities; 2) ensure older adults with falls receive appropriate treatment; 3) integrate mental and behavioral health services with PRC to enhance social support
Role: Co-Principal Investigator

**K76AG064545 (Greene)**
08/01/2019 – 03/31/2024
NIH/NIA
*Tailored Geriatric Assessment and Management for HIV Care Settings*
The goal of this project is to advance our knowledge of how to integrate geriatric principles into HIV care to improve quality of life for older HIV-positive adults.
Role: Principal Investigator

**No Grant # (Greene)**
07/01/2018 – 06/30/2020
Hellman Fellows Fund
*Understanding the Role of Geriatric Assessment in HIV Primary Care*
The major goals of this project are to 1) Evaluate the CGA intervention for feasibility and acceptability by patients and providers; and 2) Evaluate the CGA intervention for effects on patient quality of life and other patient reported outcomes.
Role: Principal Investigator

**Completed Research Support**

**15-17369 (Greene)**
07/01/2015 – 06/30/2017
IOA / Archstone Foundation
Meeting Where You Live: A Unique Model of Collaborative Home-Based Care for Late-Life Depression

The major goal of this project is to improve the quality of depression care for people having trouble leaving their home as well as increasing satisfaction with patient involvement in care.

Role: Principal Investigator

**P30AG044281 (Covinsky)**  
07/01/2015 – 06/30/2016 (Pilot Project Dates)  
NIH / NIA  
UCSF Older Americans Independence Center: Pilot Award Title “Addressing Medical Complexity for Older Adults Living with HIV Infection: Development of an Integrated HIV Geriatric and Palliative Care Program”  
The goal of this project is to improve the health care and quality of life of vulnerable older adults with or at risk for disability.  
Role: Principal Investigator of Pilot Project

**T32 AG000212 (Covinsky)**  
07/01/2011 – 06/30/2012; 07/01/2013-06/30/2015  
NIH/NIA  
Research Training in Geriatric Medicine  
This training program supports clinician-scientists pursuing research training in geriatric medicine.  
Role: Trainee

**No Grant # (Harper)**  
07/01/2013 – 06/30/2016  
American Federation for Aging Research/John A. Hartford Foundation  
Center of Excellence Geriatric Medicine and Training Program  
The Hartford Centers of Excellence supported promising advanced academic trainees and junior faculty in Geriatric Medicine who seek to pursue new models of research, training, and clinical care.  
Role: Scholar

**R03AG056341 (Greene)**  
09/01/2017 – 05/31/2019  
NIH / NIA  
Integrating Geriatric Assessment with HIV Care  
The goal of this project is to provide support for early-stage physician-scientists, trained in medical or surgical specialties, to launch careers as future leaders in research on aging or in geriatrics. Dr. Greene will be conducting her research in integrating geriatric assessment with HIV care.  
Role: Principal Investigator

**P30AG044281 (Covinsky)**  
07/01/2017 – 06/30/2019 (Pilot Project Dates)  
NIH / NIA  
UCSF Older Americans Independence Center: Pilot Award Title “Evaluation and refinement of a comprehensive geriatric assessment (CGA) on care delivery for older HIV-positive adults.”  
The pilot project aims to: 1) evaluate the impact of comprehensive geriatric assessment (CGA) on care delivery for older HIV-positive adults, and 2) refine the Silver Project care strategy and assess the refined strategy for (a) feasibility; (b) acceptability by patients and providers and (c) evidence it improves patient quality of life and other patient reported outcomes.  
Role: Principal Investigator of Pilot Project

**No Grant # (Ritchie)**  
07/01/2015 – 06/30/2018 (NCE)  
S.D. Bechtel, Jr. Foundation  
UCSF Tideswell: Pilot Award Title “Addressing Medical Complexity for Older Adults Living with HIV Infection: Development of an integrated HIV Geriatric and Palliative Care Program”  
The UCSF Division of Geriatrics has founded the Program for the Aging Century (now UCSF Tideswell) to transform the care of older people by developing replicable models of patient care and training that address the unique needs of the elderly and promote the highest quality of life.  
Role: Principal Investigator of Pilot Project

**No Grant # (Greene/Flatt/Dubbin)**  
09/01/2018 – 08/31/2019  
UCSF National Center of Excellence in Women’s Health and the Academic Senate
The Role of Affordable LGBTQ Age-Friendly Housing on the Health of LGBTQ Older Adults: A Natural Experiment
To explore the lived experiences of LGBTQ older adults currently residing in LGBTQ age-friendly housing and to determine whether LGBTQ age-friendly housing improves QoL of LGBTQ older adults after 3, 6 and 12 months
Role: Co-Principal Investigator

H12HA24782-07-01 (Gandhi) 08/01/2018 – 07/31/2019
PHS Health Resources & Services Administration
Ryan White Title IV Women, Infants, Children, Youth and Affected Family Members AIDS Healthcare
UCSF’s HIV, Infectious Diseases, and Global Medicine Division (the Division) Ward 86 clinic currently receives Ryan White Part D funds that support the Family Service Network (FSN), a collaborative of nine multi-disciplinary providers serving HIV-infected and affected women, infants, children, and youth (WICY) living in San Francisco. The goal of this project is to pilot an innovative, patient-centered, comprehensive program, which will provide new and enhanced services to improve health for women aged 50 and older, living with HIV. The proposed model will use the Division's pilot Golden Compass Program as the foundation.Role: Co-Principal Investigator
NAME: Lisa Kilpela (Former name: Lisa Marie Smith)

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

POSITION TITLE: Assistant Professor

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

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<tr>
<td>Trinity University, San Antonio, TX</td>
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<td>05/2004</td>
<td>Psychology</td>
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<td>Emory University, Atlanta, GA</td>
<td>MA</td>
<td>05/2009</td>
<td>Clinical Psychology</td>
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<td>Duke University Medical Center, Durham, NC</td>
<td>Predoctoral Internship</td>
<td>06/2013</td>
<td>Medical Psychology</td>
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<td>Emory University, Atlanta, GA</td>
<td>PhD</td>
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<td>Trinity University, San Antonio, TX</td>
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<td>07/2015</td>
<td>Clinical Psychology</td>
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A. Personal Statement

I am currently a tenure-track assistant professor at the University of Texas Health Science Center at San Antonio (UTHSCSA) in the Department of Psychiatry and in the Barshop Institute for Longevity and Aging Studies. I am also a licensed clinical psychologist specializing in the promotion of health behaviors among older adults, with particular emphases on eating behaviors and physical activity. My long-term career goal is to improve healthy aging in older women by addressing disordered eating, an under-recognized pathology in this demographic. The primary focus of my current research is the clinical characterization of eating disorders in older women; specifically, aging-related factors that impact the experience of older women with disordered eating and implications for treatment. Broadly, my research involves the identification and understanding of aging-related processes that affect intervention-tailoring of behavioral interventions for older adults, in order to promote healthy aging. I received funding to investigate an age-tailored body image improvement and health promotion intervention for adult women through the UTHSCSA Briscoe Translational Women’s Health Grant, and I recently completed an RL5 mentored career development award through the San Antonio Claude D. Pepper Older Americans Independence Center (OAIC) under the mentorship of Dr. Nicolas Musi. Through this study, we collected data on prevalence rates of binge eating among older women, examined psychological correlates, and identified aging-related factors that were necessary to consider in tailoring behavioral health interventions. I recently received the Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) from the NIA/AFAR.

B. Positions and Honors

Positions and Employment

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<th>Year</th>
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<tr>
<td>2004 – 2006</td>
<td>Research Coordinator, Mount Sinai School of Medicine, Department of Psychiatry, New York, NY</td>
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<td>2006 – 2007</td>
<td>Clinical Research Coordinator, Columbia University/New York State Psychiatric Institute, New York, NY</td>
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<tr>
<td>2007 – 2011</td>
<td>Graduate Student Research Assistant and Teaching Assistant, Department of Psychology, Emory University, Atlanta, GA</td>
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<tr>
<td>2011 – 2012</td>
<td>Doctoral Candidate, Department of Psychology, Emory University, Atlanta, GA (PhD Mentor: Linda W. Craighead, PhD)</td>
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2012 – 2013  Predoctoral Medical Psychology Intern, Department of Psychiatry, Duke University Medical Center, Durham, NC
2013 – 2015  Postdoctoral Research Associate, Trinity University, San Antonio, TX (PI: Stewart)
2015 – present  Attending Psychologist, University Hospital, Psychiatry Consultation/Liaison Service, San Antonio, TX
2015 – present  Assistant Professor (tenure-track), Department of Psychiatry, University of Texas Health Science Center at San Antonio, San Antonio, TX

Licensed Clinical Psychologist
2016 – present  Licensed psychologist, Texas. License: 37210. Expiration: 08/31/2020

Professional Memberships and Activities
2004 – present  Member: Association for Behavioral and Cognitive Therapies (ABCT)
               Member: Obesity and Eating Disorders Special Interest Group (SIG; 2005 – present)
               Member: Aging Behavior & Cognitive Therapy SIG (2017 – present)
               Member: Annual Convention Program Committee (2015 – present)
2013 – present  Member: Academy for Eating Disorders
               Co-Chair: Sport and Exercise SIG (2015 – 2018)
2015 – present  Member: Society for a Science of Clinical Psychology
2016 – present  Member: Institutional Review Board, UTHSCSA
2018 – present  Member: Gerontological Society of America

Honors
2009 – 2010  Emory University Honorary Degrees Committee, Graduate School of Arts and Sciences
2016  Graduate, Clinical Safety and Effectiveness Advanced Training Program (project: Development of a Standardized Protocol to Assess Capacity for Medical Decision-Making at University Hospital)
2016  Briscoe Women’s Health Scholar, UTHSCSA
2016 – present  Scholar, UTHSCSA Center for Research to Advance Community Health (ReACH) Center
2017 – 2019  San Antonio Claude D Pepper Older Americans Independence Center RL5 Scholar

C. Contributions to Science
1. Eating Disorders and Health/Wellness Behaviors in Older Women. Beginning as a postdoctoral researcher, I co-led research projects focused on the impact of negative body image on women’s health and wellness behaviors, as well as quality of life (QOL). We investigated base rates and negative health correlates of dysregulated eating behaviors and body image disturbance in women aged 25-86. We found that body image disturbance is highly prevalent in older women, and is related to negative health and wellness behaviors that increase risk for poorer health outcomes (e.g., poor sleep, less enjoyment of physical activity, higher negative mood). I also found that body image concerns mediated the relationship between BMI and negative affect, sleep, QOL, nutritious food intake, and psychosocial impairment among women aged 50-86. I led an extension of this project to a longitudinal examination of body image concerns in a multi-ethnic sample of women across the lifespan. I also first-authored a review of extant literature on body image in women, in which we described the paucity of data on this topic and the need for additional research. I am currently concluding a pilot study investigating an age-inclusive, tailored body image intervention for adult women. Finally, RL5 study found that rates of self-reported binge eating were highly consistent across three very different samples of older women, in terms of race/ethnicity, SES, and education (i.e., 19-25%). Finally, preliminary findings from my RL5 study indicated correlations between severity of disordered eating symptoms and BMI, negative mood, psychosocial impairment, and body image concerns in women, aged 60 and over, presenting with disordered eating symptoms. These preliminary results were presented at an international conference.


2. Intervention-tailoring of Behavioral Interventions for Novel Populations. Although researchers have made noteworthy advances in the development and testing of psychological interventions, resulting in a significant increase in evidence-based interventions, there remains a gap between the scientific evidence supporting such interventions and clinical application and/or utility in community practice settings. The research-practice gap is a term used to describe this phenomenon. One integral task in bridging this research-practice gap is to demonstrate that interventions are effective not only under highly-controlled research settings, but also in clinical and/or community settings in which less control exists over intervention implementation and participant characteristics. In order to do so, we utilized systematic intervention-tailoring strategies. It is also important to establish that implementation is viable without substantial funding because community providers cannot rely on grant funding for long-term implementation and sustainability. We tailored the Body Project, a health promotion and positive body image program, for use within sub-populations. Finally, I led an invited chapter on practical guidelines for tailoring psychological treatment for eating disorders for middles-aged and older adults.


3. Dissemination and Implementation of Evidence-Based Programming. It is imperative to identify and test models for dissemination and implementation in order to make a large-scale impact (Kazdin & Blase, 2011). One method for scaling evidence-based interventions involves group delivery of preventive interventions, using evidence-based strategies; however, group intervention alone likely will not be sufficient. I have contributed to work that focuses on two additional strategies aimed at improving sustainable implementation and large-scale dissemination of evidence-based interventions under real-world conditions. The first strategy, community-based participatory research (CBPR), provides researchers with tools to form collaborative partnerships with communities, thus increasing applicability and accessibility within the community. We used CBPR strategies to form collaborative relationships with student subnetworks, which led to the dissemination of the Body Project to over 100 universities across North America. The large-scale dissemination of the Body Project led us to further consider aspects of dissemination and implementation necessary to improve the scalability and accessibility of evidence-based preventive interventions into the community; this has resulted in global dissemination and implementation of the Body Project offered in 19 different languages. We demonstrated that delivery of the program could be task-shifted from expensive providers to less expensive, lay-providers. Additionally, in my work with Dr. Craighead, we conducted a pilot study assessing the feasibility of a digital application for self-monitoring in Appetite Awareness Training. Participants found electronic self-monitoring to be feasible and acceptable, thus enhancing likelihood for adherence to self-monitoring following study completion and providing easy access to intervention material via cellular telephone application.


A complete list of my publications can be found at:

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

**Ongoing Research Support**

NIH/NIA K76AG060003-01A1
Paul B. Beeson Emerging Leaders Career Development Award in Aging
Title: Binge Eating Spectrum Treatment in Older Women (BESTOW): An Investigation and Intervention-Tailoring Project
The major goals of this project are to: 1) investigate unique aging-related factors associated with BE in older women and, 2) apply these data to develop a behavioral BE intervention tailored for older women.
Role: PI

**Completed Research Support**

NIH/NIA P30 AG044271 (Musi: PI) 5/1/2017-4/30/2019
San Antonio Claude D. Pepper Center Older Americans Independence Center RL5 Mentored Career Development Award
Title: Healthy Weight Intervention among Aging Women: An Investigation into the Role of Aging on Intervention Efficacy
This project investigates: 1) clinical characteristics associated with disordered eating among older versus younger women; and 2) the perceived feasibility, credibility, and preliminary effects of aging on a healthy lifestyle intervention for dysregulated eating behaviors, by comparing older women to younger women; 3) prevalence rates and correlates of binge eating in women 60 and over via survey.
Role: RL5 Scholar

Briscoe Translational Women’s Health Grant (Kilpela: PI) 9/1/2017-3/31/2019
UTHSCSA School of Medicine
Title: A Randomized Controlled Trial of a Body Image Intervention for Adult Women: Mental and Physical Health Outcomes
This project is a pilot clinical trial investigating the feasibility, acceptability, and preliminary effects of a cognitive-behavioral body image program tailored for adult women compared to waitlist control.
Role: PI

MH094448-01A1 (Stewart: PI) 2012-2016
Funding Agency: NIMH
Title: Healthy Weight Intervention in Female Athletes: A Randomized Controlled Trial
This multi-site study evaluated the efficacy of a behavioral, lifestyle intervention in the prevention of eating disorders in female collegiate athletes in an RCT.
Role: Postdoctoral Research Associate
NAME: Allison Marian Magnuson, D.O.

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

POSITION TITLE: Assistant Professor of Medicine, Divisions of Oncology and Geriatrics

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

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<td>University of Rochester, Rochester, NY</td>
<td>B.S.</td>
<td>05/2002</td>
<td>Neuroscience</td>
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<td>University of New England, Biddeford ME</td>
<td>D.O.</td>
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<td>University of Connecticut, Farmington, CT</td>
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<td>Internal Medicine</td>
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<td>University of Rochester, Rochester, NY</td>
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<td>07/2013</td>
<td>Medical Oncology</td>
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<tr>
<td>University of Rochester, Rochester, NY</td>
<td>-</td>
<td>07/2014</td>
<td>Geriatric Medicine</td>
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A. Personal Statement

I am a board certified geriatrician and medical oncologist at the University of Rochester Medical Center. My primary research interest is in cognition and older adults with cancer. Through my research, I have shown that it is feasible to incorporate Geriatric Assessment-based management interventions for older adults who are receiving chemotherapy. Additionally, cancer and cancer treatments can affect cognition, known as Cancer-Related Cognitive Dysfunction (CRCD). Along with my mentor team, I have determined that CRCD is a prevalent issue and that older patients and their caregivers are concerned about the cognitive effects of chemotherapy. However, there are currently no interventions to mitigate the development of CRCD for older adults receiving chemotherapy. My research is designed to address this gap in clinical knowledge.

I hold several leadership positions within the geriatric oncology community. I am Director of the Specialized Oncology Care and Research in the Elderly (SOCARE) Clinic at the University of Rochester, which is one of the largest outpatient geriatric oncology clinical programs in the country. I lead a junior investigator subgroup of the Cancer and Aging Research Group (CARG), called Junior CARG and I lead a Junior Investigator Advisory Board for a R21/R33 grant to develop infrastructure in the geriatric oncology community nationwide. I have been asked to deliver several talks at national meetings on cancer, aging and cognition, including at the American Society of Clinical Oncology (ASCO), American Geriatrics Society, and ASCO Palliative Care.

My goal is to develop into an independent investigator who designs and implements behavioral interventions to prevent cognitive decline and improve outcomes for older adults with cancer. To support my career and research, I have developed strong mentor relationships with exceptional researchers in the areas of geriatric oncology, cognition, behavioral interventions, mixed methods research and biostatistics.


B. Positions and Honors

Positions and Employment
2007-2010 Internship and Residency, Internal Medicine, University of Connecticut, Farmington, CT
2010-2011 Chief Medical Resident, University of Connecticut, Farmington, CT
2011-2013 Fellow, Medical Oncology, University of Rochester, Rochester, NY
2013-2014 Fellow, Geriatric Medicine, University of Rochester, Rochester, NY
2014-2016 Senior Instructor, Divisions of Hematology/Oncology and Geriatrics, University of Rochester Medical Center, Rochester, NY
2016-present Assistant Professor, Divisions of Hematology/Oncology and Geriatrics, University of Rochester Medical Center, Rochester, NY

Selected Honors
2008 Intern of the Year, University of Connecticut Internal Medicine
2010 Chief Medical Resident
2010 Garibaldi Humanitarianism in Medicine Award, University of Connecticut
2012 Susan H. Green Memorial Foundation Award
2013 Health Resources and Services Administration Geriatric Research Fellow, University of Rochester
2014 Hartford Foundation Center of Excellence, Scholar Award, University of Rochester
2014 James P. Wilmot Research Fellowship Award
2015 R25 Cancer Control Research Training Program Scholar
2015 University of Rochester Department of Medicine Research Pilot Award
2016 Karron Memorial Prize for Excellence in Geriatrics
2016 NIH Loan Repayment Program Award (Renewal in 2018 and 2019)
2017 New York State Empire Clinical Research Investigator Program Award
2019 Paul B. Beeson Emerging Leaders Career Development Award in Aging

Other Experience and Professional Memberships
2005-present Member, Sigma Sigma Phi Osteopathic Medical Honor Society
2011-present Member, American Society of Clinical Oncology
2012-present Member, International Society of Geriatric Oncology (SIOG)
2013-present Member, American Geriatrics Society
2014-present Member, Cancer and Aging Research Group (CARG)
2015 NCI/ASCO Teams in Cancer Care – selected participant
2016 Co-Lead, Junior CARG
2018 Invited member, ASCO Cancer Research Committee
2018 Invited chair, Junior Faculty Advisory Board, CARG Infrastructure Award
2019 Invited chair, ASCO Eligibility Criteria Project, Performance Status Working Group

C. Contributions to Science

1. Understanding the Impact of Chemotherapy on Cognition in Older Adults: A growing body of evidence suggests that chemotherapy can negatively impact cognition. However, the majority of research on chemotherapy-related cognitive impairment has been conducted in younger cancer survivors. Limited data suggests that older adults with low cognitive reserve may be the most vulnerable to negative effects of chemotherapy on cognition.

2. Incorporating geriatrics in research and clinical care for older adults with cancer. Older patients are not well represented on cancer clinical trials that determine standard of care for the management of oncologic conditions. This knowledge gap about treatment toxicity and efficacy for cancer treatments in older adults creates uncertainty for medical providers when developing and communicating a cancer treatment plan for their older patients. Exploring how oncologists discuss geriatric-related concerns with older adults is critical for understanding how to develop interventions to improve communication with older adults and ultimately improve outcomes in this population. Additionally, novel approaches have been suggested to improve the evidence base for senior oncology care.


3. Impact of Cancer and Cancer Treatment on Geriatric Outcomes: Cancer and cancer treatment have been shown to negatively impact age-related issues. Detailed understanding about the interplay between cancer, cancer treatment, and geriatric impairments is critical for developing supportive care interventions for this population.


4. Designing Interventions to Improve Outcomes of Older Cancer Patients: Older patients undergoing cancer treatment have higher rates of chemotherapy toxicity, adverse events, and hospitalizations as compared to their younger counterparts. Elements of the Geriatric Assessment have been shown to be predictive of chemotherapy and it is feasible to incorporate the Geriatric Assessment into routine oncology
practice as well as the clinical trial setting. In the non-cancer setting, the Geriatric Assessment is used to guide management interventions. Given the limited number of geriatricians and geriatric oncologists, novel care delivery strategies are needed to incorporate geriatrics into oncology care. It is feasible to utilize an algorithm to develop Geriatric Assessment-based management recommendations for older adults with cancer.


5. Understanding How Models of Care and Team-Based Cancer Care Influence the Management of Older Adults with Cancer: Older adults frequently have other health issues, such as comorbidities, cognitive impairment, or limited social support, which may increase the complexity of cancer therapy. Improved team-based care may improve outcomes for this vulnerable population. Dr. Magnuson was selected to participate in the ASCO/NCI Teams in Cancer Care Delivery Project to improve the knowledge base in this area.


3. Research Support

ACTIVE

Ongoing Research Support

NIA K76 AG064394-01 (Magnuson) 7/15/2019 – 2/29/2024
Title: Mitigating Cancer-Related Cognitive Dysfunction in Older Adults with Breast Cancer
Major Goal: To develop and pilot test a cognitive intervention for older adults receiving adjuvant chemotherapy for breast cancer.
Role: Principal Investigator

Pilot award from the Cancer and Aging Research Group Infrastructure Award (R21/R33AG059206)
Title: Development of a Personalized Discussion Prioritization Tool for Older Adults Considering Adjuvant Chemotherapy for Breast Cancer
Major Goal: To identify risk factors for reduced dose intensity for older women receiving adjuvant chemotherapy for breast cancer and incorporate this into a Discussion Prioritization Tool.
Role: Co-PI of pilot grant (with Mina Sedrak, MD; Mohile/Dale are PIs for CARG Infrastructure Award)

NIA R21/R33AG059206 Hurria, Mohile, Dale (PIs) 04/01/2018-03/31/2023
Title: Geriatric Oncology Research Infrastructure to Improve Clinical Care
**Major Goal:** The objective of this project is to develop a sustainable national research infrastructure and expertise to support significant and innovative projects that address key interdisciplinary research questions at the aging and cancer interface.

**Role:** Junior Investigator Board Chair, PIs Dale, Mohile

**NCI R01CA177592 (Mohile) 09/09/2013 – 06/30/2020**

**Title:** Reducing Chemotherapy Toxicity in Older Patient

**Major goal:** To evaluate the impact of geriatric assessment and management (GEM) on reducing chemotherapy toxicity in a cluster randomized study of University of Rochester NCORP sites. We will also examine how GA influences decisions for the initiation and selection of chemotherapy.

**Role:** PI *NCI approved another year on the grant due to initial regulatory delays with the transition to the NCORP cooperative group structure, will go into NCE starting 06/03/2019*

**Role:** Co-Investigator
NAME: Marcum, Zachary Adam

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

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING

<table>
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<tr>
<th>INSTITUTION AND LOCATION</th>
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<td>Butler University, Indianapolis, IN</td>
<td>PharmD</td>
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<td>Roudebush VA Medical Center, Indianapolis, IN</td>
<td>Residency</td>
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<tr>
<td>University of Pittsburgh, Pittsburgh, PA</td>
<td>Postdoctoral Fellowship</td>
</tr>
<tr>
<td>University of Pittsburgh, Pittsburgh, PA</td>
<td>MS</td>
</tr>
<tr>
<td>University of Pittsburgh, Pittsburgh, PA</td>
<td>PhD</td>
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</table>

A. Personal Statement

I have expertise in pharmacoepidemiology and health services research, including primary and secondary data analysis related to medication/dementia associations, medication use/adherence, medication-related problems (e.g., falls, hospitalization), and transitions of care in older adults with chronic conditions. I also have experience working as a clinical pharmacist to manage chronic conditions, including hypertension.

B. Positions and Honors

Positions and Employment

2011-14 Assistant Professor, Division of Geriatric Medicine, Department of Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania

2015- Assistant Professor, Department of Pharmacy, School of Pharmacy, University of Washington, Seattle, Washington

2016- Affiliate Investigator, Kaiser Permanente Washington Health Research Institute, Seattle, Washington

Other Experience and Professional Memberships

2011- Member, American Geriatrics Society

2011- Member, International Society for Pharmacoepidemiology

2016-19 AHRQ Patient-Centered Outcomes Research K12 Scholar

2018 Special Emphasis Panel Member, CDC, National Center for Injury Prevention and Control Extramural Research Program Office
C. Contributions to Science

1. Dementia Prevention: I served as first author on a manuscript evaluating the association between serum cholesterol (HDL and non-HDL) and incident Alzheimer’s disease using data from the Adult Changes in Thought study. In this study, we found that people with low (120 mg/dL) and high (210 mg/dL) levels of non-HDL cholesterol during their 60s and 70s had modestly higher risk for Alzheimer’s disease and all-cause dementia compared to people with intermediate (160 mg/dL) levels of non-HDL cholesterol. Moreover, any effort attempting population dementia risk reduction requires the public to have a contemporary understanding of evidence-based prevention efforts. However, previous reports have shown that important gaps exist between patient knowledge and scientific evidence related to dementia prevention. To better understand these gaps, I led the development and deployment of a web-based survey of Kaiser Permanente Washington members to assess knowledge, beliefs, and attitudes about brain health and strategies for dementia prevention using a mixed-method approach. This survey has resulted in three original research manuscripts. We found that survey respondents were engaged and aware of dementia prevention, but they lacked access to personally actionable evidence. We also found that if a specific antihypertensive medication was shown to prevent or delay dementia, the vast majority (>90%) of respondents currently taking an antihypertensive would be willing to take that antihypertensive starting as early as mid-life.


2. Dementia Detection: Through my K12, I participated as a co-investigator on a pilot study that described healthcare utilization (i.e., clinic visits, clinic “no-shows”, ED visits, and hospitalizations) in the 2 years prior to dementia diagnosis and compared it to those with undiagnosed dementia and those without dementia. This goal of this work is to aid in earlier detection of cognitive impairment. This work informed a larger project on the development and validation of an EHR-based tool (eRADAR) to help detect patients with unrecognized dementia. The eRADAR tool was found to detect patients with good accuracy who may have unrecognized dementia. At the same time, I led an analysis of patterns of antihypertensive and statin adherence, comparing people who went on to develop dementia to those who did not. This work found that odds of dementia was 3 times greater for those with moderate antihypertensive adherence compared to those with near perfect adherence, suggesting that patterns of medication adherence may be useful to identify a subset of people at higher likelihood of developing dementia.


3. Medication-related Hospitalizations: I conducted one of the first nationally representative studies in older veterans of hospitalizations related to adverse drug reactions (ADRs), therapeutic failures (TFs), and adverse drug withdrawal events (ADWEs) using validated causality algorithms. I showed that ADRs were attributed to 10% of hospitalizations of older veterans, whereas TFs and ADWEs were attributed to 5% and 1%, respectively, of unplanned admissions. I then mentored a pharmacy resident on a similar study focused on TF-related hospitalizations in a different patient population. In addition, I led a pilot study examining the admission medication reconciliation process for a hospital, which identified multiple areas for potential improvement to reduce medication discrepancies and errors. Taken together, this work elucidated the risk of medication-related harm leading to hospitalization in older adults.


4. Medication Non-adherence: I participated in a systematic review of the literature on barriers to medication adherence in older adults, highlighting the need for standardizing medication adherence measurements to better understand this issue. In addition, I led an original research study in a cohort study of older adults with chronic cardiovascular conditions to assess the prevalence and correlates of self-reported medication non-adherence. I found that non-adherence was common and highlighted the need to administer these quick measures in clinical settings to identify areas for intervention. This study inspired me to conceive and lead a Viewpoint manuscript proposing routine and systematic screening for medication non-adherence, which was published in *JAMA*. I also led a narrative review of interventions to improve medication adherence that have evaluated health outcomes in older adults, highlighting promising strategies such as pharmacist-led efforts.


5. Medication-related Falls and Fractures: I have conducted multiple pharmacoepidemiologic analyses evaluating the association between various medication classes and falls/fractures in older adults. First, in a longitudinal cohort study, I found that antihypertensive use overall was not associated with recurrent falls in community-dwelling older adults, but loop diuretic use was associated with recurrent falls. In the same cohort of older adults, I led an analysis on the association between anticholinergics and recurrent falls. The results of
this analysis suggested an association, but the findings did not reach statistical significance. Moreover, an analysis of anticholinergic use and fractures in postmenopausal women in a different sample did not indicate increased risk. I also completed an analysis showing a significant association between antidepressant use and recurrent falls. These analyses shed important light on fall-risk profiles of widely used medication classes and advanced the literature by using sophisticated medication ascertainment methods beyond what is possible with traditional claims-based measures. Of note, the manuscript on antidepressants was cited in the current draft of the 2018 American Geriatrics Society Beers Criteria for Potentially Inappropriate Medication Use in Older Adults.


**Complete List of Published Work in MyBibliography**


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

**Ongoing Research Support**

**K76AG059929-01A1** Marcum (PI) 08/01/19-05/31/22

NIA

**Paul B. Beeson Emerging Leaders Career Development Award in Aging**

This is a National Institute on Aging career development award to support mentored research and development of leadership skills in the field of aging and geriatrics research.

**Role**: Scholar

**U01CE002967** Phelan and Gray (Co-PIs) 09/01/18-8/31/22

Centers for Disease Control and Prevention

**Reducing CNS-active Medications to Prevent Falls and Injuries in Older Adults**

The purpose of this research is to evaluate the effectiveness of medication tapering and/or discontinuation strategies to reduce falls and unintentional injury among older adults. The research will advance knowledge about how health professionals can improve prescribing practices for medications in which the risks may outweigh the benefits, contributing to falls, overdose, and other injuries in community dwelling older adults.

**Role**: Co-Investigator
NAME: Rowena McBeath

POSITION TITLE: Assistant Professor of Orthopaedic Surgery/Attending Hand Surgeon

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

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<th>FIELD OF STUDY</th>
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<tr>
<td>Yale University, New Haven, CT</td>
<td>B.S.</td>
<td>1994-1998</td>
<td>Molecular Biochemistry &amp; Biophysics</td>
</tr>
<tr>
<td>Cambridge University, Cambridge, U.K.</td>
<td>M. Phil.</td>
<td>1998-1999</td>
<td>Molecular Immunology</td>
</tr>
<tr>
<td>Johns Hopkins University School of Medicine, Baltimore, MD</td>
<td>M.D.</td>
<td>1999-2006</td>
<td>Medicine</td>
</tr>
<tr>
<td>Johns Hopkins University School of Medicine, Baltimore, MD</td>
<td>Ph.D</td>
<td>1999-2006</td>
<td>Cellular and Molecular Medicine</td>
</tr>
<tr>
<td>Washington University in St. Louis School of Medicine, St. Louis, MO</td>
<td>Resident</td>
<td>2006-2011</td>
<td>Orthopaedic Surgery</td>
</tr>
<tr>
<td>Philadelphia Hand to Shoulder Center/Thomas Jefferson University/Philadelphia/PA</td>
<td>Fellow</td>
<td>2011-2012</td>
<td>Hand Surgery</td>
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A. Personal Statement:

New treatments are urgently needed to alleviate the pain and disability resulting from degenerative changes to musculoskeletal tissues – including soft tissues such as tendons and ligaments – affecting the elderly. As a practicing orthopedic surgeon with a strong background in basic science, I have used my clinical observations to drive my basic science research questions, with the goal being clinical translation. My ongoing research (funded by a NIH R03 and OREF New Investigator Award) has been to determine the molecular signaling pathways responsible for tenocyte development of the fibrochondrocyte and mineralized chondrocyte phenotype. The results of this project culminated in a manuscript, ‘Tendinosis results from age- and oxygen tension-dependent modulation of Rac1 activity’, recently published in Aging Cell. The project outlined in this proposal expands upon this research by applying these findings to a three-dimensional scaffold construct, to be tested under in vitro static and dynamic bioreactor conditions prior to in vivo translation. If we can accomplish the goals of this study, it would diversify our current treatment options for tendinosis and tendon tears, and spare patients the pain and cost of chronic disability. Finally, I believe that outcomes of the described studies, together with my clinical interests, will lead to a paradigm shift in the etiology and treatment of tendinosis, and thus prevent the disability arising from these conditions.

B. Positions and Honors:
**Positions**

1996  Research Assistant, Department of Biology, Yale University
1997  Research Fellow, Institute of Parasitic Disease Research, Shanghai, China
1998  Research Assistant, Department of Molecular Biochemistry & Biophysics, Yale University, Laboratory of Jennifer Doudna
1998-1999  Research Fellow, Molecular Parasitology and Immunology, Cambridge University, U.K. Laboratory of David Dunne
2000  Research Fellow, Department of Pharmacology, Johns Hopkins University School of Medicine, Laboratory of Tom August
2001-2006  Medical Scientist Training Program. Department of Biomedical Engineering and Oncology Johns Hopkins University School of Medicine, Laboratory of Chris Chen
2006-2011  Resident, Department of Orthopaedic Surgery, Washington University School of Medicine
2011-2012  Fellow, Philadelphia Hand Center, Thomas Jefferson University Hospital
2012-present  Hand Surgeon, Philadelphia Hand to Shoulder Center, Thomas Jefferson University
2012-present  Assistant Professor, Thomas Jefferson University
2017-present  Partner, Philadelphia Hand to Shoulder Center

**Honors and Fellowships**

1996  Richter Fellowship, Yale University
1997  East Asia Summer Research Fellowship, Inst. of Parasitic Disease Research, Shanghai, China
1998  Bates Fellowship, Yale University; Cum laude, Yale University
1998-1999  Henry Fellowship, Cambridge University, U.K.
1999  T.H. Middleton Prize, Biological Science Dissertation, Cambridge Univ, U.K.
2000-2006  Medical Scientist Training Program, Johns Hopkins Univ.School of Medicine
2004  Nuper Dinesh Thekdi Young Investigator Award, Johns Hopkins University School of Medicine
2005  Vascular Annual Meeting Scholarship, Society for Vascular Surgery
2006  Ruth Jackson Orthopaedic Society Medical Student Scholarship
2006  Sudler Award for the Arts, Johns Hopkins University
2007  Intern of the year: Spine service, Department of Orthopaedic Surgery, Washington University School of Medicine
2007  OREF/DePuy Resident Research grant
2009  OREF/AAOS Clinician Scientist Development Program (CSDP) participant, sponsored by American Society for Surgery of the Hand (ASSH)
2009  OREF Resident Clinician Scientist Training grant
2010  ASSH Basic Science Research Grant
2011  Washington University Orthopedic Surgery Resident Teaching Award
2012  Winner, First Place in Research Presentation, Tri-City Hand Surgery Meeting
2013  Chair, Philadelphia Spring Meeting, Hand Surgery
2013  US Bone and Joint Initiative Young Investigator
2014-present  Associate editor, Basic Science Division, Hand-e electronic journal of American Society for Surgery of the Hand (ASSH)
2015  Presidential poster session, American Geriatric Society
2016  Presidential poster session, American Geriatric Society
2016  OREF New Investigator Award
2017  NIH Butler-Williams Scholar
2018-present  President, Philadelphia Hand Society
2019  ASSY Young Leader
C. Contributions to Science:

1. Development of a vaccine to combat Schistosomiasis (M. Phil research) - The studies below were performed while on fellowship to the University of Cambridge, U.K. and resulted in a M.Phil in the Biological Sciences/Molecular Immunology, as well as the T.H. Middleton prize for distinguished dissertation. These studies examined the human immune responses to recombinant \textit{S. mansoni} antigens \textit{in vitro}, discovered new vaccine candidates and characterized the immune response across the pediatric and adult schistosomiasis-infected Kenyan and Ugandan population.


2. Discovery of the role of cytoskeletal tension in musculoskeletal cell commitment and differentiation (Ph.D and current research) - Exposure to orthopaedic concepts and tissues began during my doctoral research at Johns Hopkins, which culminated in the first two papers listed below, as well as receipt of the Nuper Dinesh Thekdi Young Investigator award at Johns Hopkins. Here I discovered that force, through the RhoA signaling cascade, directs musculoskeletal stem cell differentiation. This work continues to this day, where recent funds from the NIH/Jahnigen Foundation/OREF have supported my discovery of the mechanism by which tendons alter their cellular and tissue phenotype in response to altered loads and the presence or absence of oxygen, which are phenotypes that vary with age and chronicity of injury.


3. Benchtop to bedside translation of \textit{in vitro to in vivo} findings (current clinical research) - Shaped by the basic science principles above, current research is aimed at detecting clinical problems that result from abnormalities of connective tissue differentiation (including attritional tendon rupture, tendinosis, and adhesion formation) and elucidating the molecular mechanisms responsible in order to develop pharmacologic and cellular therapies.


D. Research Support:

Current

McBeath (PI) 08/15/19-06/30/24
NIH K76 Beeson Award
A career development award to encourage clinical and basic science research of those issues affecting the elderly

Completed

McBeath (PI) 07/01/16-06/30/18
OREF New Investigator Award
Time-Independent Connective Tissue Regeneration
The goal of this project is to control the activities of Rac1 and RhoA GTPase in a three-dimensional scaffold environment.

McBeath (PI) 08/26/16 – 08/25/17
Hand Rehabilitation Foundation
Human Tenocyte Differentiation in Hand Rehabilitation and Therapy
The goal of this project is to determine which aspects of the tendon phenotype may affect adhesion formation post-surgical repair.

5 R03AG048118-02 (McBeath) 07/01/14 – 12/31/16 (NCE)
NIH/NIA
Human Enthesis Regeneration
The major aim of this grant is: determination of intracellular signaling events (RhoA and Rac1 activities) that promote formation of the fibrocartilage phenotype; generation of the enthesis construct using human allograft tendon; determination of signaling involved in fibrocartilage formation within the enthesis construct.
Role: PI

(McBeath) 07/01/14 – 12/31/16 (NCE)
OREF
The major aim of this grant is to support emerging scholars in the surgical and related medical specialties, with a focus on research of the geriatrics aspects of their specialties.
Role: PI
**NAME:** Phongtankuel, Veerawat  

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

**POSITION TITLE:** Assistant Professor of Medicine  

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

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<td>Cornell University, Ithaca, NY</td>
<td>B.S.</td>
<td>05/2004</td>
<td>Human Development</td>
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<td>SUNY Downstate Medical College, Brooklyn, NY</td>
<td>M.D.</td>
<td>05/2009</td>
<td>Medicine</td>
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<td>Temple University Hospital, Philadelphia, PA</td>
<td>Intern</td>
<td>06/2010</td>
<td>Internal Medicine</td>
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<td>Temple University Hospital, Philadelphia, PA</td>
<td>Resident</td>
<td>06/2012</td>
<td>Internal Medicine</td>
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<td>New York Presbyterian Hospital, New York, NY</td>
<td>Fellow</td>
<td>06/2014</td>
<td>Geriatric Medicine</td>
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<tr>
<td>Weill Cornell Medical College, New York, NY</td>
<td>M.S.</td>
<td>01/2017</td>
<td>Clinical and Translational Research</td>
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**A. Personal Statement**  
I am an Assistant Professor of Medicine at Weill Cornell Medicine in the Division of Geriatrics and Palliative Medicine. My research interests revolve around improving the quality of life for older adults and their caregivers by reducing patient suffering, caregiver burden, and burdensome care transitions at the end of life (EoL). This has led me to collaborate with local community hospice organizations on various projects focused on understanding home hospice disenrollment along with symptom and caregiver burden in this care setting. In addition to working with local community agencies, I have also conducted large data analysis of Medicare Hospice claims data to identify factors associated with hospitalization in the home hospice population. With support from AFAR/Hartford Foundation, the Empire Clinical Research Investigator Program (ECRIP), and the Grants for Early Medical/Surgical Specialists' Transition to Aging Research (GEMSSTAR), my work in this area has led to multiple publications which have laid the groundwork to begin to pursue intervention development to improve care delivered in home-based hospice care.  
My long-term goals are to improve care at the EoL by 1.) reducing patient suffering, caregiver burden, and burdensome care transitions, 2.) becoming an independent clinician investigator studying and designing interventions aimed at improving EoL care for older adults and their caregivers, and 3.) establishing myself as a leader in the field of geriatrics and palliative medicine. Through developing meaningful longitudinal mentorship, gaining broad research, clinical, and leadership experience/skills, I have laid significant groundwork towards reaching my long-term goals.

**B. Positions and Honors**  

**Positions and Employment**  

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2016- Assistant Professor of Medicine, Division of Geriatrics and Palliative Medicine, Weill Cornell Medical College, New York, NY

**Other Experiences and Professional Memberships**

2012-13,18- Member, Gerontological Society of America
2012-14 Member, Metropolitan Area Geriatric Society
2013- Member, American Geriatric Society
2017- Member, American Academy of Hospice and Palliative Medicine

**Honors**

2013-2015 AFAR/Hartford Foundation COE Scholar in Geriatric Medicine
2014-2016 Empire Clinical Research Investigator Program (ECRIP) Scholar
2018 Butler-Williams Scholar

**C. Contribution to Science**

1. Understanding triggers for hospitalization in the home hospice population has encompassed a significant portion of my contribution to science. Hospitalizations have been defined as “burdensome” by the Department of Health and Human Services and is considered a marker of poor EoL care. They can be burdensome for patients and caregivers and lead to costly, aggressive, and futile care. The following publications detail qualitative and quantitative studies examining reasons and/or associations with hospitalization in the home hospice population. While reasons and triggers are complex, our findings revealed that distressing symptoms, increasing caregiver burden, and frequency of nursing visits can trigger a hospitalization.


2. The challenges faced among caregivers and primary care providers when a patient transitions into or receives home hospice services have yet to be clearly elucidated. The following articles highlight care challenges faced by primary care providers when their patients transition to home hospice, information needs that family caregivers’ desire, and episodes of crisis that occur in home at the EoL. Our findings suggest the need for better communication between hospice providers and primary care providers, more effective caregiver education around hospice and EoL care, and better ways to identify and address crises experienced by patients and caregivers.


3. Technology has become an important format to deliver care to patients and their families. Interventions incorporating technology in various formats (e.g., video chat, patient reported outcomes) have shown
promising results. Given some of the challenges in delivering home hospice care, the following publications detail the benefits/challenges of incorporating technology into home hospice care delivery along with caregivers’ receptivity to technology/mobile applications. Overall, while there are benefits and challenges in implementing technology that hospices need to consider, caregivers seem receptive to using mobile apps as part of their care experience.


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


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


**Link to Publications:**

**D. Research Support**

Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) 08/01/19 – 06/30/24

*Developing and piloting a multi-component technology-based care intervention to address patient symptoms and caregiver burden in home hospice.*

Role: PI

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

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

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

Role: PI

Empire Clinical Research Investigator Program (ECRIP) grant 01/01/14 – 12/31/15
Predicting Hospital Utilization in Home Hospice Patients
The objective of this project was to develop a predictive model aimed at identifying home hospice patients who disenrolled and utilized hospital services using 2012 Medicare hospice claims data.
Role: PI

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

Primary Caregivers’ Perspectives on why Patients on Home Hospice Return to the Hospital
The objective of this study was to understand and elucidate factors that trigger home hospice patients to utilize hospital resources through phone interviews with their informal caregivers.
Role: PI
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: Roh, Jason David

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

POSITION TITLE: Instructor, Harvard Medical School

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>05/2001</td>
<td>Biology</td>
</tr>
<tr>
<td>Yale University School of Medicine (New Haven, CT)</td>
<td>M.D., M.H.S.</td>
<td>05/2008</td>
<td>Medicine, Vascular Biology</td>
</tr>
<tr>
<td>Brigham and Women’s Hospital (Boston, MA)</td>
<td>Internship/Residency</td>
<td>07/2011</td>
<td>Internal Medicine</td>
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<tr>
<td>Beth Israel Deaconess Medical Center (Boston, MA)</td>
<td>Fellowship</td>
<td>07/2015</td>
<td>Clinical cardiology, Echocardiography, Molecular cardiology</td>
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A. Personal Statement

Dr. Jason Roh is a physician-scientist in the Division of Cardiology at Massachusetts General Hospital (MGH), where his research spans the intersection between aging biology, geriatrics, women’s health, and cardiovascular disease. His clinical expertise is in geriatric cardiology, and in 2015, he founded the first geriatric cardiology clinic at MGH, a collaborative initiative between the Divisions of Cardiology, Palliative Care, and Geriatrics. To address the increasing prevalence and complexity of cardiovascular disease (CVD) management in our aging populations, Dr. Roh’s translational research has focused on investigating the fundamental role of biological aging in CVD pathobiology. Although advanced age represents a major risk factor for nearly every type of CVD, the molecular mechanisms by which it contributes to the development of CVD in older adults remain largely unclear. By combining cutting-edge high throughput screening technologies in human cohorts with mechanistic work in animal models of cardiac aging and heart failure (HF), Dr. Roh’s overarching goal is to develop a deeper understanding of cardiovascular aging to guide rationale development of much-needed novel therapeutic strategies for HF. His most recent work using this approach identified Activin signaling as a catabolic process that increases in human aging and HF, which directly contributes to functional impairments in failing hearts (Roh et al, Sci Transl Med, 2019). His current work seeks to further define the role of systemic Activin signaling in the context of age-related frailty and various cardiovascular pathologies, ranging from HF to coronary artery disease to arrhythmias. As part of this, his work has expanded to investigating the role of senescence biology and other systemic processes associated with aging (e.g. CHIP) in the pathobiology of HF.
B. Position and Honors

**Positions and Employments**
2015- Instructor, Harvard Medical School, Boston, MA
2015- Assistant in Medicine, Massachusetts General Hospital, Department of Internal Medicine, Division of Cardiology, Boston, MA
2018- Associated Scientist, Broad Institute, Boston, MA

**Other Experiences and Professional Memberships**
2001-2002  Project coordinator, AmeriCorp Young Heroes Program, Chicago, IL
2003    Faculty Advisor, National Youth Leadership Forum-Medicine, Boston, MA
2006-2008  Member, Admissions Committee, Yale University School of Medicine
2008-2016  Member, Massachusetts Medical Society
2010-2011  Editor, Internal Medicine Residency Handbook, Brigham and Women’s Hospital
2011- Member, American Heart Association
2011- Member, American College of Cardiology (Geriatric Cardiology section member)
2018- Member, CV Fellowship Selection Committee, Massachusetts General Hospital

**Honors**
1997   Illinois State Scholar, for academic excellence
1997   Illinois Representative, American Junior Academy of Science Annual Conference
1998   NIH Intramural Research Training Award
2000   C. Van Ting Science Award, Amherst College, for excellence in the sciences
2001   Magna cum Laude, Amherst College
2002   Segal AmeriCorps Education Award, AmeriCorps, for community service
2002   MFS Civic Impact Award, AmeriCorps, for community leadership (1 of 3 national awards)
2006   Farr Scholar Award, Yale Medical School, for excellence in research/leadership
2006   Seed Grant Award, American Medical Association, for promise in research
2008   William U. Gardner Prize, Yale Medical School, for most outstanding thesis
2008   Cum Laude, Yale Medical School, highest honors given by Yale Medical School
2008   Young Investigator’s Award, International Society of Applied Cardiovascular Biology
2011   Distinguished Resident Mentor Award, Brigham and Women’s Hospital
2011   Outstanding Resident Teaching Award, Harvard Medical School
2013   Franz Aepfelbacher Outstanding Fellow Award, Beth Israel Deaconess Medical Center
2013   NIH Loan Repayment Program Award
2014   John S. LaDue Memorial Fellowship Research Award, Harvard Medical School
2016   Fellow-to-Faculty Research Award, American Heart Association
2016   Best Oral Presentation, Cardiovascular Research, Massachusetts General Hospital
2017   “First Look” Speaker, World Medical Innovations Forum, Partners Healthcare
2017   Jeremiah Stamler Award, Northwestern Cardiovascular Young Investigator’s Forum
2018   First Place, Young Investigator’s Award (Basic Science), American College Cardiology

C. Contribution to Science

1. **Vascular Tissue Engineering for Congenital Heart Disease**: During my medical school training at Yale University School of Medicine, I worked under the mentorship of Dr. Christopher Breuer, MD, on a project to develop better vascular conduits for children with complex congenital heart disease (i.e. single ventricle physiology). Currently available vascular grafts for these patients’ reconstructive heart surgeries lack growth potential and can be immunogenic, resulting in early graft failure and repeat surgeries to revise them. To address these issues, we developed tissue-engineered vascular grafts (TEVG) from biodegradable tubular scaffolds seeded with autologous bone marrow derived stem cells. As a medical student, I developed a novel method for constructing TEVG suitable for
study in murine models. My subsequent work led to the discovery that vascular development of these bioengineered grafts is driven by an inflammatory remodeling process, and not through stem-cell differentiation, as was previously believed. This work has now culminated in the first clinical trial of TEVG in the United States, which is currently being led by Drs. Breuer and Shinoka at Nationwide Children Hospital.


2. Role of Activin Signaling in Age-Related Frailty and Cardiovascular Disease: During my clinical training in internal medicine and cardiology, my research focus shifted toward aging and heart failure (HF) biology. HF is reaching epidemic proportions with the aging of populations worldwide, and is the leading cause for hospitalization in the elderly. Unfortunately, despite the best available treatments, prognosis remains poor for many HF patients with five-year mortality rates approaching ~50%. Thus, there is a substantial unmet clinical need for novel therapeutic approaches in HF. My current research now focuses on investigating the role of biological aging in HF pathophysiology as a strategic approach to identifying novel targets for therapeutic development. As part of this effort, I have worked on various inflammation-mediated processes and more recently identified catabolic Activin signaling as an age-related process that systemically increases in human frailty and HF. Importantly, we showed that Activin signaling is sufficient to induce cardiac dysfunction, and that targeted inhibition of this pathway can restore function of the failing heart in multiple HF models, raising the exciting possibility that this pathway could be an effective therapeutic target for HF. Ongoing work in the lab is now exploring the role of this pathway in various age-related disease pathologies, along with elucidating the multiple mechanisms by which Activin signaling contributes to cardiovascular aging and functional impairments


3. Role of Exercise Training in Heart Failure with Preserved Ejection Fraction: Heart failure with preserved ejection fraction (HFpEF) is the predominant form of heart failure in older adults. Unfortunately, no pharmacological therapy to date has demonstrated mortality benefit in HFpEF. Aerobic exercise is the most effective intervention to improving cardiac performance, functional capacity, and quality-of-life in older adults with HFpEF. The underlying molecular mechanisms by which exercise mediates these beneficial effects, however, remain largely unclear. Moreover, animal models necessary for rigorous study of therapeutic interventions for HFpEF are limited. Our group is currently using comprehensive phenotyping strategies to fully characterize age-related murine models of HFpEF, and employing high throughput proteomics and RNA sequencing technology to identify novel pathways by which exercise induces its beneficial effects in advanced age. Ongoing studies seek to exploit these pathways to develop novel therapeutics for HFpEF.

PAST FUNDED

07/16-07/19  Title:          Defining the role of Activin-A and Activin type II receptor signaling in HF
                 Funding:       AHA Fellow-to-Faculty Award (AHA 16FTF29630016)
                 Role:          PI
                 Description:  The major goal of this study is to determine if Activin-A/ActRII signaling is
                                sufficient and/or necessary to induce cardiac dysfunction in a pressure-overload model of systolic heart failure.

07/14-07/16  Title:          Activin type II receptor inhibition in heart failure.
                 Funding:       John S. LaDue Memorial Fellowship/ Harvard Medical School
                 Role:          PI
                 Description:  The major goal of this study was to investigate the functional effects of Activin type II receptor pathway inhibitors in animal models of heart failure.
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: Schrag, Matthew

eRA COMMONS USER NAME: mschrag

POSITION TITLE: Assistant Professor of Neurology, Vanderbilt University Medical Center

EDUCATION/TRAINING

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<td>Yale University, New Haven, CT</td>
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<td>06/2015</td>
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<tr>
<td>Vanderbilt University, Nashville, TN</td>
<td>Fellow</td>
<td>07/2016</td>
<td>Clinical Fellow in Vascular Neurology</td>
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A. Personal Statement

I am a neurologist and neuroscientist with a research focus on the overlap between vascular and cognitive neurological diseases. I have a neuroscience research laboratory at Vanderbilt University Medical Center and have published 34 papers, 10 as first author and 5 as last author. My research focuses on understanding how cerebral amyloid angiopathy contributes to cognitive impairment and on shared molecular pathways between Alzheimer’s disease and cerebral amyloid angiopathy. We currently have two projects. One focuses on defining the molecular function of the Alzheimer’s disease risk gene PLD3 and establishing its contribution to Alzheimer’s disease pathology. Our second project is focused on mapping the cerebral microvasculature to understand the morphological changes occurring in Alzheimer’s disease and cerebral amyloid angiopathy that might underlie vascular fragility, hemorrhage risk, white matter disease and cognitive impairment. We modified the CLARITY technique to optically clear large sections of human brain and stain blood vessels and β-amyloid deposits using tissue obtained from our biospecimen repository. This enables us to construct three-dimensional renderings of the cerebral microvasculature with unprecedented accuracy and detail. Because the microvasculature is such an important structure, not only for blood flow, but also a scaffold for immune response and β-amyloid clearance, we believe this work will lead to a clearer understanding of roles microvascular disease plays in Alzheimer’s disease and ultimately point us to novel therapeutic targets. We are also actively working to create a better mouse model of cerebral amyloid angiopathy. We hypothesize that improving microvascular stability will decreased β-amyloidosis, as well as optimize neuronal protein homeostasis and axonal integrity which we hope will lead to a rescue of cognitive loss.


B. Positions and Honors

**Positions and Employment**

2016 - Assistant Professor of Neurology, Vanderbilt University Medical Center, Nashville, TN

**Other Experience and Professional Memberships**

2012 - Member, American Academy of Neurology

**Honors**

2006 Bachelor of Arts with honors, summa cum laude, University of North Dakota
2008 - 2009 2nd and 3rd prize for poster presentations, Annual Post-graduate Convention, Loma Linda University
2008 Neuroscience subspecialty award, WAFMR, Western Regional Meeting
2013 Louis Levy Award (PGY2 of the Year, elected by faculty), Yale University, Department of Neurology
2015 Resident of the Year (Teaching award, elected by medical students), Yale University, Department of Neurology

C. Contribution to Science

1. MAGNETIC RESONANCE IMAGING OF CEREBRAL MICROHEMORRHAGES AND OTHER SMALL VESSEL RISK FACTORS: Our work contributed to a better understanding of the value of magnetic resonance imaging of cerebral microhemorrhages in Alzheimer's disease and other disease states. We found that small hypointensities in susceptibility weighted imaging of the brain correlated with petechial hemorrhages on neuropathological analysis and in the setting of Alzheimer's disease, were usually associated with cerebral amyloid angiopathy. This work also found that the presence of microhemorrhages (in a pattern suggestive of cerebral amyloid angiopathy) in a patient with mild cognitive impairment predicted subsequent cognitive decline. We also developed a technique to overcome the "blooming effect" which exaggerates the size of these microhemorrhages; this work has potential to contribute to technology for the automated detection and interpretation of microhemorrhages on MRIs. Finally, we have worked to describe the differential diagnosis of cerebral microhemorrhages and how their size and distribution may help to identify the cause of the underlying microvasculopathy.

   d. Passiak BS, Liu D, Kresge HA, Cambronero FE, Pechman KR, Osborn KE, Gifford KA, Hohman TJ, Schrag MS, Davis LT, Jefferson AL. Perivascular spaces contribute to cognition beyond other small
2. MECHANISMS OF VASCULAR FRAGILITY IN CEREBRAL AMYLOID ANGIOPATHY: We investigated mechanisms of vascular and parenchymal injury related to cerebral amyloid angiopathy. We discovered that β-amyloid laden microvessels are surrounded by reactive microglia and are intensely immunoreactive for late complement proteins which became the most convincing mechanism to account for the loss of vascular smooth muscle and vascular integrity. Microhemorrhage into the parenchyma led to increased cortical iron levels and broad activation of the inducible elements of the heme degradation pathways, including heme oxygenase 1 and biliverdin reductase 2.


3. TRANSITION METAL HOMEOSTASIS AND OXIDATIVE STRESS IN ALZHEIMER'S DISEASE:

   We have described patterns of oxidative stress and alterations in transition metal metabolism in Alzheimer's disease and cerebral amyloid angiopathy. My earliest work described oxidative injury around beta-amyloid plaques in an animal model which we felt were catalyzed by iron accumulation. We set out to determine what metabolic abnormality in iron handling was responsible for the iron accumulation, but instead found that when iron accumulation was present, it was due to microhemorrhagic changes related to cerebral amyloid angiopathy. Iron metabolism is essentially normal in Alzheimer’s disease and iron accumulation is not a prominent feature of this disease as was once thought. Oxidative injury to the brain has been well reported in Alzheimer’s disease, but the specific patterns of changes have been difficult to define, in part because of the very large and heterogenous body of literature describing these pathways. To address this, we conducted a large scale meta-analysis of observational studies on this topic and found that oxidative injury was most prominent in the lipid fraction and surprisingly was more prominent in blood than in brain.


4. CLINICAL MANAGEMENT OF CENTRAL RETINAL ARTERY OCCLUSION:
A clinical research focus is the management of central retinal artery occlusion (CRAO) which is an important cause of acquired blindness for which there is no effective treatment. We have discovered that CRAO is associated with an alarmingly high rate of stroke, cardiovascular disease and death and we argue that patients who suffer an acute CRAO must be immediately evaluated for modifiable risk factors. We have additionally conducted a series of studies evaluating the efficacy of systemic (intravenous) fibrinolysis for rescuing visual impairment after acute CRAO. We discovered in a subject level-meta-analysis that fibrinolysis dramatically increased the rate of visual acuity recovery when administered within 4.5 hours of symptoms onset and that traditional treatments including ocular massage, hemodilution and anterior chamber paracentesis appear to worsen visual acuity outcomes. More than half of academic hospitals in the USA are willing to offer intravenous fibrinolytic agents to selected patients with CRAO, demonstrating equipoise on the efficacy of this treatment. Our ongoing work is following visual acuity, cardiovascular and cerebrovascular outcomes in a cohort of patients with CRAO enrolled at Vanderbilt University Medical Center and establishing a multicenter collaboration and registry.


Complete List of Published Work in My Bibliography: http://bit.ly/2k6aujg

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

Ongoing Research Support

Title: Defective Lysosomal Membrane Fission Mediates Axonal Lysosome Accumulation in Dystrophic Neurites in Alzheimer's Disease
Type: K76
Agency: NIH
Period: 08/01/2019-05/31/2024
Project role: Principle investigator
Amount: $1,125,000
Grant number: 1K76AG060001

Title: Cerebral Microvascular Network Alterations in Alzheimer's Disease and Cerebral Amyloid Angiopathy
Type: R03
Agency: NIH
Period: 09/15/2019-08/31/2021
Project role: Principle investigator
Amount: $200,000
Grant number: 1R03NS111486

Title: Loan repayment grant
Type: LRP
Agency: NIH
Period: 09/01/2019-08/30/2021

Title: Elucidating novel human blood-brain barrier components
Type: R21
Agency: NIH
Period: 07/01/2018-06/30/2020
Project role: Collaborator
Amount: $235,000
Grant number: 1R21NS106510

Completed Research Support

Title: Dystrophic neurites and lysosome dysfunction in Alzheimer's disease: the contribution of PLD3
Type: Competitive intramural funding
Agency: Vanderbilt Faculty Research Scholars program
Period: 03/15/2017-03/15/2020  Project role: PI
Amount: $330,000     Grant number: U6282

Title: Axonal lysosome accumulation in models of Alzheimer's disease
Type: R25, NIH     Agency: NINDS
Period: 07/01/13-06/30/15  Project role: FELLOW
Mentor: Shawn Ferguson. Collaborators: Pietro de Camilli and Jaime Grutzendler
NAME: Tang, Victoria L.
eRA COMMONS USER NAME: Victoria.Tang
POSITION TITLE: Assistant Professor of Medicine

EDUCATION/TRAINING

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<td>BS</td>
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<td>University of Texas–Southwestern, Dallas, TX</td>
<td>MD</td>
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<td>University of Texas Health Science Center – San Antonio, San Antonio, TX</td>
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<td>06/2010</td>
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<td>University of Texas–Southwestern, Dallas, TX</td>
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<td>University of Texas–Southwestern, Dallas, TX</td>
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<td>06/2013</td>
<td>Geriatric Medicine</td>
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<td>San Francisco Veterans Affairs Medical Center</td>
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<td>06/2015</td>
<td>Quality and Safety Leadership</td>
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A. Personal Statement

I am a board-certified geriatrician with health-outcomes and healthcare systems research training. I am interested in integrating geriatric medicine principles into the surgical care of older adults undergoing high-risk surgery. This research agenda is informed by my clinical interests in geriatric surgical care through my two roles as: (1) as co-founder and lead geriatrician of an interdisciplinary preoperative optimization program for older adults undergoing elective high-risk surgery and, (2) a geriatric hospitalist of an inpatient co-management service that serves older veterans. I have studied and written about the importance of individualizing surgical decision-making and post-operative care planning and preparation for the geriatric population. Within our preoperative optimization program for older adults undergoing high-risk surgery, I, along with my surgeon mentor, Dr. Emily Finlayson, built a geriatric surgical registry involving factors known to impact specifically vulnerable older adults. These specific factors are comorbidity burden, function, and psychosocial factors. We have written about the importance of studying these factors in peer-reviewed publications that have led to increased awareness about the importance of, specifically, psychosocial vulnerability that may lead to adverse outcomes after high-risk surgery. In addition, my research in individualizing care of the older adult has focused on long-term outcomes of functional recovery and mortality in the surgical population.

My plan is to ultimately identify the components of psychosocial vulnerability that most greatly affect older adults in the vulnerable time period after surgery and use the findings to inform a psychosocial intervention that may improve the outcomes of older adults undergoing major surgery. My long-term goals are to develop a research niche that bridges the field of aging and surgery to improve the care of older surgical patients at the national level, become an expert in the field of geriatric surgical care, and to become a successful and independent clinician investigator.

Publications relevant to this proposal:


B. Positions and Honors

Positions Held

2013-present  Physician Attending, Division of Geriatric Medicine, San Francisco VA Medical Center
2015-present  Medical Director and Co-Founder of Surgery Wellness Program, Department of Surgery, University of California, San Francisco
2015-present  Core Development Team Member, Coalition for Quality in Geriatric Surgery, American College of Surgeons
2016-present  Assistant Professor, Division of Hospital Medicine, San Francisco VA Medical Center
2016-present  Advisor, American Board of Medical Subspecialties (ABMS) and American Geriatric Society’s (AGS) Geriatric-for-Specialists Initiative (GSI) Virtual Patient Cases Advisory Panel
2017-present  Advisor, Patient Priorities Care (PPC) Surgery Research Agenda Panel

Honors and Awards

2010  Outstanding Intern in Medicine, University of Texas Health Science Center, San Antonio, TX
2011  Southeast Center of Excellence in Geriatric Medicine Resident Award, UTSW, Dallas, TX
2012  Lorraine Sulkin Schein Resident Award in Geriatric Medicine, UTSW, Dallas, TX
2013  3rd place in Research Poster Competition, Dallas Veteran’s Affairs Medical Center, Dallas, TX
2014  American Geriatrics Society Presidential Poster Finalist, Orlando, FL
2015  Young Clinical Investigator Lipkin Award Finalist, Society of General Internal Medicine, Toronto, Ontario, Canada
2015  Hartford Center of Excellence Scholar, John A. Hartford Foundation, San Francisco, CA
2015  Butler-Williams Scholar (Summer Institute on Aging), National Institute on Aging, Bethesda, MD
2016  Trinity University McGavock Symposium Honored Speaker, Department of Chemistry, San Antonio, TX
2016  UCSF Institute for Incentives in Health Care Award, Division of Geriatric Medicine, San Francisco, CA
2017  Society of General Internal Medicine (SGIM) Best Paper of the Year Award
2018  American Geriatric Society (AGS) New Investigator Award

C. Contribution to Science

1. Older Adult Surgical Care

Hip fracture management in older adults has been traditionally focused on curative and rehabilitation models of care in which the focus is on restoring patients to independent function; however, older adults with hip fracture are developing increasing levels of frailty and functional dependence even before the hip fracture, and the likelihood of returning to their previous level of function may be low in these patients. Working with Dr. Ken Covinsky, Distinguished Professor in the Division of Geriatrics at University of California, San Francisco, and using the Health and Retirement Study (HRS), a nationally representative longitudinal study, we found that only a third of older adults who had sustained a hip fracture return to their previous level of ADL function. In addition, characteristics associated with a less likelihood of recovery are an older age, presence of dementia, and presence of multiple comorbid conditions. This knowledge about expected recovery after hip fracture is essential to help patients and families set realistic expectations and plan for the future.


Breast cancer surgery is the most-performed cancer-related operation in the nursing home population; yet, the long-term functional and mortality outcomes are unknown. In my recent study aimed to
determine the functional and mortality outcomes after breast cancer surgery in long-term care nursing home women, we found that among nursing home women residents who undergo inpatient breast cancer surgery, 1-year all-cause mortality ranged from 29-41% and poor baseline function prior to surgery was strongly associated with 1-year mortality. This publication has elicited public interest with major news agencies such as USA Today and the New York Times.


Pre-operative care for older adults has traditionally been focused on cardiac and pulmonary optimization; however, with the increasing recognition that older adults are a distinct and vulnerable population, other factors such as function and nutrition must be taken into account. Alongside my surgical colleagues, we have written extensively on the need to evaluate geriatric-specific factors, pre-operatively. Geriatric-specific factors are now receiving greater attention.


2. Individualizing Older Adult Care

Despite guidelines recommending against prostate-specific antigen (PSA) screening in elderly men with limited life expectancy, PSA screening remains common. Working with Dr. Louise Walter, Division Chief of Geriatrics and Professor at University of California, San Francisco and San Francisco Veterans Affairs Medical Center (VAMC), I identified clinician characteristics associated with PSA screening rates in older veterans stratified by life expectancy. Our cross-sectional study of 826,286 veterans found that 56% of older veterans received PSA screening, including 39% of the 203,717 men with limited life expectancy. After adjusting for patient demographics, higher PSA screening rates in patients with limited life expectancy was associated with having a clinician who was an older man and was no longer in training. This publication has elicited public interest with major news agencies such as Reuters and the New York Times.


During my VA Quality Scholars research fellowship at the San Francisco VAMC, the UK Department of Health began incorporating flexible sigmoidoscopy into their colorectal cancer screening program. Working with Dr. Sei Lee, Associate Professor at University of California, San Francisco, I performed a survival meta-analysis of 4 large randomized controlled trials to determine the time it takes to see survival benefit after the screening flexible sigmoidoscopy. Our study found that it would take 9.4 years for one colorectal cancer screening related death to be prevented for every 1000 people screened – significantly longer than the life expectancy of many patients initially targeted for screening by the UK Department of Health. This publication, in a high impact journal, has garnered discussion within the medical community about screening practices and will improve our ability to provide individualized and tailored preventative care to older adults that will live long enough to see survival benefit.


3. Health Care Utilization

During my geriatrics fellowship at University of Texas – Southwestern and North Texas VAMC, Medicare proposed penalization of healthcare systems based on readmission of patients with
community-acquired pneumonia within 30 days of hospital discharge. I was struck by the lack of understanding around the causation of readmission and saw the VAMC’s patient dataset as a resource in understanding re-admission factors. Using this dataset, we found that previous high utilization of medical resources was highly correlated with re-admission, regardless of quality of care in a hospital setting. We also found that high medical utilization previously was associated with readmission. From this study, I gained experience with the use of large datasets to perform research. This study has led other investigators to question the Medicare penalization, and to conduct studies evaluating other reasons for pneumonia readmission. Under the mentorship of Dr. Mortensen, Professor and Chief of General Internal Medicine at North Texas VAMC, I gained invaluable experience in quantitative epidemiological research on large datasets, corroborating on the experiment design and ultimately publishing the following manuscript:


During residency I observed a growing trend in patient referrals to hospice too late to derive benefit from palliative care; many occurred within days of death. Noting a dearth of research on factors associated with a longer length of hospice stay (e.g. hospice utilization days), I worked with Dr. Rastogi, Associate Professor of North Texas VAMC, to conduct a study of hospice length of stay the at North Texas VAMC. Notably, we found that patients who were hospitalized during hospice were more likely to have a longer utilization period, indicating a potential positive effect of hospitalization on reversible medical illnesses during hospice. Additionally, referrals by oncologists were associated with greater lengths of hospice utilization than those referred by general practitioners, indicating a need for further research in the area of non-cancer related hospice referral. This study has led researchers to further evaluate the factors in determining length of hospice utilization in other health care systems. I collaborated with Dr. Rastogi to design the study, and was the primary contributor to both the analysis of results and drafting the following manuscript:


**Complete List of Published Work in MyBibliography (Total 17):**


**D. Research Support**

**Current Research Support:**

R03AG056342 NIA GEMSSTAR (Tang) 08/01/17 - 05/31/19

National Institute of Aging

Project Goal: To determine the patient characteristics, specifically geriatric-related factors, associated with post-operative outcomes in older adults undergoing high-risk surgery.

Role: Principle Investigator

KL2TR001870 UCSF KL2 Career Development Program 10/1/16-06/30/19

National Institutes of Health: *UCSF Clinical and Translational Science Institute KL2*

Project Goal: To determine the patient characteristics associated with engagement in pre-operative planning and preparation in those older adults undergoing high-risk surgery.

Role: Career Development Awardee supported by this funding mechanism from October 2016-June 2019

**Previous Research Support:**

R24AG045050 AGING initiative pilot award (Tang) 11/01/16-10/31/17

National Institute of Aging: *Health Care Systems Research Network - Older Americans Independence Center*

The HCSRN-OAIC’s AGING initiative pilot award’s overarching goal is to support collaboration in aging research between the two research centers.

Project Goal: To describe and understand the current pre-operative planning and preparation in older adults undergoing high-risk surgery using the electronic health record.
Role: Principle Investigator

P30AG044281 (Covinsky) 07/15/13-06/30/18
National Institute of Aging: UCSF Older Americans Independence Center (OAIC; Pepper Center)
The OAIC's early career development award overarching goal is to support the research program and career development of early career researchers in the field of aging.
Project Goal: To describe the current pre-operative planning and preparation resources for older adults undergoing high-risk surgery in local surgery clinics.
Role: Early Career Awardee supported by this funding mechanism from July 2016-June 2017

T32-AG000212 (Steinman) 9/1/1991-4/30/2018
National Institute of Aging: Research Training in Geriatric Medicine
Project goals: An institutional training award to support the preparation of individuals with terminal doctoral-level degrees to become independent investigators in aging research, with a particular focus on patient-oriented research.
Role: Trainee supported by this funding mechanism from July 2015-June 2016
BIOGRAPHICAL SKETCH

NAME: Wong, Melisa L.

eRA COMMONS USER NAME: melibop1

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING

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A. Personal Statement

I am a thoracic oncology clinician-investigator dually trained in medical oncology and aging research. As an oncologist, I am fascinated by the complex shared decision making and patient-centered care necessary to avoid both overtreatment of frail older adults and undertreatment of fit older adults. My long-term career goal is to become a national leader in geriatric oncology, promoting goal-concordant care to help older adults with cancer maintain or improve their functional status during treatment. As the first UCSF oncologist to obtain formal aging research training, I have been immersed in the field of geriatric oncology since 2015. I had the honor of participating in the 2016 NIA Butler-Williams Scholars Program, which provided an incredibly stimulating learning experience with aging research experts that reinforced my passion for geriatric oncology research. In 2017, I joined the UCSF Division of Hematology/Oncology as an Assistant Professor with funding from four competitive grants to support my cancer and aging research.

As a 2017-19 NIA GEMSSTAR Scholar, I am conducting a mixed methods pilot cohort study to determine the impact of chemotherapy, immunotherapy, and targeted therapy on functional status, quality of life, and symptoms in older adults with lung cancer. As a 2017-19 UCSF Pepper Center Advanced Scholar, I am investigating changes in life-space mobility during lung cancer treatment in older adults. As a 2017-19 UCSF Clinical and Translational Science Institute KL2 Scholar, I applied a novel approach to longitudinal adverse event analysis to cancer cooperative group data to examine differences in adverse events during chemotherapy according to age and performance status. Lastly, as a 2017-18 Conquer Cancer Foundation of the American Society of Clinical Oncology (ASCO) Young Investigator, I characterized chemotherapy-induced peripheral neuropathy in older cancer survivors.

With guidance from my exceptional mentoring team including Drs. Louise Walter (primary mentor, geriatric oncology), Alex Smith (co-mentor, risk prediction for geriatric outcomes), Margaret Schwarze (co-mentor, decision making in older adults), Harvey Cohen (advisor, geriatric oncology), Chris Miaskowski (advisor, multicenter cancer cohort studies), Kristine Yaffe (advisor, decision making in older patients with cognitive impairment), and John Boscardin (advisor, statistics), my Beeson K76 career development plan will provide dedicated training in longitudinal modeling and risk prediction, shared decision making, clinical trials to test decision-making interventions for older adults with cancer, and leadership skills to direct multicenter research.


**B. Position and Honors**

**Positions and Employment**

- 2005-2007 Research Assistant, Genentech, Department of Medicinal Chemistry, South San Francisco, CA
- 2011-2014 Internal Medicine Residency, Department of Medicine, UCSF, San Francisco, CA
- 2014-2017 Medical Oncology Fellowship, Division of Hematology/Oncology, UCSF, San Francisco, CA
- 2015-2017 Aging Research T32 Fellowship, Division of Geriatrics, UCSF, San Francisco, CA
- 2015-2017 Master’s Degree Program in Clinical Research, Dept of Epidemiology and Biostatistics, UCSF
- 2017-present Assistant Professor, Division of Hematology/Oncology, UCSF, San Francisco, CA

**Honors and Awards**

- 2003 Chappell-Lougee Scholarship, Stanford University
- 2005 Joshua Lederberg Award for Academic Excellence in Human Biology, Stanford University
- 2006 Genentech Recognition Award, Medicinal Chemistry
- 2007 School of Medicine Dean’s Scholarship, University of California San Francisco (UCSF)
- 2007 Ethel O. Gardner Philanthropic Educational Organization Scholarship
- 2008 School of Medicine Dean’s Summer Research Fellowship, UCSF
- 2008-2011 Bernard Osher Scholarship, UCSF
- 2010 Alpha Omega Alpha Honor Medical Society Member, UCSF
- 2011 School of Medicine Dean’s Quarterly Research Fellowship, UCSF
- 2014 Department of Medicine Professionalism Award, UCSF
- 2014 Resident Research Travel Award, UCSF
- 2015 Cancer and Aging Research Group U13 Conference Young Investigator Award
- 2015 Hematology/Oncology Quality Chief Fellow, UCSF
- 2016 Hematology/Oncology Chief Fellow, UCSF
- 2016 Hematology/Oncology Award for Excellence in Fellowship Research, UCSF
- 2016 Conquer Cancer Foundation Merit Awards, ASCO Quality Care Symposium, Annual Meeting
- 2016 National Institute on Aging Butler-Williams Scholars Program
- 2016 Hematology/Oncology Award for Best Fellow Poster, UCSF
- 2017 Conquer Cancer Foundation Merit Awards, ASCO Quality Care Symposium, Annual Meeting
- 2017-2019 NIH National Cancer Institute Loan Repayment Program Awardee
- 2017 International Society of Geriatric Oncology Young Investigator Award

**Professional Memberships**

- 2014-present Member, American Society of Clinical Oncology
- 2014-present Member, Cancer and Aging Research Group
- 2014-present Member, Alliance for Clinical Trials in Oncology, Cancer in the Older Adult Committee
- 2016-present Member, International Society of Geriatric Oncology, American Geriatrics Society

**C. Contributions to Science**

1. **Functional status during cancer treatment in older adults**

   Older adults with cancer are at increased risk for treatment toxicity, which can result in functional impairment and decreased quality of life. However, cancer clinical trials rarely capture the full impact of treatment on geriatric outcomes. Therefore, it is important to develop an expanded, patient-centered geriatric definition of treatment toxicity that incorporates functional and quality of life outcomes to assist clinicians and older adults in making more informed, goal-concordant decisions. In a prospective cohort study of 363 adults age ≥65 with breast, gastrointestinal, gynecologic, or lung cancer, we examined demographic, clinical, and symptom characteristics associated with initial levels as well as trajectories of...
physical function over two cycles of chemotherapy. We identified morning fatigue as the only characteristic associated with both initial levels and decline in physical function during chemotherapy.


2. Impact of age and comorbidity on lung cancer care: From pulmonary nodules to cancer recurrence

Funded by the UCSF School of Medicine Dean’s Quarterly Research Fellowship, I studied the impact of age and comorbidity on the treatment of non-small cell lung cancer in older veterans. Through this database analysis of the Veterans Affairs Central Cancer Registry, we found that rates of first-line guideline-recommended treatment decreased more with older age than with worsening comorbidity for all stages of lung cancer. I then applied this framework to study the impact of age and comorbidity on evaluation of pulmonary nodules among older veterans with limited life expectancy and on treatment of recurrent lung cancer using the National Cancer Database (NCDB). This work led to a subsequent study to examine the accuracy of comorbidity assessment in the NCDB for over 30,000 patients with surgically resected lung, breast, and colorectal cancer. We found that the NCDB systematically underestimated comorbidity for cancer patients. Through this study, we identified a practical strategy to improve comorbidity assessment in the NCDB that can in turn improve how researchers analyze comorbidity in future studies, particularly comparative effectiveness research, where incomplete risk adjustment may lead to biased results.


3. Multidimensional symptom experience of cancer patients

Cancer patients experience a high burden of symptoms from both the underlying disease and its treatment. To characterize the multidimensional symptom experience of lung cancer patients receiving chemotherapy, I identified demographic and clinical factors associated with increased global distress, physical, and psychological symptoms in a subgroup analysis of Dr. Miaskowski’s NCI-funded prospective cohort study. We found that worse patient-reported performance status was associated with increased global distress, physical, and psychological symptoms. We also used exploratory factor analysis to evaluate symptom clusters, which consist of two or more interrelated co-occurring symptoms, in lung cancer patients using ratings of symptom occurrence and severity and across multiple time points during one cycle of chemotherapy. In addition, we characterized chemotherapy-induced neuropathy using subjective and objective measures in cancer survivors who received platinum and/or taxane chemotherapy.


4. Healthcare disparities in lung cancer
Among California whites, blacks, and Asians, higher lung cancer incidence is associated with lower socioeconomic status (SES). However, among California Hispanics, the relationship is reversed with higher lung cancer incidence associated with higher SES. Intrigued by this unexpected difference, I worked with the Cancer Prevention Institute of California to examine lung cancer incidence and neighborhood SES in the California Cancer Registry. To inform the observed pattern, we also explored the prevalence of smoking by individual measures of SES and acculturation in the California Health Interview Survey. We found that higher lung cancer incidence was strongly associated with higher neighborhood SES among Hispanic women in all age and stage subgroups. In contrast, this association was weaker among Hispanic men and only seen among men with older age and locoregional disease. These observations were supported by a higher prevalence of smoking among English-speaking and US-born Hispanic women. US-born Hispanic men had a higher prevalence of smoking but there was no association with household language. In addition, I collaborated with investigators in the Alliance for Clinical Trials in Oncology cooperative group to study lung cancer clinical trial enrollment disparities by age, gender, and race/ethnicity from 1990-2012. We found that while age and gender disparities in clinical trial participation improved over time, racial/ethnic disparities have persisted.


5. Children coping with parental cancer
Cancer impacts not only the patient but also the entire family. Inspired by my own family’s experience with my father’s lung cancer, I designed and conducted a mixed methods study of 30 adults who during their childhood had a parent diagnosed with cancer. Funded by a Stanford University Chappell-Lougee Scholarship, I interviewed participants about their perceived social support during their parent’s illness and the long-term impact of having a parent with cancer. Within each of the five domains of social support that emerged, participants described both helpful and hurtful examples, highlighting the need for individualized support. I also found that 44% of participants experienced posttraumatic growth as a result of having a parent with cancer. Participants also completed measures of posttraumatic stress disorder (PTSD) symptoms, peritraumatic dissociation, coping strategies, and satisfaction with social support. PTSD symptoms were highly correlated with peritraumatic dissociation and were more common among women, participants with greater use of denial, behavioral disengagement, and less satisfaction with social support. This work helped build the foundation for psychosocial interventions for families coping with cancer and contributes to our understanding of resilience among children whose parent has a life-threatening illness.


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

**D. Research Support**

**Ongoing Research Support**

- **K76AG064431** Wong (PI) 07/15/2019 - 02/29/2024
  - NIH/NIA Paul B. Beeson Emerging Leaders Career Development Award in Aging
  - *Adaptation of the Best Case/Worst Case communication tool to geriatric oncology: Improving patient-centered decision making for older adults with lung cancer*
  - The goal of this project is to identify risk factors for functional decline during chemotherapy and/or immunotherapy in older adults with metastatic lung cancer and to adapt and test the Best Case/Worst Case communication tool for use during treatment discussions with older adults with lung cancer.

- **No grant number** Wong (PI) 07/01/2019 - 06/30/2020
  - UCSF Helen Family Comprehensive Cancer Center-Mount Zion Health Fund Pilot for Junior Investigators
  - *Adaptation of the Best Case/Worst Case communication tool to geriatric oncology: Improving patient-centered decision making for older adults with lung cancer*
  - The goal of this project is to adapt the Best Case/Worst Case communication tool through focus groups with older adults with lung cancer, caregivers, and oncologists.

- **P30AG044281** Covinsky (PI) 07/01/2017 - 06/30/2020
  - NIH/NIA Claude D. Pepper Older Americans Independent Center
  - *UCSF Older Americans Independence Center Advanced Scholar Award*
  - The goal of this project is to improve the health care and quality of life of vulnerable older adults.
  - Role: 2017-2019 Research Education Component Advanced Scholar

- **R03AG056439** Wong (PI) 07/01/2017 - 05/31/2020
  - NIH/NIA
  - *Expanding the Definition of Treatment Toxicity in Older Adults with Lung Cancer*
  - This prospective cohort study will characterize changes in functional status and quality of life in older adults with metastatic lung cancer during chemotherapy, immunotherapy, and/or targeted therapy.

**Completed Research Support**

- **KL2TR001870** Bauer (PI) 07/01/2017 - 07/14/2019
  - NIH/NCATS
  - *Institutional Career Development Core*
  - The goal of the CTSI KL2 career development award is to increase the number and quality of clinical and translational investigators skilled at leading multidisciplinary research teams.

- **No grant number** Wong (PI) 07/01/2017 - 06/30/2018
  - Conquer Cancer Foundation/Vicky Merryman Women Who Conquer Cancer Young Investigator Award
  - *Characterization of Chemotherapy-Induced Peripheral Neuropathy in Older Cancer Survivors*
  - This study examined differences in patient-reported and objective measures of chemotherapy-induced peripheral neuropathy in cancer survivors by age.

- **T32AG000212** Steinman (PI) 07/01/2015 - 06/30/2017
  - Training Program in Geriatric Medicine at the University of California, San Francisco
  - The principal goal is to prepare physician-trainees to become independent investigators in aging research, with a particular focus on patient-oriented research.
NAME: Heidi J. Zapata

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

POSITION TITLE: Assistant Professor of Medicine

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

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<td>BA</td>
<td>6/2000</td>
<td>Biology/Biochemistry</td>
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<td>SUNY Upstate Medical University, Syracuse, NY.</td>
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<tr>
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<td>Microbiology/Immunology</td>
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<td>University of Virginia, Charlottesville, VA.</td>
<td></td>
<td>6/2011</td>
<td>Internal Medicine Residency</td>
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<tr>
<td>Yale School of Medicine/Yale-New Haven Hospital, New Haven, CT.</td>
<td></td>
<td>6/2014</td>
<td>Infectious Diseases Fellowship</td>
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A. Personal Statement

Throughout my career I have maintained a fascination with how the host interacts with microbes. During my PhD, I studied Varicella Zoster Virus (VZV), the cause of chicken pox and shingles. We demonstrated that the VZV virus had co-evolved to become highly dependent on the cellular signaling proteins JNK and ERK, which was beautifully illustrated when we found that the virus had hijacked these cellular proteins and had incorporated them into the virion. My research interests inspired my choice to pursue Infectious Diseases as a specialty.

During my Infectious Disease fellowship at Yale, my clinical experiences repeatedly demonstrated that different human hosts respond very differently to infection. The same microbe could produce a mild disease in one person, and an overwhelming sepsis in another. I especially noted that both older adults and HIV-infected individuals had particularly different responses. With each patient I saw, the important role the host response plays in infection was underscored. Consequently, I decided to obtain training in immunology and joined the research group of Dr. Albert Shaw, my mentor for my Beeson award, who is an expert on studies of the human immune system in older adults. I contributed to ongoing studies in the Shaw lab studying age-associated alterations in influenza vaccine response, and also began the study of age- and HIV-associated changes in the function of the C-type lectin receptors Mincle (the receptor for trehalose dimycolate (TDM) or cord factor, the most abundant mycobacterial glycolipid in Mycobacterium tuberculosis) and Dectin-1 (recognizing β-glucan, a component of fungal cell walls). I competed for a Pepper Scholar Career Development Award from the NIA-sponsored Claude D. Pepper Older Americans Independence Center at Yale to obtain initial data that allowed me to obtain a NIA-sponsored GEMSSTAR award (Grants for Early Medical/Surgical Subspecialists Transitioning to Aging Research). We found an age- and HIV-associated increase in Mincle-induced multi-functional cytokine production in monocytes at the single cell level that was dominated by cytokine production of IL-12, IL-10 and IL-6—one of the first reports of an age- and HIV-associated cytokine multifunctionality associated with an innate immune pattern recognition receptor.
similar findings were noted with Dectin-1 function (manuscript in progress). These findings suggest that chronic stimulation of pattern recognition receptors such as Mincle may contribute to the pro-inflammatory environment that is seen in aging and HIV infection. A key finding from our Mincle study was that the number of co-morbid conditions and duration of HIV-infection were strongly associated with increased multifunctional cytokine production, and most notably production of IL-12. These findings highlighted the importance of understanding who the subject is, their associated medical conditions, and taking these characteristics into account when examining the inflammatory response. Studies of why Mincle and Dectin-1 function differently in the setting of aging and HIV-infection will continue with RNA-seq studies of sorted monocytes to elucidate the underlying cellular signaling mechanisms that contribute to functional differences in these innate immune receptors, while at the same time taking into account multiple clinical characteristics such as co-morbidities, etc.

My weekly HIV clinic is the inspiration for my Beeson K76 proposal. During my weekly HIV clinic, I see patients that are aging with HIV-infection while on effective antiretroviral therapy but yet are developing a substantial incidence of age-associated medical conditions, such as metabolic syndrome, diabetes and cardiovascular disease. This rising incidence of metabolic syndrome in the aging HIV-infected population has pushed me to ponder how chronic inflammation from stimulation of the innate immune system in chronic HIV infection and in the setting of aging may facilitate the pathogenesis of such conditions. Therefore, my K76 award focuses on the NLRP3 inflammasome, an innate immune intracellular sensor and its relationship to mitochondrial/metabolic function and the development of metabolic syndrome in the setting of aging and HIV-infection.

Overall, the proposed studies will utilize the infrastructure and expertise in aging research of the Claude D. Pepper Older Americans Independence Center (OAIC) at the Yale School of Medicine. Ultimately my goal is to become a leader in research on the innate immune system at the interface of aging and HIV infection. I want to spend my career trying to unravel the complex interactions between the host, the innate immune response and how the process of aging and HIV infection affects this relationship, and ultimately contributes to disease. It is my hope that this knowledge will be used to better serve future patients.

B. Positions and Honors

Positions:

Aug. 2000- Aug. 2001  Research Assistant, Weill Graduate School of Medical Sciences of Cornell University, Department of Neuroscience. Laboratory of John A. Wagner, Ph.D.

Aug. 2002- Dec. 2006  MD.PhD. student, SUNY Upstate Medical University, Department of Microbiology and Immunology. Laboratory of Jennifer Moffat, Ph.D.

July 2009- June 2011 Internal Medicine Resident, Internal Medicine research project. Division of Infectious Disease & International Health, Hospital Epidemiology/Infection Prevention & Control. University of Virginia Health System. Laboratory of Costi Sifri, MD.

July 2011- July 2014  Clinical Fellow in Infectious Diseases at the Yale School of Medicine/YNHH Hospital.

July 2012- July 2015  Postdoctoral Fellow in Infectious Diseases, Section of Infectious Diseases, Yale School of Medicine, Laboratory of Albert Shaw, MD, PhD.

July 2015- July 2016  Instructor in Medicine, Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine Laboratory of Albert Shaw, MD, PhD.

July 2016- present Assistant Professor of Medicine, Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine
Honors:

1996-2000  Queens College Scholar: 4-year merit based full tuition scholarship.
1998-2000  Howard Hughes Medical Institute Biological Sciences Initiative grant.
1998  Golden Key National Honor Society
2000  Phi Beta Kappa
2000  Queens College Women’s Club Award: Awarded for academic excellence.
2000  The Laura H. and Arthur L. Colwin Prize (Biology): Awarded for outstanding research ability.
2000  Maxwell L. Eidenoff Scholarship (Chemistry): Awarded to a student with an outstanding academic record planning to do graduate work.
2000  Jonas E. Salk Award Honoree: Awarded to students accepted to medical school, who also plan to do biomedical research.
2008  Gurman Award: Awarded to a medical student with high scholastic achievement and love for the humanities.
2015  Butler-Williams Scholar (NIA).
2015  23rd Annual Summer Training Course in Experimental Aging Research (sponsored by NIA) (one of 15 selected) Buck Institute, Novato, CA.
2015-2017  Yale Pepper Scholar (Claude D. Pepper Older Americans Independence Center at the Yale School of Medicine (P30AG021342).
2016-2019  Yale University Faculty Excellence and Diversity Initiative Scholar.

C. Contributions to Science

1. My Ph.D. dissertation focused on the interactions of Varicella Zoster Virus (VZV), the cause of chicken pox and shingles, with host Mitogen-Activated Protein Kinase (MAPK) pathways. Our findings demonstrated the virus was dependent on a component of the host MAPK pathway, c-jun N-terminal kinase (JNK) for replication and viral spread. This dependence on host pathways, or co-evolution, was especially highlighted when we found that the virus had incorporated JNK into the VZV virion. We also found that the Extracellular Signal Regulated Kinase (ERK) pathway, another MAPK component, was also necessary for viral replication and incorporated into the virion (unpublished data).


2. During my Internal Medicine residency at the University of Virginia (UVA) I pursued a research project centered around an outbreak of Klebsiella pneumoniae Carbapenemase (KPC)-producing gram negative organisms at UVA that resulted in a number of patient deaths. I worked in the laboratory of Dr. Costi Sifri where I carried out genotypic analyses of hospital isolates of Kluyvera, an environmental organism that was isolated from patient rectal swabs. We found that all Kluyvera isolates tested carried the KPC gene, suggesting the hypothesis that Kluyvera, as an environmental bystander served as a reservoir of resistance genes to be passed on to human pathogens.


3. During my Infectious Disease Fellowship at Yale, my interest in the host-pathogen relationship continued. My clinical experiences made it apparent that older adults and HIV-infected individuals responded very differently to infections. I became interested in the innate immune host response, and how it was influenced by aging and chronic infections such as HIV. I co-authored a paper with Dr. Shaw that is one of the few reviews to focus on aging of the innate immune system in the context of HIV disease. The paper explores the hypothesis that HIV infection will potentiate underlying age
associated innate immune dysregulation, and shaped my thinking for subsequent proposals. I also co-authored a review with Dr. Quagliarello, an authority on Infectious Diseases in older adults, on how the Microbiota/Microbiome may be affected by aging, as well as how the microbiota may shape the pro-inflammatory environment in older adults, and thus contribute to disease. Finally, I contributed to a publication exploring innate immune mechanisms underlying the ability of elite controllers to control viral replication. Elite controllers upregulated gene expression of macrophage inflammatory protein (MIP)1α, a natural ligand of CCR5 (a receptor for HIV entry). Elevated levels of both MIP-1α and MIP-1β protein were found in elite controllers, which conferred resistance to CD4 T cell infection.


4. As a new investigator, my interest in the host-pathogen relationship continues specifically focusing on the human innate immune system at the interface of aging and HIV-infection. The focus of my most recent research has been on the function of the family of pattern recognition receptors, C-type lectin receptors (CLRs), in the setting of aging and HIV-infection. I specifically focused on the CLRs, Mincle and Dectin-1. Mincle has been identified as a receptor for trehalose dimycolate (TDM) or cord factor, the most abundant mycobacterial glycolipid in *Mycobacterium tuberculosis*. Dectin-1 recognizes β-glucan, a component of fungal cell walls. When Mincle function was evaluated in human monocytes in a cohort of HIV-infected and uninfected young, and older adults via stimulation with TDB (Trehalose-6,6-dibehenate), a synthetic analog of TDM, we found an age- and HIV-associated increase in multifunctionality of monocytes both at the population and at the single cell level that was dominated by cytokine production of IL-12, IL-10 and IL-6. These findings have been published in the Journal of Geronotology: Biological sciences as noted below. Similar findings were noted with Dectin-1 function in these same populations (in the process of being written up). These findings are interesting in light of the known pro-inflammatory environment that accompanies both aging and HIV-infection. It is likely that the chronic stimulation of pattern recognition receptors, such as Mincle with both pathogen associated molecular patterns (PAMPs) and damage associated molecular patterns (DAMPs) contributes to the pro-inflammatory environment that is seen in aging and HIV infection. I have also participated in recent immune studies focused on understanding the host transcriptional response to influenza vaccination in the setting of aging.


Complete List of Published Work in MyBibliography:

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

Current:

1K76AG064548-01 Zapata (PI) 8/15/2019- 5/31/2024
NIH/NIA
NLRP3 Inflammasome Activation and Mitochondrial Function in the setting of Aging and HIV Infection. The Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76).
Role: PI

Completed:

Yale University Faculty Excellence and Diversity Initiative Scholar (6/2016- 6/2019)

R03AG050947 Zapata (PI) 8/15/2016- 4/30/2018
NIH/NIA
The Effects of Age and HIV Infection on C-type lectin receptor function
Grants for Early Medical/Surgical Subspecialists’ Transitioning to Aging Research (GEMSSTAR) award.
Role: PI

P30AG021342 Gill (PI) 7/1/2015- 6/2017
NIH/NIA
Pepper Scholar Award: The Effects of Age and HIV Infection on C-type lectin receptor function
Career development award from the Claude D. Pepper Older Americans Independence Center at the Yale School of Medicine.
Role: Investigator

R24 AG044325 High (PI) 6/1/2015- 5/31/2016
HIV/Aging Pilot Program Award: The Effects of Aging and HIV-infection of C-type lectin receptor function.
Pilot award from the Claude D. Pepper Older Americans Independence Center at Wake forest and the NIH-funded Centers for AIDS Research.
Role: Investigator

NIH T32 AI007517 Kazmierczak (PI) 7/1/12- 6/30/15
Yale University, Training in Investigative Infectious Diseases (B. Kazmierczak PI)
Role: Investigator

NIH F31 AI061848 Zapata (PI) 8/1/04- 7/31/07
Ruth L. Kirshstein National Research Service Award Individual Pre-doctoral Fellowship
Project Title: Varicella Zoster Virus Interactions with Human Skin.
Role: PI

Howard Hughes Medical Institute Biological Sciences Initiative grant 1998-2000
NAME: Anderson, Timothy, Santeler

eRA COMMONS USER NAME: ANDERSONTS

POSITION TITLE: Clinical Instructor

EDUCATION/TRAINING

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<td>06/2019</td>
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A. Personal Statement
I am a general internist and health services researcher dedicated to improving the care delivered to older adults with cardiovascular disease. Led by the aging research community, the past decade has seen a transformative shift in medical thinking with the realization that more healthcare does not always lead to better outcomes. Older adults have the most to benefit from high quality cardiovascular care yet the highest risks of overtreatment and subsequent harms. My primary career objective is to become an independent investigator and national leader in identifying strategies to improve the quality of care delivered to older adults with cardiovascular conditions and in reducing the delivery of low-value care.

In June 2019, I completed a primary care research fellowship at the University of California San Francisco. Mentored by Dr. Michael Steinman of the UCSF Division of Geriatrics, I designed and conducted a national cohort study of older adults who were hospitalized for common medical conditions in the VA health system. Using this cohort, I demonstrated that older adults are commonly discharged on intensified antihypertensive medications and that these patients have a higher risk of adverse events and hospital readmissions compared to patients who did not receive intensifications, but no reduction in outpatient blood pressure or subsequent cardiac events. This research has been published in high impact medical journals (BMJ and JAMA Internal Medicine) and was selected as a plenary presentation at the 2019 American Geriatrics Society National Meeting.

I subsequently joined the Division of General Medicine at Beth Israel Deaconess Medical Center as clinical investigator faculty. I seek to expand my prior research to examine the outcomes of adjustments to diabetes medications during hospitalization and to examine the impact of intensive antihypertensive treatment on clinical outcomes during hospitalization. This proposed work has recently been awarded a GEMSSTAR award from NIA in conjunction with the American College of Cardiology Bellows Geriatric Cardiology Career Development Award. I anticipate the results of these studies will serve as the foundation for my application to the Paul B. Beeson Emerging Leaders Career Development Award Program in 2020 with a strong local mentorship team led by Dr. Edward Marcantonio, Section Chief for Research in the Division of General Medicine at BIDMC and supported by Drs. Lewis Lipsitz, Shoshanna Herzig and Mara Schonberg.

I plan to design, implement and evaluate a pilot intervention to improve the quality of BP management in older adults during the peri-hospitalization period. Informed by core geriatric principles and the data generated by the
proposed GEMSSTAR study, the subsequent pilot intervention will seek to assist clinicians in individualizing of elevated BP treatment decisions based upon patients’ long-term disease control, likelihood to benefit, and risk of adverse outcomes. I anticipate that attending the 2019 Beeson Annual Meeting will be beneficial to my career in three ways: broadening my network of senior and near-peer mentors in the aging research community, allowing me to obtain feedback on my preliminary ideas for my Beeson proposal, and exposing me to cutting-edge research from current Beeson scholars.

B. Positions and Honors

Positions and Employment
2012-2015  Internal Medicine Resident, University of Pittsburgh Medical Center, Pittsburgh PA
2015-2016  Chief Medical Resident, University of Pittsburgh Medical Center, Pittsburgh PA
2016-2019  Clinical Instructor, University of California, San Francisco, CA
2016-2019  Fellow, Primary Care Research, University of California, San Francisco, CA
2019-     Practicing Internist, Beth Israel Deaconess Medical Center, Boston, MA
2019-     Clinical Instructor, Harvard Medical School, Boston, MA

Other Experience and Professional Memberships
2011-2013  Taskforce Participant, Institute of Medicine, Harmonizing the Disclosure Process Roundtable
2012 -    Member, Society of General Internal Medicine
2012 -    Associate Member, SGIM National Research Committee 2017-2019
2012 -    Associate Member, Journal of General Internal Medicine Editorial Board 2017-2020
2012 -    National Conference Scientific Abstract Reviewer 2015, 2017, 2018
2014 -    Member, American College of Physicians
2014 -    Member, Alliance for Academic Internal Medicine
2015      Certificate in Clinical Teaching - Stanford Faculty Development Center Course, University of Pittsburgh Medical Center
2016 -2018 Committee Member, Pharmacy & Therapeutics Committee, UCSF
2017-     Member, American Geriatrics Society
2017-     Member, American Heart Association - Council on Quality of Care and Outcomes Research

Honors
2010      Academy of Medicine Education Foundation Scholarship
2011      Legacy of Leadership Award, American Medical Student Association
2012      Clinical Pediatrics Award, Cleveland Clinic Lerner College of Medicine
2015      Thomas O’Toole Award for Outstanding Service to Underserved Populations, University of Pittsburgh Medical Center
2016-2017 Chief Medical Resident, University of Pittsburgh Medical Center
2016      Health Services/Clinical Epidemiology Research Award, University of Pittsburgh Department of Medicine 16th Annual Research Day
2017      Early Career Investigator Travel Award, American Geriatrics Society / American College of Cardiology U-13 Workshop on Pharmacotherapy in Older Adults with Cardiovascular Disease
2017      Best Oral Abstract Presentation in Geriatrics Award, Society of General Internal Medicine
2018      Early Career Investigator Travel Award, American Heart Association, Quality of Care and Outcomes Research Scientific Sessions
2019      Mack Lipkin, Sr. Award for Outstanding Oral Presentation, Society of General Internal Medicine
C. CONTRIBUTION TO SCIENCE

1. Investigating the impact of hospitalization on management of hypertension and diabetes in older adults
   Based upon my clinical experience caring for older adults in both inpatient and outpatient settings, I became interested in how hospitalization impacts older adults’ chronic disease management. My primary fellowship research has examined the impact of hospitalization on chronic disease management. Mentored by Dr. Michael Steinman, I designed and conducted a national cohort study of older adults with hypertension and/or diabetes who were hospitalized for common medical conditions in the VA health system. Using this cohort, I found that one in seven (14%) patients were discharged on intensified antihypertensive regimens and that factors such as limited life expectancy, dementia and malignancy did not impact the probability of receiving an intensification at discharge. Furthermore, over half of patients discharged on intensified medications had well controlled BP prior to hospitalization. These findings show that decisions to intensify antihypertensives at hospital discharge were largely driven by inpatient blood pressure recordings and not the overall context of older adults’ health. I was the lead investigator for these studies which were supported by a NIA K24 award to my fellowship mentor Dr. Steinman.

2. Epidemiology of high and low value syncope care
   While in training, I observed that patients with syncope, or fainting, frequently receive very different care depending on whether they are seen in the clinic, emergency department, or inpatient hospital. This led me to propose a study examining national trends in high and low value care for patients with syncope using state administrative discharge databases. I found that the incidence of ED visits for syncope increased from 2006 to 2014, during this period hospitalization rates declined by one-third without an adverse effect on ED revisits and hospital readmissions. However, contrary to published guidelines, low-value diagnostic testing increased for both patients discharged from the ED and hospitalized patients. This work has been presented at multiple national conferences and is in press at the Annals of Emergency Medicine. This work was funded by a pilot grant for junior investigators from the Mt. Zion Health Fund. I led the development of this grant and served as the principal investigator, with mentorship from Drs. Grace Lin and Adams Dudley.

3. Understanding financial relationships between industry and academic medicine
   During medical school, I served as the national chair of the American Medical Student Association conflict of interest campaign, a topic which I became interested in while completing a Master of Arts in Bioethics. This work taught me the important role of well-designed research in influencing health policy and sparked my ongoing interest in understanding the factors which influence physician prescribing practices. As a result of my national leadership, I was invited to join an Institute of Medicine taskforce on disclosure of conflicts of interest which led me to co-author a white paper advising significant reforms to the current process for disclosing financial relationships in academic medicine. While in residency, these experiences led to my initial foray in health services research which examined financial relationships between
physicians and industry. Using novel public datasets, we found that relationships between academic medical center leadership and industry are common and averaged $190,000 in payments, multiple orders of magnitude greater than financial relationships between the majority of clinicians and industry. These studies were published in multiple high-impact medical journals and received extensive media attention (New York Times, Washington Post, Newsweek). I was the lead investigator for these studies which were mentored by Drs. Walid Gellad and Chester Good.


4. Identifying drivers of variation in physician prescribing

Building on my research on financial relationships, I became interested in identifying drivers of variation in physician prescribing practices. Working under the mentorship of Dr. Julie Donohue at the University of Pittsburgh Graduate School of Public, I developed a study examining the impact of institutional conflict of interest policies on physician prescribing of antipsychotics. Using a differences-in-differences methodology we found that psychiatrists exposed to strict conflict of interest policies prescribed heavily promoted antipsychotics at rates similar to psychiatrists exposed to less strict or no policies. Subsequently, I was the lead author on a study examining patterns of physician adoption of novel cardiovascular medications which identified that most physicians are slow to adopt new cardiovascular drugs but that both drug novelty and cardiology training were associated with greater adoption. I was the lead investigator for both of these projects which were supported by R01 grants from NIMH and NHLBI that Dr. Donohue’s led.


Complete List of Published Work:
https://www.ncbi.nlm.nih.gov/sites/myncbi/1fkn89bbx9mQs/bibliography/47464733/public/?sort=date&direction=ascending
D. RESEARCH SUPPORT

### Ongoing Research Support

**L30 AG060493, Loan Repayment Program**  
NIH/NIA  
*Epidemiology & Impact of Changes to Chronic Medications in Older Adults Following Hospitalization*  
This grant provides two years of loan repayment to support mentored research focused on improving our understanding of the epidemiology and impact of change to chronic medications in older adults following hospitalization.  
Role: PI

**R03 AG064373, Anderson (PI)**  
NIH/NIA  
*Impact of Intensive Blood Pressure Treatment on Clinical Outcomes of Hospitalized Older Adults*  
The aims of this NIA GEMSSTAR study to characterize the epidemiology and in-hospital outcomes of intensively treating elevated BPs in older adults during hospitalization for non-cardiac conditions.  
Role: PI

**No grant number, Anderson (PI)**  
American College of Cardiology  
*Impact of Intensive Blood Pressure Treatment on Clinical Outcomes of Hospitalized Older Adults*  
This supplemental American College of Cardiology Bellows Geriatric Cardiology Career Development Award supports the professional development plan component of the GEMSSTAR study to characterize the epidemiology and in-hospital outcomes of intensively treating elevated BPs in older adults during hospitalization for non-cardiac conditions.  
Role: PI

### Completed Research Support (Past 3 Years)

**T32 HP19025, Kushel (PI)**  
NIH/NRSA  
*NRSA Primary Care Research Training Grant*  
This grant provides three years of support to acquire methodological research skills in addition to mentored research experience with established investigators at UCSF.  
Role: Research Fellow

**MZHF 20160945, Anderson (PI)**  
Mt. Zion Health Fund / University of California, San Francisco  
*Epidemiology of High and Low Value Care for Patients with Syncope.*  
The goal of this UCSF internal pilot grant for junior investigators is to conduct a multi-state epidemiologic evaluation of patterns of emergency department and inpatient diagnostic testing and medical care provided to patients with syncope using Agency for Healthcare Research and Quality state inpatient and emergency department databases.  
Role: PI

**No grant number, Carter (PI)**  
University of Pittsburgh, Division of General Internal Medicine  
*Evaluating the LEAD program: a structured didactic and experiential program for mentored resident research.*  
This project conducted a mixed-methods study to evaluate the effect of a mentored residency research program on resident research productivity and enthusiasm for a research career following completion of post-graduate medical training.  
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: Carnahan, Jennifer Lynn

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

POSITION TITLE: Assistant Professor of Medicine

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

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<td>BA</td>
<td>05/1997</td>
<td>Anthropology and Religious Studies</td>
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<tr>
<td>University of Virginia, Charlottesville, Virginia</td>
<td>MA</td>
<td>08/2000</td>
<td>Religious Studies, Buddhist History</td>
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<td>University of Virginia, Charlottesville, Virginia</td>
<td>MPH</td>
<td>05/2009</td>
<td>Health Policy Track</td>
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<tr>
<td>University of Virginia, Charlottesville, Virginia</td>
<td>MD</td>
<td>05/2009</td>
<td>Medicine</td>
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<tr>
<td>Medical College of Wisconsin Affiliated Hospitals, Milwaukee, Wisconsin</td>
<td>Resident</td>
<td>06/2012</td>
<td>Internal Medicine-Geriatrics</td>
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<td>Medical College of Wisconsin Affiliated Hospitals, Milwaukee, Wisconsin</td>
<td>Fellow</td>
<td>06/2013</td>
<td>Internal Medicine-Geriatrics</td>
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<tr>
<td>Medical College of Wisconsin Affiliated Hospitals, Milwaukee, Wisconsin</td>
<td>Other</td>
<td>06/2014</td>
<td>Chief Resident, Clement J. Zablocki VA</td>
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<tr>
<td>Indiana University, Indianapolis, Indiana</td>
<td>Fellow</td>
<td>06/2016</td>
<td>Advanced Geriatrics Research Fellow</td>
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A. Personal Statement

I am an assistant professor of medicine and researcher with a research focus on transitions in care, especially from the Skilled Nursing Facility (SNF) setting to home for patients with Alzheimer’s Disease and related dementias. This research interest has evolved since my time training as a physician in a unique, combined four-year Internal Medicine-Geriatrics residency and fellowship program at the Medical College of Wisconsin. Experience from that training program allowed me to learn how to discharge patients from the hospital at the same time that I was learning how to help them recuperate and go home from the skilled nursing facility. Later, I used the lessons learned during my training as the Chief Resident for Quality and Patient Safety at our residency program’s affiliated Veterans Affairs hospital. I embraced this role by teaching residents the importance of a smooth hospital discharge, how to avoid the pitfalls of an unsafe discharge, the relevance of cognition and home support environment for a successful hospital discharge, and how important social determinants and concerns impact our patients’ health in addition to their medical comorbidities. I have given presentations on my work on SNF to home transitions of care at regional, national, and international meetings.

My role in the proposed K23 Career Development project is as a mentored Principal Investigator. The goal of this project is to investigate the needs and outcomes of patients with Alzheimer’s disease and related dementias and varying levels of cognitive impairment who transition from SNF to home. This project will build on previously acquired skills while providing me the new experiences of learning to conduct research with the Health and Retirement Study (HRS), under the mentorship of experienced HRS researchers. My mentors, Dr. Torke, Dr. Callahan, Dr. Clark, Dr. Tu, and Dr. Unroe, have a wealth of experience in researching and developing interventions to improve the care of vulnerable older adults.


B. Positions and Honors

Positions and Employment

2007 - 2008 Member, Medical School Admissions Committee
2007 - 2009 Standardized Patient and Evaluator, University of Virginia, Clinical Skills Training and Assessment Program, Charlottesville, VA
2008 - 2009 Scientific Reviewer, University of Virginia, Institutional Review Board, Charlottesville, VA
2009 - 2012 Resident Leader, Medical College of Wisconsin Affiliated Hospitals, Quality Improvement Committee, Milwaukee, WI
2009 - 2012 Member, Medical College of Wisconsin Affiliated Hospitals, Housestaff Representative Council, Milwaukee, WI
2011 - 2012 Member, Medical College of Wisconsin Affiliated Hospitals, Morbidity/Mortality and Improvement Committee, Milwaukee, WI
2012 - 2013 Geriatrics Clinical Fellow, Medical College of Wisconsin Affiliated Hospitals, Milwaukee, WI
2013 - 2013 Team Member, Medical College of Wisconsin Affiliated Hospitals, Donald W Reynolds Next Step Grant, Geriatrics Education Team, Milwaukee, WI
2013 - 2014 Ambulatory Immersion Curriculum Lecturer on Quality/Safety and Health Care Disparities, Medical College of Wisconsin Affiliated Hospitals, Internal Medicine Residency Program, Milwaukee, WI
2013 - 2014 Chief Resident in Quality & Patient Safety, Clement J Zablocki VA Medical Center, Milwaukee, WI
2013 - 2014 Inpatient Wards Attending Physician, Clement J Zablocki VA Medical Center, Milwaukee, WI
2014 - Member, Indiana University Center for Aging Research, Nursing Home Collaborative, Indianapolis, IN
2014 - Geriatric Primary Care Staff Physician, Eskenazi Center for Senior Health, Indianapolis, IN
2014 - 2016 Advanced Geriatrics Research Fellow, Indiana University Center for Aging Research, Indianapolis, IN
2016 - Assistant Professor of Medicine, Department of Medicine, Indiana University School of Medicine
2016 - Investigator, Regenstrief Institute, Inc., Indianapolis, IN
2016 - Research Scientist, Indiana University Center for Aging Research, Regenstrief Institute, Inc.
2016 - 2018 Attending Physician, American Village Nursing Home, Indiana University Health Physicians
2018 - Geriatrician and Primary Care Physician, Richard L Roudebush VA Medical Center, Indianapolis, IN

Other Experience and Professional Memberships

2004 - Member, American College of Physicians
2007 - Member, American Geriatrics Society
2008 - Board Member, Women in Medicine
2010 - Member, Society of General Internal Medicine (SGIM)
2011 - Member, SGIM Geriatrics Commission (formerly Geriatrics Task Force)
2014 - Member, AMDA-The Society for Post-Acute and Long-Term Care Medicine
2017 - Member, The Gerontological Society of America

**Honors**

2004 Scholarship Award recipient, Generalist Scholars in Health Disparities Program, University of Virginia

2008 President's Recognition Award, Women in Medicine

2009 - 2010 Performing Outstanding Excellence Together (POET) Award Winner, Froedtert Memorial Lutheran Hospital

2011 - 2012 Internal Medicine Residency Program Letter of Commendation, Medical College of Wisconsin Affiliated Hospitals

2011 Department of Medicine Award for Clinical Innovation, Medical College of Wisconsin Affiliated Hospitals

2011 - 2012 Internal Medicine Residency Program Letter of Commendation, Medical College of Wisconsin Affiliated Hospitals

2012 Medical College of Wisconsin Affiliated Hospitals Research Award, Medical College of Wisconsin Affiliated Hospitals

2012 Outstanding Medical Student Teacher in Ambulatory Medicine, Medical College of Wisconsin Affiliated Hospitals

2014 - 2016 National Program Award Scholar, John A. Hartford Foundation’s Center of Excellence

2015 Butler Williams Scholar, National Institute on Aging

2015 Selected participant, John A Hartford Foundation Change AGEnts Communications Institute

2015 Invited participant, SGIM-Geriatrics Task Force, Creating Best Practices for the Care of Seniors Transitioning From Skilled Nursing Facilities to Outpatient Primary Care

2016 Lipkin Associate Member Scientific Presentation Award Finalist, SGIM

2017 Travel Stipend Awardee, International Association of Gerontology and Geriatrics 21st Annual World Congress

2018 Milton W. Hamolsky Junior Faculty Award finalist, SGIM

**C. Contribution to Science**

1. Transfers and transitions of care. My interest in transitions of care stems from my clinical training in internal medicine, geriatrics, and as a Chief Resident in Quality and Patient Safety. Initially I focused on transitions related to hospital care including how clinicians learn about and communicate about care transitions. This work included a survey of the education, knowledge, and training needs of residents in my residency training program vis a vis discharging patients from the hospital. I also co-authored a paper examining emergency department visits of nursing home residents with varying levels of Alzheimer's disease and related dementias. I am first author on a paper using my primary mentor's data to examine the role of impaired decision making on the choice to discharge a patient from the hospital to a SNF. Finally, my major research fellowship project paper is also included, which examines outcomes of patients who transition from the SNF to home in a regional claims-based dataset.


2. Nursing home care. This work includes two manuscripts from the OPTIMISTIC project: an analysis of the avoidability of a transfer of a nursing home patient to the hospital and a description of results from the first
year of Phase 2, in which nursing homes are reimbursed by CMS for providing higher acuity care in nursing homes. The other two manuscripts are invited commentaries: one on a major intervention for surrogate decision makers for cognitively impaired nursing home patients, and an editorial on a recent publication from Dr. Joseph Ouslander’s Interventions to Reduce Acute Care Transfers (INTERACT) study. Research on nursing home populations requires a deep understanding of the subtleties of the clinical milieu. The same providers care for the long stay and short stay patients in a nursing home so, this work has considered both populations. Knowledge of issues surrounding care transitions of long stay patients results in a more nuanced approach to care transitions for SNF patients back to the community.


3. Dementia care and geriatric primary care. Once a patient transitions back to the community from a SNF stay, their primary care provider is ideally positioned to help them stay home without readmission to the hospital or other adverse events. The work here demonstrates overall knowledge of dementia and primary care issues but also highlights our consensus best practices for the SNF to home transition. A major emphasis of our best practices was the understanding that both SNF providers and primary care providers must work together in the transition of patients between SNF and home. Knowledge of geriatric conditions such as osteoporosis, how to address health disparities, and how patients’ cognition is communicated between providers contributes to understanding how patients encounter and access health services, including hospital readmissions.


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

Ongoing Research Support
1E1CMS331488, Centers for Medicaid & Medicare Services (CMS), Unroe, Kathleen (PI)
09/24/16-10/23/20
Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents - Phase 2 Payment Reform
OPTIMISTIC Phase 2 is a continuation and expansion of the clinical enhanced nursing home services demonstration project. In addition to continuing to test a clinical support model in 19 Phase 1 nursing homes, an additional 25 facilities will be throughout Indiana. All facilities participate in a financial demonstration project and are able to draw down payments through Medicare for care of acute conditions through a novel benefit. The goals of the project are to reduce avoidable hospital transfers and to improve nursing home care.
Our proposed ABC ANSWERS intervention, which includes a partnership between Indiana University, Cleveland State, and the Richard L. Roudebush VAMC, will incorporate and integrate the common features of an evidence-based collaborative care model for brain care, while also attending to the implementation barriers of delivering care and skills to dyads of patients with Alzheimer’s disease or Traumatic Brain Injury and their family caregivers.

**Completed Research Support**

Innovation Award, Regenstrief Institute, Inc.
Carnahan, Jennifer Lynn (PI)
04/01/16-03/31/17
Post Hospitalization Adult Care Transitions from Skilled nursing facilities (SNFs)
The goals of the project are to: 1) Establish a recruitment protocol for studies of patients who transition from the Skilled Nursing Facility (SNF) to home 2) Consent patients and caregivers for interviews 3) Conduct audio recorded semi-structured interviews with patients and caregivers about their experience discharging to home from the SNF 4) Analyze interviews using standard qualitative methods 5) Write publications
Role: PI

00402536, American Federation for Aging Research (AFAR)
Counsell, Steve (PI)
07/01/14-06/30/16
Hartford Center of Excellence in Geriatric Medicine
The John A. Hartford Foundation, whose sole mission is to improve the quality of care for the aging population, recognized IU Geriatrics as a Center of Excellence (COE) in Geriatric Medicine. As one of only 22 designated CoEs nationwide, IU Geriatrics will receive foundation support to increase the number of academic geriatricians by expanding the size and scope of the Geriatric Medicine Fellowship Program and providing support for faculty development in teaching and research.
Role: FEL

1E1CMS331082, Centers for Medicaid & Medicare Services (CMS)
Sachs, Greg (PI)
07/01/16-09/23/16
The OPTIMISTIC Project - Optimizing Patient Transfers, Impacting Medical quality, and Improving Symptoms: Transforming Institutional Care
The goal of this project is to reduce avoidable hospitalizations for long stay nursing home residents in 19 local nursing facilities though medical, care transition and palliative care evidence based interventions.
Role: Co-Investigator
BIOGRAPHICAL SKETCH

NAME: Diminich, Erica D.
eRA COMMONS USER NAME (agency login): ERICADIMINICH
POSITION TITLE: Research Assistant Professor

EDUCATION/TRAINING

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<td>BA</td>
<td>05/2007</td>
<td>Psychology</td>
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<tr>
<td>Columbia University, New York, NY</td>
<td>M.Phil</td>
<td>05/2013</td>
<td>(Emphasis on statistics, measurement, research design)</td>
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<td>Columbia University, New York, NY</td>
<td>PhD</td>
<td>05/2016</td>
<td>Clinical Psychology</td>
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<tr>
<td>New York University Langone, School of Medicine, New York, New York</td>
<td>Post-Doctoral Fellow</td>
<td>09/2017</td>
<td>First Episode Psychosis, Biomarkers</td>
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A. Personal Statement

I am a bi-lingual (English-Spanish) Clinician-Scientist and Research Assistant Professor in the Program in Public Health and Department of Family, Population and Preventive Medicine at Stony Brook University. My training as a Clinical Psychologist centered on stress, trauma and psychosis. My early research utilized laboratory paradigms and behavioral data to identify individual predictors of resilience in adults exposed to potentially traumatic events. However, my clinical work with monolingual Latino adults in low resource, low income communities has greatly influenced the research I have been actively developing, that is focused on two long-term goals: 1) identify factors that promote healthy aging and 2) reduce disparities in Alzheimer’s disease in Latino communities.

I have completed 12 months of a two-year NIA funded supplement (PI: Clouston). During this time, I have investigated how metabolic, inflammatory and cardiovascular biomarkers are associated with aging related changes in cognition and chronic post-traumatic stress symptoms in a cohort of World Trade Center (WTC) responders (manuscripts in progress) from the parent R01. I am also collecting data using a laboratory paradigm to examine how deficits in emotion regulation are related to the course of cognitive decline and post-traumatic stress symptoms in a subset of WTC responders who identify as Latino (N=588). This work is the first to use experimental paradigms rather than self-report measures to examine associations between emotion regulation with changes in cognition and chronic stress in Latinos. Furthermore, this work is the first to assess age-related differences in the clinical and cultural expression of post-traumatic stress disorder (PTSD) across diagnostic group and PTSD symptom dimensions.

In addition to core workshops in cognitive health and disparities that I have recently completed, I have been selected as an NIA Alzheimer’s disease (AD) Resource Center for Minority Aging Research (RCMAR) Scholar. I receive targeted mentorship in minority aging and Alzheimer’s disease and I have been, awarded funding for a one-year pilot study. During my pilot grant, I will collect blood-based biomarkers of neuropathology and pre-clinical Alzheimer’s disease in a faith based organization to identify associations between distributions of biomarkers with cognitive and emotional functioning in a non-clinical sample of Latinos early in mid-life.

As a Clinician-Scientist, and Early Stage Investigator, I am committed to identifying the causal pathways linking stress, emotional reactivity, and inflammation with cognitive decline and aging in at risk populations. My overarching aim in future work is to identify trajectories that predict cognitive resilience with a concerted focus towards the development of clinical interventions to promote healthy aging and cognitive vitality in Latinos.
B. Positions and Honors

**Positions and Employment**

- **2015-2017** Post-Doctoral Fellow, New York University Langone Medical Center, New York, NY
- **2017-** Research Assistant Professor, Stony Brook University Department of Family, Population and Preventive Medicine, Program in Public Health, Stony Brook, NY

**Other Experience and Professional Memberships**

- **2010** Member, American Psychological Association
- **2011** Member, Association for Psychological Science
- **2011** Member, International Society for Traumatic Stress Studies
- **2016** Member, New York City Cognitive Behavioral Therapy Association
- **2017** Member, National Hispanic Medical Association
- **2018** Member, Network of Minority Health Research Investigators (NMRI): National Institute of Diabetes and Digestive and Kidney Diseases
- **2019** Mentor, National Hispanic Health Foundation (NHHF)
- **2019** The Gerontological Society of America
- **2019** Society for Ambulatory Assessment

**Fellowships & Awards**

- **2015** Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Behavioral Health Equity, National Network to Eliminate Disparities (NNED) in Behavioral Health. Travel and Training award.
- **2017** Junior Faculty Research Fellow, Patient Centered Outcomes Research Initiative (PCORI) Hispanic Patient-Centered Health Research, National Hispanic Health Foundation
- **2018** Recipient of National Institute on Aging Diversity Supplement Award
- **2019** RAND Summer Institute, Scholarship to attend the Mini-Medical School for Social Scientists, and the Demography, Economics, Psychology and Epidemiology of Aging Conference
- **2019** Modeling Cognitive Aging in Context, Michigan Center for Contextual Factors in Alzheimer’s disease (MCCFAD). Summer Data Immersion program. Training award funded by the National Institute on Aging P30 AG059300.
- **2019-2021** Michigan Center for Contextual Factors in Alzheimer’s disease, Alzheimer’s disease Resource Center for Minority Aging Research (AD-RCMAR) Scholar. Training and mentorship in minority health AD disparities funded by the National Institute on Aging P300AG059300.
- **2019-2021** National Institutes of Health, Loan Repayment Program for Clinical Research funded by the National Institute on Aging.
- **2019** National Institutes of Health/National Institute on Aging, Butler-William Scholar
- **2019** 1st Workshop on Research Definitions for Reserve and Resilience in Cognitive Aging and Dementia. Travel Scholarship recipient for Young Investigators. Funded by the National Institute on Aging R24 AG061421.
Teaching and Mentoring Activities
2010-2011 Lecturer, Psychology of Loss and Trauma, Columbia University
2013-2014 Lecturer, Adult Personality & Psychopathology, Columbia University
2014 Instructor, Emotion and Psychopathology, Columbia University
2019 Mentor, National Hispanic Health Foundation (NHHF)
2019 Lecturer, Research in Population Health and Clinical Science.
Topic: Social and cultural factors in the diagnosis and treatment of psychosis, mood and anxiety disorders.
2019 Adjunct Professor, Advanced Research Methods (Master’s Program in Public Health, Stony Brook University)
2019 Adjunct Professor, Introduction to the Research Process (Master’s Program in Public Health, Stony Brook University)

Editorial
2014 Reviewer for Comprehensive Psychiatry
2015 Reviewer for PLOS ONE
2016 Reviewer for Emotion Review
2016 Reviewer for Social Psychiatry and Psychiatric Epidemiology
2017 Reviewer for Psychological Trauma: Theory, Research, Practice and Policy
2019 Reviewer for Development and Psychopathology

C. Contribution to Science

1. Neurodegeneration, chronic stress and cognitive impairment. This pilot study attempted to further interrogate whether WTC responders with PTSD and early cognitive impairment would evidence higher levels of neurodegeneration across plasma-based biomarkers commonly associated with Alzheimer’s disease. We identified increased levels of neurodegeneration consistent with ADRD using a novel assay of plasma markers that are minimally invasive, cost effective and may serve as potentially important markers of early detection. Additionally within the WTC population we have identified significantly higher rates of cognitive decline among responders with chronic PTSD re-experiencing symptoms despite the relatively young age of the overall cohort.


2. Trajectories of resilience. Seeking to understand the multiple factors that might predict resilience following a potentially traumatic event and/or stressor. We found that exposure to traumatic events does not always result in psychopathology. Furthermore, we identified multiple trajectories following acute and chronic stressors. We introduced the terms "emergent resilience" and "minimal-impact resilience" to represent trajectories of positive adjustment in the context of chronic and acute adversity. This work, which built upon earlier models in Developmental Psychology, demonstrated that resilience to trauma is heterogeneous.


3. Emotion regulation and Prolonged Complex Bereavement Disorder. Poor emotion regulation underlies most psychiatric disorders. Moreover, the presence or absence of emotion has been associated with poor health outcomes and a more protracted recovery following challenging life events. Bereavement and loss are inevitable
and challenging experiences that everyone must endure. However, approximately 10-15% of the population continue to experience considerable distress for years following the death of a loved one. We analyzed quantitative data, behavioral data, and qualitative data to examine whether individual differences predicted grief symptoms. Results from this work mirrored findings in the schizophrenia literature. Specifically, we found that individuals with elevated grief symptoms demonstrated an apparent ‘disconnect’ across channels of emotion. In other words, participants with diagnostic grief symptoms experienced greater sadness and anger yet demonstrated more flattened affect relative to non-symptomatic bereaved adults. This study highlighted the need for a more integrated methodological approach to identify behavior and pathology.


4. Depression, Neurodegeneration and Biomarkers. Schizophrenia is a disorder where the absence of emotion is one of the defining components of negative symptoms that is most resistant to pharmacological symptoms. However, the relationship between duration of illness, negative symptoms, untreated psychoses (DUP), antipsychotics and clinical symptoms is poorly understood. We explored the role of citalopram, DUP, clinical symptoms and antipsychotics on hippocampal atrophy and negative symptoms in a sample of medication free First Episode Psychosis participants. Participants completed neuroimaging prior to receiving antipsychotic medication and at 8 weeks post treatment. Clinical assessments and biomarkers were collected in tandem. Our findings suggest that for individuals with longer DUP, citalopram may be effective in improving negative symptoms and longer DUP is associated with significantly smaller hippocampal volume and negative affect. This work further demonstrates the critical need for early intervention and additional empirical studies utilizing longitudinal designs to further elucidate key treatment points.


D. Additional Information: Research Support

Ongoing Research Support

P30AG059300 7/2019-7/2020
This pilot study will provide 1) preliminary evidence to assess the acceptability, feasibility and potential limitations in recruiting, engaging and retaining a non-clinical, population based sample of Latino adults in Alzheimer’s disease research involving venipuncture, and computer based assessments; 2) advance understanding of how chronic stress and metabolic risk factors potentially influence neuropathological changes; 3) examine potential moderating effects of emotion and psychosocial functioning on mild cognitive impairment.
Role: PI

5R01AG049953-05 10/15/2018-01/31/2020
Identifying aging related changes in emotion responding and cognition in a cohort of Hispanic 9/11 Responders - Dimich (PI) NIA
This diversity supplement was awarded to Dr. Dimich to investigate longitudinal associations between cognitive aging, PTSD and emotion regulation in a cohort of responders from the September 11th attack on the World Trade Center in New York City. The role of emotion regulation to the course of PTSD symptom severity and cognitive decline will be examined across behavioral paradigms proposed in the supplemental study.
Role: PI of supplement study under A life course approach to integrating trauma and cognitive aging: A cohort of 9/11 responders– Sean Clouston (PI)
Completed Research Support
5R61MH112833-02
Levetiracetam in First Episode Psychosis – Donald C. Goff (PI) NIMH
This project was developed to identify the optimal levetiracetam dose added to antipsychotics in a 12-week placebo-controlled trial in 84 medication-naïve individuals with first episode psychosis. We examined whether (1) levetiracetam prevented hippocampal volume loss; (2) improved clinical symptoms and cognition, (3) explored potential mediators and modulators of effect. Role: Project Director/Study Psychologist

5R34MH100296-02
D-cycloserine Augmentation of Cognitive Behavioral Therapy for Delusions – Donald C. Goff (PI) NIMH
Delusions are frequently unresponsive to current treatments, are often responsible for hospitalization, and can lead to considerable suffering. In a twelve-week placebo-controlled trial, we studied the effect on delusions of combining D-cycloserine, which enhances learning, with cognitive behavioral therapy for delusions. Role: Project Director/Study Psychologist; conducted primary data analyses (first author manuscript currently under review)

R01MH084900
Citalopram in First Episode Schizophrenia – Donald C. Goff (PI) NIMH
Depression is common in first episode schizophrenia and is associated with poor quality of life, suicidality and relapse. In a twelve-month placebo-controlled trial, we studied the impact of citalopram in combination with antipsychotics and CBT on the course of illness and included as biomarkers, citalopram-induced elevation of plasma BDNF, BDNF genotype, and longitudinal measurement of gray matter volume. Role: Project Director/Study Psychologist, conducted primary data analyses; co-authored paper

R01MH084900
Citalopram in First Episode Schizophrenia Supplement – Donald C. Goff (PI) NIMH
This supplement was funded by the US- China Biomedical Collaborative Research Program to extend the study to medication-naïve first episode patients, add biomarkers, and to add Shanghai Mental Health Center as a site. Role: Conducted primary data analyses; co-authored paper

HHSN27100003
Biomarker Validation Study: New Experimental Medicine Studies: Fast-Fail Trials in Psychotic Spectrum Disorders (FAST-PS) – Jeffrey Lieberman (PI) NIDA
This study sought to test a novel compound and clinical targets for treating clinical dimensions of psychopathology (e.g., anhedonia, cognitive function, social engagement) associated with traditional psychotic spectrum disorders. The overall goal of this project was to evaluate the ability of an agonist to reverse alterations in healthy humans. Role: Project Director/Study Psychologist

R01MH091034
Predictors and Diagnostic Markers of Prolonged Grief – George A. Bonanno (PI) NIMH
The loss of a loved one can be devastating. Most individuals experience acute grief symptoms in the early course of the loss; however, a significant subset of bereaved individuals continue to experience debilitating grief symptoms. This study used a longitudinal design with latent growth mixture modeling to measure early predictors of the development of prolonged grief using semi-structured interviews, experimental tasks and biomarkers (EMG, ERP). Role: Graduate Student Assistant; first author manuscript currently under review

R01MH073595
Cognitive and Emotional Mechanisms in chronic grief – George A. Bonanno (PI) NIMH
The cognitive and emotional mechanisms that characterize chronic symptom elevations among individuals bereaved from the death of a spouse are not well understood. Using a cross sectional design, this project examined cognitive and emotional mechanisms hypothesized to underlie chronic grief reactions. Role: Graduate Student Assistant
NAME: Elizabeth W. Dzeng

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

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING

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<tr>
<td>Stanford University, Stanford, CA</td>
<td>MS</td>
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<td>Chemical Engineering</td>
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<tr>
<td>Johns Hopkins School of Public Health, Baltimore, MD</td>
<td>MPH</td>
<td>05/2007</td>
<td>Health &amp; Human Rights</td>
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<td>University of Cambridge, Cambridge, England</td>
<td>MPhil</td>
<td>06/2008</td>
<td>Development Studies</td>
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<tr>
<td>Johns Hopkins School of Medicine, Baltimore, MD</td>
<td>MD</td>
<td>04/2009</td>
<td>Medical Degree</td>
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<td>Columbia New York Presbyterian Hospital, NY, NY</td>
<td>Residency</td>
<td>05/2011</td>
<td>Internal Medicine</td>
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<tr>
<td>Johns Hopkins School of Medicine, Baltimore, MD</td>
<td>Fellowship</td>
<td>06/2015</td>
<td>General Internal Med</td>
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<tr>
<td>University of Cambridge, Cambridge, UK</td>
<td>PhD</td>
<td>09/2015</td>
<td>Medical Sociology</td>
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</tbody>
</table>

A. Personal Statement

I am a physician-ethicist-sociologist and clinician-investigator at UCSF in the Division of Palliative Medicine with joint appointments in the Department of Social and Behavioral Science, Sociology Program, and the Institute for Health & Aging. My research lies at the nexus of medical ethics, medical sociology, and end-of-life care research. I completed a general internal medicine fellowship and a palliative care research fellowship at the Johns Hopkins School of Medicine as well as a PhD in Medical Sociology from the University of Cambridge (UK) where I was a Gates Cambridge Scholar. I am also an Atlantic Senior Fellow for Equity in Brain Health at the Global Brain Health Institute based at UCSF and Trinity College Dublin. I am committed to pursuing a career at the intersection of aging research, palliative care, ethics, dementia care, and sociology.

My PhD research focused on how institutional culture and policies influence physician trainees’ conceptualization of ethical principles, in particular that of autonomy and beneficence (best interest), and how that affects their willingness to make recommendations regarding do-not-resuscitate (DNR) decision-making at the end of life. I accomplished this through 58 semi-structured in-depth interviews at three sites in the US and one in the UK. I found that hospital cultures that prioritized patient autonomy encouraged a simplistic understanding of autonomy to mean “unbiased” choice, which discouraged physicians from taking responsibility to appropriately guide patients through resuscitation decisions. These trainees’ perceived inability to act in a patient’s best interest to withhold what they felt were futile treatments resulted in moral distress. Institutional cultures and policies might influence how physician trainees develop their professional attitudes towards autonomy and their willingness to make recommendations regarding the decision to implement a DNR order. Their ethical perspective influence their communication practices, which might subsequently influence the degree of conflict experienced between physicians and patients during end of life conversations. My thesis is available to view and download at: https://doi.org/10.17863/CAM.16665

I was recently awarded a $2.1 million award from the California Department of Public Health to use human centered design methodologies to design and prototype systems-level interventions that shift culture to mitigate burdensome care at the end of life. This work builds on my previous work identifying systems-level factors that contribute to burdensome life-sustaining treatments near the end of life in older adults with dementia, funded by a KL2 award, a National Palliative Care Research Center (NPCRC) Junior Investigator Career Development Award, and a GEMSSTAR R03.

My unique background as both a hospitalist and PhD-trained sociologist working at the nexus of palliative care research, medical sociology, and medical ethics, makes me the ideal candidate to explore and develop interventions that target burdensome care at a systems and cultural level. During my undergraduate and graduate education at Stanford, I was deeply immersed in engineering and human-centered design through the Stanford Biodesign Innovation program where I invented and patented a device to non-invasively cool the heart through the esophagus to prevent myocardial damage during a myocardial infarction (US Patent 7,758,623; 2010). In August, 2019 our patent was successfully licensed to Attune Medical. I am excited to
bring this unique background in engineering and innovation to that of aging and palliative care research and apply innovative strategies in human-centered design to create systems level interventions that change the culture of burdensome care in older adults.

Relevant publications for this application:


**B. Positions and Honors**

**Positions and Employment:**

- **2009-2010** Intern, Columbia New York Presbyterian Hospital. Internal Medicine
- **2011-2014** General Internal Medicine Fellowship, Johns Hopkins School of Medicine
- **2014-2015** Ho-Chiang Foundation Palliative Care Research Fellowship, Johns Hopkins School of Medicine
- **2015-2018** Assistant Professor, Division of Hospital Medicine, University of California, San Francisco
- **2016-2019** Ethics Curriculum Director, University of California, San Francisco Medical School
- **2017-2018** Atlantic Fellow for Equity in Brain Health, Global Brain Health Institute, UCSF and Trinity College Dublin
- **2018-Present** Assistant Professor, Division of Palliative Medicine, University of California, San Francisco

**Honors:**

- **2005** Johns Hopkins Alumni Association Student Services Grant Award
- **2005** Alpha Omega Alpha (AOA) Medical Honors Society Student Service Award
- **2005** Baltimore City Medical Society Foundation, Inc. Merit Scholarship
- **2005** W. Barry Wood Scholarship, Johns Hopkins School of Medicine
- **2006** American Medical Women’s Association (AMWA) Overseas Grant Award
- **2006-07** Watt Hansell Scholarship, Johns Hopkins Bloomberg School of Public Health
- **2006** MPH Field Experience Award, Johns Hopkins School of Public Health
- **2007** Delta Omega Public Health Honors Society inductee, Alpha Chapter
- **2007** Gates Cambridge Scholarship, University of Cambridge (UK)
- **2011** Gates Cambridge Scholarship, University of Cambridge (UK)
- **2013** Postgraduate International Conference Travel Grant, Sociology of Health and Illness Foundation
- **2015** American Assoc. of Hospice and Palliative Care Medicine (AAHPCM) Research Scholars Award
- **2016** Society of General Internal Medicine (SGIM) Annual Meeting, Hamolsky Research Award Finalist
- **2016** UCSF Faculty Development Award
- **2016** Andrew Markus Scholarship, Ethox Centre for Bioethics, Green Templeton College, Oxford
- **2017-19** National Institute of Health Loan Repayment Program Award
- **2019-2021** National Institute of Health Loan Repayment Program Renewal Award

**Other Experiences:**

- **2004-05** Albert Schweitzer Service Fellowship
- **2005** Paul Ambrose Scholars Program. Association of Teachers of Preventative Medicine (ATPM)
- **2009** Max Kade Fellowship, Austrian American Foundation
- **2010** Meltzer Ethics Fellowship, Columbia University
- **2011-12** Vice President, Gates Scholar Council and Society.
- **2012-13** Junior Member of Council and Governing Body. Kings College Graduate Society.
- **2012-13** Executive Director, 6th Annual Global Scholars Symposium
- **2012-15** Founding Member and Editor. Kings Review magazine. King’s College. Cambridge
C. Key Contributions to Science

1) Ethics and sociology of aging, end-of-life care, and palliative care
A significant career goal has been to use sociological and ethical insights to inform clinical questions in aging and palliative care research. My PhD thesis and subsequent scholarship primarily focuses on the ethical and sociological challenges in palliative and end of life care.


2) Palliative care from a systems-level perspective
I have also been engaged in palliative care and end of life issues more broadly, ranging from health care financing to clinical palliative care. In particular, I have worked to advanced palliative care knowledge on a systems-level perspective through a systematic review of palliative care effectiveness on a population level, a paper on the role of primary care physicians in the provision of primary palliative care, and an assessment of public attitudes of Medicare.


3) Crafting an ethical response to the legalization of physician assisted death (PAD) in California
Since the signing of California’s End of Life Option Act, which legalizes PAD, I have been involved in the coordination of California’s health care response to this act (http://www.eoloptionacttaskforce.org/about.html). I co-organized the End of Life Option Act Response Conference held on Dec 12, 2016 which was a conference of key stakeholders including palliative care and ethics leaders, hospital and health care systems leaders, academics, non-profit leaders, and others to develop an ethical and safe response to the act. I have been engaged as a thought leader in the ethical and clinical response to the law through conference presentations, original research articles, and commentaries. I have also been heavily involved in education regarding the response to the Act at both UCSF (i.e. medical grand rounds, departmental conferences, resident, fellow and
medical student conferences. medical student courses, etc.) and at national conferences (i.e. PCQN, CME
courses). I also developed the credentialing module for UCSF that is required for prescribing physicians.


2. Petrillo L, Dzeng E, Smith A. “California’s End of Life Options Act: Opportunities and Challenges

3. Dzeng E, “Can growing popular support for physician assisted death motivate organized medicine to
   improve end-of-life care?” Journal of General Internal Medicine, 2018. 33(8), 1209-1211. DOI:

4. Craig A, Dzeng E. “How Should Physicians Care for Dying Patients with Amyotrophic Lateral

A complete list of my publications can be found on my UCSF Profiles Page:
http://profiles.ucsf.edu/elizabeth.dzeng

D. Research Support

3R01NR018161-02S1 (PI: Curtis) 07/01/2019-06/30/2020
FCS2 Administrative Supplement, National Institute of Aging to R01 from National Institute of Nursing
Research, “Identifying opportunities to improve shared decision-making about intensity of care for patients with
Alzheimer’s disease and related dementias”. $100,032 to UCSF of $405,579 total awarded.
Role: Investigator

No grant number (Dzeng) 07/01/2019-06/30/2025
California Department of Public Health (CDPH) Alzheimer’s Disease Research Award. $2,115,573 over five
years for the project “Using Human-centered Design to Mitigate Burdensome Life Sustaining Treatments
Near the End of Life”. This project builds upon the comparative ethnography to co-design using human centered
design a systems-level intervention that mitigates the culture of burdensome end-of-life care in older adults with advanced dementia.
Role: Principle Investigator

1R03AG060098 (Dzeng) 08/01/2018-07/30/2020
National Institute of Aging (NIA) Grants for Early Medical/Surgical Subspecialists’ Transition to Aging Research
(GEMSSTAR) R03. $120,031 awarded per year for two years for the project, “Identifying contributing factors to
burdensome ICU treatments in older adults with Alzheimer’s disease and related dementias in the United
States and United Kingdom”. This project is a comparative ethnography of burdensome end-of-life care in older
adults with advanced dementia in the US and UK to understand why the US differs from the UK and whether
there are modifiable factors observed in the UK that can serve as insights for future interventions in the US.
Role: Principle Investigator

No grant number (Dzeng) 09/01/2019-08/31/2021
Global Brain Health Institute (GBHI) Pilot Awards for Global Brain Health Leaders (Funded by GBHI,
Alzheimer’s Association and Alzheimer’s Society UK). $25,000 pilot award funding for a project entitled “Burdensome end-of-life treatments in older adults with advanced dementia”. This project is a comparative ethnography of burdensome end-of-life care in older adults with advanced dementia in the US, UK, and France in order to understand why the US differs from the UK and France and whether there are modifiable factors observed in the UK and France that can serve as insights for future interventions in the US.

Role: Principle Investigator

Previous Research Support:

1KL2TR001870-02 (Bauer) 06/01/2017- 05/31/2019
UCSF Clinical and Translational Science Institute KL2 Program
The goal of the CTSI KL2 career development award is to increase the number and quality of clinical and translational investigators skilled at leading multidisciplinary research teams. My role is as a KL2 scholar, for which I receive approximately $138,815 a year in salary/benefits and research funds. Awarded three years of salary support but declined last year of funding due to receipt of California Department of Public Health Grant
Role: KL2 Career Development Awardee and KL2 Scholar

No grant number (Dzeng) 07/01/2017 – 06/30/2019
National Palliative Care Research Center (NPCRC) Junior Investigator Career Development Award
The goal of the NPCRC career development award is to allow junior faculty to have the protected time required to develop and conduct the pilot research necessary to be competitive for larger, extramurally funded awards. The value of the award is $154,000 over two years. However, I declined salary support due to concurrent KL2. The goal of this study is to identify factors that contribute to burdensome care in patients with advanced dementia at the end of life.
Role: Junior Career Development Award Awardee

No grant number (Dzeng) 07/01/2017 – 06/30/2018
UCSF Osher Center Integrative Dementia Care and Treatment Pilot Award
*Identifying factors that contribute to burdensome care in patients with advanced dementia at the end of life*
Role: Principle Investigator

P30AG044281 (Covinsky) 07/15/13 - 06/30/18
National Institute of Aging: UCSF Older Americans Independence Center (OAIC; Pepper Center)
The OAIC’s early career development award overarching goal is to support the research program and career development of early career researchers in the field of aging.
Role: Research Development Core Scholar early career awardee supported by this funding mechanism from July 2015-June 2016

No Grant Number (Koenig) 06/01/2015-05/31/2016
California HealthCare Foundation
$61,500 grant to convene a conference to discuss California’s response to the aid in dying act, “End of Life Options: Preparing for the Implementation of AB X2-15.” [http://www.eoloptionacttaskforce.org/about.html](http://www.eoloptionacttaskforce.org/about.html)
Role: Co-Investigator

No Grant Number (Dzeng) 06/01/2014 – 05/31/2015
Founders Grant Award, Society of General internal Medicine (SGIM)
The influence of institutional cultures and policies on do-not-resuscitate decision-making in the US and UK
The goal of this award is to support the career and researcher for a promising junior investigator.
Role: Principle Investigator

No Grant Number (Smith) 06/01/2014 – 05/31/2015
Ho-Chiang Foundation Palliative Care Research Fellowship
The goal of this grant was to support my research career in the field of palliative care
Role: 2014-2015 Research Fellow

6T32HP100252401 (Segal) 07/01/94 – 06/30/2021
National Research Service Award (NRSA) Training Program in General Internal Medicine at the Johns Hopkins School of Medicine
The principal goal is to prepare physician-trainees to become independent investigators in general internal medicine research, with a particular focus on patient-oriented research.
Role: 2011-2014 T32 Fellow
NAME: Fayron Epps

eRA COMMONS USER NAME (credential, e.g., agency login): FEPPS@GSU.EDU

POSITION TITLE: Assistant Professor

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

<table>
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<th>DEGREE</th>
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<th>FIELD OF STUDY</th>
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<tr>
<td>Tuskegee University, Tuskegee, AL</td>
<td>BSN</td>
<td>05/2000</td>
<td>Nursing</td>
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<tr>
<td>Loyola University New Orleans, New Orleans, LA</td>
<td>MSN</td>
<td>05/2003</td>
<td>Health Care Systems Management</td>
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<tr>
<td>Southern University and A&amp;M College, Baton Rouge, LA</td>
<td>PhD</td>
<td>05/2012</td>
<td>Nursing</td>
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<td>National Hartford Center of Gerontological Nursing</td>
<td>Postdoctoral</td>
<td>12/2015</td>
<td>Gerontological Nursing</td>
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<td>Excellence, Baton Rouge, LA</td>
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A. Personal Statement

My education, along with my background in clinical and nursing research, has prepared me for my role as a nurse scientist. My primary research objective as a scholar is to promote quality of life for elders living with Alzheimer's disease and related dementias (ADRD) and their family caregivers through self-care and meaningful engagement activities. My career goal is to establish myself as a productive, independent gerontologist and leader with expertise in family caregiving and ADRD within the African American community. I will specialize in working with faith communities to promote quality of life for African American families affected by ADRD through self-care and meaningful engagement activities. As a junior faculty member, my career goals are to: 1) strengthen skills in biobehavioral research methods with a focus on measuring biological properties related to stress response; 2) deepen understanding of the role of religiosity for families affected by ADRD; and 3) continue to strengthen academic productivity and leadership skills. My postdoctoral fellowship with the National Hartford Center of Gerontological Nursing provided me a clinically-based foundation for my program of research in aging. This was a rich experience that allowed me to become immersed in the lives of persons living with ADRD and their family caregivers. Currently, I am an Assistant Professor of Nursing (tenure-track) at Emory University, Nell Hodgson Woodruff School of Nursing. My current role at Emory University provides a spirit of partnership and collaborations within the department, across the campus, and with other higher education and health care entities to support my efforts to becoming an independent scientist. My research agenda is currently being supported by a recent NIH loan repayment award for Clinical Research through NIA. In addition, I am currently a 2018-19 Tideswell Emerging Leaders in Aging Scholar. I was also awarded a diversity supplement through NIA (Dr. Hepburn’s R01 AG054079) that is supporting the initial advancement of my career and research agenda where I am examining the efficacy of a psychoeducation caregiver program (Tele-Savvy) in improving self-care and positive experiences of caregiving among ADRD family caregivers (African American, Hispanic, and White American). The diversity supplement was timely and is giving me the essential practical experience in the conduct of research while working with my mentors, Drs. Hepburn and Kemp. I am also conducting a study funded study by the Alzheimer’s Association to work with African American congregations to develop a dementia-friendly worship service to support families living affected
by ADRD. Based on preliminary results from that study, I have identified the opportunity to further support African American families affected by ADRD through faith-based activities for the home setting.


**B. Positions and Honors**

**Positions and Employment**

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<th>Position</th>
<th>Institution/Location</th>
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<td>2004,2007-10</td>
<td>Clinical Adjunct</td>
<td>School of Nursing, Our Lady of the Lake College, Baton Rouge, LA</td>
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<tr>
<td>2005-06,2010-12</td>
<td>Instructor</td>
<td>School of Nursing, Our Lady of the Lake College</td>
</tr>
<tr>
<td>2012-15</td>
<td>Assistant Professor</td>
<td>School of Nursing, Our Lady of the Lake College</td>
</tr>
<tr>
<td>2015-16</td>
<td>Adjunct Faculty (courtesy)</td>
<td>Louisiana State University Life Course and Aging Center, Baton Rouge, LA</td>
</tr>
<tr>
<td>2015-16</td>
<td>Chief Clinical Officer</td>
<td>Iberia Rehabilitation Hospital, New Iberia, LA</td>
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<tr>
<td>2016-19</td>
<td>Assistant Professor</td>
<td>School of Nursing, Georgia State University, Atlanta, GA</td>
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<tr>
<td>2016-</td>
<td>Affiliate Faculty (courtesy)</td>
<td>Gerontology Institute, Georgia State University, Atlanta, GA</td>
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<tr>
<td>2017-</td>
<td>Affiliate Faculty (courtesy)</td>
<td>Partnership for Urban Health Research, Georgia State University, Atlanta, GA</td>
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<td>2019-</td>
<td>Assistant Professor</td>
<td>University, Atlanta, GA</td>
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**Other Experiences**

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<td>2013</td>
<td>Workgroup Fellow, Michigan Center for Urban American Aging Research</td>
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<td>Summer Training Workshop on African American Aging Research</td>
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<td>Wayne State University, Detroit, MI</td>
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<td>2017</td>
<td>Attendee, Summer Research Institute on Developing Behavioral Interventions</td>
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<td></td>
<td>School of Nursing, John Hopkins University, Baltimore, MD</td>
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<td>2017</td>
<td>Attendee, Butler-Williams Scholars Program</td>
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<td>National Institute on Aging, Bethesda, MD</td>
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<td>2017</td>
<td>Attendee, Designing a Mixed Methods Research project: An Interactive Workshop</td>
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<td>University of Michigan, Ann Arbor, MI</td>
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<td>2017</td>
<td>Scholarship Recipient and Fellow, Retirement Research Foundation, Center for Innovative Care in Aging</td>
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<td>2017</td>
<td>Award Recipient: “E. Louise Grant Award” for excellence in leadership in</td>
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<td>the areas of teaching, scholarship, and service Excellence in Leadership</td>
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<td>Award Recipients, Georgia State University School of Nursing, Atlanta, GA</td>
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<td>2018-19</td>
<td>Tideswell Emerging Leaders in Aging Scholar</td>
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<td>2018-20</td>
<td>Award Recipient: Loan Repayment Program Award, National Institute on Aging (NIA)</td>
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<td>2019</td>
<td>Award Recipient: “Distinguished Faculty Award”, Georgia State University, Gerontology Institute, Atlanta, GA</td>
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<td>2019</td>
<td>Award Recipient: National Hartford Center of Gerontological Nursing</td>
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<td></td>
<td>Excellence Recognition Program for Distinguished Educator in Gerontological Nursing</td>
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Professional Memberships
2012- Member, Gerontological Society of America
2013- Member, National Hartford Center of Gerontological Nursing Excellence
        2017- Member: Board of Directors and Executive Committee
2013- Member, International Dementia Scholars Collaborative
2013- Member, Southern Nursing Research Society
2016- Member, Georgia Gerontology Society
2016- Member, Southern Gerontological Society
        2019- Member: Board of Directors
2017- Member, International Society to Advance Alzheimer’s Research and Treatment

Reviewer
2013- Peer Reviewer, Geriatric Nursing
2014- Peer Reviewer, The Gerontologist
2014- Peer Reviewer, Research in Gerontological Nursing
2015 Reviewer, Alzheimer’s and Public Health Application Review Committee, Alzheimer’s Association
2016-18 NIH Early Career Reviewer Program at the Center for Scientific Review
        2017 NIH Early Career Reviewer Program, National Institute on Aging, National Institutes of Health
2017- NIH Early Career Reviewer Program at the Center for Scientific Review
2017 NIH Early Career Reviewer Program, National Institute on Aging, National Institutes of Health
2017- NINR Nursing and Related Clinical Sciences Special Emphasis Panel Reviewer, American Journal of Alzheimer’s Disease & Other Dementias
2018 NIH Ad Hoc Reviewer, Clinical Management of Patients in Community-based Settings Study Section
2018- Peer Reviewer, International Journal of Qualitative Studies on Health & Well-being
2018- Peer Reviewer, Ethnicity and Health

C. Contributions to Science
1. Importance of cultural values for racially diverse caregivers.
My dissertation research directly focused on family caregivers (N = 69) and the importance of cultural values among African American, Hispanic, and Caucasian caregivers. There was a significant correlation between family obligation and positive appraisal of caregiving. However, there was no relationship between the family caregiver’s religiosity and positive appraisal of caregiving. Demographic variables were also examined and Hispanic primary caregivers had a higher marginal mean in relation to the positive appraisal of caregiving compared to secondary Hispanic caregivers. I served as the principal investigator for this research and have presented these findings at conferences and published two manuscripts.


2. Family involvement in health promotion activities for African Americans with dementia.
I have worked with my research team to explore family involvement in health promotion activities for African American elders with dementia during my post-doctoral studies. For this study, I used culturally informed strategies to enhance recruitment in the African American population in southern Louisiana, which led to the development of a recruitment network. Results of this study found that common health promotion activities for persons with dementia and their caregivers included “taking care of self,” “positive attitude on life,” “social engagement,” “spiritual and religious activity,” and “stimulation and active movement.” This research informs person-centered care strategies for African American families caring for elders with Alzheimer’s disease and related dementias. I have published these recruitment strategies and results, along with a manuscript on the effects of support groups and revised an evidence-based guideline for family involvement in dementia care.

3. Supporting family caregivers and persons living with dementia.

As part of my current diversity supplement, I have had the opportunity to work with several research teams and colleagues from a minority caregiver collaborative to support dementia family caregivers of diverse backgrounds and advance science in dementia caregiving. I co-authored a manuscript describing the randomized-control trial protocol for the parent study of my diversity supplement that is seeking to test efficacy of an internet-delivered psychoeducation program for dementia caregivers. As part of the collaborative, I had the opportunity to explore the Atlanta metropolitan area as a basis for my future research and identified challenges to aging in place for vulnerable families living with dementia. I also worked with colleagues to determine knowledge of dementia and its relationship to employment status and burden or family caregivers. My work with members of the minority caregiver collaborative also led to the discovery that culturally tailored caregiver support program, “the Great Village”, can reduce depressive symptoms and improve caregiver mastery.


Complete List of Published Work in My Bibliography:

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

Ongoing Research Support

R01 AG054079 S1       Hepburn (PI)       8/1/2017-4/30/2020
Testing Tele-Savvy, an On-line Psychoeducation Program for Dementia Family Caregivers
The goal of this project is to determine the effectiveness of a psychoeducation caregiver program beneficial in improving self-care and positive experiences of caregiving among dementia family caregivers (African American, Hispanic, and White).
Role: Diversity Candidate

Alzheimer’s Association (AARGD-18-562293)       3/1/2018-2/28/2021
Dementia-Friendly Faith Villages to Support African American Families
The goal of this project is to design and test the feasibility of a dementia-friendly faith village worship service. I will also examine how dementia-friendly faith village worship services support the well-being of caregivers and care recipients.
Role: PI
A Quest for Dementia-Friendly Faith Villages to Support African American Families and Quantification of Autonomic Activation via Skin-Like Electronics
The goal of this project is to use a skin-like biopatch to measure stress in family caregivers and their family members living with dementia before and after attending dementia-friendly worship services.
Role: Co-PI

R01 AG062310  Kemp(PI)  9/30/2018-5/31/2023
Meaningful Engagement and Quality of Life among Assisted Living Residents with Dementia
The overall goal of this project is to identify best care practices aimed at recognizing, creating, and maintaining optimal meaningful engagement opportunities for persons with dementia that enhance their quality of life.
Role: Co-I

HRSA: Georgia Workforce Enhance Program  Johnson (PIP)  7/31/2019-6/30/2024
Dementia-Friendly Faith Village Community Program
The overall goal of this project is to assist faith-based communities in meeting the needs of families affected by dementia and becoming a viable resource for them.
Role: Program Lead

Completed Research Support

GSU, Byrdine F. Lewis College of Nursing and Health Profession  10/6/2016-6/30/2017
Exploring the Community Context of the Atlanta Metropolitan Area in Relation to Health Promotion Activities for African American Elders with Dementia and Their Family Caregivers
The goal of this project was to provide a description of the community setting for African Americans caring for an older adult with memory loss in the Atlanta metropolitan area.
Role: PI

National Hartford Centers of Gerontological Nursing Excellence  7/1/2013-12/31/2015
Postdoctoral Scholarship. Family Involvement in Health Promotion Activities for African-American Older Adults with Dementia
The goal of this project was to provide a comprehensive description of the situational experience of African American family caregivers’ involvement in health promotion activities across the care trajectory for African American older adults with memory impairment, along with care recipients’ perception of how these activities influence functioning and health.
Role: PI
NAME: Fehnel, Corey Robert

eRA COMMONS USER NAME: CFehnel01

POSITION TITLE: Assistant Scientist, Hebrew SeniorLife Marcus Institute for Aging Research. Neuro-Intensivist, Beth Israel Deaconess Medical Center. Assistant Professor of Neurology, Harvard Medical School.

EDUCATION/TRAINING:

<table>
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<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
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<th>FIELD OF STUDY</th>
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<tr>
<td>Binghamton University, State University of New York</td>
<td>B.S.</td>
<td>05/2000</td>
<td>Psychobiology</td>
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<td>University of Rochester, Rochester, NY</td>
<td>M.D.</td>
<td>05/2006</td>
<td>Medicine</td>
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<td>Beth Israel Deaconess Medical Center, Boston, MA</td>
<td>Internship</td>
<td>06/2007</td>
<td>Internal Medicine</td>
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<td>Fellowship</td>
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<td>Critical Care Neurology</td>
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<td>Brown University, Providence, RI</td>
<td>M.P.H.</td>
<td>05/2014</td>
<td>Health Services Research</td>
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</table>

A. Personal Statement

My over-riding career goal is to become an independent clinical investigator in the intersecting fields of critical care neurology and palliative care. My career to date includes formal training in clinical neurology, critical care and health services research methods, as well as research experience that primarily used secondary data to examine patient-centered outcomes in persons with critical neurological illness. I am currently on staff at Beth Israel Deaconess Medical Center (BIDMC) in Neurology/Critical Care and have a faculty research appointment at the Hebrew SeniorLife Marcus Institute for Aging Research. These positions allow me to draw upon the clinical and research expertise of two accomplished institutions with a long track record developing independent investigators.

My current research aims to better inform the practice of ventilator withdrawal among intensive care patients transitioning to palliative care. Current methods being employed include the analysis of a unique intensive care unit (ICU) dataset to examine rates of poorly controlled symptoms and analgesia/sedation practices, and feasibility testing of a watch-like device to objectively measure patient distress.


B. Positions and Honors

**Faculty and Staff Appointments**

2012-2016 Assistant Professor, Neurology and Neurosurgery, Brown University Alpert Medical School
2012-2016 Attending Staff, Neurocritical Care, Rhode Island Hospital, Providence, RI.
2015-2016 Consulting Staff, Neurology, Women & Infants Hospital, Providence, RI
2015- Visiting Researcher, Neurosurgery, Brigham & Women’s Hospital, Boston, MA
2016- Attending Staff, Neuro-Intensive Care, Beth Israel Deaconess Medical Center, Boston, MA
2016- Assistant Scientist, Institute for Aging Research, Hebrew SeniorLife, Boston, MA
2016- Assistant Professor, Neurology, Harvard Medical School, Boston, MA
Current licensure/certifications
2008- Massachusetts Board of Registration in Medicine
2010- American Board of Psychiatry and Neurology- Neurology
2012- State of Rhode Island Board of Medical Licensure
2013- United Council for Neurologic Subspecialties- Neurocritical Care

Honors
1999 Robert Mancini Scholarship for Community Service, Binghamton University, Binghamton, NY
1999 Phi Beta Kappa, Binghamton University, Binghamton, NY
2000 Council/Foundation Award for Student Excellence, Binghamton University, Binghamton, NY
2004-2006 President, Class of 2006, University of Rochester School of Medicine, Rochester, NY
2005 Sidney Hillman Award for Scholarship in Health Policy, Rochester Academy of Medicine
2005 Humanism in Medicine Honor Society, Arnold P. Gold Foundation
2006 Class of 1976 Prize, University of Rochester School of Medicine, Rochester, NY
2006 Prize for Excellence in Neurology, American Academy of Neurology
2006 Alpha Omega Alpha Honor Medical Society, University of Rochester
2008 Palatucci Advocacy Leadership Forum, American Academy of Neurology
2010 Outstanding Resident Teaching Award, Harvard Medical School, Boston, MA
2016 Norman M. Fain Memorial Stroke Lecture, Keynote Speaker, Providence RI
2016 Dean's Excellence in Teaching Award, Brown University Alpert Medical School, Providence, RI
2018 Department of Medicine Teaching Award, Beth Israel Deaconess Medical Center, Boston, MA

C. Contributions to Science

1. My early work measured outcomes among stroke and neurocritical care patients using single center case-control designs. These studies were inspired by the patients I frequently cared for as a fellow in Critical Care Neurology. Traumatic brain injury and severe stroke patients who undergo decompressive surgery to remove a portion of the skull can face a myriad of complications surrounding the replacement of the skull flap (cranioplasty). In order to evaluate predictors of cranioplasty infection, I performed the primary data analysis of cranioplasty cases after craniectomy at Massachusetts General Hospital.\(^a\) In a separate project in collaboration with Dr. Natalia Rost at Massachusetts General Hospital, I performed a case-control study of cocaine users with ischemic stroke compared to matched controls to detect differences in substance abuse histories.\(^b\)


   b. Fehnel CR, Ayres AM, Rost NS. Socioeconomic status does not predict cocaine use among ischemic stroke patients: A nested case-control study. JRSM Cardiovasc Dis 3:1-6, 2014

2. Upon completion of my clinical fellowship, I gained early exposure to health services research methodology at the Brown University School of Public Health. I gained direct experience working with large Medicare datasets to address outcomes among patients with critical neurological illness. With support from the Surdna Foundation Fellowship, I created models of readmission and death after acute ischemic stroke with large post acute care databases (the Minimum Data Set). The primary aim of the project in collaboration with Vincent Mor, PhD at the Brown University Center for Gerontology and Health Care Research, was to improve performance of regression models predicting post-stroke 30-day readmission.\(^c\) With support from the American Academy of Neurology/American Brain Foundation Clinical Research Training Fellowship, I extended this initial work to address outcome prediction after survival and location of long-term care after surgical decompression (craniectomy) for severe stroke.\(^d\) Working with single center data, I addressed the optimum level of care for acute intracerebral hemorrhage patients,\(^e\) and most recently utilized Medicare data among older subarachnoid hemorrhage patients to measure the post-acute care outcomes of death and readmission.\(^f\)
3. My current work draws from a growing skillset in health services research. Specifically, I remain interested in the complex array of issues that arise in patients transitioning from mechanical ventilation to palliative end of life care. In particular, patients with structural and metabolic coma may be at particularly high risk for poor symptom control during this transition with limited high quality evidence to guide practice. The methodological tools obtained in performing my early career work have built a strong foundation to fully leverage the Aims of my K23 proposal, to R01 or equivalent awards testing: 1) evidence-based protocols for analgesia/sedation during PVW, 2) incorporation of skin conductance as a valid method to objectively measure the outcome of discomfort, and 3) development and testing of interventions to reduce family distress.

Complete List of Published Work in MyBibliography:
https://www.ncbi.nlm.nih.gov/sites/myncbi/1jUeh_hvx5iQf/bibliography/42580996/public/?sort=date&direction=descending (Please Copy/Paste into browser if the hyperlink does not work).

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

Completed Research Support

Clinical Research Training Fellowship, American Academy of Neurology/American Brain Foundation
Fehnel (PI) 07/01/15-06/30/17
Improving Prediction of Readmission after Ischemic Stroke.
The primary goal of this project was to create a linked nationwide dataset of Medicare ischemic stroke patients to assess the outcomes of death and readmission while gaining further practical training in health services research.
Role: PI

Surdna Foundation Fellowship
Fehnel (PI) 07/01/14-06/30/15
Minimum Data Set derived prediction models for readmission after acute ischemic stroke.
The primary goal of this project was to create a large multi-level dataset of Medicare beneficiaries for improving the performance of regression models predicting post-stroke 30-day readmission.
Role: PI
Dr. Tullika Garg is a urologic oncologist and health services researcher in the Department of Urology and Department of Population Health Sciences at Geisinger, a rural community-based health system. She received her undergraduate degree in English at Rice University followed by her M.D. at Baylor College of Medicine as part of the selective Rice/Baylor Medical Scholars Program. Following medical school, she completed her urology residency training at the Medical College of Wisconsin where she developed a passion for caring for bladder cancer patients. This led her to pursue a urologic oncology fellowship at Memorial Sloan-Kettering Cancer Center where she was a NCI T32 Urologic Oncology scholar and earned an MPH at the Harvard T.H. Chan School of Public Health. During fellowship, she was awarded an American Cancer Society Health Disparities Research Post-Doctoral Fellowship grant to study gender disparities in bladder cancer diagnosis.

Dr. Garg came to Geisinger in 2014 as a Clinical Investigator. Inspired by her patients’ stories, Dr. Garg’s research interests focus on designing patient- and caregiver-centered care for older adults with early stage bladder cancer. She was recently awarded a National Institute on Aging GEMSSTAR R03 grant to study ways to reduce treatment burden among older adults with early stage bladder cancer and their caregivers. Dr. Garg is a Site Principal Investigator on an NCI-funded clinical trial testing whether a telehealth education program can enhance self-management and quality of life among rural cancer survivors with urine and fecal ostomies. She is also a Site PI and Executive Core member representing community-based urologists for the PCORI-funded CISTO Study (Comparison of Intravesical Therapy and Surgery as Treatment Options for Bladder Cancer).

In addition to her funded work, Dr. Garg was a National Institute on Aging Butler-Williams Scholar, is a current AGING Initiative Multiple Chronic Conditions Scholar, serves on the AGING Initiative Dissemination Workgroup, and is active in American Urological Association Mid-Atlantic Section committees.
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:** Maile Young Karris

**eRA COMMONS USER NAME** (credential, e.g., agency login): m1young

**POSITION TITLE:** Associate Professor of Medicine

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

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<td>Hillsdale College, Hillsdale, MI</td>
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<td>05/1999</td>
<td>Biology</td>
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<tr>
<td>John A. Burns School of Medicine, Honolulu MI</td>
<td>MD</td>
<td>06/2003</td>
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<td>Oregon Health and Sciences University, Portland OR</td>
<td>Residency</td>
<td>06/2006</td>
<td>Internal Medicine</td>
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<tr>
<td>University of California, San Diego, San Diego, CA</td>
<td>Fellowship</td>
<td>06/2010</td>
<td>Infectious Diseases</td>
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**A. Personal Statement:**

I am an Associate Professor in the Divisions of Infectious Diseases and Geriatrics at the University of California, San Diego (UCSD). The early stages of my training included laboratory based research focused on HIV latency where I developed immunologic (specifically T cell immunology and flow cytometry) and virology laboratory techniques. Desiring to pursue a career in translational research I enrolled in and completed the core components of UCSD’s Clinical Translational Research Institute’s Clinical Research Enhancement through Supplemental Training Program. In recognition of early efforts involving both basic science and clinical research I received a Clinical Translational Research Institute KL2 award. This provided development of expertise in translational and clinical research on HIV associated inflammation, prevention and other clinical outcomes. These efforts eventually led to my role as the Associate Director of the UCSD Center For AIDS Research Clinical Investigations Core. In this role I assist other researchers in clinical trial design, community outreach, study participant recruitment, specimen collection, database access, and project management. I also am the Owen Clinic Research Director, a role that oversees and fosters the performance of research at the HIV Medicine Clinic.

I currently devote 20% effort to caring for persons living with HIV (PLWH) including men, women and transmen and women. My ongoing investment in HIV clinical care at the UCSD HIV Medicine (Owen) clinic provides me with first-hand knowledge of the clinical complexities that are emerging in this patient population. My personal experiences with my HIV positive patients allow me to identify unmet needs and unanswered questions that exist in this population. Of note I realized that a large proportion of my aging population suffered from significant amounts of pain, loneliness, stress and social isolation beyond what I observed in my experiences with general internal medicine and specialty Infectious diseases clinics. In addition, I was struck by the high amount of medical co-morbidity that exists in this population. These observations encouraged me to pursue clinical and translational research around aging with HIV. Since I shifted focus to HIV in older adults, I received an Older American Independence Center – Center for AIDS Research pilot grant to apply syndemics theory to the CNICS population of older HIV positive participants. I also received a Butler-Williams Scholarship from the NIA in 2017. I am a recent Tideswell Emerging Leaders in Aging awardee (Research cohort) and a new Grants for Early Medical/Surgical Specialists Transition to Aging Research (GEMSSTAR) grantee. My GEMSSTAR focus is on the evaluation of acceptance and commitment therapy on older persons living with HIV in chronic pain.


**B. Positions and Honors**

**Positions and Employment**

- 2009-2010 Research Fellow, Division of Infectious Diseases, UCSD, San Diego, CA
- 2010-2011 Associate Physician, Division of Infectious Diseases, UCSD, San Diego, CA
- 2011-2017 Assistant Professor of Medicine, Division of Infectious Diseases, UCSD, San Diego, CA
- 2014-2017 Infectious Diseases Case Conference Faculty Coordinator, UCSD, San Diego, CA
- 2017-Current Associate Professor of Medicine, Division of Infectious Diseases and Geriatrics and Gerontology, UCSD, San Diego, CA
- 2015-Current Center for AIDS Research Clinical Core Associate Director in 2018 (previous leadership trainee), UCSD, San Diego, CA
- 2017-Current Owen Clinic Research Director

**Membership in Professional Societies**

- 2002 Infectious Diseases Society of America
- 2003 HIV Medical Association
- 2011 Women Give, San Diego
- 2012 Health Professions Mentors Program at UCSD
- 2018 American Geriatrics Society

**Academic and Professional Honors**

- 2002 Alpha Omega Alpha member
- 2002 Leah J Dickstein Certificate of Commendation, national award recognizing female leadership in psychiatric sciences
- 2002 Janet M. Glasgow Memorial Award, honors the medical student graduating first in class
- 2003 ACP-ASIM Award for excellence in Internal Medicine to the top student in the practice of medicine
- 2003 Samuro and Fluorence U. Ichinose Award for Outstanding Academic Record, award for first in class
- 2010 Conference on Retroviruses and Opportunistic Infections, Young Investigator Award
- 2012 Conference on Retroviruses and Opportunistic Infections, Young Investigator Award
- 2017 Butler Williams Scholars, National Institute of Aging
- 2018 Tideswell Emerging Leaders in Aging, Research Cohort

**C. Contribution to Science**

1. **Research at the intersection of Aging with HIV**: For the last few years I have focused my efforts on research relevant to the clinical care of older adults with HIV. These include describing the impact of medical conditions in older adults with HIV, such as the recent article detailing our experience with liver transplantation in three older adults with HIV and liver failure. In this article we describe the successful use of integrase inhibitors in treatment experienced persons with HIV to avoid drug interactions after transplant (a). I also contributed to the evaluation of mitochondrial toxicity and T cell senescence in older adults with HIV. We found that while older PLWH had greater immune activation in peripheral CD4 and CD8 T cells, they had lower markers of senescence in mature T cell subsets compared to HIV negative persons. Increased mitochondrial DNA content in mature CD8 T cells suggested this was likely due to immune activation driven turnover of these cells. Thus we posited that use of circulating T cells as a marker of senescence in PLWH may underestimate “biologic age” (b). I also published work towards improving the care of older PLWH. Wanting to simplify the introduction of geriatric concepts into HIV clinical care, I co-authored an invited review encouraging the integration of the 5 Ms of geriatrics into the care of HIV (c). Similarly, I presented an abstract at the American...
Geriatrics Society detailing the negative impact of substance use, polypharmacy, mental illness and severe lipoatrophy on several metrics of successful aging (d, publication to be submitted)


2. HIV Infection and Inflammation: My early research training focused on developing an understanding of the role of inflammation in HIV pathogenesis. The work I performed there allowed me to assist in the development of a model of HIV latency and provide me with the skills and knowledge to pursue clinical and translation HIV research addressing the pathogenesis and role of chronic inflammation on clinical HIV parameters in people living with HIV (PLWH) (a-d). These publications demonstrated that lactobacillales in the gut were associated with better CD4 T cell counts and less microbial translocation in HIV infection suggesting a role for gut flora in immunologic recovery and chronic inflammation in persons living with HIV on antiretroviral therapy (a). Also in vitro work Siglec expression impacted HIV infectability of CD4 T cells protecting them from apoptosis induced cell death (b). Also initiating a protease inhibitor-integrase strand transfer inhibitor regimen compared to efavirenz/tenofovir disoproxil fumarate/emtricitabine resulted in early trends toward decreases in activated CD4 T cells but that these differences did not persist to 48 weeks. This body of work contributed to a better understanding of the factors that contribute to virologic suppression and immunologic recovery in PLWH. I served as the co-investigator in most of these projects.


b. Soto PC, Karris MY, Spina CA, Richman DD, Varki A. Cell intrinsic mechanism involving Siglec-5 associated with divergent outcomes of HIV-1 infection in human and chimpanzee CD4 T cells. Journal of Molecular Medicine 921(2), 261-270


3. Clinical outcomes of HIV infection and Treatment: I have also contributed to advancing the clinical care of HIV infection. Recently I published work evaluating the impact of adding a CCR5 inhibitor to standard ART in early HIV Infection (a). I have also contributed to determine different antiretroviral regimens (ART) in naïve populations (b) and commented on the role of ART in unique populations such as the elite controller (c). Other published work that impact clinical practice include our publication suggesting that use of nucleic acid testing for HIV rather than combined antigen/antibody testing was cost effective if the cost of missed infections was evaluated.


Complete List of Published Works in MyBibliography:

### D. Research Support

#### Ongoing Research Support

- **Gilead Sciences**  
  Karris (PI)  
  01/01/2019-12/31/2021  
  2nd AC+: Leveraging Technology to Create Communities of Care for Older Adults Living with HIV
  Older adults living with HIV are experiencing high rates of medical co-morbidity and other psychosocial factors (loneliness, isolation, HIV stigma) that impact their ability to age in place. This project proposes to pilot the use of a hyperlocal social app to facilitate real time needs in a “Village” in central San Diego County.  
  Role: Principal Investigator

- **R03 AG060183**  
  Karris (PI)  
  08/15/2018-07/31/2020  
  Acceptance and Commitment Therapy to Address the Psychosocial Co-morbidities of chronic pain in Aging People Living with HIV
  The management of older adults living with HIV is complex due to multiple medications used for pain resulting in increased adverse events in older persons AND the higher risk for opioid misuse and accidental overdose in people living with HIV. The goal of this project is to develop and pilot ACT for use in chronic pain in older adults living with HIV.  
  Role: Principal Investigator

- **R01 HL142114**  
  Owens (PI)  
  05/01/2018-04/30/2022  
  Obstructive Sleep Apnea Endotypes and Impact on Phenotypes of People Living with HIV
  Obstructive sleep apnea is a very common disease that may explain some of the symptoms experienced by people living with HIV such as fatigue and heart disease. The goal of this proposal is to understand how the different underlying causes of OSA affect the way people living with HIV experience OSA.  
  Role: Co-Investigator

- **R01 AI128803**  
  Stockman (PI)  
  08/01/2017-08/01/2021  
  Sexual Trauma and HIV Susceptibility Among Women: The Role of Stress and Genital Immunity.
  The goal of this project is to establish a better understanding of the correlation between immunity in the FGT and the dysregulated hypothalamic-pituitary-adrenal (HPA) axis resulting in changes to the innate and adaptive immune system in the female genital tract.  
  Role: Co-Investigator

- **P30 AI035214**  
  Richman (PI)  
  03/01/2015-03/01/2023  
  NIH/NIAID
  Center For AIDS Research Clinical Investigation and Biostatistics
  The CFAR clinical core at UCSD exists to support clinical and translational HIV research  
  Role: Leadership Trainee

#### Completed Research Support

- **R21 AI134295**  
  Gianella (PI)  
  08/01/2017-08/01/2019  
  Effect of Sex Hormones on HIV persistence
  The goal of this project better understand sex based differences in HIV latency and HIV specific immune responses by evaluating Transgender women starting hormonal therapy.  
  Role: Co-Investigator

- **R01 MH110057**  
  Browne and Benson (Co-PI)  
  09/20/2015-07/31/2018  
  NIH/NIAID
A Novel Wireless Ingestible Sensor System for Measurement of Medication Adherence in HIV Treatment and Prevention
The goal of this project is to develop digitized antiretrovirals for use with a digital health feedback system for real-time adherence monitoring in HIV persons starting antiretroviral therapy and persons at risk for HIV starting pre-exposure prophylaxis
Role: Co-Investigator

R24 AG044325        High (PI)        06/1/2016-05/31/2017
NIA                     Developing Research at the Interface of HIV and Aging
Pilot grant: Syndemics of HIV and Aging
Evaluate the impact of syndemics of HIV on Aging in the CNICS cohort.
Role: Pilot Grant recipient

R01 HD083042        Innes (PI) 03/25/2015-02/29/2017
NIH/NIAID          Screening for Atherosclerotic Vascular Disease in HIV-Infected Children
The goal of this project is to evaluate excess atherosclerosis risk in HIV infected children on ART and to create a screening algorithm to determine affected asymptomatic individuals using simple input variables.
Role: Co-Investigator

R21 MH100974         Little (PI) 10/01/2014-10/01/2015
NIH/NIMH           Efficacy of ART to Interrupt HIV Transmission Networks
The goal of this project is to use molecular epidemiology to estimate the risk of onward HIV transmission in newly diagnosed HIV Infected persons.
Role: Co-Investigator

R24 AI106039        Little (PI) 09/01/2013 - 08/31/2017
NIH/NIAID          Primary Infection Resource Consortium (PIRC)
To support investigator-initiated biomedical research projects by providing epidemiological, behavioral, and clinical data, as well as biological specimens related to individuals in the earliest stages of HIV infection and transmission, their sexual partners, and more limited numbers of chronically HIV infected and repeatedly exposed, HIV uninfected “controls”.
Role: Investigator
NAME: Ashwin Kotwal

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

POSITION TITLE: Clinical Fellow, Geriatrics and Palliative 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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<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
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<th>FIELD OF STUDY</th>
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<tr>
<td>Northwestern University</td>
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<td>06/2009</td>
<td>Anthropology</td>
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<tr>
<td>University of Chicago</td>
<td>MS</td>
<td>08/2013</td>
<td>Biostatistics</td>
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<tr>
<td>University of Chicago Pritzker School of Medicine</td>
<td>MD</td>
<td>06/2014</td>
<td>Medicine</td>
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<tr>
<td>Brigham and Women’s Hospital, Harvard University</td>
<td>Resident</td>
<td>06/2017</td>
<td>Internal Medicine</td>
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<tr>
<td>University of California, San Francisco</td>
<td>Fellow</td>
<td>06/2019</td>
<td>Geriatrics &amp; Palliative Medicine</td>
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</table>

A. Personal Statement

I am a physician specializing in Geriatrics and Palliative Medicine at the University of California-San Francisco, Division of Geriatrics, with a strong research background in social health, medical decision making, and cognitive assessments among older adults. I have been fortunate to work with mentors Dr. William Dale and Dr. Alex Smith leading to 8 first-author publications, 7 co-authored manuscripts, 3 invited oral presentations, and 15 poster presentations at national conferences. In addition, I am a 2019 recipient of the NIA GEMSSTAR R03 award and the National Palliative Care Research Center Kornfeld Scholar’s Award to examine loneliness and social isolation among older adults in the last years of life.

My research interests in aging began during medical school at the University of Chicago, where through a Medical Student Training in Aging Research (MSTAR) grant, I researched prostate cancer screening in a nationally-representative sample of community-dwelling older men using data from the National Social Life Health and Aging Project (NSHAP). The published research was highly impactful in providing evidence of older men being exposed to short-term risks of screening despite the low likelihood of long-term benefits. This experience spurred me to join the National Opinion Research Center (NORC) as an analyst for the NSHAP project, where I developed an ability to manage and analyze secondary datasets. I solidified these skills by completing a Masters degree in biostatistics and by collaborating with an interdisciplinary geriatrics and palliative care research community at the University of Chicago with the support from a Clinical and Translational Science Award (CTSA) TL-1 training grant.

With this developing foundation in statistical methods, I began to focus on the intersection of social health and aging. I conducted projects on the role of social relationships in cancer screening among older adults, end-of-life experiences among married couples, and the impact of mild cognitive impairment on older adults’ social lives. After internal medicine residency at Brigham and Women’s Hospital, I went on to a Geriatrics and Palliative Care Fellowship at UCSF. During training, I observed that for older adults in the last months of life, loneliness and social isolation are fundamental sources of suffering which can lead to downstream health consequences like poor access to hospice, inadequate management of pain, and caregiver burden. These clinical observations now inform my research goals. As a recent recipient of the NIA GEMSSTAR award and the NPCRC Kornfield Scholar Award, I plan to examine the epidemiology and health consequences of
loneliness and social isolation in the last years of life among older adults. This research is the first step towards designing social interventions which positively impact social well-being through a focus on enhancing social connections.

Taken together, I have developed a foundation in research and clinical training in: 1) the intersection of social health and aging and 2) geriatrics and palliative care. My long-term career goal is to be an independent clinician-investigator, mentor, and leader in improving the quality of life and social health of older adults at the end of life.

B. Positions and Honors

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<td>Intern/Resident</td>
<td>Internal Medicine</td>
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<td>University of California, San Francisco, CA</td>
<td>Fellow</td>
<td>Geriatrics &amp; Palliative Care</td>
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<td>2019-present</td>
<td>University of California, San Francisco, CA</td>
<td>Assistant Professor</td>
<td>Division of Geriatrics</td>
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Certifications and Licensure

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Teaching and Institutional Experience

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<td>Teaching Assistant, Health Care Disparities in America, University of Chicago</td>
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<td>2013, 2014</td>
<td>Head Teaching Assistant, Epidemiology and Research Design, University of Chicago</td>
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<td>2015-2017</td>
<td>Oncology Education Committee Member, Brigham and Women's Hospital</td>
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<td>2016-2017</td>
<td>Morbidity &amp; Mortality Committee Leader, Brigham and Women's Hospital</td>
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Other Experience and Professional memberships

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<td>2006</td>
<td>Fundraising Chair, Habitat for Humanity Northwestern University Chapter</td>
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<tr>
<td>2007</td>
<td>Laboratory Assistant, Department of Molecular Cardiology, Cleveland Clinic</td>
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<td>2007</td>
<td>Chair, Camp Kesem at Northwestern University for children whose parents have cancer</td>
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<tr>
<td>2008</td>
<td>Summer internship, Max Planck Institute for Demographic Research, Rostock, Germany</td>
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<td>2012-2014</td>
<td>Data Analyst, National Opinion Research Center (NORC) at the University of Chicago</td>
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Honors

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<td>Northwestern Undergraduate Research Grant for internship at Max Planck Institute for Demographic Research in Germany</td>
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<td>2016</td>
<td>Humanistic Resident Nomination, Brigham and Women’s Hospital Internal Medicine Residency</td>
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<tr>
<td>2018</td>
<td>National Social life Health and Aging Project Research Fellowship Program</td>
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<tr>
<td>2018-2019</td>
<td>UCSF Fellows Leadership Cohort</td>
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</table>
C. Contributions to Science

1. **The Intersection of Social Health and Aging:** I have worked to broadly expand our understanding of how social health contributes to the health and health care use of older adults and provide recommendations for incorporating this knowledge into clinical practice. In a paper examining social relationships at early stages of cognitive decline, we found that changes in social function might trigger clinicians to screen for early cognitive impairment in older adults. In unique national samples of married couples, my research has shown that health behaviors ranging from preventive health decisions, like colonoscopy uptake, to end-of-life experiences, like hospice and completion of advance care planning, are strongly associated among married couples. This research suggests medical interventions to improve uptake of appropriate health services might target households and leverage dyadic decision making. We have an ongoing project on the association of pain and loneliness in older adults. Future work will investigate the social health of older adults in the last years of life in order to better describe the epidemiology of social risk factors and design interventions to identify and address barriers to high quality end-of-life health care.
   
   
   

2. **Cognitive Assessments in General Health Surveys:** National surveys are limited in their inclusion of clinically-relevant cognitive assessments capable of screening for mild cognitive impairment. Consequently, there is little data on the epidemiology of cognitive impairment, particularly at early stages, for older community-dwelling adults. To address this need, I collaborated with an interdisciplinary team, including psychologists, sociologists, physicians, and statisticians to modify a well-known, widely used clinical screening tool, the Montreal Cognitive Assessment (MoCA), for use in the National Social life Health and Aging Project (NSHAP). We created computer-based survey protocols, standardized scoring rules, and assessed the psychometric performance of the measure. These efforts culminated in development of the Survey-Adapted MoCA (MoCA-SA) as described in multiple publications showing the protocol for administration, psychometric validity, and normative data in community-dwelling older adults. This measure has already been integrated into subsequent waves of the NSHAP survey protocol, is a candidate for inclusion in the National Health and Nutrition Examination Survey (NHANES), and has been utilized in a number of publications using the NSHAP data.
   
   
   

3. **Cancer Screening and Prognosis:** Cancer screening remains a standard aspect of preventive medical care. However, it is increasingly recognized that the priority of engaging in certain preventive medical interventions should change as individuals get older or life expectancy becomes limited. Since 2010, I have worked with national leaders in the field including William Dale, MD, Mara Schonberg, MD, and Louise Walter, MD, to illustrate the extent of over-screening for breast and prostate cancer despite limited life expectancy using data from the National Social life Health and Aging Project. In addition, we have explored patient factors associated with overscreening including depressive or anxious symptoms, high enthusiasm...
for cancer screening, and a lack of recalled discussions with physicians about stopping. This work contributes to a model of understanding patient- and physician-driven factors that may impact cancer screening behaviors and we have provided recommendations to the medical community on strategies to reduce overscreening. A project recently accepted for publication explores cancer screening intentions among older adults with limited life expectancy. Future studies will explore psychosocial influences on overscreening for older adults with limited life expectancy.


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

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

**Ongoing Research Support**

<table>
<thead>
<tr>
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<tr>
<td>National Palliative Care Research Center</td>
<td></td>
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<tr>
<td>Social Health among Older Adults in the Last Years of Life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role: Principal Investigator</td>
<td></td>
<td></td>
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<tr>
<td>The objective of this project is to determine the prevalence of loneliness and social isolation among older adults in the last two years of life, and examine the association of loneliness and social isolation with health service use at the end of life, including hospice use, ICU care, and hospitalizations</td>
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<td>Loneliness and Social Isolation among Older Adults in the Last Years of Life</td>
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<td></td>
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<tr>
<td>Role: Principal Investigator</td>
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<tr>
<td>The objective of this project is to determine the prevalence of loneliness and social isolation among older adults in the last two years of life, and examine the association of loneliness and social isolation with health service use at the end of life, including hospice use, ICU care, and hospitalizations</td>
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<th>P30 AG044281</th>
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<td></td>
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<tr>
<td>UCSF Older Americans Independence Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The goal of this project is to improve the health care and quality of life of vulnerable older adults with or at risk for disability.</td>
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<td>Role: Pepper Pilot 2020 Award</td>
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**Competed Research Support**

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<th>UL1TR000430</th>
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<th>7/1/2012-6/30/2013</th>
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<tr>
<td>The University of Chicago Medicine’s CTSA-ITM was awarded this grant from the National Center for Advancing Translational Sciences of the National Institutes of Health to support young investigators with translational research efforts early in their career.</td>
<td></td>
<td></td>
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<tr>
<td>Role: TL-1 Pre-doctoral training grant recipient</td>
<td></td>
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</table>
NAME: Stefanie Krick, M.D., Ph.D.
POSITION TITLE: Assistant Professor 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>
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<td>Justus-Liebig University Giessen, Giessen, Germany</td>
<td>MD</td>
<td>2003</td>
<td>Medicine</td>
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<tr>
<td>Justus-Liebig University Giessen, Giessen, Germany</td>
<td>PhD</td>
<td>2004</td>
<td>Molecular Biology/Medicine</td>
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<tr>
<td>University Hospital Giessen, Giessen, Germany</td>
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<td>2003-2005</td>
<td>Residency Internal Medicine</td>
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<td>Mount Sinai School of Medicine, New York, NY</td>
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<td>2005-2008</td>
<td>Postdoctoral Fellowship</td>
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<tr>
<td>University of Miami Miller School of Medicine, Miami, FL</td>
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<td>2009-2012</td>
<td>Residency Internal Medicine</td>
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<td>University of Miami Miller School of Medicine, Miami, FL</td>
<td></td>
<td>2012-2015</td>
<td>Fellowship Pulmonary/Critical Care</td>
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</table>

A. Personal Statement
I have gathered knowledge both in basic science and clinical practice to become a well-rounded physician-scientist in the field of lung diseases. During my postdoctoral basic science and more recently clinical fellowship, I have learned to execute various molecular biology techniques with my interests being focused on cell signaling and chronic kidney and lung disease. I found it quite interesting that an aging-related pathway one of my collaborators is dedicating his research career to, namely fibroblast growth factor (FGF) 23, seems to not only be relevant for cardiovascular and chronic kidney disease but also involved in the pathophysiology of aging associated, inflammatory lung diseases. Working with a multidisciplinary team over the last years and with the recent support as a GEMSSTAR recipient, I could show that FGF23 signaling contributes to “inflammaging” in chronic lung diseases (CLD), including chronic obstructive pulmonary disease (COPD) and pulmonary fibrosis. Given my expertise and the expertise I have available around me, both with respect to FGFs, chronic kidney disease (CKD) and CLD, I assembled a diverse mentoring team to help me pursue a translational career path in aging biology and lung disease including its comorbidities. My mentoring team consists of experts in aging and CLD (Dr. Victor Thannickal), FGF23 signaling and CKD (Drs. Christian Faul and Orlando Gutierrez) and clinical research in CLD (Drs. Mark Dransfield and Surya Bhatt) as well as support from the UAB O’Brien Kidney Research Center, the UAB Comprehensive Center of Healthy Aging, the affiliated Nathan Shock Center and the UAB Lung Health Center. In addition to establishing myself as an emerging leader in aging research, I would like to pair this with my clinical interest in improving care for the elderly with CLD and associated comorbidities and I am currently establishing a Lung Aging Clinic in collaboration with the UAB Division of Gerontology, Geriatrics and Palliative Care under the guidance of Dr. Cynthia Brown. I hope to be able to learn from these patients and apply my research using this multidisciplinary, translational and innovative approach with the ultimate goal to develop novel anti-aging therapies to improve healthcare outcomes in the elderly.
B. Positions and Honors

Positions and Employment
1999–2000  Ambassadorial Scholarship of Rotary International for one research year at the University of California, San Diego, Department of Pulmonary Medicine and Critical Care
2000–2002  German Research Foundation (DFG) Graduate Program 534 “Vascular Medicine”
2002–2005  Graduate Program “Molecular Biology and Medicine of the Lung”, Justus-Liebig University of Giessen, Germany
2003–2005  Physician Scientist, University of Giessen Lung Center, Justus Liebig University, Giessen, Germany
2005–2008  Post-Doctoral Research Associate, Division of Nephrology, Mount Sinai Medical Center, New York, NY
2009  Postdoctoral Research Associate, Division of Pulmonary Medicine and Critical Care Medicine, University of Miami Miller School of Medicine, Miami, FL
2009-2012  Resident, Department of Medicine, Miller School of Medicine, University of Miami
2012-2015  Fellow Pulmonary and Critical Care Medicine, Miller School of Medicine, University of Miami School of Medicine, Miami, FL
2014-2015  Chief Fellow Pulmonary and Critical Care Medicine, Miller School of Medicine, University of Miami School of Medicine, Miami, FL
2015-2016  Assistant Professor of Medicine, Division of Pulmonary, Allergy, Sleep and Critical Care Medicine, Miller School of Medicine, University of Miami School of Medicine, Miami, FL
2017-  Assistant Professor of Medicine, Division of Pulmonary, Allergy and Critical Care Medicine, University of Alabama at Birmingham, Birmingham, AL

Honors
1999-2000  Ambassadorial Scholar, Rotary International
2004  “Summa cum laude” doctoral thesis, Justus-Liebig University of Giessen, Germany
2005  Best Doctoral Thesis in the State of Hessia, Germany
2005-2007  Feodor Lynen Fellow
2007-2008  National Kidney Foundation Fellow
2010  “Most Wanted Intern on the Team”, University of Miami
2019  Apprentice, ATS RCMB Program Committee

Other Experience and Professional Memberships
2014-present  Professional Organizations: American Thoracic Society (ATS)
2017-present  UAB Pulmonary and Critical Care Recruitment Committee
2017-present  UAB Pulmonary and Critical Care Program Evaluation Committee
2017-present  UAB Pulmonary and Critical Care Program 1st year Fellow Advisor
2018-present  T32 Program Faculty T32 HL007457 (NIH/NHLBI)
2018-present  T32 Program Faculty T32 GM109780 (NIH)
2018-2019  Leadership DOM Course, UAB Department of Medicine
2019  UAB Clinical Investigator Training Program (CITP)
2019-present  UAB Graduate Student Committee Chair (Grace Salzer)
2018-present  UAB Graduate Student Committee Member (Christopher Yanucil)
2019-present  UAB Graduate Student Committee Member (Jacelyn Peabody Lever)
2019-present  UAB Graduate Student Committee Member (Isaac Campos)
2019-present  UAB Graduate Student Committee Member (Kylie Heitman)
2019-present  ATS RCMB Planning Committee

C. Contribution to Science
a) My initial interest focused on the vascular remodeling process in pulmonary hypertension. We postulated that pulmonary artery fibroblasts in the adventitia play a crucial role. At this time, it was thought that mainly the pulmonary artery smooth muscle cells are the important mediators of “de novo muscularization” and
thickening of the pulmonary arteries. In our work, we could demonstrate that fibroblasts play an essential role by hypoxia-driven proliferation. We also elucidated the signalling pathway which involves a local angiotensin system and activation of hypoxia-inducible factor 1 alpha. Together with my mentors at that time (Drs. Friedrich Grimminger and Werner Seeger), we developed the idea which contributed to promote the role of adventitial fibroblasts as key mediators in the pathogenesis of vascular remodeling in pulmonary hypertension.

References:

b) During my time as a postdoctoral fellow, my goal was to identify markers for chronic kidney disease progression. We used microarray data from three different mouse models for chronic kidney disease and identified several dysregulated genes including Mpv17l, at that time known as a peroxisomal protein, which was significantly downregulated in all three models. I found out that this protein is actually localized in the mitochondrial membrane and via interaction with Omi/HtrA2, a mitochondrial protein, it has an antiapoptotic effect in renal tubular cells. Our findings contribute to the understanding of modulators in chronic kidney disease and characterize the Mpv17 protein family as mitochondrial antiapoptotic proteins. Furthermore, my study led to reinvestigate its family member Mpv17 which proved to protect podocytes from mitochondrial dysfunction in kidney disease.

References:

c) Since I joined the Airway Biology Team at the University of Miami as a senior fellow, I participated in working with a new model of chloride secretion at the apical membrane in airway epithelial cells, where potassium exit through BK channels create a driving force for chloride exit through calcium activated chloride channels and possibly CFTR. These pathways are highly relevant in CF airway disease and possibly also in smoking associated chronic bronchitis. I was involved in the development of interventions with FDA approved medications using this model in order to find new therapeutic regimens for patients with cystic fibrosis. I also started working with primary human air liquid interface (ALI) cultures.

References:
*Both authors contributed equally


e) In the past 4 years, I have extended my research interest in analyzing fibroblast growth factor (FGF) signaling and its role in pulmonary inflammation. I started collaborating with Dr. Christian Faul at the University of Miami and continued working with him at the University of Alabama at Birmingham. My laboratory was the first to show that patients with chronic airway inflammation and pulmonary fibrosis do have elevated plasma FGF23 levels and FGF23 can directly affect bronchial epithelial cells inducing inflammation, which is associated with downregulation of klotho.

References:

The presented peer-reviewed publications were selected from a total of 49 since 1999. 

h-index: 26; number of citations: 3,175

Complete List of Published Work in My Bibliography

D. Research Support (Active)

FAMRI YFAC152003
Krick (PI) 07/01/2016-06/30/2020
Flight Attendant Medical Research Institute (FAMRI)
Role of FGF Receptor Signaling in Inflammation in Chronic Bronchitis Role: PI (Mentor: Dr. Steven Rowe)

GEMSSTAR R03AG059994
Krick (PI) 08/01/2018-07/31/2020
National Institute of Health/National Institute of Aging (NIH/NIA)
Fibroblast Growth Factor 23/Klotho Crosstalk and Cigarette Smoke Induced Airway Epithelial Senescence in COPD
Role: PI (Mentor: Dr. Victor Thannickal and Mark Dransfield)

UAB CFF RDP
Rowe (PI) 05/01/2019-04/30/2021
Cystic Fibrosis Foundation
Accelerated Aging Pathways in CF-related Mucociliary Dysfunction
**Role:** PI (Pilot Study)

**T32 HL007457**
Garth (PI) 07/01/2018 - 06/30/2020
Mechanisms of Hypertension and Cardiovascular Diseases (NIH/NHLBI) The Role of FGF23 Signaling in Cardiovascular Remodeling.
**Role:** Mentor for the Postdoctoral Fellow Dr. Garth

**Completed Research Support**
CFF KRICT16I0 (Krick, S) 2016-2018
Cystic Fibrosis Foundation (CFF)
Role of FGF Receptor Signaling in Cystic Fibrosis
**Role:** PI

Basic Research Fellowship (Krick, S) National Kidney Foundation (NKF) 2007-2008
Characterization of Mpv171 as a biomarker of chronic kidney disease and its role in physiology and Pathophysiology.
**Role:** PI

Feodor Lynen Fellowship (Krick, S) Humbold Foundation 2005-2007
Analysis of biomarkers in mouse models of chronic kidney disease.
**Role:** PI

Ambassadorial Scholarship of Rotary International (Krick, S) 1999-2000
Analysis of the role of potassium channels in apoptosis of pulmonary artery smooth muscle cells in the pathophysiology of pulmonary hypertension.
**Role:** PI
NAME: Miner, Brienne B

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

POSITION TITLE: Assistant Professor in Geriatrics

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>
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<tr>
<td>McGill University, Montreal, QC</td>
<td>B.S.</td>
<td>05/2003</td>
<td>Biology</td>
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<tr>
<td>SUNY Downstate School of Medicine</td>
<td>M.D.</td>
<td>05/2009</td>
<td>Medicine</td>
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<tr>
<td>Yale University, New Haven, CT</td>
<td>Postdoctoral Residency</td>
<td>06/2012</td>
<td>Internal Medicine</td>
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<tr>
<td>Yale University, New Haven, CT</td>
<td>Postdoctoral Residency</td>
<td>06/2013</td>
<td>Chief Resident</td>
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<tr>
<td>Yale University, New Haven, CT</td>
<td>Postdoctoral Fellowship</td>
<td>06/2014</td>
<td>Geriatric Medicine</td>
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<td>06/2018</td>
<td>Clinical Epidemiology and Aging-Related Research</td>
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<td>Yale University, New Haven, CT</td>
<td>M.H.S.</td>
<td>06/2016</td>
<td>Masters of Health Science</td>
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<tr>
<td>Yale University, New Haven, CT</td>
<td>Postdoctoral Fellowship</td>
<td>06/2017</td>
<td>Sleep Medicine</td>
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A. Personal Statement

I am a physician with advanced training in geriatrics and sleep medicine. My career goal is to become an independent clinician-investigator who will work to improve symptom management in older persons. My prior research has evaluated dyspnea as a multifactorial geriatric health condition, establishing multiple cardiorespiratory and non-cardiorespiratory factors as being strongly associated with dyspnea in older persons.¹ From dyspnea, I turned my attention to sleep disturbances in older persons, which are prevalent, distressing to patients, and difficult to treat. I have evaluated the epidemiology of insomnia symptoms in persons aged 75 years and older, and identified several factors (depression and restless legs syndrome) associated with insomnia severity.² I have also evaluated the epidemiology of hypersomnia symptoms in older persons, and found strong associations with depressive symptoms, low physical activity, and sleep disordered
breathing. These results inform the evaluation and management of dyspnea, insomnia, and hypersomnia symptoms in older persons.

In ongoing work, I am evaluating insomnia as a multifactorial geriatric health condition using large datasets that are unique in their collection of geriatric conditions, patient-reported symptoms and objective measures of sleep. This work will lead to development of aging-specific etiologic and treatment paradigms for insomnia. In future work, I propose to use home-based objective sleep-wake measures to improve the assessment of insomnia and hypersomnia symptoms in older persons. Ultimately, I hope to alleviate sleep-wake symptoms, which afflict a large portion of the geriatric population and are a detriment to the caregivers and health systems invested in their care, while also building a successful research career at the intersection of sleep and aging.


B. Positions and Honors

Positions and Employment

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<td>7/2012 – 6/2013</td>
<td>Chief Resident in Internal Medicine and Clinical Instructor, Yale University School of Medicine, New Haven, CT</td>
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<tr>
<td>7/2013 – 6/2016</td>
<td>Postdoctoral Fellow in Geriatric Medicine, Yale University School of Medicine, New Haven, CT</td>
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<tr>
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<td>Postdoctoral Fellow in Sleep Medicine, Yale University School of Medicine, New Haven, CT</td>
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<td>7/2017 – 6/2019</td>
<td>Instructor in Internal Medicine (Geriatrics), Yale University School of Medicine, New Haven, CT</td>
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<td>6/2019 – Present</td>
<td>Assistant Professor in Internal Medicine (Geriatrics), Yale University School of Medicine, New Haven, CT</td>
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Other Experience and Professional Memberships

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<td>Member, American Geriatrics Society</td>
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<td>Member, American Academy of Sleep Medicine</td>
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<td>2016 – Present</td>
<td>Member, Sleep Research Society</td>
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<td>2017 – Present</td>
<td>Member, Sleep Research Network</td>
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Honors

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<td>1999</td>
<td>James McGill Entrance Scholarship</td>
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<td>1999-2003</td>
<td>Clark Foundation Merit Scholarship</td>
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<td>2005-2009</td>
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<tr>
<td>2006</td>
<td>Awarded American Association of Medical Colleges Caring for Community Grant</td>
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<tr>
<td>2008</td>
<td>Inductee, Arnold P. Gold Humanism Honor Society</td>
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<td>2009</td>
<td>Inductee, Alpha Omega Alpha</td>
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<tr>
<td>2010</td>
<td>Johnson &amp; Johnson Global Health Scholar, Kampala, Uganda</td>
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<tr>
<td>2015</td>
<td>Butler-Williams Scholar, National Institutes of Health/National Institute on Aging Summer Research Training Program</td>
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<td>2017</td>
<td>Sleep Research Society Trainee Merit Based Award</td>
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</table>
C. Contribution to Science

1. **Insomnia and Hypersomnia Symptoms in Older Persons:** As a physician with subspecialty training in geriatrics and sleep medicine, I am uniquely positioned to evaluate sleep-wake symptoms in older persons. My work has defined the epidemiology and trajectory of insomnia symptoms in people aged 75 and above, as well as the clinical characteristics predictive of worsening insomnia severity over time in this age group. I have also examined patient-reported hypersomnia in persons of advanced age, establishing multiple factors in different domains that are strongly associated with these symptoms. Ultimately, this work serves as the foundation for examining and treating insomnia and hypersomnia symptoms using a multifactorial geriatric health condition model.


   b. **Miner B**, Gill TM, Yaggi HK, Redeker NS, Van Ness PH, Han L, Vaz Fragoso CA. The Epidemiology of Patient-Reported Hypersomnia in Persons with Advanced Age. Accepted.


2. **Dyspnea as a Multifactorial Geriatric Health Condition:** As a postdoctoral research fellow in geriatric medicine, my work focused on dyspnea. Dyspnea is a prevalent, patient-reported outcome associated with many adverse events, with relevance for older persons and the clinicians who care for them. We applied the concept of a multifactorial health condition to this symptom and demonstrated that dyspnea in older persons was strongly associated with impairments in multiple domains, both cardiorespiratory and non-cardiorespiratory (including musculoskeletal and neuropsychological impairments, obesity and medication effects). Because many of these impairments are modifiable, this work supports a comprehensive strategy to ameliorate or prevent dyspnea in older persons.


3. **Smoking Cessation and Cardiovascular Disease:** My early work investigated the effect of smoking cessation on cardiovascular disease. This work involved writing a review of the literature on the deleterious effects of smoking on the cardiovascular system. I was also involved in the design of a clinical trial that administered non-nicotine-containing smoking cessation aids to subjects in the immediate post-myocardial infarction period.
D. Research Support

Ongoing Research Support
Yale Claude D. Pepper Older Americans Independence Center Career Development Award
P30AG021342 (PI: Gill)
Project: Insomnia as a Multifactorial Geriatric Health Condition
Role on project: Lead Investigator
Total costs for project period: $90,000.00
Project period: 07/01/2019 – 06/30/2021

American Academy of Sleep Medicine Foundation Physician Scientist Training Award
Project: Insomnia with Short Sleep Duration in Aging Populations
Role on project: Lead Investigator
Total costs for project period: $100,000.00
Project period: 05/01/2019 – 04/30/2020

NIH/NIA Extramural Clinical Research Loan Repayment Program Award
Project: Insomnia Symptoms as a Multifactorial Geriatric Health Condition
Role on project: Lead Investigator
Total costs for project period: $50,000.00
Project period: 07/01/2018 – 06/30/2020

Previous Research Support
Yale Claude D. Pepper Older Americans Independence Center
P30AG021342 (PI: Gill)
Project: Insomnia Symptoms as a Multifactorial Geriatric Health Condition
Role: Lead Investigator
Total costs for project period: $10,000.00
Project period: 07/01/17 – 06/30/18

Research Training in Geriatric Clinical Epidemiology
T32 AG019134 (PI: Gill)
Projects: Dyspnea as a Multifactorial Geriatric Health Condition, Epidemiology and Longitudinal Trajectory of Insomnia Symptoms in Older Persons, Insomnia as a Multifactorial Geriatric Health Condition
Role: Postdoctoral fellow and Clinical Instructor
Project period: 07/01/17 – 06/30/18 and 07/01/14 – 06/30/16

The John A. Hartford Foundation Yale Center of Excellence (PI: Tinetti)
Project: Dyspnea as a Multifactorial Geriatric Health Condition
Role: Scholar, Hartford Center of Excellence
Project period: 07/01/14 – 06/30/16

NAME: Mariana Murea, M.D., F.A.S.N.

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

POSITION TITLE: Associate Professor of Internal Medicine/Nephrology

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>Carol Davila University of Medicine and Pharmacy, Bucharest, Romania</td>
<td>MD</td>
<td>10/1998</td>
<td>Medicine &amp; Pharmacy</td>
</tr>
<tr>
<td>Danbury Hospital, Yale University School of Medicine, Danbury, CT, USA</td>
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<td>06/2004</td>
<td>Internal Medicine</td>
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<tr>
<td>Montefiore Medical Center; Albert Einstein College of Medicine, NY, USA</td>
<td></td>
<td>06/2009</td>
<td>Nephrology</td>
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<td>The Human Genome Research Training, Albert Einstein College of Medicine-Yeshiva University, NY, USA</td>
<td></td>
<td>06/2009</td>
<td>Medical &amp; Population Genetics</td>
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</table>

A. Personal Statement

My main goal as a physician scientist is to study and compare means of medical care for older patients with advanced kidney disease, and develop pathways of care that focus on patient preference and quality of life. I operate in a prominent academic medical center with distinguished reputation in nephrology and geriatric research. In clinical practice, I encounter a large number of older patients who made me aware that, although this population has distinctive medical needs, clinical practice is not aligned with goal-concordant care; and patient’s voices are infrequently sought by physicians and policy makers alike. My research was among the earliest to show age-dependent clinical outcomes based on the type of vascular access used for hemodialysis. The research and publications I thus far accomplished in the field of geriatric nephrology lead to invited speaker presentation at national and international conferences and invited podcast analyst featuring vascular access options for older patients on hemodialysis. In collaboration with faculty members from the Section on Gerontology and Geriatric Medicine at Wake Forest, I devised an iPad-based symptom assessment to screen older adults with end-stage kidney disease for depression, anxiety, and pain, in order to identify those who would benefit from implementing palliative care co-management model; this project was funded by the American Society of Nephrology. I have a vested interest in researching what would represent the optimal vascular access approach in older patients needing hemodialysis, which will take into account aspects beyond patient survival. I was successfully awarded a GEMSSTAR (Grants for Early Medical/Surgical Specialists' Transition to Aging Research) R03 grant from the NIH/NIA which allowed me to enact the very first pilot trial that evaluates feasibility of randomizing older adults with advanced kidney disease to the two types of permanent vascular access for hemodialysis. In 2019 I received the Butler Williams Scholar award and the Paul-Beeson Meeting Traveling award. I want to become a leader in the field of geriatric nephrology. To this goal, I am preparing my application for 2020 Paul B. Beeson Emerging Leaders Career Development Award in Aging.


**B. Positions and Honors**

**Positions and Employment**

- **2004-2007** Clinical Instructor, Brown University School of Medicine, Inpatient Internal Medicine
  - Rhode Island Hospital, Rhode Island, USA
- **2009-2010** Clinical Instructor, Wake Forest School of Medicine, Internal Medicine/Nephrology
  - Winston-Salem, North Carolina, USA
- **2010-2015** Assistant Professor, Wake Forest School of Medicine, Internal Medicine/Nephrology
  - Winston-Salem, North Carolina, USA
- **2014-Present** Journal of Clinical Nephrology and Research
  - Editorial Board Member
- **2014-Present** The Review of Diabetic Studies
  - RDS Board of Reviewers
- **2015-Present** Associate Professor, Wake Forest School of Medicine, Internal Medicine/Nephrology
  - Winston-Salem, North Carolina, USA
- **2017-Present** World Journal of Vascular Surgery
  - Editorial Board Member
- **2017-Present** American Journal of Gerontology and Geriatrics
  - Editorial Board Member
- **2018-Present** Nephrology (Carlton)
  - Subject editor (hemodialysis, vascular access, aging, genetics and kidney disease)
- **2019** Scientific Quality Reviewer and Advisor
  - Charles University, Prague, Czechia

**Professional Memberships**

- **2009-Present** American Society of Nephrology
- **2009-Present** National Kidney Foundation
- **2015-Present** International Vascular Access Society
- **2016-Present** Clinical Competency Committee for Nephrology Fellowship

**Honors and Awards**

- **2009** First Prize at Basic Research Section, New York Society of Nephrology
- **2013** Invited Speaker, American Society of Nephrology annual meeting
- **2015** Invited Speaker, International Congress of Vascular Access Society
- **2015-Present** Best Doctors in U.S.
- **2015-Present** Fellow of the American Society of Nephrology
- **2019** Butler-Williams Scholar, NIH/NIA
- **2019** Paul Beeson Annual Meeting Travel Award

**C. Contributions to Science**

1. Molecular mechanisms of chronic kidney disease
During my early research career at Albert Einstein College of Medicine-Yeshiva University, I studied the pathophysiological implications of Notch molecular pathway in the development and progression of various forms of kidney disease. The work was published in high-impact journals and lead to speaker invitations at premier national and international nephrology meetings.


2. Molecular and genetic mechanisms of APOL1 nephropathy

My initial research at Wake Forest School of Medicine focused on the role of lipotoxicity in the development and progression of kidney disease. In collaboration with renowned geneticists and lipid scientists, I studied the pathophysiologic mechanisms of APOL1-related kidney disease in African Americans. I single-handedly established a large biorepository of human kidney tissue, a unique resource that provided the foundation of performing gene expression and molecular studies for the study of this disease. My mechanistic proposals were incorporated into what turned out to be a successful NIH grant application. I contributed to devising some of the experimental methods used to study APOL1-nephropathy.


3. Vascular access outcomes in older patients on hemodialysis

My current research is dedicated to clinical studies that address patient-centered questions in geriatric nephrology, such as determining the best vascular access strategy in older patients with end-stage kidney disease. As a PI on the GEMSSTAR R03 award, I commenced a pilot trial to assess feasibility for vascular access surgery randomization; and explore the impacts of different types of vascular access on physical function and quality of life for older patients. The results of the pilot trial will be used to design a larger, multicenter trial to study the impact of arteriovenous vascular access fistula vs. graft on patient survival and satisfaction in the older population.


**Complete List of Published Work in MyBibliography:**
https://www.ncbi.nlm.nih.gov/sites/myncbi/1JsAszl6MU5m/bibliography/53234336/public/?sort=date&direction=ascending

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

**Ongoing Research Support**
R03AG060178-01 Murea (PI) 07/01/2018 – 06/03/2020.
Grants for Early Medical/Surgical Specialists’ Transition to Aging Research (GEMSSTAR)
A randomized pilot study comparing graft-first to fistula-first strategies in older patients with incident end-stage kidney disease
This study randomizes patients of age 65 years and older with incident end-stage kidney disease receiving hemodialysis via tunneled central venous catheter to a strategy of fistula-first versus graft-first arteriovenous access placement. Outcomes include feasibility, transition from catheter-based to arteriovenous-access-based dialysis, grip strength, and patient satisfaction with vascular access. This pilot study is expected to generate data needed to design and implement a large multicenter trial to robustly assess patient outcomes (physical function, quality of life, survival) by type of first arteriovenous access strategy in elderly patients on hemodialysis.
Role: Principal Investigator

**Completed Research Support**
R01 DK 070941 Freedman (PI) 09/22/2011 – 04/30/2016
An Integrated Genomic Approach to APOL1 Nephropathy
This study evaluated the mechanisms whereby APOL1 gene polymorphisms cause non-diabetic nephropathy in African Americans.
Role: Co-Investigator

American Society of Nephrology Gabbard (PI) 01/01/2016 – 01/31/17
A pilot study examining the role of outpatient palliative care in patients with ESRD to improve symptom burden and quality of life.
This pilot study assesses the feasibility of implementing an Ipad based symptom assessment tool using patient reported outcome measures for older adults with end-stage kidney disease.
Role: Co-Principal Investigator
BIOGRAPHICAL SKETCH

NAME
Patricia K. Nguyen

POSITION TITLE
Assistant Professor, Department of Medicine, Director of Advanced Imaging, VAPAHCS

EDUCATION/TRAINING

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<td>University of California, Irvine</td>
<td>BS</td>
<td>1992</td>
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<tr>
<td>Johns Hopkins Medical School</td>
<td>MD</td>
<td>1997</td>
<td>Medicine</td>
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A. Personal Statement:
I am an Assistant Professor at Stanford University and Staff Physician at the VA Palo Alto. Unlike most candidates for this award, I am not within a few years of completing my training. Although I may be more advanced chronologically, I have limited experience in aging-related research and have no major funding awards in this area.

My current research focuses on applying molecular biology to translate novel diagnostic and therapeutic strategies for the management of coronary artery disease, a chronic inflammatory condition that is more common in the elderly. My research has led me to a greater appreciation of how immune senescence can affect cardiovascular health and disease. In my studies on the effects of radiation on DNA damage marker genes and proteins in T cells, I have found that even mature differentiated immune cells can be adversely affected by low dose radiation. I observed that the ability of the DNA damage response pathways to repair cells is impaired in the elderly compared to younger adults. My fascination with immune senescence has led me to work with Drs. Charles Chan and Steve Quake in the mouse atlas project. In this project, we are isolating single cells from the aorta, heart, bone marrow, spleen and thymus from mice across different age groups and sequencing them to better understand the role of the immune system in cardiovascular aging. Working on these projects has helped me realize that I would like to become a leader in aging research. Specifically, I plan to focus on my research on how immune senescence and cardiovascular aging contribute to the development of coronary artery disease, a disease that is significantly more common in persons greater than 65 years old. Of particular interest to me are T cells, which show the effects of aging throughout their lifespan and are prominent in number within the atherosclerotic plaque. In this proposal, we will investigate how T cells contribute to the atherosclerotic plaque in older and younger individuals using single cell genotyping and phenotyping.

B. Positions and Honors

Positions and Employment:
06/97 - 06/98 Internship, Scripps Green Hospital, Department of Internal Medicine
06/98 - 07/99 Clinical Research Fellow, UCSF, Department of Medicine
07/99 - 06/01 Residency, New York Presbyterian Hospital-Columbia, Department of Internal Medicine
10/01 - 06/03 Non-invasive Research Fellow, Stanford University Hospital, Department of Medicine, Division of Cardiology
06/03 - 06/06 Fellowship, Stanford University Hospital Department of Medicine, Division of Cardiology
06/05 - 06/06 Non-invasive Imaging Fellowship, Stanford University Hospital, Department of Medicine, Division of Cardiology
06/06 - 01/08 Associate Director, Clinical Research, CV Therapeutics
06/06 - 01/08 Adjunct Clinical Instructor, Stanford University Medical Center
01/08 - 05/13 Instructor, Stanford University Medical Center
01/08 - Staff Physician, VA Palo Alto Health Care Systems
05/13 - Director of Advanced Imaging
05/13 - Assistant Professor, Stanford University Medical Center
09/15 - Director of Med223: Cardiopulmonary Series
09-16 - American Heart Association Western Affiliates Blood Pressure Task Force

Honors:
1989 Regents Scholarship, University of CA, Irvine
1991 Phi Beta Kappa, University of CA, Irvine
1992 Summa cum Laude, University of CA, Irvine
1992 Award for Service and Academic Excellence, University of CA, Irvine
1992 Award for Excellence in Research, University of CA, Irvine
1993 Dean’s Stipend for Research, Johns Hopkins School of Medicine
1998 Grant for HIV Research, University of California, San Francisco AIDS Research Institute
1999 Dean’s Research Fellowship, Stanford University Medical Center
2000 Katherine McCormick Grant, Stanford University Medical Center
2005 Chief Fellow, Cardiovascular Medicine
2005 ACC/Merck Research Fellow in Cardiovascular Medicine
2006 Edward Alderman, Excellence in Clinical Research
2016 Clayman Faculty Fellow

C. Contributions to Science

My research career is notable for the following contributions to advance the field of translational cardiovascular research.

a. Evidence that the use of induced pluripotent stem cell technology as a potential treatment for end-stage heart disease remains limited by acute donor death. End-stage heart disease is a significant cause of morbidity and mortality. The only treatment for this disease is transplant and the implantation of left ventricular devices. With the discovery of induced pluripotent stem cells that can be differentiated to different cell types, the era of stem cell regenerative medicine began and numerous studies have been used to better understand the efficacy of this new treatment. The following studies demonstrate that the clinical efficacy of stem cell therapy is limited by acute donor death due to the attack of transplanted cells by the immune system of the recipient.


b. Using iPSCs to model health and disease: In addition to its application in regenerative medicine, derivatives from iPSCs including endothelial cells and cardiomyocytes isolated from patients with cardiovascular disease have been shown to recapitulate similar phenotypic, functional, and genotypic characteristics of cardiovascular disease in vitro, enabling the use of this technology as a model to better understand disease mechanisms as well as screen for novel agents. Human iPSC technology is especially
useful in circumstances where the cells of interest are difficult to obtain in large numbers and/or the disease is uncommon and finding patients with specific abnormalities is challenging. We are currently supported by two grants whose goal is to evaluate how estrogen modulates the immune system in cardiovascular health and disease (e.g., Sex differences in myocarditis and Global gene expression of estrogen and testosterone on human cardiomyocytes derived from induced pluripotent stem cells).


b. Evaluating the risk of low dose radiation exposure on T cells isolated from patients undergoing cardiovascular imaging tests. The explosion of noninvasive imaging tests, especially single photon emission computed tomographic myocardial perfusion imaging (SPECT-MPI), over the past two decades has raised concern that these diagnostic tools have been over-utilized or inappropriately used, exposing patients to unnecessary risk including low dose radiation exposure. Little is known about how low dose radiation affects cells at the molecular level. In two consecutive studies, we demonstrated that some patients have evidence of DNA damage and even cell death using proteomic and genomic assays in T cells isolated from patients after undergoing SPECT-MPI or CTA. The effects of exposure to radiation from CTA appear more predictable as no cellular damage was detected in patients receiving the lowest doses. We are currently conducting a follow-up study on the effects of radiation on naïve T cells may help us determine whether low dose radiation exposure may increase the risk of infectious disease in the elderly who may have a limited naïve T cell repertoire.


For a complete list of references, please refer:

D. Research Support

Ongoing Research Support

NIH Administrative Supplement: Sex Differences
5R01HL123968-03 11/16 – 10/17
Modeling Susceptibility to chemotherapy-induced cardiotoxicity using human iPSCs
The purpose of this study is to determine how sex hormones can modulate the effects of toxins on iPSC derived cardiomyocytes.
Role: Investigator

1 R01 HL 134830-01 (Nguyen) 09/17 - 06/22
NHLBI
Multimodality Molecular Imaging of Stem Cell Therapy for Ischemic Cardiomyopathy
The major goal of this grant is to monitor stem cell therapy using molecular imaging.

Completed Research

Women and Sex Differences in Medicine, Stanford 12/14 – 12/16
**Global Gene Expression Profiling of the Effects of Estrogen and Testosterone on Human Cardiomyoctes Derived from Induced Pluripotent Stem Cells**
The purpose of this study is to determine the effects of sex steroids on the gene expression of cardiomyocytes derived from induced pluripotent stem cells.
Role: Principal Investigator

Women’s Heart Health, Stanford (Wu, S) 12/14 – 11/17
**Sex Differences in Myocarditis**
This study uses induced pluripotent stem cell technology and immune activation assays to study sex differences in myocarditis.
Role: Co-Principal Investigator

Veterans Affairs 10/11– 09/16
**The Impact and Value of Noninvasive Imaging in the Management of Obstructive CAD**
The goal of this project is to optimize the utilization of non-invasive imaging for the care of patients with obstructive CAD.
Role: Principal Investigator

AHA Scientist Development Grant 07/10 - 06/15
**From the Cath Lab to the Magnet: MRI Assessment of Coronary Function in Women and Men without Obstructive Coronary Artery Disease (CAD)**
The goal of the study is to evaluate the feasibility and accuracy of measuring coronary endothelial function and microvascular function by MRI.
Role: Principal Investigator

Stanford Cardiovascular Institute 12/13 – 11/14
**Evaluating the risk of low dose radiation: are patients being harmed by medical imaging tests?**
This study aims to investigate the risk of low dose radiation from imaging tests.
Role: Principal Investigator

ACC/GE 07/10 – 06/12
**Molecular imaging of stem cells**
This study evaluated the survival and fate of stem cells for regenerative therapy using large animal models.
Role: Principal Investigator
NAME: Orkaby, Ariela R.
eRA COMMONS USER NAME (credential, e.g., agency login): AORKABY

POSITION TITLE: Instructor in 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>Yeshiva University, Stern College for Women, New York, NY</td>
<td>BA</td>
<td>05/2006</td>
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<td>Ben Gurion University, Beer Sheva, Israel</td>
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<td>VA Boston Healthcare System, Boston, MA</td>
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<td>Harvard School of Public Health</td>
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A. Personal Statement

I am a board certified Geriatrician with training in Preventive Cardiology. While in residency and fellowship I was struck by the lack of data available to guide the prevention of cardiovascular disease (CVD) in older adults. I was awarded two grants from the John A. Hartford Foundation to pursue epidemiology and biostatistics training at the Harvard School of Public Health. My MPH studies focused on clinical effectiveness and CVD prevention in the aging population, with particular attention on the role of frailty. As a preventive cardiology fellow, at VA Boston Cardiology clinics I introduced the measurement of gait speed, a marker of frailty, for all veterans >70 years, and have undertaken an ongoing 4-yr quality improvement and education initiative to improve the care of our oldest veterans. In addition, I became a co-investigator for the Get Going Trial, leading the Boston site of this international randomized clinical trial, sponsored by the American College of Cardiology, that aimed to promote physical activity in frail older adults transitioning from a cardiac hospitalization to home. Building on this work, I was awarded a Pepper Center Career Development Award to examine the role of aspirin on frailty and function in the Physicians’ Health Study, as well as a Brigham & Women’s Hospital Faculty Career Development Award, which provides transitional funding to faculty who are transitioning to an academic research career. To solidify my emerging research career, I was awarded a NIA R03 Grant for Early Medical/Surgical Specialists’ Transition to Aging Research (GEMSSTAR) and a VA based Career Development Award. Both projects investigate aspects of statins for primary prevention of CVD and frailty in older Veteran and will allow me to gain the skills needed to become an independent investigator in Geriatric Cardiology.

B. Positions and Honors

Positions and Employment

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<td>2010-2013</td>
<td>Medical Residency, Internal Medicine, Boston Medical Center, Boston, MA</td>
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<td>2013-2014</td>
<td>Clinical Fellow, Geriatrics, Harvard Combined Geriatrics Program, Boston, MA</td>
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<td>2013-</td>
<td>Staff Physician, Hebrew Senior Life, Boston, MA</td>
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<td>2014-2016</td>
<td>Research Fellow, Preventive Cardiology, VA Boston Healthcare System, Boston, MA</td>
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<td>2014-2016</td>
<td>Associate Site Director, Harvard Combined Geriatric Fellowship, VA Boston Healthcare System, Boston, MA</td>
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<tr>
<td>2014-</td>
<td>Staff physician, VA Boston Healthcare System, Boston, MA</td>
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2015-2016 Chief Preventive Cardiology Fellow, VA Boston Healthcare System, Boston, MA
2016- Advanced Fellow, Geriatric, Research, Education, and Clinical Center (GRECC), VA Boston, Healthcare System, Boston MA
2016- Associate Epidemiologist, Brigham and Women’s Hospital, Boston, MA
2016- Instructor in Medicine, Part-time, Harvard Medical School
2017- Director of Seminars in Geriatrics and Frailty, Boston Claude D. Pepper Center
2017-2019 Junior Reviewer Program Member, Journal of the American Geriatrics Society
2018- Co-Chair, Grant writing group, Boston Claude. D. Pepper Center
2018- Wellness Champion, Division of Aging, Brigham and Women’s Hospital
2018- Editorial Board Member, Journal of Gerontology, Medical Sciences

Other Experience and Professional Memberships
2010- Member, Massachusetts Medical Society
2010- Member, American College of Physicians
2013- Member, American Geriatric Society
2016- Member, Gerontological Society of America
2016- Member, American Medical Association
2017- Member, American Heart Association
2019- Member, American College of Cardiology

Honors
2003-2004 Anne Scheiber Scholar’s Award for Biology, Yeshiva University New York, NY
2003-2006 Bora Laskin Scholarship for Academic Excellence, Yeshiva University New York, NY
2004-2006 Herman Silverstein Scholarship for Academic Excellence, Yeshiva University New York, NY
2009-2010 Certificate of Merit for Academic Excellence, Ben Gurion University, Israel
2015 Award for Best Poster in Epidemiology, American Geriatric Society Conference
2017 Young Investigator Travel Award to the American College of Cardiology/American Geriatrics Society/National Institute on Aging U13 Conference on Polypharmacy in Older Adults
2017 Finalist, American Heart Association Jay D. Coffman Early Career Award
2018 Brigham & Women’s Hospital, Faculty Career Development Award

C. Contribution to Science

1. Pharmacoepidemiology and prevention of cardiovascular disease in older adults: As a geriatrician with expertise in preventive cardiology and an interest in the primary prevention of cardiovascular disease in the aging population, my research aims to improve the evidence base for CVD prevention in the aging, yet fastest growing segment of the population. There is a dearth of evidence on the benefits and risks of medications, such as warfarin for stroke prevention in dementia and statins for the primary prevention of CVD in the elderly and my research looks to fill this void.

2. Frailty, function and cardiovascular disease: Aging does not occur linearly and chronologic age often does not match biologic age. This can lead to unmeasured confounding in epidemiologic studies. Frailty is an important component of this mismatch. A frailty index, according to the cumulative deficit model, can be developed in existing large databases. I have developed a frailty index in the Physicians’ Health Study and am currently actively involved in the Frailty Working Group at the VA where we have developed a frailty index using VA Clinical and Administrative data (PI- Dr. Jenny Driver). Similarly, at the Framingham Heart Study I am leading an initiative to define frailty according to the cumulative deficit theory and examine the relation with precursors of cardiovascular disease.
3. Clinical innovation: As a Preventive Cardiology fellow, I introduced a quality improvement initiative to assess frailty in all veterans >70 years who presented to the weekly Preventive Cardiology clinic, led by Dr. Gaziano. Gait speed has been called the “6th vital sign” and is considered an excellent integrator of function and a proxy for frailty. Identifying older veterans with frailty can alert providers to those at risk of poor outcomes. Over the last 24 months, 120 unique patients have had gait speed assessed. During this time I was able to facilitate an update to the cardiology note in the electronic medical record for VA Boston to include gait speed as part of the physical exam. I have now expanded the frailty assessment to the Electrophysiology clinic where we are assessing gait speed and cognitive function in all veterans >80 years that have implantable cardiac defibrillators, with over 60 unique patients assessed in one year. I have also led an education initiative to bring geriatric principles to the Cardiology clinics.

4. Understanding the heart failure with preserved ejection fraction phenotype: The phenotype of heart failure with preserved ejection fraction (HFrEF) is not well understood. Further, HFrEF is often thought of as a disease of aging. In 2015 I joined the Heart Failure group at MAVERIC (PI Dr. Jacob Joseph) and was one of 3 fellows who undertook chart review and adjudication of 200 HFrEF cases to develop a Natural Language Processing tool to identify HFrEF cases from the clinical record. This is the largest cohort of HFrEF to date and will help to further the understanding HFrEF mechanisms and pathophysiology. Furthermore, HFrEF may be closely related to frailty. In future work we will examine the role of frailty in HFrEF outcomes

Complete List of Published Work in MyBibliography
D. Research Support

**Ongoing Support**

VA-Career Development Award (Orkaby)  
1IK2CX001800-01A1  
Statins for Primary Prevention of Frailty and Cardiovascular Disease  
Major Goals: The research activities in this VA career development award will use a retrospective design to test the hypotheses that (1) statin use is associated with a lower risk of frailty over a minimum 10 years of follow up in Veterans ≥65 and (2) statins, taken for primary prevention, are associated with a lower risk of major cardiovascular events and mortality in veterans ≥75 years.  
Role: PI

NIA GEMSSTAR award  
1R03AG060169  
Frailty, Statins, and Cardiovascular Disease Burden in Older Adults  
The major goal is to understand patterns of statin use in older adults and the relationship between frailty, side effects, and cardiovascular events in older adults.  
Role: PI

NIA/Boston Claude D. Pepper Center Older Americans Independence Center, Research Education Core Career Development Award  
Orkaby (PI)  
P30-AG013679  
Investigating the association between Aspirin and Frailty  
This project builds on our prior work defining frailty in the Physicians’ Health Study to examine the hypothesis that aspirin use is inversely associated with frailty and self-reported functional limitation.  
Role: PI

**Completed Support**

Brigham & Women’s Hospital  
Orkaby (PI)  
07/01/2018-6/30/2019  
Association between non-steroidal anti-inflammatory drug use, frailty, and function in older men  
Major Goal: This project builds our prior work in the Physicians’ Health Study to examine the hypothesis that long term non-steroidal anti-inflammatory drug use is inversely associated with frailty and self-reported functional limitation.  
Role: PI

American College of Cardiology  
Hummel (PI)  
06/01/2015-06/01/2017  
Get Going Trial: A fellow-led trial of an accelerometer based intervention to encourage physical activity in frail older adults who are discharged to home following a cardiac hospitalization.  
Role: Co-Investigator

John A. Hartford Foundation/Harvard Medical School  
Center for Excellence in Geriatric Medicine and Training Award, Biostatistics  
The goal of this project was to develop a frailty index in an existing database.  
Role: PI

John A. Hartford Foundation/Harvard Medical School  
Center for Excellence in Geriatric Medicine and Training Award, Epidemiology  
The goal of this project was to investigate the association between statins taken for primary prevention and cardiovascular disease in older men.  
Role: PI
**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:** Quatman, Carmen  
**eRA COMMONS USER NAME (credential, e.g., agency login):** cquatman  
**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>09/1999</td>
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<td>University of Toledo, Toledo, OH</td>
<td>PHD</td>
<td>09/2004</td>
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<td>University of Toledo, Toledo, OH</td>
<td>MD</td>
<td>09/2004</td>
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<td>Cincinnati Children's Hospital, OH</td>
<td>Fellow</td>
<td>06/2009</td>
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<td>Biomechanics, Injury Prevention</td>
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<tr>
<td>The Ohio State University, Columbus, OH</td>
<td>Fellow</td>
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<td>The Ohio State University, Columbus, OH</td>
<td>Resident</td>
<td>07/2011</td>
<td>06/2016</td>
<td>Orthopaedic Surgery</td>
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<td>University of Minnesota, MN</td>
<td>Fellow</td>
<td>08/2016</td>
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<td>Geriatric Orthopaedic Trauma</td>
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</table>

**A. Personal Statement**

As a researcher and an orthopaedic surgeon with fellowship training in Geriatric Orthopaedics and Trauma, my greatest passion is helping others engage in the highest quality of life at all stages in life. I have a zealous commitment to create transformational change in our health care systems in meaningful and scalable ways, particularly for geriatric patients. During my time as a graduate student and post-doctoral fellow, I helped develop a robust finite element model of the knee and multi-faceted research approach to explore knee injury mechanisms in a multi-center study NIH R01 study that I served as a Co-Investigator on. My research projects over the past 17 years have resulted in 55 published manuscripts and I am currently PI on NIH R03AG060177 from the NIA. In addition, my research endeavors have resulted in 17 national and institutional research awards, including the Association for Bone and Joint Surgeons Nicolas Andry Award in 2012 and the OREF Clinical Research Award 2016. My focused areas of scholarship include injury prevention, geriatrics, biomechanics, patient safety and quality improvement and outcomes research.

This application on *Transformative Solutions for Reducing Frequent 911 Fall Calls in the Homes of Patients with Cognitive Impairment* represents the culmination of series of pilot studies I helped lead as either the Principal Investigator or Co-Investigator along with my twin sister and long-time collaborator Catherine Quatman-Yates, PT, DPT, PhD (implementation and research consultant). We have also had the great fortune to be supported by an outstanding team of clinical and research leaders in the areas of fall prevention, emergency medicine, health service delivery research, implementation science, health care economics, and public health; several of whom will serve as mentors or advisory members for my proposed work. I am looking forward to leading our team into the next phase of this powerful new paradigm of implementing fall prevention strategies for vulnerable individuals. Citations a-d represent examples of my prior work using theory and approaches relevant to the proposed work:


B. Positions

2000 - 2001  Research Intern, Cincinnati Sportsmedicine, Cincinnati, OH
2002 - 2004  Research Assistant, Cincinnati Children's Hospital, Molecular Cardiovascular Biology, OH
2002 - 2009  Research Assistant, Cincinnati Children's Hospital Sports Medicine, Cincinnati, OH
2009 - 2010  Post-Doctoral Research Fellow, Cincinnati Children's Hospital, Cincinnati, OH
2011 - 2011  Post-Doctoral Research Fellow, The Ohio State University, Sports Medicine, Columbus, OH
2011 - 2013  Research Fellow, Cincinnati Children's Hospital Sports Medicine Biodynamics Center, OH
2011 - 2016  Clinical Instructor, The Ohio State University Orthopaedics, Columbus, OH
2011 - 2016  Geriatric Orthopaedic Trauma Fellow, Regions/University of Minnesota, St. Paul, MN
2011 - present  Assistant Professor, The Ohio State University, Orthopaedics, Columbus, OH
2011 - present  Vice Chair of Quality for Orthopaedics, The Ohio State University, Columbus, OH

Other Experience and Honors

1999 - 2002  Women’s Volleyball Athletic/Academic Scholarship, Edinboro University of Pennsylvania
2002  Verizon Academic All-American All-District II College Division, Verizon
2003  Outstanding Biology Senior Award, Edinboro University of Pennsylvania
2003  Outstanding Student Award, Commonwealth of Pennsylvania University of Biologists
2004 - 2011  MD/PhD Tuition Scholarship University of Toledo College of Medicine
2006  Tylenol Scholarship, Tylenol
2007  Outstanding Student Leader Award, University of Toledo College of Medicine
2008  Outstanding Student Mentor Award, University of Toledo College of Medicine
2011  American Journal of Sports Medicine Systematic Review Competition Award, AJSM
2011  Orthopaedic Surgery Outstanding Student of the Year Award, University of Toledo
2012  Orthopaedics Outstanding Junior Resident Research Award, The Ohio State University
2012  Resident Top Research Paper Award, Ohio Orthopaedic Society
2012  American Journal of Sports Medicine Systematic Review Competition Award, AJSM
2012  Nicolas Andry Award Paper, Association Bone Joint Surgeons
2012  Best Knee Research Poster Annual Meeting, Orthopaedic Research Society
2012  AAOS/OREF/ORS Clinician Scholar Development Program
2013  Resident Top Research Paper Award, Ohio Orthopaedic Society
2013  Herodicus Society Top Resident Research Paper, AOSSM
2013  Orthopaedics Outstanding Junior Resident Research Award 2013, The Ohio State University
2013  Journal of Biomechanics Award, American Society of Biomechanics
2014  Ohio State University Humanism in Medicine Award 2015, The Ohio State University
2015  Orthopaedics Outstanding Resident Research Award, The Ohio State University
2016  NIH/NIA Butler-Williams Scholar 2016, National Institute of Aging
2016  OREF Clinical Research Award 2016, Orthopaedic Research and Education Foundation
2016  Orthopaedics Outstanding Resident Physician Award, The Ohio State University
2016  Orthopaedics Outstanding Resident Research Award, The Ohio State University
2017  Kathy Cramer Scholarship AAOS/OREF/ORS Grant Course, Orthopaedic Trauma Association
2017  American Academy of Surgeons Young Investigator Award
2018  Ruth Jackson Orthopaedic Society Sandra Kirkley Traveling Fellowship
2019-2020  Consultant Johnson and Johnson Hip Fracture Advisory Board (not relevant to current work)
2019  OSU FAME (Faculty Advancement Mentoring & Education) Early Career Achievement Award

C. Contribution to Science

I have co-authored 55 peer-reviewed publications and accrued 3,213 citations, h-index 30, i10-index 35. A complete list: https://www.ncbi.nlm.nih.gov/sites/myncbi/16w5KLeAdQKka/bibliography/50684703/public/?sort=date&direction=descending.

1. Team Science Approach to Model Musculoskeletal Injuries:

Over an 8 year span, I helped design, initiate and implement a large scale multi-center, multidisciplinary study that led to significant innovations using an "In Sim" approach to define anterior cruciate ligament (ACL) injury...
biomechanics. This project establishes a new conceptual-methodologic framework for injury prevention research that synthesizes a unique integration of technology, methodologic innovation and computational simulations to better understand injury mechanisms.


2. Systematic Approach to Injury Prevention. The effectiveness of prevention strategies are critically linked to the ability identify the mechanism of injury, determine appropriate intervention strategies and evaluate implementation effectiveness of intervention strategies. As part of this project, I served in many roles to help design, collect and analyze data that resulted in over 80 published manuscripts (from 1999-2016). This long term project provided the foundation for my current interests in fall prevention strategies for older individuals.


3. Epidemiologic aging and sex specific research:
I have performed diversity and aging related research in several domains, particularly around musculoskeletal injury. These projects have helped me develop an expertise in large database research and registry work as well as help lead projects across the aging spectrum.


4. Geriatric Biomechanics and Health Services Research. Capitalizing on my biomechanical training and previous injury mechanism research, I have led projects to evaluate surgical outcomes in geriatric patients, fall risks and fear of falling in fragility fracture patients. 


5. Outcome Improvement Research.
During my time as both a clinician and researcher, I have come to appreciate that many of the gaps in our ability to provide optimal care stem from fragmented health systems and inadequate service delivery models. This in turn makes it quite difficult for clinicians and researchers come to terms with a full understanding of how to translate what we know from research into practice and how translate what we know from into practice into high-impact, implementable research. I often invest in multi-stakeholder continuous learning health systems that embrace and empower frontline clinical providers offer transformative and innovative ways for successful, sustainable, and measureable improvements in service delivery.


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

Ongoing Research Support

NIH/NIA 1R03 AG06017701 08/01/2018 - 07/31/2020
First responders: An innovative approach to better predict and prevent falls in older adults in the community. This study aims to understand the role of frailty in 911 fall calls and create a decision tree for paramedics about whether transport to the hospital should occur during a fall call. (Differs from current application as it does not evaluate cognitive impairment, utilize machine learning, or encompass a qualitative approach)
Role: PI

OSU/CTSA Patient Safety and Advancement Grant 08/01/19-07/30/20
Scrubbing out use of perioperative attire outside of the hospital
This project focuses on creating a culture of change on access and utilization of sterile hospital attire.
Role: Co-PI

OSU Davis Bremer Transition to PreK Award 07/01/2018-06/30/2020
An innovative approach to better predict and prevent falls in older adults in the community using an electronic medical record to improve transitions in care.
Role: PI

Ohio State University Wexner Medical Center Foundation Grant 07/01/2018 - 07/1/2020
Community Engagement Grant for Fall Prevention in Homes
This study aims to implement fall prevention programs in collaboration with community paramedics.
Role: PI

**Completed Research Support** (relevant to application)

**R01-AR056259 , National Institute of Health, Hewett, Timothy (PI)** 01/01/09-01/01/14

Multi-Faceted Approach to Modeling ACL Injury Mechanisms
This study investigated the mechanisms that lead to ACL injury in the human knee joint using a new interdisciplinary, multi-faceted approach to study ACL loading and injury mechanisms in athletes.
Role: Co-Investigator

**OSU/CTSA Patient Safety and Advancement Grant** 04/01/17-04/01/18

Pulse of the OR: Reducing Operating Room Traffic
The goals of this proposal are to: (1) automate operating room traffic monitoring to reduce operating room traffic for surgical cases at OSUMC and (2) create an app for real time feedback about room traffic in cases and automate reporting techniques for scorecard driven initiatives related to infection reductions.
Role: Co-PI

**OSU/CTSA Patient Safety and Advancement Grant** 05/01/18-05/01/19

Out of Bed for Every Meal: This project focuses on a patient quality initiative to promote mobility in the hospital, particularly around mealtime and improve overall mobility optimization strategies for hospitalized patients.
Role: Co-PI
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: Ramirez Gomez, Liliana

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

POSITION TITLE: Instructor in Neurology, Harvard Medical School

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

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<td>University of Antioquia</td>
<td>M.D.</td>
<td>06/2005</td>
<td>Medicine</td>
</tr>
<tr>
<td>University of Antioquia</td>
<td>Resident</td>
<td>02/2008</td>
<td>Neurology</td>
</tr>
<tr>
<td>Santa Barbara Cottage Hospital</td>
<td>Intern</td>
<td>06/2010</td>
<td>Internal Medicine</td>
</tr>
<tr>
<td>University of Southern California</td>
<td>Resident</td>
<td>06/2013</td>
<td>Neurology</td>
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<tr>
<td>University of Southern California</td>
<td>Chief Resident</td>
<td>06/2013</td>
<td>Neurology</td>
</tr>
<tr>
<td>University of Southern California</td>
<td>Fellow</td>
<td>06/2014</td>
<td>Cognitive and Behavioral Neurology</td>
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A. Personal Statement

I am an Assistant in Neurology at the Massachusetts General Hospital and Instructor in Neurology at Harvard Medical School. The goal of my research is to identify preclinical biomarkers for Alzheimer’s Disease (AD) and related dementias (AD/ADRD). At MGH/Harvard, I am a Co-Investigator in the Familial Dementia Neuroimaging Laboratory. This lab follows a cohort of Hispanic families from Antioquia, Colombia, who carry an autosomal dominant mutation in the presenilin 1 gene that causes early onset AD. Here, I focus on the study of cognitive and brain changes that may predispose individuals to develop dementia later in life. The lab focuses on understanding the pathophysiology of neurodegeneration and identifying preclinical biomarkers for early diagnosis of dementia, especially as measured by neuropsychology and neuroimaging. This research uses a variety of multimodal neuroimaging types, including PET, sMRI, fMRI, DTI, and integrates genetic, molecular and neuropsychological data to characterize some of the earliest changes associated with dementia.

My specific goals in this group are to determine whether changes in the ability to remember odors can serve as a novel specific biomarker for early onset familial AD and understand the relationship between AD neuropathological changes and the onset of changes in olfactory function. As a native Spanish speaker with training in neurology and deep engagement with Latino communities, I will benefit from the mentorship and practical experience that an NIA Diversity Supplement affords so that I can progress to the stage of applying for a K series career development award.

B. Positions and Honors

2013-2014 Clinical Instructor, Dept of Neurology, University of Southern California
2014-2015 Adjunct Assistant Professor, Dept of Neurology, University of Southern California
2014-2015 Attending Neurologist, Dept of Neurology, Rancho Los Amigos National Rehabilitation Center
2015 Clinical Instructor, Dept of Neurology, University of California San Francisco
2016-2018 Health Sciences Assistant Clinical Professor, Dept of Neurology, University of California San Francisco
2018-present Assistant in Neurology at the Massachusetts General Hospital
Instructor in Neurology at Harvard Medical School

Other Experience and Professional Memberships

2011-present American Academy of Neurology
2016-present Committee member, American Academy of Neurology, General neurology section

Honors

1998 Outstanding Student Honor Roll Scholarship. Awarded for academic achievement to the #1 ranked student each semester, University of Antioquia
2000 Outstanding Student Honor Roll Scholarship, University of Antioquia
2001 Outstanding Student Honor Roll Scholarship, University of Antioquia
2003 Outstanding Student Honor Roll Scholarship, University of Antioquia
2003 Honorific mention, Third International Congress of Brain and Mind, Medellin, Colombia, for the research poster, “The molecular characterization of Wilson’s Disease in Antioquia, Colombia”, Asociación Latinoamericana de Neuropsicología
2005 Guillermo Velasquez Tangarife Scholarship to participate in the clerkship program at Harvard Medical School. This scholarship is given by the University of Antioquia to two senior medical students selected on the basis of merit, outstanding academic performance and research work.
2013 Helena Chui Research Award, for the best neurology resident research project, “Neuropsychological Profiles Differentiate Alzheimer Disease from Subcortical Ischemic Vascular Dementia in an Autopsy-Defined Cohort”, University of Southern California
2013 Golden Hammer Award, for the highest score on the national Resident in Service Training Examination (RITE), University of Southern California
2013 Resident Teacher of the Year Award, USC Neurology Clerkship Rotation, Keck School of Medicine, University of Southern California

C. Contributions to Science

1. Vascular contributions to cognitive impairment and dementia
   In collaboration with Dr. Helena Chui at the University of Southern California, I conducted a study on how to differentiate among types of dementia, more specifically the subcortical ischemic vascular dementia type (SIVD) versus Alzheimer’s Disease using specific neuropsychological tests. We found that in neuropathologically defined subgroups, neuropsychological profiles have modest ability to distinguish patients with Alzheimer’s Disease from those with SIVD. These results are important because of 1) ease of performance of the requisite tests and 2) practical administration that could be performed by a non-specialist, such as a primary care practitioner, geriatrician or other health care provider who assesses older patients with cognitive impairment in a clinical setting in the community. Differentiating between Alzheimer’s Disease and SIVD is important from a therapeutic and prognostic point of view which enables the clinician to focus on specific treatments that target modification of multiple vascular risk factors. In addition I collaborated with the National Alzheimer Coordinating Centers on a study evaluating late vascular risk factors and Alzheimer’s neuropathology in individuals with normal cognition in late life. This adds to the evidence that vascular risk factors are associated with clinically diagnosed Alzheimer’s Disease, and suggests that optimizing control of vascular risk factors might help to prevent cognitive impairment in late life.


2. Hispanic cognitively impaired Latino patients

Recently I performed a comprehensive review article on the treatment of cognitively impaired Latino patients, which covered the difficulties faced by patients and their caregivers due to language and acculturation and outlined the utility of various neuropsychological assessment instruments for use in this population. This is important because Hispanics are the largest minority group in the United States. With a growing number older than 65 years of age, increasing resources that are culturally informed will be required for the provision of appropriate services for evaluation and care. Healthcare providers who work with Hispanics should not only understand potential differences in the clinical presentation of cognitive impairment and dementia in different ethnic populations but also the differences in perception of dementia and its impact on the daily lives of patients and their caregivers. Neuropsychological assessments should be performed and interpreted with particular attention to cultural, linguistic, and educational factors. To advance multicultural services that provide culturally sensitive care for patients from ethnic minority groups, there should not only be an increase in awareness that cultural factors are important but also a commensurate increase in the culturally competent training of providers.


3. Genetics of Wilson’s disease

I worked with a team of investigators studying genetic mutations associated with Wilson’s disease in three unrelated Colombian families. My role was to perform basic molecular biology assays and compile data from years of clinic visits to identify what kinds of problems the patients had. Most interestingly, our gene correlated more closely with the neurological and psychiatric aspects of Wilson’s disease than with the hepatic complications. This work was important because it led to the discovery of a new mutation specific to the region (Antioquia, Colombia) that could be used to test individuals in the local community who could benefit from specific disease-modifying treatment.


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

Completed research support:

Sponsor name: NIH-NIA National Institute on Aging
Project title: Center for Aging in Diverse Communities: Ending Health Inequities in Older Adults
PI: Leah Karliner
2P30AG015272-21
The Regents of the University of California, San Francisco

Subaward 11112sc: The Massachusetts General Hospital PI: Liliana Ramirez Gomez [CA-0132794]
Pilot project Title: Supporting Spanish-speaking Family Dementia Caregivers with Adapted Stress Reduction and Perspective Taking Techniques
Amount funded 30,000.00
Role: Co-investigator (1.2 CM)
Start date: 9/15/18
End date: 6/30/19

Sponsor name: NIH-NIA National Institute on Aging
Project title: Relationship between tau pathology and cognitive impairment in autosomal dominant Alzheimer’s disease
5R01AG054671-03 (PI: Quiroz)
Role: Co-investigator (1.2 CM)
Start date: 07/01/18
End date: 6/30/19

Sponsor name: Sundry Funds
Project title: Tracking tau pathology in autosomal dominant Alzheimer’s disease
1200-024488 (PI: Quiroz)
Role: Co-investigator (1.2 CM)
Start date: 07/01/19
End date: 8/30/19

Ongoing research support:

Sponsor name: NIH-NIA National Institute on Aging
Project title: Relationship between olfactory function and markers of brain pathology in Autosomal Dominant Alzheimer’s disease
3P30AG062421-01S1 (PI: Brad Hyman)
Role: PI (9 CM)
Start date: 09/15/19
End date: 8/30/21
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: Katie J. Schenning

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

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.)

<table>
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<th>Completion Date MM/YY</th>
<th>FIELD OF STUDY</th>
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<tr>
<td>University of Wisconsin, Madison, WI</td>
<td>B.S.</td>
<td>05/2004</td>
<td>Biology</td>
</tr>
<tr>
<td>University of Wisconsin, School of Medicine &amp; Public Health, Madison, WI</td>
<td>M.P.H.</td>
<td>05/2009</td>
<td>Public Health</td>
</tr>
<tr>
<td>University of Wisconsin, School of Medicine &amp; Public Health, Madison, WI</td>
<td>M.D.</td>
<td>05/2009</td>
<td>Medicine</td>
</tr>
<tr>
<td>Wheaton Franciscan Healthcare, St. Joseph Hospital, Milwaukee, WI</td>
<td>Internship</td>
<td>06/2010</td>
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<tr>
<td>Oregon Health &amp; Science University, Portland, OR</td>
<td>Residency</td>
<td>07/2014</td>
<td>Anesthesiology</td>
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<tr>
<td>Oregon Health &amp; Science University, Portland, OR</td>
<td>M.C.R.</td>
<td>05/2019</td>
<td>Human Investigation</td>
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</table>

A. Personal Statement

B. Positions and Honors

Positions and Employment:
2009-2010  Intern, Wheaton Franciscan Healthcare, St Joseph Hospital, Milwaukee, WI
2012-2013  Associate Chief Resident, Department of Anesthesiology and Perioperative Medicine, Oregon Health & Science University, Portland OR
2010-2014  Resident/Research Fellow, Department of Anesthesiology and Perioperative Medicine (APOM), Oregon Health & Science University, Portland OR
2014-      Assistant Professor, Department of Anesthesiology and Perioperative Medicine, Oregon Health & Science University, Portland OR
2017-      Assistant Medical Director, Preoperative Medicine Clinic, Oregon Health & Science University, Portland OR

Other Experience and Professional Memberships:
2006-      American Society of Anesthesiologists
2007-      International Society to Advance Alzheimer’s Disease Research & Treatment
2010-      American Society of Anesthesiologists Political Action Committee
2011-2014  Accreditation Council Graduate Medical Education (ACGME) Council of Review Committee Residents (CRCR), Vice Chair
2011-2014  ACGME Anesthesiology Residency Review Committee (RRC), Resident Member
2011-2013  Co-chair, CRCR Communications/IT committee
2012-      APOM Scholarship Oversight Committee
2012-      Ad Hoc Reviewer, Anesthesiology
2013-      Ad Hoc Reviewer, Alzheimer’s & Dementia
2013-      Society for Neuroscience in Anesthesiology and Critical Care
C. Contribution to Science

1. Described an association between exposure to surgery and anesthesia, the presence of APOEε4, and resultant cognitive decline and brain atrophy.

There is an increasing appreciation for the potential role of preexisting vulnerabilities for postoperative cognitive dysfunction which has led to the investigation into human biomarkers. When analyzing the Oregon Brain Aging Study and the Intelligent Systems for Assessing Aging Changes longitudinal databases, I found a significant association between surgery/anesthesia and subsequent cognitive and functional decline. This association was stronger in the APOEε4 carriers. Because of this work, I was awarded the Margaret Wood Resident Research Award in 2014 from the Association of University Anesthesiologists. I served as the primary investigator in this study, which laid the groundwork for my BIRCWH K12 and NIA GEMSSTAR R03 awards, as well as awards from the Alzheimer’s Association and Foundation for Anesthesia Education and Research, listed below in “Research Support.”


2. Reported sex differences in cognitive and functional decline following surgery/anesthesia.

Alzheimer’s disease disproportionately affects men and women in both prevalence and severity. Although the etiology of postoperative cognitive dysfunction remains unclear, studies indicate that surgery and anesthesia enhance neuropathologic changes known to underlie AD including amyloid beta (Aβ) accumulation and tau phosphorylation. When investigating the Oregon Brain Aging Study and the Intelligent
Systems for Assessing Aging Changes longitudinal aging databases, I found that women and men with a history of surgery/anesthesia experienced differences in decline in cognition, functional status, and brain volumes. This research was highlighted during a press conference at the 2015 Alzheimer’s Association International Conference and was reported by several news organizations including the Washington Post, NBC News, and the Associated Press.


3. Contributed to international working group describing recommendations for a new nomenclature of cognitive change associated with anesthesia and surgery.

   The aim of this work was to develop similar terminology to use for cognitive changes after surgery and anesthesia to that terminology currently used in cognitive classifications of the general population. As part of this international working group, we recommended that “perioperative neurocognitive disorders” be used as an overarching term for cognitive impairment in the preoperative or postoperative period. These recommendations were published concurrently in six peer-reviewed journals, including the British Journal of Anaesthesia (citation below) as well as Anesthesia and Analgesia, Anesthesiology, Canadian Journal of Anesthesiology, Acta Anaesthesiologica Scandanavia, and the Journal of Alzheimer’s Disease.


4. Reported that isoflurane leads to apoptotic cell death in neonatal and infant rhesus macaque brains.

   Our research group previously reported that significant neuronal and oligodendrocyte apoptosis occurs following 5 hours of isoflurane in P6 rhesus macaques. To increase clinical relevance of the model, we recently determined that a 3-hour isoflurane exposure was sufficient to induce widespread neurotoxicity in the P6 macaque brain. To further describe the window of vulnerability to anesthetic neurotoxicity, we described the neuronal and oligodendrocyte apoptosis after a 5 our isoflurane exposure in P20 and P40 rhesus macaques. We determined that the neuronal vulnerability was beginning to decrease in the P20 and P40 macaques, but continued for oligodendrocytes in these age groups.


5. Discovered that therapeutic concentrations of anesthetic agents could be achieved by cooling agents, and developed a novel anesthetic delivery device.

   At room temperature, the vapor pressures of desflurane, isoflurane, and sevoflurane are above the clinically useful range. For the first time, we described the low temperature-vapor pressure relationships of each of the anesthetic gases.
the three anesthetic agents for temperatures below 0°C. We used this information to construct an anesthetic vaporizer using digital temperature control to deliver clinical anesthetic concentrations. We published our findings in the following manuscript:


We also filed a patent application for the anesthetic vaporizer constructed:


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D. Research Support

**Current Research Support**

NIH National Institute on Aging GEMSSTAR R03 Schenning (PI) 08/01/18-07/31/20
1R03AG056462-01A1
The role of Alzheimer’s risk factors in cognitive decline after spine surgery
Role: PI

Foundation for Anesthesiology Education and Research Professional Development Plan GEMSSTAR Schenning (PI) 08/01/18-07/31/20
Role: PI

Alzheimer’s Association Clinician Scientist Fellowship Schenning (PI) 10/01/17-09/30/20
Title: Sex and genetic risk factors in postoperative dementia
The goal of this project is to characterize genetic and sex differences in participants who develop POCD and functional decline compared to those who do not.
Role: PI

**Completed Research Support**

NIH BIRCWH K12 HD 043488 Guise/Dorsa (PI) 01/01/15-07/31/17
Title: Postoperative cognitive decline: role of sex and APOEε4.
The goals of this project are to use existing longitudinal aging studies (Oregon Brain Aging Study and Intelligent Systems for Assessing Aging Changes) to determine the role of sex and APOEε4 on the effects of surgery/anesthesia on cognitive decline.
Role: Trainee

Oregon Alzheimer Disease Center Pilot Project Schenning (PI) 04/15/15-03/31/17
Title: Anesthesia in the elderly: effects on cognitive decline and dementia
The goal of this project was to determine how exposure to general anesthesia, combined with APOE genotype, affects the rate of decline in cognition, brain volume, function, and functional activity in elderly patients.
Role: PI

Collins Medical Trust Grant Schenning (PI) 07/01/12-11/30/14
Title: Hyperglycemia abolishes the protective effect of ischemic preconditioning on glomerular endothelial cells in ischemia reperfusion injury
The goals of this project were to first determine whether hyperglycemia negates the effect of ischemic preconditioning in glomerular endothelial cells, and to then investigate the mechanism of the effect of hyperglycemia on ischemic preconditioning.
Role: PI

Research Fellowship Grant, FAER
Schenning (PI) 07/01/12-06/30/14
Title: Ischemic Injury to Glomerular Endothelium: Mechanism of Hyperglycemic Protection
The goals of this project were to determine the effect of hyperglycemia on hypoxic glomerular endothelial cells and to determine a mechanism of protection of glomerular endothelial cell function from ischemic injury.
Role: PI/Fellow

T32 GM082770
Kirsch (PI) 07/01/08-01/30/14
Title: Integrated and Translational Training in Anesthesiology Research
Role: Trainee
NAME: Seib, Carolyn, Dacey

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

POSITION TITLE: Assistant Professor

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

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<td>06/2004</td>
<td>Ecology and Evolutionary Biology</td>
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<tr>
<td>New York University School of Medicine</td>
<td>M.D.</td>
<td>06/2009</td>
<td>General Surgery</td>
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<td>Clinical Research</td>
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<tr>
<td>University of California, San Francisco</td>
<td>Clinical Fellow</td>
<td>07/2017</td>
<td>Endocrine Surgery</td>
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A. Personal Statement

I am an endocrine surgeon whose research focuses on improving the surgical outcomes and decision-making of older adults with endocrine disorders. My current research program is focused on the management of primary hyperparathyroidism (PHPT) in older adults. My research interests are informed by my clinical practice as a surgeon caring for geriatric patients with common general and endocrine surgical disorders in the elective and emergent setting. During dedicated research time in residency funded by a T32 training grant from the NIDDK, I completed a Master’s degree program in Clinical Research, through which I received formal training in epidemiology and biostatistics. This included experience with secondary dataset analysis, study design, and regression methods for longitudinal data analysis, all of which have prepared me for a career in health services research related to the surgical management of endocrine disorders in older adults.

I have a funded Grants for Early Medical and Surgical Specialists Transitioning to Aging Research (GEMSSTAR) R03 to study determinants and outcomes of treatment decisions in Medicare beneficiaries with PHPT, which will document how age, multimorbidity, race/ethnicity, and socioeconomic status affect treatment choice and contribute to disease-specific morbidity in older adults with PHPT. In October 2019, I submitted an application for a Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) to facilitate ongoing training in geriatric science and independent aging research. For my Beeson project, I propose an innovative framework to support patient-centered, appropriate use of parathyroidectomy in older adults with PHPT. This project will combine population-based comparative effectiveness research and individualized risk prediction using Veterans Health Administration data with stakeholder input from older adults with PHPT and the providers that care for them to develop a decision support intervention specific to older adults with PHPT. This proposal will also serve as a template for developing patient-centered decision support interventions that promote appropriate surgical management of older adults and prevent the overuse of surgery in elders unlikely to benefit. My clinical background in endocrine surgery and my training in biostatistics have provided me with the necessary skills become a successful, independent aging researcher in collaboration with experienced faculty who are leaders in endocrine surgery, aging and health services research.

B. Positions and Honors

Positions and Employment

2009-2016 General Surgery Resident, Department of Surgery, University of California, San Francisco
2016-2017 Clinical Fellow in Endocrine Surgery, Clinical Instructor in General Surgery, Department of
Surgery, University of California, San Francisco
2017-2019 Clinical Instructor in General Surgery, Department of Surgery, University of California, San Francisco
2019-present Assistant Professor, Department of Surgery, Stanford University
2019-present Staff Physician, Department of Surgery, Palo Alto VA Healthcare System

Other Experience and Professional Memberships
2004-2007 Sigma Xi Scientific Research Society
2009-present Alpha Omega Alpha Honor Society
2009-present Member, American College of Surgeons
2013-present Member, American Association of Endocrine Surgeons
2018-present Member, American Geriatrics Society
2019-present Member, American Thyroid Association
2018-2019 Member, American Association of Endocrine Surgeons Research Committee

Honors
2004 Summa cum laude, Princeton University
2004 Sigma Xi Book Award Recipient, Princeton University
2009 Member of the Alpha Omega Alpha Honor Society, Delta Chapter, Alpha Omega Alpha Honor Society, Delta Chapter
2009 Valentine Mott Surgery Award, NYU School of Medicine
2014 Outstanding Clinical Science Presentation, UCSF General Surgery Resident Research Symposium, University of California, San Francisco
2017 Top 10 Poster, American Association of Endocrine Surgeons 2017 Annual Meeting, American Association of Endocrine Surgeons

C. Contributions to Science
1. Association of Frailty with Outcomes in Ambulatory General and Endocrine Surgery Operations
   It is well established that patient frailty is associated with an increased risk of complications and death after surgery. However, most existing literature has focused on major elective or emergent operations, especially in the field of general surgery. Using the National Surgical Quality Improvement Program (NSQIP) database, we demonstrated that frailty was associated with increased perioperative morbidity in common elective, ambulatory general and endocrine surgery operations, independent of age, anesthesia type, or other comorbidities and risk factors. When looking specifically at patients with PHPT, frailty significantly increases the risk of complications, suggesting patient frailty should be a criterion considered when making treatment decisions. In addition, frailty was associated with increased risks of complications after laparoscopic and open adrenalectomy, having a more significant impact on outcomes than patient age. These findings support the use of routine frailty screening in all older adults prior to elective general and endocrine surgery to improve patient selection and informed consent discussions.


2. Determinants of Surgical Outcomes for Laparoscopic Adrenalectomy
   Laparoscopic Adrenalectomy is a technically challenging operation often performed in patients with advanced age, multimorbidity, and biochemically-active adrenal tumors. Complex, minimally invasive surgery requires focused, intraoperative training to become proficient and to achieve acceptable complication and conversion rates. However, patients often express concern about the participation of residents in the operating room. The
exposure of trainees to adrenalectomy during training is critical to meet increasing clinical demand. To
determine the association between resident and fellow participation in laparoscopic adrenalectomy and
surgical outcomes, we performed a retrospective cohort study using the NSQIP database and found decreased
odds of perioperative complications with the participation of residents and fellows after adjusting for surgical
technique and risk factors for morbidity and mortality. These results validated current training paradigms that
are essential to ensure adequate numbers of competent adrenal surgeons and the maintenance of high-quality
surgical care. More recently, we used multivariable analysis to determine risk factors associated with adverse
perioperative complications in a high-volume tertiary care facility and examined temporal trends in patient
characteristics and adrenal pathology. Understanding risk factors for perioperative complications in
laparoscopic adrenalectomy improves informed consent discussions and individualized decision making in
patients with adrenal tumors.

3. Cost-Utility Analysis in Endocrine Surgery
As in other specialties, it is often challenging to weigh the risks and benefits of different surveillance and
treatment strategies in endocrine surgery. Therefore, I have collaborated on studies using formal cost-utility
analysis [e.g. a cost-effectiveness analysis incorporating quality-adjusted life-years (QALYs)] of population-
based data to inform decisions of patient management in this field. In evaluating treatment strategies for the
management of postoperative hypoparathyroidism, we found that use of recombinant human parathyroid
hormone provided only modest gain in quality of life for patients who are reasonably well-managed with
calcium and vitamin D, and likely does not justify the cost unless usual care has failed. For the evaluation and
surveillance of adrenal incidentalomas, we found that less aggressive surveillance in the setting of benign
imaging findings may provide more benefit in patients with less than 4cm non-functioning adrenal
incidentalomas. Understanding the utility of different surveillance and treatment strategies will prevent
overdiagnosis and overtreatment and allow effective use of healthcare resources.

Complete List of Published Work:

D. Research Support
On-going Research Support
1 R03 AG060097-02 Seib (PI) 08/01/18-07/31/20
NIH/NIA, The Impact of Treatment Choice on Long-term Outcomes in Older Adults with Primary
Hyperparathyroidism

Project goal: The overall objective of this proposed study is to use Medicare claims data to document the
determinants of treatment decisions for older adults with PHPT and determine how medical or surgical
treatment strategies contribute to disease-specific morbidity in this vulnerable population.
Role: Principal Investigator

**Completed Research Support**

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<td>20160973</td>
<td>Seib (PI)</td>
<td>01/01/18-9/30/19</td>
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<td></td>
<td>Mount Zion Health Fund, UCSF Helen Diller Comprehensive Cancer Center Pilot Award for Junior Investigators in Basic and Clinical/Translational Sciences, Postoperative cognitive dysfunction in elderly patients undergoing surgery for thyroid cancer</td>
<td></td>
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</table>

Project goal: With this pilot investigator award, we will use the Tablet-Based Cognitive Assessment Tool (TabCAT) developed at the UCSF Center for Memory and Aging to assess the incidence of postoperative cognitive dysfunction in patients undergoing surgery for thyroid cancer to determine how this risk should affect surgical decision-making in older adults and facilitate accurate informed consent discussions. 
Role: Principal Investigator

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<td>04/01/13-05/31/14</td>
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<td></td>
<td>Mount Zion Health Fund, Jewish Community Federation and Endowment Fund</td>
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<tr>
<td></td>
<td>The Use of Biomarkers as a Determinant of CV Risk in Patients with Primary Hyperparathyroidism</td>
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</table>

Project goal: To investigate whether serum biomarkers can be used as a reliable indicator of increased cardiovascular disease risk in patients with primary hyperparathyroidism, and whether changes in these biomarkers after parathyroidectomy suggest improvement in this risk. 
Role: Co-Principal Investigator

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<td>T32 DK7573-25</td>
<td>Harris (PI)</td>
<td>07/01/88-06/30/20</td>
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<td></td>
<td>National Institute of Diabetes and Digestive Kidney Diseases (NIDDK)</td>
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<td></td>
<td>NIH T32 Training Grant in Gastrointestinal Surgery</td>
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</table>

My translational research project during this award was titled "Quantifying the risk of cardiovascular morbidity and mortality in patients with primary hyperparathyroidism via proatherogenic lipid profiles."

Project goal: An institutional training award to support general surgery residents in preclinical and translational research of surgical diseases related to the gastrointestinal tract. 
Role: Research resident supported by this funding mechanism from June 2012 to June 2014
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: Myrick C. Shinall, Jr.

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

POSITION TITLE: Assistant Professor of Surgery and 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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<tr>
<td>Harvard University</td>
<td>A.B.</td>
<td>5/2003</td>
<td>Chemistry</td>
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<td>Vanderbilt University</td>
<td>M.Div.</td>
<td>6/2009</td>
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<tr>
<td>Vanderbilt University</td>
<td>M.D.</td>
<td>6/2009</td>
<td>Medicine</td>
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<td>Vanderbilt University Medical Center</td>
<td>Residency</td>
<td>6/2016</td>
<td>Surgery</td>
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<tr>
<td>Vanderbilt University</td>
<td>Ph.D.</td>
<td>8/2016</td>
<td>Religion/Health</td>
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<tr>
<td>Vanderbilt University Medical Center</td>
<td>Fellowship</td>
<td>6/2017</td>
<td>Hospice and Palliative Medicine</td>
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</table>

A. Personal Statement

As a surgeon and palliative care physician, I study palliative care interventions for surgical patients with serious, age-related conditions. During medical school, while I obtained a concurrent Master of Divinity degree, I focused especially on how to support patients and families at the end-of-life (EOL). As a surgical resident, I encountered the suffering that poor EOL care causes, which inspired me to pursue training and research to improve this care. During my research years, I completed coursework for a Ph.D. in religion, in which I focused on EOL issues from the standpoint of biomedical ethics and humanities. During this time, I also took advanced graduate coursework in statistics, research methodology, psychometric measurement, and behavioral interventions to complete a minor field in health services research. I examined the association of religion and other psychosocial variables with EOL preferences. I also took part in several research projects examining traditional outcomes in surgical patients. These research experiences gave me background in examining ethical and psychosocial aspects of end-of-life care as well as surgical outcomes. I believe that palliative care consultation can be an effective intervention to improve EOL care, but that it could be even more effective if offered earlier in the course of serious diseases. A major barrier to earlier palliative care consultation is a lack of data on its benefit in surgical patients and a perception that palliative care is not appropriate until the EOL. As a surgeon and fellowship-trained palliative care provider, I can discover whether earlier palliative care consultation benefits surgical patients in the short term and at EOL. Though a young investigator, I have already completed several studies on palliative care and its intersection with surgery, and I designed and currently lead a single-center, randomized controlled trial of early palliative care for patients undergoing surgery for abdominal malignancies (The SCOPE Trial, NCT03436290).

B. Positions and Honors

Positions and Employment

2009-2016  Resident Physician, Department of Surgery, Vanderbilt University Medical Center, Nashville, TN
2016-2017  Clinical Fellow, Section of Palliative Care, Vanderbilt University Medical Center, Nashville, TN
2017-present Assistant Professor, Surgery and Medicine, Vanderbilt University Medical Center, Nashville, TN

Licensure and Certification

2012-present Tennessee Medical License
2016-present Board Certification in Surgery, American Board of Surgery
2018-present Board Certification in Hospice and Palliative Medicine, American Board of Surgery

Other Experience and Professional Memberships

American College of Surgeons
- service on the Geriatric Surgery Task Force
- organized the Online Geriatric Surgery Community
- service on the Committee on Surgical Palliative Care
- organized a panel session on Aging and Surgery for the 2018 TN State Chapter Meeting
- co-moderated a palliative care/geriatrics panel at the 2019 National Meeting

American Geriatrics Society

American Academy of Hospice and Palliative Medicine

American Society of Bioethics and Humanities

Honors and Scholarships

2019 NIH Rising Star Award: Chosen by the National Institute on Aging as a promising young investigator in aging research to fund travel to Bethesda to give a scientific presentation to intramural NIH staff.

2018 American Academy of Hospice and Palliative Medicine (AAHPM) Research Scholars Program: Selected as a promising early-stage researcher in aging to fund attendance at the Kathleen Foley Palliative Care Retreat

2012-14 H. William Scott, Jr., Research Scholarship Award

2009 Founder’s Medal (Valedictorian) Vanderbilt Divinity School

2008 Alpha Omega Alpha Honor Society

2005-09 Divinity School Merit Scholarship

2005 The Scholars Fund Scholarship

2004 Amos Christie Scholarship

2004 McGraw-Hill/LANGE Book Award

C. Contribution to Science

1. As a leader of the Survivorship Core of the Critical Illness, Brain Dysfunction and Survivorship (CIBS) Center, I work to find ways to improve the care of surgical patients with age-related conditions. Specifically, I study palliative care interventions for these patients. Preliminary work in this regard involved studying the processes of palliative care we have at our institution to examine how they could most effectively be engaged for surgical patients. With co-investigators from the CIBS center (including my mentor Dr. Ely), I therefore undertook a study of our institution’s experience with our palliative care unit as well as a validation of one of the quality of life measures we used in our palliative care clinic. I also participated as a co-investigator with Dr. Ely on the COMPASS randomized, controlled trial of early specialist palliative care for end stage liver disease patients. Although the study closed early, we found that the palliative care intervention was associated with longer time until readmission, which was the primary outcome of the study. From this trial I gained experience with the issues involved in the design and conduct of palliative care trials. I took this experience when I designed the SCOPE Trial, the randomized, controlled trial of specialist palliative care for patients undergoing major abdominal operations for cancer. This study will demonstrate whether the benefits of early palliative...
care consultation that have been demonstrated in the medical oncology setting can translate to the surgical oncology setting. This trial will be one of the first to assess whether a surgical population benefits from specialist palliative care.


2. As a surgeon and palliative care physician, I am particularly interested in studying the intersection of surgery and end-of-life care. I brought my expertise as a religious studies scholar to bear on the question of how religious affiliation impacted the intensity of end-of-life care in critically ill surgical patients. I began this work looking at trauma patients and found being religiously affiliated was associated with more aggressive end of life care. I then broadened the scope of investigation to look at other surgical and non-surgical intensive care unit patients and found a similar association. I subsequently investigated the outcomes for comfort-focused care of surgical patients. I had noted in my palliative care practice that some patients who elected for comfort-focused care rather than a life-saving operation nevertheless survived. I could find no studies of this phenomenon in the literature, so I conducted a retrospective review of patients at VUMC who had a perforated abdominal organ (usually considered a rapidly fatal injury without surgical repair) and instead of undergoing an operation were transferred to our palliative care unit for comfort focused care. My work found that some of these patients do survive to discharge, and that this possibility should be discussed when making decisions about whether to undergo surgery or have comfort-focused care. This work transitioned to examining how we can predict which patients are at high risk preoperatively for death. With a group of collaborators I studied how frailty interacts with degree of operative stress in predicting post-operative mortality, and we found that frail patients have very high rates of mortality even after “minor” operations.


3. One of the crucial transitions in care that I deal with as a palliative care physician is the decision to discontinue life-prolonging therapy and transition a patient to comfort-focused care, often in conjunction with hospice enrolment. I have therefore studied what the barriers and facilitators of these transitions are. Drawing on my background in medical ethics and humanities, I have examined the moral issues surrounding this transition and the policy changes that have shaped and been shaped by these moral issues. With collaborators I have also examined the extent to which religious belief in miracles becomes a barrier to appropriate transitions to comfort-focused care, and I have written on strategies for clinicians to handle religious-based objections to comfort focused care. I have also used data from Vanderbilt’s palliative care experience to show that need for discharge to a facility rather than to home is associated with lower hospice enrollments, presumably due to the Medicare hospice benefit’s lack of coverage for facility care. My collaborators and I have also examined how timing of palliative care consultation is related to length of hospice enrollment, and found that patients with palliative care consultations earlier in their disease trajectory had longer hospice stays than those with later palliative care consultations.
4. During the research portion of my surgical residency, I investigated outcomes in patients undergoing surgery of the endocrine glands, specifically the thyroid and adrenal glands. Based on evidence from the middle of the twentieth century, many guidelines exist for the preoperative medication of patients undergoing thyroidectomy for Graves disease, an autoimmune disease causing hyperthyroidism. Based on retrospective data, we were able to show that many of these preoperative medications were unnecessary and that their omission did not worsen surgical outcomes. We also examined the outcomes of surgery on the adrenal gland for benign and malignant neoplasms and how the nature of the neoplasm as well as genetic syndromes affected surgical outcomes.


5. My early research focused on the medical care of children. I engaged several projects in the clinical optimization of vaccination in children. Although the efficacy of vaccines to prevent disease in children is well established, there remain practical problems in the administration of vaccines in pediatric practice that my work sought to solve. With respect to flu vaccination, one problem is that pediatricians need to know how reliable parental report of vaccination status is since children can receive these vaccines in so many venues. My collaborators and I tested the reliability of parental report against children’s vaccination records to find quite high concurrence. With respect to pertussis vaccination, very young infants remain vulnerable to this disease before their scheduled vaccination. We constructed a model to show that accelerating the pertussis vaccine in children could substantially reduce the number of cases of pertussis among infants. I also worked with several collaborators on outcomes research in pediatric general surgery. In a retrospective cohort study, we examined two operative strategies for the management of Hirschsprung’s disease, a congenital disorder of colon development requiring surgical correction. We found no difference in complications or costs between the established gold-standard surgical strategy of staged repair compared with a more aggressive surgical approach of definitive single-stage repair in neonates. We also examined the strategy of the surgical treatment of hepatoblastoma, a childhood liver tumor. The accepted management strategy in this malignancy is for patients to receive pre-operative chemotherapy to shrink the tumor in the hopes of reducing the extent of liver resection required for cure. By analyzing the imaging characteristics of these tumors over the course of chemotherapy, we discovered a point of diminishing returns in tumor shrinkage, suggesting that patients should undergo resection earlier, which would potentially minimize the treatment toxicity of prolonged chemotherapy.


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

**D. Additional Information: Research Support**

**Ongoing Research Support**

K12 CA090625 Rathmell (PI) 7/1/17-6/30/20
Vanderbilt Clinical Oncology Research Career Development Award
The goal of this grant is to support the career development of young faculty researchers with cancer-related projects at Vanderbilt University Medical Center. I was chosen as a recipient to fund my career development as a researcher studying the intersection of cancer and aging. This award has funded my time on the development and leadership of the SCOPE Trial of early palliative care for surgical oncology patients. In addition, it has funded time for me to work on my career development plan with my mentor, Dr. Ely, as I develop the skills needed to become a successful investigator of palliative care interventions for surgical patients with serious age-related conditions.
Role: Awardee

R03 AG060085 Shinall (PI) 9/1/2018-8/30/2020
The Surgery for Cancer with Option of Palliative Care Expert (SCOPE) Trial
The goal of this grant is to fund the first two years of enrollment of the SCOPE Trial of early palliative care for surgical oncology patients. The GEMSSTAR has provided the funds to cover the staffing of the SCOPE Trial, including research nurses, coordinators, and biostatisticians. The GEMSSTAR award works in tandem with the K12 to promote my career development plan of gaining expertise in aging and aging research.
Role: PI

NIH Loan Repayment Program (NIA) 9/1/2019-8/30/2021
This extramural loan repayment award is in support of protecting research time for me to develop as an investigator of aging and surgery. This has included time for the SCOPE Trial, but it also supports my collaboration with a multi-institutional group of surgeons studying frailty and its impact on post-operative outcomes. We have developed tools to use large surgical databases (such as VASQIP an NSQIP) to study the functional outcomes and vital status of patients undergoing operations of various levels of physiologic stress and study how these outcomes are associated with frailty.
NAME: Whitlock, Elizabeth L.
eRA COMMONS USER NAME (credential, e.g., agency login): ewhitlock
POSITION TITLE: John Severinghaus Assistant Professor In Residence

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>Scripps College, Claremont, CA</td>
<td>BA</td>
<td>05/2005</td>
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<tr>
<td>Washington University School of Medicine, St Louis, MO</td>
<td>MA</td>
<td>06/2008</td>
<td>Biomedical Sciences</td>
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<td>Washington University School of Medicine, St Louis, MO</td>
<td>MS</td>
<td>04/2011</td>
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<td>Internship</td>
<td>06/2012</td>
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<td>Fellowship</td>
<td>04/2018</td>
<td>Postdoctoral Scholar (NIH NIGMS T32)</td>
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A. Personal Statement

I am a board-certified anesthesiologist with a primary research interest in the perioperative outcomes of older adults, and I provide clinical care in high-stakes settings where older adults have unique needs. My long-term goal is to lead anesthesiologists and surgeons toward a patient-focused understanding of the cognitive impact of surgery and surgically-modifiable conditions in older adults. After several productive years studying postoperative delirium, stroke, mortality, and other outcomes, I recently transitioned to aging and epidemiology research, funded by a GEMSSTAR R03, the UCSF KL2 program, and as a UCSF Pepper OAIC Scholar.

As a researcher and as a clinician, I am struck by the lack of knowledge around long-term cognitive implications of common surgical procedures, and frustrated by my inability to reconcile the well-demonstrated phenomenon of short-term postoperative cognitive decline with the necessity of revascularizing a heart, replacing an arthritic knee, or resecting a cancer. How do I counsel my older patients concerned about perioperative cognitive decline when the alternative seems to be a heart attack, immobility and opioid therapy, or metastatic disease? My approach to perioperative questions of this nature applies a novel and patient-centered methodology that models both potential cognitive benefits of surgery and postoperative cognitive decline using epidemiological methods, contextualizing cognitive change in an intuitive, graspable way that has immediate applications for perioperative shared decision-making.

I have received unwavering support from the Department of Anesthesia at UCSF since entering as a resident physician in the Research Scholar's Track. As the John Severinghaus Assistant Professor, I continue to be supported by my Chair, Dr. Gropper, and our department’s Pathway to Scientific Independence. The study proposed refines my prior epidemiological work toward an expanded view of perioperative cognition, establishing me as an expert in perioperative cognitive change in older adults, positioning me to achieve research independence at the conclusion of the training period, and supporting my growth as a leader to guide surgeons and anesthesiologists toward best-practices cognitive care of older adults undergoing surgery.

B. Positions and Honors

Principal Positions Held
2007-2008 Predoctoral Medical Research Fellow, Howard Hughes Medical Institute, Washington University School of Medicine, St Louis, MO
2010-2011 NCRR TL1 Research Scholar, Washington University School of Medicine, St Louis, MO
2011-2012 Clinical Intern, UCSF Department of Anesthesia & Perioperative Care
2012-2016 Resident, Research Scholars' Track, UCSF Department of Anesthesia & Perioperative Care
2016-2018 NIGMS T32 Postdoctoral Fellow, UCSF Dept of Anesthesia & Perioperative Care
2018-pres. John Severinghaus Assistant Professor, UCSF Dept of Anesthesia & Perioperative Care

Licenses and Certification
2012- California Medical License (A126068)
2016- Diplomate, American Board of Anesthesiology

Honors and Awards
2001 National Merit Scholar
2005 Magna cum Laude, Biology, Scripps College
2009 Best Basic Science Presentation, American Society for Peripheral Nerve Annual Meeting
2011 Richard S. Brookings Medical School Prize for Research Excellence, Washington University School of Medicine
2013 Foundation for Anesthesia Education and Research (FAER) Resident Scholar
2014 Finalist, Best of Clinical Abstracts, American Society of Anesthesiologists Annual Meeting
2014 Resident Abstract Awards Finalist, International Anesthesia Research Society Annual Meeting
2015 Resident Abstract Awards Finalist, International Anesthesia Research Society Annual Meeting
2015 Dr Mark A. Rosen Resident Scholarship Award, UCSF Dept of Anesthesia & Perioperative Care
2016 National Institutes of Health (NIH) Clinical Loan Repayment Program (LRP) Award
2017 Kosaka Best of Meeting Clinical Research Abstract Award, International Anesthesia Research Society Annual Meeting
2017 National Institute on Aging Butler-Williams Scholar
2018 Margaret Wood Resident Research Award, Association of University Anesthesiologists Annual Meeting
2018 2018-2020 John Severinghaus Assistant Professor (in recognition of meritorious research; renewed for a second year)

Professional Memberships and Service
2010- Member, American Society of Anesthesiologists
2010- Member, International Anesthesia Research Society
2015-2017 Member, Data Use Committee, National Anesthesia Clinical Outcomes Registry
2016- Member, Society for the Advancement of Geriatric Anesthesia
2016-2018 President, Early-Stage Anesthesiology Scholars
2016- Member, American Geriatrics Society
2017- Associate Member, Association of University Anesthesiologists
2018 Ad-hoc Assistant Editor, Anesthesia & Analgesia
2018-2020 Immediate Past-President, Early-Stage Anesthesiology Scholars
2018-2019 eSAS Representative to Annual Meeting Oversight Committee (2019 & 2020), IARS
2018- Vice Chair, Data Use Committee, National Anesthesia Clinical Outcomes Registry
2019 Grant Review Committee, International Anesthesia Research Society Mentored Research Awards
2019- Assistant Section Editor, Geriatric Anesthesiology, Anesthesia & Analgesia
2019- Steering Committee, Anesthesia Research Collaborative (IARS/ASA/FAER)
C. Contribution to Science (selected from 28 peer-reviewed publications, 17 as first author; 2 original research manuscripts in the specific area of this application)

1. **A novel perspective on longitudinal cognitive change in the elderly**

   While my prior work focused on the neurocognitive complications of events in the immediate perioperative setting, my clinical experience during residency – and subsequently, my contact with the longitudinal care providers for my most vulnerable patients, the Division of Geriatrics at UCSF – made it clear that considering cognitive change in first weeks or months following a major surgery is potentially shortsighted. Just as geriatric care can span years, even decades, so too can important cognitive effects of medical conditions or interventions. I have recently transitioned to aging research as a GEMSSTAR scholar. We demonstrated accelerated cognitive decline in sufferers of chronic pain,[a] which may not become apparent for years, but nonetheless may have functional implications as cognitively-intensive instrumental activities of daily living are prematurely lost. Published in JAMA Internal Medicine, this work was highlighted in the New York Times, on the AARP website, and in NEJM’s Journal Watch, demonstrating its broad appeal to laypeople and clinicians alike. Our publication in Annals of Thoracic Surgery applied this approach to cardiac intervention and found no evidence for significant intermediate-term cognitive harm as a result of cardiac surgery [b]. Taking a long view of cognition in older adults acknowledges the importance of accomplishing necessary medical interventions while protecting cognition as much as possible, balancing the risks of the periprocedural period and hospitalization with the need to address quality-of-life-impacting pathology. It is also an entirely novel – and yet highly patient-oriented – perspective on POCD, the understanding of which is one of anesthesiology’s greatest research imperatives.

   We apply this methodology to the joint arthroplasty population in this application. However, it has limitations: short-term change is not well modeled, and it is not known how best to offer counseling to older adults on short- and long-term perioperative cognitive change. The proposed work will bridge those gaps and generate clinically-applicable counseling strategies focused on cognitive outcomes after surgery.


2. **Perioperative delirium: original observational and implementation research**

   Postoperative delirium is a serious complication of medical illness and surgery, with important implications for subsequent function, cognition, and mortality. My work studying the association between anesthetic depth and subsequent postoperative delirium suggested that monitoring the electroencephalogram intraoperatively may be protective against this significant complication,[a] which is now the subject of several dedicated randomized controlled trials initiated by members of my research group and others.

   More globally, however, postoperative delirium remains a topic of considerable interest in the greater medical community. In the last year, I have been invited to author 2 editorials (Can J Anaesth and JAMA Surg) based on my expertise in delirium. Review articles and a book chapter that I coauthored with high-profile experts in perioperative delirium continue to disseminate, concisely and in a way that is of immediate clinical utility, our current understanding of the literature surrounding postoperative delirium.[b-d]

   My expertise in delirium directly impacts UCSF Health: as a member of the Delirium Reduction Advisory Committee, I help steer an ongoing quality improvement initiative to identify hospitalized patients at high risk for delirium. I am a key member of UCSF’s Postoperative Delirium Working Group, a multidisciplinary effort to address the unique needs of perioperative patients. We developed a pathway that identifies patients at high risk of perioperative delirium and enters them into a specialized care bundle instituting best-evidence practices for prevention of delirium intraoperatively, in the recovery room, and after admission to the hospital floor. Two manuscripts describing the pathway and its underlying prediction model are currently under review.

3. **High-impact perioperative outcomes research using secondary data**

I am fascinated with the blossoming field of secondary data research, which has made it possible to answer questions of critical clinical relevance that are impossible to study using traditional methodology. I have established myself as an expert in anesthesiology-focused perioperative outcomes research both on the basis of my published work and my service to the National Anesthesia Clinical Outcomes Registry (NACOR), where I have served as a member of the Data Use Committee since 2015 and currently serve in the role of Vice Chair. Using NACOR data, I generated first-author work on perioperative mortality[a].

I also conducted an original investigation using the proprietary Premier dataset to study the relationship between perioperative transfusion – an inflammatory stimulus – and perioperative stroke and myocardial infarction, in over 1.5 million patients. The finding that transfusion is associated with perioperative ischemic harm was published in BMJ.[b] Stimulating research into a modifiable way to reduce risk of perioperative injury.

Finally, my present research into longitudinal cognitive outcomes would be extremely difficult without the population-based Health and Retirement study; this dataset enables study of very long-term cognitive changes associated with chronic pain [c] and cardiac intervention [d], as well as surgical interventions like TJA, as presented in the included Specific Aims. These published and unpublished works demonstrate my facility in identifying and working with different datasets to address clinically relevant questions.


4. **Rodent models of peripheral nerve regeneration**

I spent a dedicated year and two summers working in a basic science laboratory studying peripheral nerve regeneration during medical school. There, I learned basic research techniques, manuscript writing, oral and poster presentation techniques, and rapidly moved to design and conduct my own studies, mentored by those in the lab. As a medical student, I was awarded **Best Basic Science Presentation** at the American Society for Peripheral Nerve Annual Meeting and published 9 manuscripts, 5 as first author. While basic science would not ultimately be a driving force in my career, I had an extremely productive experience there, which taught me fundamentals of science and nurtured my investigative spirit.


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

**CURRENT:**

1. R03AG059822 (GEMSSTAR)  
   PI 5% effort  
   National Institute on Aging  
   Impact of Coronary Revascularization on Longitudinal Cognitive Change in the Elderly  
   8/1/2018 7/31/2020  
   $75,000 direct/yr 1 $150,000 total  

2. KL2TR001870 (UCSF KL2)  
   Trainee 75% effort  
   National Center for Advancing Translational Sciences  
   Impact of Elective Total Joint Arthroplasty on Longitudinal Cognitive Change in Older Adults  
   8/1/2019 7/31/2022  

3. P30AG044281 (Pepper OAIC)  
   Scholar Shared with KL2  
   Discretionary funding to support KL2 project  
   Impact of Elective TJA on Longit. Cog. Change in OA  
   8/1/2019 7/31/2020  
   $10,000 direct/yr 1 $10,000 total  

**COMPLETED:**  

1. L30AG053869  
   PI  
   National Institute on Aging Loan Repayment Program  
   Cognitive Trajectories Before and After Coronary Revascularization in the Elderly  
   8/1/2016 7/31/2018  

2. T32GM008440  
   Trainee 80% effort  
   Postgraduate Comprehensive Anesthesia Research Training  
   5/1/2016 4/30/2018  

3. MRTG-CT-08-15-17-Whitlock  
   PI 75% effort  
   Foundation for Anesthesia Education and Research Mentored Research Training Grant  
   Cognitive Trajectories Before and After Coronary Revascularization in the Elderly  
   5/1/2018 7/31/2018  
   $75,000 direct/yr 1 $175,000 total  
   *Completed early upon receipt of NIA GEMSSTAR R03 grant for same proposed topic of study*  

4. Career Development Funding  
   PI  
   Foundation for Anesthesia Education and Research: GEMSSTAR Career Development Aims  
   Impact of Coronary Revascularization on Longitudinal Cognitive Change in the Elderly  
   8/1/2018 7/31/2019  
   $25,000 direct/yr 1 $25,000 total
BIOGRAPHICAL SKETCH
DO NOT EXCEED FIVE PAGES.

NAME: Betz, Marian Elizabeth

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

POSITION TITLE: Associate Professor, Emergency Medicine; Associate Professor, Epidemiology

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>
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<td>Yale University, New Haven, CT</td>
<td>B.S.</td>
<td>06/1999</td>
<td>Biology</td>
</tr>
<tr>
<td>Johns Hopkins Bloomberg School of Public Health, Baltimore, MD</td>
<td>M.P.H.</td>
<td>05/2004</td>
<td>Epidemiology, Injury</td>
</tr>
<tr>
<td>Johns Hopkins School of Medicine, Baltimore, MD</td>
<td>M.D.</td>
<td>05/2005</td>
<td>Medicine</td>
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<tr>
<td>Harvard Affiliated Emergency Medicine Residency, Boston, MA</td>
<td></td>
<td>06/2008</td>
<td>Emergency Medicine</td>
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<td>American Board of Emergency Medicine</td>
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A. Personal Statement
My research focuses on the development and implementation of patient-centered injury prevention interventions that are feasible for use in busy clinical settings. As a practicing emergency physician, I understand the heavy toll of injuries, the complexities of balancing patient autonomy and safety, and the difficulties of integrating preventive efforts into complex clinical workflows. I am particularly interested in ways to enhance patient-centered decision-making about sensitive topics, especially driving and firearm access. My NIA Beeson K23 award focused on older driver safety as a model, with the goal of using a clinical decision rule and to facilitate conversations about driving retirement. Building on that foundation, I am now leading multi-disciplinary teams to examine decision aids for sensitive topics in injury prevention (driving retirement, firearm access in dementia, and reducing firearm access for those at risk of suicide). I have a strong track record of leading work in the area of injury prevention, including multiple publications (as detailed below) and strong multi-disciplinary collaborations with leaders across the nation. I have worked with local, state and national organizations on issues related to injury prevention, including the American Geriatrics Society, the American Medical Association, the Department of Defense Suicide Prevention Office, and the National Academy of Sciences, Engineering and Medicine.


B. Positions and Honors

Positions and Employment
2007-08 Chief Resident, Harvard Affiliated Emergency Medicine Residency, Beth Israel Deaconess Medical Center, Boston, MA
2008-09 Staff physician, Dept. of Emergency Medicine, Beth Israel Deaconess Medical Center, Boston, MA
2008-09 Instructor in Medicine, Harvard Medical School, Boston, MA
2009-10 Senior Instructor, Div. of Emergency Medicine, University of Colorado School of Medicine
2010-15  Assistant Professor, Dept. of Emergency Medicine, University of Colorado School of Medicine
2010-15  Assistant Professor, Dept. of Epidemiology, Colorado School of Public Health
2015-  Associate Professor, Dept. of Emergency Medicine, University of Colorado School of Medicine
2015-  Associate Professor, Dept. of Epidemiology, Colorado School of Public Health
2019- Research Physician, Eastern Colorado Geriatric Research, Education, and Clinical Center (GRECC), Veterans Health Administration

Other Experience and Professional Memberships
2011-13 Elected Section Councilor, Injury Control and Emergency Health Services Section, American Public Health Association
2012-15 Elected Member-at-Large (2012-14), President-Elect (2013-14) and President (2014-15), Academy of Geriatrics in Emergency Medicine, Society for Academic Emergency Medicine
2014-19 Colorado Suicide Prevention Commission; appointed member; Chair of Emergency Services workgroup (2014-17)
2015 Invited member, Technical Advisory Group on Firearm Research, Research Committee, American College of Emergency Physicians
2017- Invited member, United States Department of Defense Means Safety Task Force
2019- Chair, Research Council, American Foundation for Firearm Injury Reduction in Medicine
2019- Invited member, Global Violence Prevention Forum, National Academy of Sciences
2019- Invited member, Lethal Means Line of Effort, Executive Order (EO) 13861 (President’s Roadmap to Empower Veterans and End a National Tragedy of Suicide - PREVENTS)

Selected Honors
1999 Phi Beta Kappa Honor Society, Yale University
1999 Magna cum laude and Distinction in Biology, Yale University
2003-04 Watt-Hansell Scholarship, Johns Hopkins Bloomberg School of Public Health
2004 Delta Omega Public Health Honor Society, Johns Hopkins Bloomberg School of Public Health
2005 Alpha Omega Alpha Medical Honor Society, Johns Hopkins University School of Medicine
2011 2011 Merck/American Geriatrics Society New Investigator Award
2012-14 Clinical Faculty Scholars Program, Colorado Clinical & Translational Sciences Institute
2013-14 Colorado Mentoring Training Program, Colorado Clinical & Translational Sciences Institute
2014 Professional Leadership Award for AAMC Early Career Women Faculty Professional Development Seminar, Women in Medicine and Science Committee, University of Colorado School of Medicine
2014 Spotlight: Health Scholar for 2014 Aspen Ideas Festival
2014 2014-15 Women in Leadership Training Cohort, University of Colorado School of Medicine
2015 Early Career Award, Academy for Women in Academic Emergency Medicine, Society for Academic Emergency Medicine
2016 Elizabeth Ratner Annual Lecture, Johns Hopkins School of Medicine
2016 Young Investigator Award, Society for Academic Emergency Medicine
2019 Lashutka Endowed Lectureship, Ohio State University College of Medicine, Department of Emergency Medicine
2019 Professional Leadership Award for AAMC Mid-Career Women Faculty Professional Development Seminar, Women in Medicine and Science Committee, University of Colorado School of Medicine

C. Contribution to Science
1. Older driver safety: Understanding when and how older adults retire from driving – or should retire from driving – has been a primary focus of my work for the last decade. Through foundation-supported work and my NIA K23 award, I used mixed-methods to examine older driver preferences and practices, especially as related to interactions with healthcare providers. We found that annual Medicare Wellness exams might be an optimal time to include routine discussion of driving issues and that “Advance Driving Directives” might be a useful tool to frame conversations about driving safety. I worked with the American Geriatrics Society in recent development of a “pocket guide” version of the Clinician's Guide to Assessing and Counseling Older Drivers, for use by ED providers and surgeons. We are also developing web-based tools to support caregivers of people with dementia in making decisions about driving and other safety issues.


2. Geriatric injury prevention: A major area of my scientific contributions, this has included examination of the use of decision aids in geriatric populations, epidemiologic studies about ED care of injured older adults and surveys of community-dwelling older adults.


3. Lethal means safety for suicide prevention: Reducing access, even temporarily, to firearms and other lethal methods of suicide is an effective and evidence-based prevention strategy. Counseling and education about this concept is recommended (but often not done) for suicidal patients in EDs. In an early publication, I found that ED providers appeared to share the general public’s skepticism about the preventability of suicide and the effectiveness of means restriction. Building on this work, as Site-PI on the large ED-SAFE study, I led additional investigations of ED providers’ knowledge, attitudes and practices concerning lethal means counseling for suicidal patients. We found that many providers do not usually ask suicidal patients about firearm access. This work related to suicidal patients and discussion of firearm access has received national media attention, and I was invited to give a TED talk at TEDxMileHigh (Denver, Colorado) in June, 2015. I also co-founded the Colorado Firearm Safety Coalition, a group of firearm retailers and public health professionals that meets regularly to collaborate on suicide prevention interventions. I am also currently PI on an NIMH R34 to develop and pilot test the “Lock to Live” lethal means decision aid.


4. Provider-patient communication: I have a particular research interest in how to understand and improve communication between providers and patients, especially as related to sensitive topics like suicide, firearms, and older driver independence. I have led projects examining the viewpoints of both providers and patients concerning how to encourage conversations that are respectful, evidence-based, and feasible in typical clinical practice.


5. **Implementation science:** Through my Beeson K23 award, and through my role as Site PI on the ED-SAFE-2 trial (an implementation trial), I have gained skills and conducted analyses concerning the viewpoints of providers and patients. These have included studies examining the development of injury prevention programs for busy clinical settings, including exploring barriers and facilitators and program effects on care.


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

**D. Research Support**

**Ongoing Research Support**

<table>
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<tr>
<th>AAA Foundation for Traffic Safety</th>
<th>Li (PI)</th>
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<tr>
<td>AAAFTS Senior Driver Cohort Study</td>
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</table>

Goals: In a longitudinal cohort of older drivers, examine: (1) protective/risk factors of safe driving; (2) medications associated with driving performance/behavior; (3) driver self-regulation to cope with physical/cognitive declines; (4) role of new vehicle technology; and (5) determinants and impacts of driving cessation. Role: Site Co-PI

R34 MH113539-01 (NIH/NIMH) 07/01/17-04/30/20

A Patient Decision Aid to Augment Lethal Means Counseling for Suicidal Patients

Goal: To complete a web-based lethal means decision aid for suicidal adults (for decisions about reducing home firearm access) and, in a pilot randomized controlled trial, assess acceptability, feasibility and effects of the decision-aid among patients and providers.

Role: PI

R01 AG059613-01A1 (NIH/NIA) 05/01/19-04/30/24

Decision Making Among Older Adults: the AUTO study

Goals: To (1) test the efficacy of a web-based driving decision aid (DDA) in improving decision quality, (2) determine the DDA’s effects in subpopulations of older adults, and (3) identify best settings for future use.

Role: PI

Kaiser Permanente Research 07/01/19-06/30/21

A Pragmatic Randomized Trial of a Firearm Storage Decision Aid for Adults with Suicide Ideation

Goal: To test the effectiveness and implementation of the Lock to Live decision aid in primary care settings.

Role: Co-I

Kaiser Permanente Research 07/01/19-06/30/21

Integration of Firearm Suicide Prevention Tools in Health Care Settings: Patient-Reported Access to Firearms & Decision Aid for Securing Firearms
Goals: To (1) examine patient-reported firearm access and (2) implement and evaluate the *Lock to Live* decision aid for primary care patients at risk of suicide.
Role: Co-I

MINDSOURCE-Brain Injury Network  
Brenner (PI)  
08/01/19-07/31/21
Microbiome, inflammation, and gut permeability: the onset of psychiatric conditions among those with acute mild traumatic brain injury (mTBI)
Goals: To examine microbiome composition and association with new or recurrent psychiatric conditions.
Role: Co-I

**Selected Completed Research Support (past 3 years)**

**K23 AG043123 (NIH/NIA)**  
08/15/13-05/31/19
Physician Screening of Older Drivers: Decision Rules for Geriatric Injury Prevention
Goals: To (1) identify barriers and facilitators to tiered older driver assessment, (2) validate a clinical decision rule to screen older patients for at-risk driving, and (3) test a pilot program of tiered older driver assessment.
Role: PI

American Foundation for Suicide Prevention  
Miller (PI)  
10/01/16-09/30/19
An ED-Based Randomized Controlled Trial of Lethal Means Counseling (LMC) for Parents of At-Risk Youth
Goals: To test whether parents of at-risk adolescents treated in hospital emergency departments that have (vs. have not yet) implemented lethal means counseling are more likely to store firearms and medications safely.
Role: Co-I

Defense Suicide Prevention Office (DHRA)  
10/01/18-09/30/19
Contract: 47QFPA-18-D-0004, Task Order #1: Leveraging Firearms Retailers to Reduce Suicide Deaths
Goal: To examine the potential impact of firearm retailer programs on suicide attempts and provide potential recommendations for the Defense Suicide Prevention Office to engage in or support such programs.
Role: PI
NAME: Fung, Constance Huikong

eRA COMMONS USER NAME: CHFung

POSITION TITLE: Associate Professor of Medicine

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>Completion Date</th>
<th>FIELD OF STUDY</th>
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<tr>
<td>Stanford University, Palo Alto, California</td>
<td>B.A., with distinction</td>
<td>06/1994</td>
<td>Human Biology</td>
</tr>
<tr>
<td>David Geffen School of Medicine at UCLA, Los Angeles, California</td>
<td>M.D.</td>
<td>06/1998</td>
<td>Medicine</td>
</tr>
<tr>
<td>UCLA Medical Center, Los Angeles, California</td>
<td>Internship/Residency</td>
<td>06/2001</td>
<td>Internal Medicine</td>
</tr>
<tr>
<td>UCLA School of Public Health, Los Angeles, California</td>
<td>M.S.</td>
<td>06/2003</td>
<td>Health Services</td>
</tr>
<tr>
<td>UCLA/VA Multi-Campus Health Services Research and Ambulatory Care Fellowship, Los Angeles, California</td>
<td>Fellowship</td>
<td>06/2003</td>
<td>Health Services</td>
</tr>
<tr>
<td>UCLA/VA Multi-Campus Program in Geriatrics and Gerontology, Los Angeles, California</td>
<td>Fellowship</td>
<td>06/2010</td>
<td>Geriatrics</td>
</tr>
<tr>
<td>Cedars-Sinai (VA/Olive View) Sleep Medicine Fellowship Program, Los Angeles, California</td>
<td>Fellowship</td>
<td>06/2011</td>
<td>Sleep Medicine</td>
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<tr>
<td>VA Advanced Geriatrics Fellowship, Los Angeles, California</td>
<td>Fellowship</td>
<td>09/2013</td>
<td>Geriatric Sleep Research</td>
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</table>

A. Personal Statement

During my Beeson Award, I developed and tested behavioral programs for improving sleep in older adults. My current clinical trial is testing a novel program for helping patients switch from pharmacological (benzodiazepines/z-drugs) to cognitive behavioral therapy for insomnia. The program targets expectancies for sleeping pills (including placebo/nocebo effects) by using a blinded/masked tapering approach. This trial will broaden our knowledge about the placebo effects associated with sleeping pills, in middle-aged and older adults and in veterans and non-veterans. I am concurrently piloting a low-touch approach for reducing sleeping pill use in older adults, that can be broadly disseminated. My Beeson Award also provided me with the support necessary to develop and test a new decision aid for older adults with obstructive sleep apnea. The decision aid improved decisional outcomes in veterans and non-veterans. Finally, through collaborations formed, in part, through the Beeson Program, my collaborators and I developed a project to reduce nocturia and insomnia symptoms among older adults that we plan to test in a multi-site trial.

B. Positions and Honors

Positions and Employment

2003-2004 Instructor of Medicine, David Geffen School of Medicine at UCLA/VA Greater Los Angeles Healthcare System, Los Angeles, California
2004-2007 Assistant Professor of Medicine, In-Residence, David Geffen School of Medicine at UCLA/VA Greater, Los Angeles Healthcare System, Los Angeles, California
2003-2007 Natural Scientist, RAND Corporation, Santa Monica, California
2007-2009 Content Developer, ZynxHealth, Los Angeles, California
2013-2017 Assistant Professor, David Geffen School of Medicine at UCLA; Staff Physician, VA Greater Los Angeles Healthcare System, Los Angeles, California
2017- Associate Professor, David Geffen School of Medicine at UCLA; Staff Physician, VA Greater Los Angeles Healthcare System, Los Angeles, California

Other Experience and Professional Memberships
2006 Workshop Faculty, Society of General Internal Medicine 2006 National Meeting, “Developing Quality of Care Measures for Patients with Multiple Complex Comorbidities”
2006 Planning Committee Core Member, Society of General Internal Medicine/American Board of Internal Medicine® Quality Summit: Developing Measures for Patients with Complex Comorbidities”
2009- Fellow, American College of Physicians
2009- Member, American Academy of Sleep Medicine
2009- Member, American Geriatrics Society
2010- Member, Sleep Research Society
2012 Invited Attendee, American Academy of Sleep Medicine Young Investigator Forum 2012
2012-2016 Steering Committee Member, American Geriatrics Society Special Interest Group Junior Faculty Researchers
2013 Chair of “Health Care Services: Public Policy Research” Oral Presentation Session, Associated Professional Sleep Societies 2013 Annual Meeting
2014 Co-Chair of “Insomnia: Co-morbid Association” Oral Presentation Session, Associated Professional Sleep Societies 2014 Annual Meeting
2014- Member, Program Evaluation Committee and Fellow Selection Committee, UCLA Sleep Medicine Fellowship (previously Cedars-Sinai [VA Greater Los Angeles/Olive View]) Sleep Medicine Fellowship
2014-2016 Planning Committee, NIA/AGS U13 Sleep Disorders Conference
2015-2016 Panelist, National Sleep Foundation Sleep Quality Consensus Panel (American Geriatrics Society representative)
2016 Planning Committee Member, Beeson 2016 Annual Meeting
2016-2018 Grant reviewer, American Academy of Sleep Medicine Foundation 2016, 2017, 2018 meetings
2017 Grant reviewer (Ad hoc), National Institute on Aging (NIA)-S Panel May 2017 meeting
2018- Co-section editor for “Sleep and Aging” section of Principles and Practice of Sleep Medicine, 7e (not yet published)
2019- Editorial Board Member, SLEEP

Honors
2008 Team Member, John M. Eisenberg Patient Safety & Quality Award to RAND and Geffen School of Medicine at UCLA for the Assessing Care of Vulnerable Elders Project, The Joint Commission and the National Quality Forum
2010 First-Time Travel Awardee, Sleep Research Society
2012 New Investigator Awardee, American Geriatrics Society
2012 Center of Excellence Hartford Scholar, The John A. Hartford Foundation
2012 Awardee, American Sleep Medicine Foundation Physician Scientist Training Award
2015 Makinodan Research Awardee, VA Greater Los Angeles Healthcare System
2015 First Place Awardee, UCLA Department of Medicine Research Day Poster Competition
Clinical/Health Sciences Research

C. Contribution to Science

1. Hypnotic use in older adults: My initial work focused on the impact of sedative-hypnotic use on physical functional recovery among older adults undergoing post-acute rehabilitation. Subsequently, I led the analysis identifying the medical, mental health, and demographic factors associated with a strong belief in using hypnotics among community-dwelling older adults. We described the role of cognitive expectancies in hypnotic use. We then developed and tested the feasibility of a novel approach for reducing cognitive expectancies for hypnotics.


2. **Insomnia in older adults with comorbidities:** I led the analysis measuring the prevalence of occult sleep-disordered breathing among older adults with insomnia and assessing the efficacy of treating insomnia in older adults with insomnia and occult sleep-disordered breathing. These studies provide estimates of the magnitude of this co-existence of these two disorders and the efficacy of treating chronic insomnia among older adults with occult sleep-disordered breathing. I led the analyses demonstrating the unique contribution of nocturia frequency to sleep disturbance among older women and the impact of behavioral interventions on nocturia frequency among women veterans. We found that nocturia frequency increases the likelihood of poor sleep quality and longer awake time, above and beyond known causes of sleep disturbance such as depression, heart failure, and osteoarthritis. We also found that behavioral interventions for insomnia, which effectively improve insomnia symptoms, also decrease nocturia frequency in older women.


3. **Shared decision making in older adults with sleep apnea:** Through focus groups, we found that many patients had little recall of being informed about sleep apnea treatment options, other than positive airway pressure therapy. Participants voiced interest in a communication tool to improve shared decision making. We developed and tested a patient decision aid entitled, “Decide2Rest.” I have been the principal investigator for this multi-phased project.


4. Human factors barriers/usability of sleep disordered breathing equipment: My contributions directly address equipment design-related challenges associated with treating sleep disordered breathing, especially among patients with conditions that cause motor and sensory impairment. These contributions led to the identification of design-related barriers to use of positive airway pressure equipment among patients with motor/sensory impairments and the development of a survey instrument for measuring device design-related challenges (funded by ASMF Physician Scientist Training Award and Hartford Foundation Award). The survey instrument will enable researchers to estimate the prevalence of design-related barriers to treating sleep-disordered breathing. In my Beeson K23 project, we found that worse patient-reported usability ratings predict worse machine-measured adherence to positive airway pressure therapy. I began this work as a fellow and then transitioned to a primary investigator role.


5. Quality of care in patients with multimorbidity: I previously studied the measurement of quality of care and the challenges of providing and measuring care for medically complex patients. I co-authored the first set of quality indicators for measuring care of sleep disorders among medically complex older adults. My systematic review on the public reporting of performance data (report cards that summarize measures of healthcare systems and providers who care for medically complex patients) is a widely cited publication. I was the lead analyst on this systematic review.


Complete List of Published Work in MyBibliography:

D. Additional Information: Research Support

Ongoing Research Support

1I01RX002116-01A1 Badr (PI) 01/01/2017 – 03/28/2020
VA Rehabilitation, Research & Development

Does Treatment of Sleep-Disordered Breathing Improve Functional Outcomes in SCI?
The purpose of this study is to test the efficacy of a comprehensive approach to improving positive airway pressure (PAP) therapy acceptance and adherence and sleep quality among patients with SCI/D.
Role: Co-Investigator

HX002300-01A1 Martin (PI) 02/01/2018 – 01/31/2022
VA Health Services Research and Development Service

Diagnosis and Treatment of Sleep Apnea in Women Veterans
The overall goal of this research is to test the efficacy of a comprehensive behavioral program designed to improve PAP acceptance and PAP adherence in women Veterans with newly diagnosed sleep apnea.

Role: Co-Investigator

IIR-17-234 Fung (PI) 09/01/2018 – 08/31/2022
VA Health Services Research and Development Service

The Efficacy of Masked Tapering on Discontinuation of Hypnotics in Older Veterans

The purpose of this study is to test a novel method for helping older Veterans discontinue hypnotics.

Role: Principal Investigator

R01 AG057929 Fung (PI) 09/15/2018 – 05/31/2023
NIH/NIA

A novel mechanism for helping older adults discontinue use of sleeping pills

The overall goal of this project is to determine whether placebo effects are a key mechanism contributing to sleeping pill use and whether a combination of novel cognitive, behavioral, and pharmacological therapies targeting placebo effects is efficacious in promoting discontinuation of sleeping pills in older adults, including a sample drawn from a large healthcare system in Los Angeles.

Role: Principal Investigator

1121RX002885-01A1 Sankari (PI) 11/01/2018 – 10/31/2020
VA Rehabilitation, Research & Development

Novel treatment of sleep apnea by upper airway and respiratory muscle training

This study is piloting an upper airway and respiratory muscle training protocol for treatment of obstructive sleep apnea among veterans with spinal cord injury.

Role: Co-Investigator

R34 AG058835-01A Vaughan/Fung/Markland (MPI) 08/15/2019 – 05/31/2020
NIH/NIA

Coexisting nocturia and insomnia in older adults: Planning a trial of integrated therapy

The goal of this project is to plan a multi-site randomized trial testing an intervention that treats nocturia and insomnia using a behavioral approach.

Role: Multiple Principal Investigator

American Academy of Sleep Medicine Foundation Zeidler (PI) (tentative) 02/01/2020 – 01/31/2022

Utilizing Artificial Intelligence to Optimize Diagnosis of Obstructive Sleep Apnea

The goal of this project is to leverage machine learning to optimize the diagnosis of OSA by creating a predictive model to guide the choice of initial sleep study.

Role: Co-investigator

Completed Research Support

IIR 12-353-2 Alessi (PI) 02/01/2014 – 01/31/2018
VA Health Services Research and Development Service

Novel Treatment of Comorbid Insomnia and Sleep Apnea in Older Veterans

Role: Co-Investigator

IIR-13-058 Martin (PI) 03/01/2014 – 08/31/2018
VA Health Services Research and Development Service

A patient-focused approach to insomnia treatment for women Veterans

Role: Co-Investigator

LIP 65-169 Fung (PI) 05/15/2018 – 09/30/2018
VA HSR&D Center for the Study of Healthcare Innovation, Implementation & Policy

Hypnotic discontinuation through direct patient education and online CBT-I: A planning study

Role: Principal Investigator

K23 AG045937 Fung (PI) 09/01/2013 – 5/31/2019 (no cost extension)
NIH/NIA and American Federation for Aging Research

Improving Older Adults’ Decision Making For Obstructive Sleep Apnea Treatment

Role: Principal 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: Kim, Dae Hyun

eRA COMMONS USER NAME (credential, e.g., agency login): DAEKIM2

POSITION TITLE: Assistant Professor of Medicine, Harvard Medical School, Assistant Scientist, Marcus Institute for Aging Research, Hebrew SeniorLife

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>M.D.</td>
<td>02/2001</td>
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<tr>
<td>Johns Hopkins School of Public Health, Baltimore</td>
<td>M.P.H.</td>
<td>05/2005</td>
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<td>Beth Israel Deaconess Medical Center, Boston</td>
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<td>Harvard School of Public Health, Boston</td>
<td>Sc.D.</td>
<td>05/2014</td>
<td>Epidemiology</td>
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A. Personal Statement

I am a geriatrician and clinical investigator with a long-term goal to improve decision-making about drug therapy and procedures in frail older adults. Having trained in geriatrics and epidemiology, I have clinical and research expertise in frailty, pharmacoepidemiology, and clinical care of older adults with multimorbidity and frailty. With this background, my research aims to generate evidence on outcomes of drug therapy and surgical procedures by introducing core geriatric concepts (e.g., frailty, multimorbidity, and patient-centered outcomes) as well as improve communication of evidence for shared decision-making. As first step toward this goal, I have developed and validated a frailty score for Medicare data, which allows quantification of frailty for administrative claims data (ref a). In addition to large database research, I developed an online frailty index calculator based on a standard comprehensive geriatric assessment (https://bit.ly/2PA7IIV) to facilitate clinical adoption. I prospectively studied frailty to predict poor recovery (ref b) and functional status change over 12 months in older patients undergoing transcatheter and surgical aortic valve replacement (ref c). I am PI of a pilot randomized controlled trial of home-based rehabilitation for functional recovery after transcatheter aortic valve replacement (NCT02805309) and have collaborated with colleagues in Korea on a clinical trial of a multi-domain intervention in improving frailty and functional status (NCT02554994) (ref d). In terms of mentoring, I have mentored 20 students, research fellows, and junior faculty, some of whom received NIA T32, GEMSSTAR, and Paul B. Beeson awards, and published 18 first-authored papers in the fields of geriatrics, surgery, and pharmacoepidemiology.


B. Positions and Honors
Positions and Employment

2001-2004  Public Health Physician, Public Health Center, Hoengseong County, Gangwon Province, Korea
2005-2006  Intern, Department of Medicine, Thomas Jefferson University Hospital, Philadelphia, PA
2006-2008  Resident, Department of Medicine, Thomas Jefferson University Hospital, Philadelphia, PA
2008-2009  Clinical Fellow, Division of Gerontology, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA
2009-2010  Research Fellow, Division of Gerontology, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA
2010-2015  Instructor in Medicine, Harvard Medical School, Boston, MA
2010-2015  Staff Geriatrician, Division of Gerontology, Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA
2015-2010  Assistant Professor of Medicine, Harvard Medical School, Boston, MA
2015-2016  Associate Physician, Division of Pharmacoepidemiology and Pharmacoeconomics, Department of Medicine, Brigham and Women’s Hospital, Boston, MA
2018-2019  Assistant Scientist II, Institute for Aging Research, Hebrew SeniorLife, Boston, MA

Honors

1998-2000  Scholarship, Yonsei University College of Medicine, Seoul, Korea
2001  Commendation for Public Health Service, Hoengseong County, Gangwon Province, Korea
2006  The American Medical Association Foundation Seed Research Grant
2007  Young Investigator Award, American Heart Association Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke Conference, Washington, DC
2007  Winner, Research Competition, American College of Physician Southeast PA Chapter Meeting, Philadelphia, PA
2008  Winner, Research Competition, American College of Physician National Meeting, Washington, DC
2008  The Kowlessar Award for Excellence in General Medicine, Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA
2008  Young Investigator Travel Award, The 5th Pivotal Research in Cardiology in the Elderly Symposium: Preventive Cardiology in the Elderly, New Orleans, LA
2008  Winner, Research Competition, American College of Physician MA Chapter Meeting, Waltham, MA
2009  Winner, Research Competition, American College of Physician MA Chapter Meeting, Waltham, MA
2010  Emma Gildersleeve Lane Scholarship, Harvard University, Cambridge, MA
2012  Distinguished Performance on Doctoral Qualifying Examination, Department of Epidemiology, Harvard School of Public Health, Boston, MA
2012-2013  Scholarship, Department of Epidemiology, Harvard School of Public Health, Boston, MA
2013  Mentor of the Year Award, Harvard Geriatric Medicine Fellowship, Boston, MA
2015  Rising Star Travel Award, American College of Cardiology/American Geriatrics Society/National Institute on Aging Multimorbidity in Older Adults Workshop, Washington, DC
2015  Chairman’s Research Award, Department of Medicine, Brigham and Women’s Hospital, Boston, MA
2016  Presidential Poster Award, American Geriatrics Society Annual Meeting, Long Beach, CA
2017  Outstanding Junior Investigator of the Year Award, American Geriatrics Society, San Antonio, TX

Other Experience and Professional Memberships

2006-  American Geriatrics Society
2010-  Gerontological Society of America
2010-  American Geriatrics Society Junior Faculty Special Interest Group Steering Committee
2013-  International Society for Pharmacoepidemiology
2014-  American Geriatrics Society Research Methods Subcommittee
2017-  American Delirium Society Annual Meeting Planning Committee

C. Contribution to Science
1. **Measurement of frailty in Medicare data.** Older adults with multimorbidity and frailty are at increased risk of drug-related adverse events, yet underrepresented in clinical trials. Although administrative datasets (e.g., Medicare data) are increasingly used to study this population, the lack of information on frailty and functional status in these datasets remains as a key limitation of such studies. I received an NIA K08 award to develop a claims-based frailty index in Medicare data and validated it against clinical frailty assessment and future adverse events and health care utilization. This index can improve the validity of claims-based observational studies of comparative effectiveness and safety of health care interventions. My role was PI in all studies.


2. **Pharmacoepidemiology in hospitalized older patients.** Hospitalized older patients are exposed to several high-risk medications, including antipsychotics for delirium. I have validated claims-based algorithms to detect delirium in inpatient claims data. I was awarded an NIA R01 award to evaluate the risks of psychoactive drug use in hospitalized patients with delirium. My role was PI in all these studies.


3. **Improving interpretation of clinical trial evidence for treatment decision-making in older adults.** Clinical trial results are conventionally summarized in hazard ratios and absolute risk reductions, but these measures are not intuitively understood by patients and physicians. I collaborated with Dr. Lee-Jen Wei and American College of Cardiology Geriatric Cardiology group to promote use of restrictive mean survival time and home time, which can be intuitively interpreted as an average event-free survival time during a pre-specified time frame. These alternative measures have great potential to improve decision-making in older adults with limited life expectancy. My role was PI and co-investigator.


   b. Pak K,* Uno H,* **Kim DH,*** Tian L, Kane RC, Takeuchi M, Fu H, Claggett B, Wei LJ. Interpretability of Cancer Clinical Trial Results Using Restricted Mean Survival Time as an Alternative to the Hazard Ratio. JAMA Oncol. 2017; 3: 1692-1696. PMID: 28975263; PMCID: PMC5824272 (*co-first author)

4. Frailty and functional outcomes after cardiac surgical procedures. Functional status has not been adequately evaluated in older adults undergoing transcatheter and surgical aortic valve replacement. I conducted a prospective cohort study to determine preoperative frailty status, rate of delirium, and change in functional status after aortic valve replacement. I found that functional decline was common, despite less invasive nature of transcatheter procedure, particularly in those with delirium. Subsequently, I have started a pilot randomized controlled trial of home-based exercise program to help recovery of functional status after transcatheter aortic valve replacement (NCT02805309). My role was PI as well as co-investigator (in a multi-center study).


5. Epidemiology and interventions for frailty in community-dwelling older adults. As PI, I have conducted epidemiological evaluations to elucidate the role of frailty, multimorbidity, and functional status in determining health outcomes using existing data from large cohorts. I also collaborated with aging researchers in Korea to design a prospective cohort study of aging to determine the burden of geriatric syndromes in rural communities and disparity between rural and urban populations, which led to a multi-factorial intervention study tailored to rural population (NCT02554994). My role was PI and co-investigator.


Complete List of Published Work in MyBibliography:

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

Ongoing Research Support

NIA 1R01AG056368-01A1 Kim (PI) 08/01/2018-05/31/2021

Epidemiology and Risk of Antipsychotic Use in Hospitalized Elderly with Delirium
This study aims to evaluate the utilization and comparative safety of antipsychotics and other psychoactive drugs in older hospitalized patients undergoing major surgery.

Role: PI
**Prospective monitoring of newly approved cardiovascular drugs in older adults with frailty**

The proposed research aims to establish a prospective monitoring program in routine healthcare databases for older adults with frailty and identify predictors of benefit from newly marketed drugs for cardiovascular disease. This research is relevant to public health because the evidence generated from this work can enable clinicians to optimize prescribing of new cardiovascular drugs in older adults with consideration of a patient’s frailty level and expected net benefit.

Role: PI

**Restricted Mean Survival Time to Interpret Clinical Trials for Treatment Decision-Making in Older Adults**

This study aims to evaluate the usefulness of restricted mean survival time as an alternative to hazard ratios to summarize treatment effect for intuitive interpretation and treatment decision-making.

Role: PI

**Assessing the effectiveness of oral anticoagulants in patients with atrial fibrillation at high risk of underutilization due to dementia, recurrent falls, or poor anticoagulation quality**

This study aims to investigate how treatment effects of warfarin and direct oral anticoagulants are affected by dementia, high risk of falls, and predictors for anticoagulation quality in patients with atrial fibrillation.

Role: Co-investigator

**Completed Research Support (in recent 3 years)**

**Paul B. Beeson Clinical Scientist Development Award in Aging**

*Development and Validation of a Frailty Index Using Claims Data for Pharmacoepidemiologic Studies in Older Adults*

This study aims to develop and validate a frailty index for Medicare claims data.

Role: PI

**Boston Older Americans Independence Center**

*Home-based Exercise to Improve Functional Status after Transcatheter Aortic Valve Replacement*

This study aims to evaluate a home-based exercise program for transcatheter aortic valve replacement.

Role: PI of pilot/exploratory study

**Boston Roybal Center Pilot Award**

*Home-based Exercise to Improve Functional Status after Transcatheter Aortic Valve Replacement*

This study aims to evaluate a cognitive behavioral intervention to improve the benefit of exercise program.

Role: PI of pilot/exploratory study
NAME: Kramer, Daniel

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

POSITION TITLE: Assistant Professor of Medicine

EDUCATION/TRAINING

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<td>06/2012</td>
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A. Personal Statement

I am a cardiac electrophysiologist with a research focus on clinical, ethics, and policy questions related to ICD use. My funding record includes a Harvard Catalyst KL2 award, an NIH-NIA Paul Beeson K23 award focused on patient-centered outcomes for older patients receiving ICDs, and selection as a Greenwall Faculty Scholar in Bioethics for projects using ICDs as a model to study policy and ethics implications of medical device use.


B. Positions and Honors

Positions and Employment

2012 - Cardiac Electrophysiologist, Beth Israel Deaconess Medical Center, Boston, MA
2012 - 2014 Instructor in Medicine, Harvard Medical School, Boston, MA
2012 - 2016 Assistant Scientist, Hebrew SeniorLife Institute for Aging Research, Boston, MA
2014 - Assistant Professor of Medicine, Harvard Medical School, Boston, MA
2016 - Adjunct Faculty, Hebrew SeniorLife Institute for Aging Research, Boston, MA
2016 - Director, Pacemaker and ICD Service, BIDMC, Boston, MA
2016 - Faculty, Harvard Medical School Center for Bioethics, Boston, MA
Other Experience and Professional Memberships

2006 - 2008 Member, MGH Optimum Care Committee
2008 - Liaison, Cardiology, BIDMC Ethics Support Service
2008 - Consultant, FDA Circulatory Systems Advisory Panel
2009 - 2010 Member, Heart Rhythm Society, Task Force on Management of Devices at End of Life
2014 - 2014 Member, American College of Cardiology, Task Force on Postmarket Surveillance
2014 - 2015 Member, Institute of Medicine, Committee on Treatment of Cardiac Arrest
2016 - Member, American College of Cardiology Ventricular Arrhythmias / Sudden Cardiac Death Evidence Review Committee

Honors

2000 Magna Cum Laude, Brown University
2000 Phi Beta Kappa, Brown University
2008 Senior Resident Teaching Award (nominee), Massachusetts General Hospital
2008 Excellence in Teaching Award (nominee), Harvard Medical School Class of 2008
2010 Travel Award, Heart Failure Society of America
2010 Scholarship Award, Mayo Clinic Board Review
2010 Editor's Featured Article, Heart Rhythm Journal
2011 Graduation with Academic Distinction, BIDMC Cardiology Fellowship
2011 Seymour Furman Fund Travel Award, Heart Rhythm Society
2012 Travel Award, University of Pennsylvania Ethics of the Heart Conference
2012 Lois Green Scholar, Institute for Aging Research
2012 Editor's Featured Article, Heart Rhythm Journal
2012 - 2013 KL2 MeRIT Scholar, Harvard Catalyst
2012 - 2013 Center of Excellent Scholar, John A. Hartford Foundation
2015 Young Investigator Travel Award, ACC/AGS/NIA Multimorbidity Workshop
2016 Young Investigator Travel Award, American Heart Association Quality of Care and Outcomes Research Conference
2016 - 2019 Greenwall Faculty Scholar in Bioethics, Greenwall Foundation

C. Contribution to Science

1. Patient-Centered Outcomes of ICD Therapy. With funding from the John A. Hartford Foundation, the Harvard Catalyst KL2 program, and the NIH-NIA Beeson K23 award, I developed separate risk models following both new and replacement ICD implantation in two Heart Rhythm "Featured Articles". I cemented the lack of evidence and started a national conversation surrounding ICD generator replacement in a high-impact first-author Perspective in the New England Journal of Medicine, and performed the largest analysis of clinical outcomes following this common procedure using national registry data. These papers provided the most comprehensive estimates of ICD battery life and clinical differences between new and replacement ICD patients. More recently, I published the largest explorations of hospice and nursing home utilization following ICD implantation, and a pilot study designed to inform the conduct of a longitudinal study currently under review.


2. Treatment Heterogeneity and Shared Decision-Making Among Older ICD Recipients. Extending the work from my K23 program, I have focused on additional methods applicable to understanding differential treatment outcomes among older adults receiving ICDs, and how to integrate that into practical decision-making. These projects included the largest observational comparison of cardiac resynchronization therapy with and without ICDs, in which I leveraged instrumental variable analysis to demonstrate the lack of overall effectiveness of defibrillator back-up among older patients and the inadequacy of standard regression techniques to control for confounding. This complemented a semi-competing risks analysis and several high-impact analyses of policies and practical approaches to shared decision-making in older adults.


3. Cardiac Device Diagnostics. My work with the American College of Cardiology - National ICD registry and service on the National Cardiovascular Data Registry post-market surveillance task force sparked my interest in cardiac device diagnostics, specifically the patient data collected by devices automatically and aggregated by manufacturers. I published the largest analysis of ICD-detected physical activity information, identifying a powerful relationship between baseline activity and survival, and presentations at the American Heart Association and Heart Rhythm Society meetings focusing on activity patterns among recipients of cardiac resynchronization therapy. I have since leveraged that preliminary data into a Harvard Catalyst-funded project evaluating the association between activity, clinical frailty, and functional status.


4. Ethical Considerations in Cardiac Therapeutics. I have explored ethics questions related to end-of-life care for patients with ICDs. A project funded by the Harvard Catalyst gathered empirical data from physicians, patients, and nurses, leading to 3 first-author publications including a Heart Rhythm "Featured Article". These projects identified important gaps knowledge around the ethical and legal parameters around device deactivation, and found that stakeholders view these devices differently from other life-
sustaining therapies. I built on these findings in a theoretical ethics paper outlining the unique informed consent considerations of cardiac resynchronization therapy and challenging physicians to improve this process. In recognition of my combination of ethics and cardiology expertise, I served on the Heart Rhythm Society expert panel identifying the principles and best practices around cardiac device deactivation, and have first-authored key review articles around this topic. More recently, my ethics and policy expertise led to my selection as a Greenwall Faculty Scholar in Bioethics. A senior-author analysis emerging from that experience, focused on state-level variability in laws governing end-of-life care, was recently published in NEJM.


5. Policy Questions in Cardiac Device Therapy. As a Medical Device Fellow at the FDA, I explored the difficulty in applying safety and effectiveness data to individual patients with a 1st-author paper identifying shortcomings in the clinical trials supporting novel cardiac device approval. This led to several analyses of device regulation with a particular focus on post-market surveillance and comparisons in national strategies, an assessment of cybersecurity concerns in medical devices, and ongoing work evaluating medical device registries. I have also evaluated policy implications of national coverage decisions regarding magnetic resonance imaging for patients with cardiac devices. These papers included several publications in the New England Journal of Medicine, JAMA, JAMA-Cardiology, and PLoS Medicine.


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

Ongoing Research Support
1R01HL136403-01, NHLBI Matlock, Daniel (PI) 05/15/17-02/28/22
A MULTICENTER TRIAL OF A SHARED DECISION SUPPORT INTERVENTION FOR PATIENTS OFFERED IMPLANTABLE CARDIOVERTER-DEFIBRILLATORS: DECIDE - ICD TRIAL
Role: Co-Investigator. This is a step-wedge RCT of decisions support tools for ICD and CRT implantation and replacement.

Completed Research Support
Greenwall Faculty Scholars Program in Bioethics Kramer, Daniel (PI) 07/01/16-06/30/19
Ethical Implications of Post-market Surveillance and Remote Monitoring of Medical Devices: The Case of Implantable Cardioverter-Defibrillators
K23 AG045963-01 Kramer, Daniel (PI) 09/30/13-06/30/17
Patient-Centered Outcomes of Implantable Defibrillator Therapy in Older Patients
BIOGRAPHICAL SKETCH

NAME: Jennifer C. Lai
eRA COMMONS USER NAME: jenniferyl
POSITION TITLE: Assistant Professor of Medicine

EDUCATION/TRAINING

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<td>MD, MBA</td>
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A. Personal Statement

My long-term academic mission is to improve the management of patients with end-stage liver disease by applying key geriatric principles to their care to enable a more holistic approach to their management. Thus far, my work has focused on applying the specific principle of frailty to patients with cirrhosis awaiting liver transplantation. My passion for this work, along with my rigorous clinical training, formal training in advanced clinical research methodologies, and track record for high-impact research, has positioned me to successfully accomplish this mission over my life-long academic career. The foundation for my research has been the NIA-funded Functional Assessment in Liver Transplantation (FrAILT) Study, which is currently the largest multi-center cohort of patients with cirrhosis with functional assessments worldwide. Our team has extensive experience with administering frailty assessments to patients with cirrhosis and a broad range of advanced biostatistical methodologies in clinical research including competing risks survival analysis, risk prediction model development/validation, net reclassification, best subsets selection, and joint longitudinal modeling.

B. Positions and Honors

Positions and Employment

2005-2006 Intern in Internal Medicine, New York Presbyterian Hospital-Columbia
2006-2008 Resident in Internal Medicine, New York Presbyterian Hospital-Columbia
2008-2011 Fellow in Gastroenterology, University of California-San Francisco
2011-2012 Fellow in Transplant Hepatology, University of California-San Francisco
2012-2018 Assistant Professor of Medicine, University of California-San Francisco
2018-present Associate Professor of Medicine, University of California-San Francisco
2019-present Director of Hepatology Clinical Research, University of California-San Francisco

Other Experience

2014-2016 Member-at-Large American Society of Transplantation (AST) Liver and Intestinal Community of Practice (a nationally elected position)
2016-2018 Chair AST Liver and Intestinal Community of Practice (elected)
2016-present Member AASLD Clinical Research Committee
2016-present Member-at-large AASLD Acute-on-Chronic Liver Failure Committee
2016-2018 Member ILTS Vanguard Committee
2017 Chair Emerging Trends Conference at The Liver Meeting
2018 Co-Chair AST Frailty Consensus Conference in Solid Organ Transplantation
2018 Chair Emerging Trends Conference at The Liver Meeting
C. Contribution to Science

1. Frailty in liver transplantation. Our group’s primary research focuses on investigating the impact of frailty and functional impairment in hepatology and liver transplantation. Through the Functional Assessment in Liver Transplantation (FrAILT) Study, which was established in 2012, our team demonstrated that frailty and physical function can be measured objectively – and we developed a performance-based frailty index specifically for patients with end-stage liver disease. Early publications reported on the prognostic value of these measures, providing compelling evidence to incorporate these objective measures into routine clinical assessments of liver transplant candidates. More recent publications demonstrated the generalizability of the Liver Frailty Index in other centers. This work has culminated in a recent consensus statement for the American Society of Transplantation on Frailty in Liver Transplantation, in which Dr. Lai collaborated with experts from North America.


2. Liver transplantation in older adults. Although we have demonstrated that cirrhosis is a state of premature and accelerated aging, we have further argued for the clinical relevance of objective measurement of frailty to better identify older adults for liver transplantation.


3. Gender differences in liver transplantation. My team and I have uncovered significant sex-based disparities in liver transplant outcomes – both before and after liver transplantation. Of particular importance has been the contribution of smaller body size in women to their increased risk of waitlist mortality; these findings laid the foundation for the development of national strategies to provide greater opportunities for liver transplantation for smaller women. Our exploration in this area also led to a hypothesis that frailty was an explanatory factor for these sex-based disparities – which ultimately led to the establishment of the FrAILT Study.


b) Lai JC, Terrault NA, Vittinghoff E, Biggins SW. Height contributes to the gender difference in wait-list mortality under the MELD-based liver allocation system. Am J Transplant 2010 Dec; 10(12):2658-64. PMID: 21087414; PMCID: 3059496.


Complete List of Published Work in MyBibliography:

D. Research Support

Ongoing Research Support
R01 AG059183
NIH / NIA
Predicting post-transplant mortality and global functional health based on pre-transplant functional status in liver transplantation
The aim of this project is to associate pre-transplant functional status with mortality and functional recovery after liver transplantation in a multi-center cohort of liver transplant recipients.

Submitted:
R21 DK115995 (PI: Lai)
NIDDK
A Laboratory Frailty Index for Patients with End-Stage Liver Disease

R01 AG065764 (PI: Lai)
NIA
Global Functional Health After Treatment for Hepatocellular Carcinoma in Older Adults With Cirrhosis

Completed Research Support (last 3 years)
K23 AG14014 (Lai) 09/15/2014-04/30/2019
NIH / NIA
Frailty and Functional Status in Older Liver Transplant Patients
The aim of this project is to measure frailty and functional status in a cohort of older liver transplant patients.

Paul B. Beeson Career Development Award in Aging (Lai) 09/15/2014-04/30/2019
American Federation for Aging Research
Frailty and Functional Status in Older Liver Transplant Patients

This award is a companion award to K23 AG14014 to directly support activities related to Dr. Lai’s career development in aging.

Faculty Career Development Award (Lai) 07/01/2016-06/30/2017
American Society of Transplantation

A Home-Based, Structured Exercise Intervention to Improve Physical Frailty in Liver Transplant Patients
The aim of this project is to develop a home-based, structured exercise intervention to improve physical frailty in cirrhotics and test the feasibility and explore its efficacy in a pilot cohort of patients awaiting liver transplantation.

Research Career Development Advanced Scholar (Lai) 07/01/2016-06/30/2017
UCSF Pepper Center for Aging Research

A Pilot Randomized Trial for a Home-Based, Structured Exercise Intervention to Improve Physical Frailty in Liver Transplant Patients
This award supports a pilot RCT of the home-based exercise intervention developed using the Faculty Career Development Award by AST.

Patient Cohort Expansion Award (Lai) 07/01/2016-06/30/2018
UCSF Department of Medicine

A Biorepository for the Functional Assessment in Liver Transplantation (FrAILT) Study to Investigate Mechanisms of Frailty in Patients with Cirrhosis
The aim of this project is to initiate a biorepository of biospecimens from patients enrolled in the FrAILT Study. This funding supports the collection, processing, and storage of biospecimens only; it cannot be used for analysis of biospecimens.

AGA-Elsevier Pilot Research Award (Lai) 07/01/2017-06/30/2018
American Gastroenterological Association

A Laboratory Frailty Index for Patients with End-Stage Liver Disease
The aim of this project is explore laboratory biomarkers of frailty in patients with cirrhosis.

Pilot Award (Lai) 11/01/2017-10/31/2018
Mendez National Transplantation Institute Foundation

A Pilot Randomized Trial for a Home-Based, Structured Exercise Intervention to Improve Physical Frailty in Liver Transplant Patients: Multi-center expansion
The aim of this project is to establish the research infrastructure for a pre-habilitation intervention for liver transplant candidates at 2 other liver transplant centers in the United States.
**BIOGRAPHICAL SKETCH**

**NAME:** Linos, Eleni  
**eRA COMMONS USER NAME:** elenilinos  
**POSITION TITLE:** Professor

### EDUCATION/TRAINING

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<td>Oxford University, Christ Church, UK</td>
<td>BM BCh (MD)</td>
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### A. Personal Statement

My long-term goal is to conduct rigorous research that can have a major positive impact on the health of older adults with skin disease. After medical school at Cambridge and Oxford Universities in the UK, I completed a doctorate degree in Epidemiology at the Harvard School of Public Health. I gained substantial quantitative skills analyzing large cohort study data. In addition to my research interests I have always been committed to caring for patients; so, I completed residency training in dermatology. As a clinician, I realized that dermatology is critically focused on diagnostic expertise, with little emphasis on evidence-based treatment or prevention. This motivated me to think broadly about ways to improve the evidence base in our specialty – both by developing innovative prevention strategies and by improving the care our patients receive.

I am dually trained in epidemiology and dermatology. In addition, my recent Beeson award provided further skills in geriatrics and aging research. I recently joined the faculty at Stanford University and now serve as the director of the program for clinical research in the department of Dermatology, leading a diverse team of faculty, postdoctoral trainees and students. I am passionate about improving care for older adults and have become a leader in the growing field of geriatric dermatology. I founded and lead the first geriatric dermatology expert resource group for the American Academy of Dermatology. My work introduced the concept of overtreatment of skin cancer among older patients to our specialty, and I have developed a shared decision-making tool for older patients with low-risk basal cell carcinoma (BCC).

### B. Positions and Honors

**Positions and Employment**

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<tr>
<td>2011-2015</td>
<td>KL2 Scholar, Epidemiology and Biostatistics, UCSF</td>
</tr>
<tr>
<td>2011-2016</td>
<td>Assistant Professor in Residence, Dermatology, UCSF</td>
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<tr>
<td>2015-2019</td>
<td>Director of Diversity, Dermatology, UCSF</td>
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<td>2015-present</td>
<td>Director of Research, Physician Mothers Group</td>
</tr>
<tr>
<td>2016-2019</td>
<td>Associate Professor in Residence, Dermatology, UCSF</td>
</tr>
<tr>
<td>2016-2018</td>
<td>Assistant Editor, JAMA Dermatology</td>
</tr>
<tr>
<td>2015-2012</td>
<td>Associate Director, Program for Clinical Research, Dermatology, UCSF</td>
</tr>
<tr>
<td>2018-2019</td>
<td>Director, Program for Clinical Research, Dermatology, UCSF</td>
</tr>
<tr>
<td>2018-2019</td>
<td>Associate Professor, Epidemiology and Biostatistics, UCSF</td>
</tr>
<tr>
<td>2019-present</td>
<td>Professor, Dermatology, Stanford University</td>
</tr>
<tr>
<td>2019-present</td>
<td>Professor, Health Research &amp; Policy (Epidemiology), by courtesy, Stanford University</td>
</tr>
</tbody>
</table>
2019-present Director of Diversity, Department of Dermatology, Stanford University
2019-2024 Deputy Editor, British Journal of Dermatology

Other Experience and Professional Memberships
2008-present American Academy of Dermatology
2008-present Women's Dermatologic Society
2009-present American DermatoEpidemiology Network (ADEN)
2009-present Cochrane Skin Group
2010-present International DermatoEpidemiology Association (IDEA)
2014-present Abstract Reviewer Society for Investigative Dermatology
2014-present US Board of BMJ Fellows
2016-2017 Vice-President American Dermato-Epidemiology Network
2016-2018 Lead Administrator, The Dermatologists, an international active online community of over 4,000 dermatologists
2016-present American Medical Association

Honors
2001 Paton Fund Award, Moore-Beale Sargant, Mitchel Awards, Trinity College, Cambridge University
2007 Best Poster Award, Dana-Farber Cancer Breast Cancer Meeting
2008 Internal Medicine Resident Research Award, Stanford University
2009 Arnold P. Gold Foundation's Humanism and Excellence in Teaching Award, Stanford University
2009 Albert M. Kligman Travel Fellowship, Society for Investigative Dermatology
2010 Women's Dermatologic Society Academic Research Award, WDS
2012 Dermatology Foundation Career Development Award, Dermatology Foundation
2014 UCSF Pepper Center RCDC (Research Career Development Core) Associate Scholar Genius Award
2016 Best Faculty Teaching Award, Dermatology Residency Program, UCSF
2018 Tideswell Emerging Leaders in Aging Scholarship Program
2017 Vice-President, American Dermato-Epidemiology Network
2018 President, American Dermato-Epidemiology Network

C. Contribution to Science

1. Introduced the concept of overtreatment of skin cancer to the field of dermatology

My work on skin cancer treatment at the end of life introduced the concept of overtreatment and over-diagnosis of skin cancer in the field of dermatology. I found patients’ personal characteristics and preferences matter beyond the traditional factors used to choose skin cancer treatments. My research suggested that there was potential over-use of surgery at the end of life and questioned the status quo.


2. Contributed to the emerging field of geriatric dermatology by creating a framework for optimal care of older adults

My perspective piece on geriatric dermatology established a new framework for caring for older adults with skin disease. I have studied several of the topics outlined in this framework including: reducing overtreatment of skin cancer in older adults, measuring the impact of polypharmacy and medication adverse effects in older adults, assessing the prevalence of atopic eczema and antihistamine prescription patterns in older adults. As
the first Dermatologist to receive a Beeson Award and go through the Tideswell Emerging Leaders Program in Aging, I hope to continue to train the next generation of dermatologists in the unique needs of older adults. I have just been awarded a K24 mentorship award for this purpose.


3. Studied the use and impact of technology on major public health problems

I have worked on several research projects examining the influence and use of technology on major public health problems. One of our main efforts has focused on developing innovative techniques for skin cancer prevention using social media. Specifically, I have collaborated with designers and technology companies to build digital platforms and evaluate the impact of targeted skin cancer prevention messages. In addition, I have studied how smartphone-based conversational agents respond to mental health and interpersonal violence.


4. Influenced public awareness and helped shape tanning bed policy

My research on the harms of tanning beds published in the BMJ and JAMA Dermatology received widespread media attention and was cited in state and federal legislative hearings on tanning bed bans for minors. In 2013 and 2014, several states banned indoor tanning for minors, and two landmark reports by the FDA and Surgeon General called for better labeling on harms of tanning booths and for bans on tanning for minors. Most recently in December 2015, the FDA proposed a ban on tanning bed use for minors, citing this work. The World Health Organization’s 2017 infographics and posters on indoor tanning cite 3 studies (2 are from my team).

a. Indoor tanning and non-melanoma skin cancer: systematic review and meta-analysis. BMJ. 2012 Oct 2;345:e5909. PMCID: PMC3462818 Wehner MR1, Shive ML, Chren MM, Han J, Qureshi AA, Linos E


5. Diversity and Gender Equity

I have advocated for diversity and gender equity in medicine by writing both original data articles and perspective pieces on these topics. Our BMJ article on gender equity in medical leadership, and JAMA-Internal Medicine piece on experiences of discrimination among physician mothers were both widely disseminated, cited by mainstream news, universities and the Association of American Medical Colleges (AAMC). Our 2018
JAMA research letter on paid family leave among top medical schools was followed by announcements by several institutions that they would increase their paid family leave for faculty. Our publications on the importance of diversity in the dermatology workforce have become part of ongoing discussions addressing solutions to this problem within our field.


Complete List of Published Work: http://www.ncbi.nlm.nih.gov/pubmed/?term=eleni+linos

D. Research Support

Current Research Support

DP2 CA225433 09/11/2017 – 06/30/2022
Targeted Advertising for Cancer Prevention
The goal of this project is to leverage online advertising, social media and smartphone technology to create a rapid, effective and scalable platform for targeted prevention messages that shift health behaviors. First, we will use a mixed-methods approach to learn which health messages are most engaging. Then we will test which messages are most effective at shifting knowledge and self-reported tanning behaviors using national randomized trial designed.
Role: PI

K24 AR075060 07/01/2019-06/30/2024
Patient Oriented Research in Vulnerable Populations with Skin Disease
The purpose of this Midcareer Investigator Award is to mentor the next generation of patient-oriented researchers focused on improving the care of vulnerable populations with skin disease. The mentorship goals of this proposal are aligned with the research aims. We will use quantitative and qualitative methods to study patterns of care and unmet patient needs, in order to highlight opportunities for improved care for two vulnerable groups of patients: a) the elderly and b) racial and ethnic minorities.

Completed Research Support

K76 AG054631 09/01/2016-05/31/2019
Involving Older Adults in Decision Making for Skin Cancer
The goal of this project is to provide the training, knowledge and skills necessary to address the needs of older dermatologic patients with a new outlook informed by geriatrics. The specific aims of the project include 1) to quantify the number and frequency of procedures for actinic keratosis in older adults with limited life expectancy and 2) to understand patients’ knowledge and preferences about NMSC and actinic keratosis treatment and barriers to shared decision-making.
Role: PI

R21 CA212201 12/01/2016-11/30/2018
Online Advertising for Melanoma Prevention
The goal of this project is to learn whether incorporating targeted prevention messages into online advertising on social networking sites is a potentially effective strategy to prevent melanoma in high-risk groups, such as sexual minority men.
Role: PI
Melanoma Prevention Using Social Media  
The major goal of this project is to design a pilot randomized controlled trial of social media intervention to reduce indoor tanning behaviors among young women.
Role: PI

Non melanoma skin cancer treatment and outcomes in patients with limited life expectancy
Role: PI

Non melanoma skin cancer care in patients with limited life expectancy
The purpose of this career development award is to support preliminary studies needed to be competitive for NIH grants.
Role: PI

Skin cancer treatment in elderly patients
The goal of the CTSI KL2 career development award is to increase the number and quality of clinical and translational investigators skilled at leading multidisciplinary research teams.
Role: KL2 Fellow

Targeted advertising for skin cancer prevention
The goal of this GoogleAds grant is to provide a significant amount of free advertising for a tailored public health campaign targeted to google search words. This is an 'in kind' grant with free advertising worth $120,000 per year.
Role: PI

Involving Older Adults in Decision Making for Skin Cancer
The goal of this award was to study Patient Physician and Caregiver attitudes in the care of older adults with skin cancer.
Role: PI
BIOGRAPHICAL SKETCH
DO NOT EXCEED FIVE PAGES.

NAME: Lipska, Kasia Joanna

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

POSITION TITLE: Assistant Professor of Medicine (Endocrinology)

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>Harvard Medical School</td>
<td>M.D.</td>
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<td>Medicine</td>
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<td>Robert Wood Johnson Clinical Scholars Program, Yale University</td>
<td>M.H.S.</td>
<td>06/2011</td>
<td>Clinical Research &amp; Epidemiology</td>
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A. Personal Statement

I am an Assistant Professor of Medicine (Endocrinology) at the Yale School of Medicine and a Clinical Investigator at the Yale-New Haven Hospital Center for Outcomes Research and Evaluation (CORE). My research program seeks to better understand the balance of benefits and harms of therapies for adults with type 2 diabetes mellitus, particularly those who are older and have multiple chronic conditions. Specifically, my research examines factors that lead to adverse drug events, such as hospital admissions for hypoglycemia, and develops prediction models to identify patients at the highest risk for these events. In addition, I am investigating the frequency and severity of hypoglycemia among nursing home patients with diabetes using continuous glucose monitoring. Based on these data, I seek to develop and implement interventions to help clinicians and patients make better decisions about their care and to maximize the safety of diabetes treatment. In addition, I work under contract with the Centers for Medicare & Medicaid Services (CMS) to develop and maintain publicly reported quality measures.

Over the past several years, I have become a national leader in bringing attention to the rising costs of diabetes care by generating high-quality evidence about this issue and by disseminating this evidence to clinicians, policymakers, and the general public. Specifically, my work in this area has focused on examining cost-related insulin underuse, describing recent trends in the use and costs of glucose-lowering drugs, understanding the drivers of increased spending, comparing the safety and effectiveness of insulin analogs and human insulin products, and developing solutions to improve affordability. I served as an expert witness during congressional hearings on the human impact of rising insulin costs before the Committee on Energy and Commerce and its Subcommittee on Oversight and Investigations.

B. Positions and Honors

Employment

2002-03 Research Investigator, Sree Chitra Tirunal Institute, Trivandrum, India
2003-06 Intern and Resident, Department of Internal Medicine, Brigham and Women’s Hospital, Boston, Massachusetts
2006-07 Internal Medicine Attending, Northern Navajo Medical Center in Shiprock, New Mexico (Indian Health Service)
2007-09 Fellow, Section of Endocrinology and Metabolism, Yale-New Haven Hospital New Haven, Connecticut
2007-11 Clinical Fellow, Veterans Administration Specialty Clinic in General Endocrinology, West Haven Veterans Administration, Connecticut
2009-11 Robert Wood Johnson Clinical Scholar, Department of Internal Medicine, Yale University School of Medicine, New Haven, Connecticut
2011-12 Fogarty International Clinical Research fellow, Public Health Foundation of India, New Delhi and Trivandrum, India
2012-14 Instructor, Department of Internal Medicine, Section of Endocrinology and Metabolism, Yale University School of Medicine, New Haven, Connecticut
2012- Attending Physician, Endocrine Consult Service, Yale New Haven Hospital, New Haven, Connecticut
2013- Clinical Investigator, Center for Outcomes Research and Evaluation (CORE), New Haven, Connecticut
2014- Assistant Professor of Medicine, Section of Endocrinology and Metabolism, Yale University School of Medicine, New Haven, Connecticut

Honors
1997Phi Beta Kappa, Yale University
1997 Distinction in the Major, Molecular Biochemistry and Biophysics, Yale University
1997 Cum laude diploma, Yale University
2002 Paul Dudley White & Andrew Sellard Traveling Fellow
2011 Fogarty International Clinical Research Fellow and Fulbright Scholar to India
2012 National Institute on Aging Summer Institute
2013 NIH Loan Repayment Program
2013 American Diabetes Association Young Investigator Travel Award
2013 Yale Center for Clinical Investigation (YCCI) Scholar Award
2013 Pepper Research Career Development Core Scholar Award
2013 Grants for Early Medical/Surgical Specialists’ Transition to Aging (GEMSSTAR) Award
2013 ADA-ASP Young Investigator Career Development Award in Geriatric Endocrinology

Professional Societies and Public Advisory Committees
2007- Member, American Heart Association and American Diabetes Association
2010 Ad Hoc Member, Society for General Internal Medicine (SGIM) Abstract Review Committee
2012-2014 Editorial Board, Journal of Clinical Endocrinology & Metabolism
2013- Member, Yale-New Haven Health System Diabetes Clinical Integration Workgroup
2013-2017 Member, Diabetes Committee, Council on Lifestyle and Cardiometabolic Health, American Heart Association
2013 Ad Hoc grant reviewer for the targeted American Diabetes Association and Lilly Clinical Research Award: Diabetes Care in Older Adults
2014 Ad Hoc grant reviewer for the U.S.-India Bilateral Collaborative Research Partnerships (CRP) on Diabetes Research (R21) from NIH
2014-2016 Ad Hoc Member, American Diabetes Association (ADA) Abstract Review Committee
2015- American College of Cardiology (ACC) Early Career Member, Steering Committee, The Diabetes Collaborative Registry
2016- Member, Clinical Study Section, Research Grant Review Committee, American Diabetes Association Research Programs
2017 Member, Special Emphasis Panel for FOA “Community Characteristics Associated with Geographic Disparities in Diabetes and Cardiometabolic Health,” National Center for Chronic Disease Prevention and Health Promotion, CDC
2017- Member, American Diabetes Association Scientific Sessions Program Planning Committee
C. Contributions to Science

1. Recognition of hypoglycemia as a health threat to patients with type 2 diabetes

Traditionally, diabetes management has focused on intensive glucose control (usually targeting hemoglobin A1c below 6.5-7%) in order to reduce the risk of long-term complications of the disease. However, intensive glycemic control increases the risk for severe hypoglycemia. My work showed that hospital admissions for hypoglycemia pose a significant health threat to older Medicare beneficiaries, and exceed hospital admissions for hyperglycemia. Moreover, a substantial proportion of older Americans in the U.S. achieve hemoglobin A1c levels below 7%, despite having serious co-existing health problems and functional impairments. These findings suggest potential overtreatment and warrant greater focus on the safety of diabetes management, particularly among the elderly.


2. Quality of care measurement to improve health outcomes of people with diabetes mellitus

Quality measures are used for both accountability (such as pay for performance programs) and to drive quality improvement. Quality measures should be evidence based, reflect processes or outcomes important to patients, have sufficient validity and reliability, be feasible to collect and report, and be usable by clinicians and patients. Most current quality measures in diabetes are based on processes of care (such as periodic measurement of HbA1c; annual screening for nephropathy, neuropathy, and retinopathy; and aspirin use) and intermediate or surrogate clinical outcomes (such as achieving pre-specified thresholds of HbA1c, LDL cholesterol, and blood pressure). I have worked to develop outcome-based measures for Accountable Care Organizations (ACOs) to assess the quality of ambulatory care for patients with diabetes and other chronic conditions. These measures are endorsed by the National Quality Forum and currently in use in the Medicare Shared Savings Program. In addition, I have brought attention to severe hypoglycemia as a neglected target for quality measurement.


3. Expanding the use of metformin among patients with chronic kidney disease

Although metformin is a first-line agent for the treatment of type 2 diabetes, its use has been contraindicated among patients with chronic kidney disease – based on specific creatinine cut-points – due to the risk of lactic acidosis. Yet, metformin is unlikely to cause lactic acidosis among adults with mild to moderate renal impairment based on estimated glomerular filtration rate. Based on systematic reviews of the existing literature I conducted with my colleagues, we submitted a Citizen’s Petition to the FDA to change the labeling of metformin. This has resulted in a major change in the metformin label permitting its use among patients with mild to moderate kidney disease.

4. Rising costs of diabetes care
Over the past two decades, the cost of managing diabetes has more than doubled. The average patient with diabetes now spends $2,790 more per year than they did in 1987 - and more than half of the additional spending is for medications. Out of all diabetes drugs, spending on insulin has increased most dramatically. My work has focused on describing recent trends in the use and costs of insulin and other diabetes drugs, understanding the drivers of increased spending, and developing solutions to improve affordability. In addition, I led a comparative safety and effectiveness study to examine potential advantages associated with the use of basal insulin analogs versus NPH insulin (and did not find them).


D. Research Support

Ongoing Research Support
K23 AG048359 (Lipska) 8/15/2014-3/30/2020
NIH/NIA
Paul B. Beeson Patient-Oriented Research Career Development Award in Aging Predicting Severe Hypoglycemia among Older Adults with Diabetes
To develop, validate, and apply a risk score tool for predicting hypoglycemia among older patients with diabetes mellitus (no cost-extension).
Role: PI

R21 AG061427 (Lipska, Montori) 1/15/2019-1/14/2021
NIH/NIA
To design and test a novel approach to diabetes management for older, complex adults focused on improving the overall Quality of life (reducing the burden of symptoms), optimizing the Burden of treatment (medication administration, costs, and monitoring), and improving treatment Safety (reducing adverse effects) – the QBSafe approach.

R01 AG063391 (Karter) 9/15/2019 - 4/30/2024
NIH/NIA
Optimizing Medical Decision Making For Older Patients With Type 2 Diabetes
To analyze data from a diverse cohort of 145,894 adults ≥65 years old with type 2 diabetes to characterize patients’ experiences with and preferences for diabetes treatments, determine glycemic control levels
associated with the lowest risk of adverse outcomes, and develop a decision support tool to inform individualizing care.

**Completed Research Support**

**R01 DK103721 (Karter) 8/6/2015-7/31/2019**
NIH/NIDDK
Severe Hypoglycemia: Ascertainment, Surveillance and Pharmacovigilance
To develop novel surveillance tools and estimate trends in severe hypoglycemia, to quantify the impact of initiating new drugs and drug-drug interactions on severe hypoglycemia risk, and to identify high-risk subgroups for severe hypoglycemia.
Role: Co-Investigator

**P30 DK045735 (Sherwin) 2/1/2016-1/31/2019**
NIH/NIDDK
Diabetes Research Center Pilot Award
*Hypoglycemia in Nursing Home Residents with Diabetes – How Often, How Severe, and Who Is at Risk?*
To describe the burden of hypoglycemia among nursing home residents with diabetes using continuous glucose monitoring systems.
Role: Pilot PI, project support only, no salary support.

**P30 AG21342 (Gill) 8/15/2008-5/31/2018**
NIH/NIA
Claude D. Pepper Older Americans Independence Center at Yale University Research Career Development Core
Research Career Development Core (RCDC): The major goal of this Program Project Core is to identify and train a cadre of clinical investigators who will be future leaders in aging research, with the skills necessary to design and conduct epidemiologic and intervention studies of multifactorial geriatric health conditions.
Role: Career development awardee, project support only, no salary support.

**R03 AG13006 (Lipska) 7/1/2013-6/30/2014**
NIH/NIA
Grants for Early Medical and Surgical Specialists’ Transition to Aging Research (GEMSSTAR)
To characterize national trends in hypoglycemia admissions among older adults with diabetes, to explore reasons for these admissions, and to understand the relationship between glycemic control and hypoglycemia in the course of diabetes treatment.
Role: PI

**KL2 RR024138 (Sherwin) 7/1/2013-6/30/2014**
NIH
CTSA Grant to Yale University School of Medicine
Yale Center for Clinical Investigation (YCCI) Junior Faculty Scholar
To investigate treatment-related determinants of severe hypoglycemia in type 2 diabetes.
Role: Career development awardee
A. Personal Statement.
Disorders of social urinary control associated with aging have long been considered to be the consequence of either bladder pathology and/or impaired voluntary judgement associated with cognitive decline, however this organ/silo approach has not yielded routinely safe and effective therapies. The geroscience hypothesis suggests that knowledge of the systemic contributors to the symptomatic aging bladder will improve therapeutics, and in other areas holds promise for improved care of older adults. However, the normal aging bladder and the mechanisms by which many older adults are free of symptoms despite their old bladders is not well understood, constituting a critical knowledge gap precluding the achievement of meaningful geroscience-informed interventions. Full knowledge of age-associated increasing heterogeneity (intra- and inter-individual variability) in all relevant dimensions of bladder volume sensing and control, from biology to physiology and varied risk factors is needed. My clinically relevant research goal is a systemic interpretation, consistent with the geroscience hypothesis, of social urinary control physiology. The impact of aging on the elements within this model and their contributions to the control system and resulting perceptions should be quantifiable and linkages effectively modelled. Ultimately this knowledge will lead to development of a systemic “precision” clinical tool which will more effectively identify the most meaningful interventions for those patients having sufficient physiologic reserve. Additionally, those for whom palliative therapy is the optimal pathway will also be prospectively identifiable, thereby preventing unnecessary morbidity and expense associated with testing and hopeless therapeutic attempts.

B. Positions and Honors

Positions and Employment
2004 – 2007 Fellowship training in Urogynecology, Female Urology and Voiding Dysfunction, Baylor College of Medicine, Houston TX
2007 - 2014 Assistant Professor of Surgery, University of Connecticut College of Medicine, Farmington, CT
   Director, UConn Urodynamics Unit, Division of Urology, UConn Health
2009 - 2016 Director, Urodynamics and Voiding Dysfunction, Department of Urology, Connecticut Children's Medical Center, Hartford, CT
2009 - Research Associate, UConn Center on Aging, UConn Health, Farmington, CT
2014 – Associate Professor of Surgery, University of Connecticut College of Medicine, Farmington, CT
2016 – Associate, UConn Institute for Brain and Cognitive Science
2017 - Program Faculty, Neuroscience, University of Connecticut Graduate School, Farmington, CT

Other Experience and Professional Memberships
1995 - 2003 Board Member, Ohio State Health Network
2007 - Member, Member, Society for Urodynamics, Female Pelvic Medicine and Reconstructive Surgery (SUFU)
2007 - Member, American Urogynecologic Society
2011 - Member, International Consultation on Incontinence Research Society (ICIRS)
2012 - Member, International Continence Society
2012 - 2013 Member, Pad Weight Testing Working Group, International Continence Society
2014 - Member, External Experts Panel, NIDDK Lower Urinary Tract Dysfunction Research Network
2015 – Member, Underactive Bladder Working Group, International Continence Society
2016- Member, External Experts Panel, NIDDK New England Research Institutes Underactive Bladder Research Project

Honors
1980 Sigma Xi, Kenyon College
1980 Phi Beta Kappa, Kenyon College
2009 Dennis W. Jahnigen Scholar, American Geriatrics Society
2010 Walzak Urology Resident Teaching Award, University of Connecticut Health Center
2010 Top Ten Reviewer, Neurourology and Urodynamics
2011 Basic Science Poster Prize, Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction
2011 Top Ten Reviewer, Neurourology and Urodynamics
2014 Butler-Williams Summer Scholar, NIA
2015 Walzak Urology Resident Teaching Award, UConn Health, Urology Division
2016 Beeson Scholar, Emerging Leaders Career Development Award in Aging, NIA
2018 Osborn Award for Excellence in Biomedical Science Teaching, UConn Graduate School.

C. Contributions to Science

1. Rodent Cystometry/Model Development: Animal modeling of descriptive lower urinary tract physiology is an important tool in bladder research. I created the first reported multichannel pressure/flow mouse cystometry model in the UConn Center on Aging. Critical to my overarching hypothesis were findings from this technology demonstrating that bladder relaxation during filling, as well as non-voiding phasic pressure waves are dependent upon brain control associated with the voiding reflex. My work in Rodent Cystometry has led to my inclusion in an NIH-directed Expert Panel currently producing a White Paper on rodent cystometry, currently under consideration for publication.

2. **Aging and Bladder Function**: My lab is using mouse voiding behavior, cystometry, and bladder strip myography in conjunction with cellular, molecular, and genomic technologies to better understand the impact of aging and age-associated morbidities on urinary control physiology. We have shown in the aging mouse model that the aging bladder functional phenotype does not correlate with structural and tissue-level changes of aging. We are currently interested in an age-sensitive functional role for the HCN ion channel, a potential mediary of neuroendocrine/paracrine control over detrusor smooth muscle tensions affecting bladder volume sensitivity. The Alzheimer’s Disease bladder and the role of senescent cells in the Aging Bladder phenotype are closely related ongoing projects.


3. **Clinical dysfunction (DU/DHIC) and sensory transduction**: Detrusor underactivity (DU) is an age-associated voiding dysfunction with limited therapeutic options. I initially hypothesized, and then provided clinical urodynamics evidence, that detrusor underactivity is a sensory disorder rather than a detrusor muscle weakness. Age-associated dysregulation of bladder volume sensitivity may be a primary contributor to lower urinary tract dysfunction common in old age. This hypothesis is central to my R01, and the ramifications of this hypothesis are the core of my research direction.


4. **Underactive Bladder**: As author/co-author of several reviews, I have been an active participant in the recent discussion of "underactive bladder" vs. "detrusor underactivity," the pathophysiology underlying these ideas, and relevance to the search for therapies. This is especially important to an aging population, for whom we have little to offer for this problem other than catheters and containment.


5. Other work relevant to this Application:


D. Research Support

Ongoing Support

Regulatory Mechanisms in a Homeostatic Model of Geriatric Voiding Problems and Incontinence
K76 AG054777-03 09/15/2016 – 05/31/2020 (NCE)
Phillip P. Smith PI
This career development Award will achieve two goals: 1) I will obtain training in laboratory research while investigating a specific mechanism by which brain control influences bladder volume sensitivity. 2) I will leverage this experience to become a thought-leader in the development of new systemic integrative understandings of, and therapies for, urinary dysfunction and symptom complexes in later life.

Regulatory Mechanisms in a Homeostatic Model of Geriatric Voiding Problems and Incontinence
K76 AG05477-03S1 (Supplement) 09/15/2018 – 05/31/2020
Phillip P. Smith PI
The major goal of this project is to provide needed personnel and equipment resources to optimize the success of my K76 award.

Detrusor Underactivity as an HCN-mediated Failure of Resilience in Aging
R01AG058814 05/15/2019 – 01/31/2024
Phillip P. Smith PI
The HCN channel is positioned to mediate neuroendocrine influence over bladder volume sensory transduction, and thus may be a key component of adaptive urinary control biology. Diminished activity reduces range and fidelity of detrusor response to central control, increasing the risk of failure of successful voiding response to the physiologic stressor bladder filling. We will determine the location and function of bladder HCN and its role in aging and voiding failure typifying detrusor underactivity.

Role of Senolytics in Lower Urinary Tract Aging and Voiding Disorders
R21AG063528 04/15/2019 – 12/31/2020
Ming Xu, Phillip P. Smith, George A. Kuchel, multiple PI (corresponding: Kuchel)
Cellular senescence is associated with development of a secretory profile contributing to local and systemic dysfunction. Accumulation of senescent cells with aging contributes to increased risks of morbidity. We will determine if senescent cell accumulation in the bladder is associated with urinary dysfunction, and if this process can be arrested or reversed with senolytic agents. This project will inform future work determining
how senescent cells contribute to urinary dysfunction and optimizing the role senolytic approaches as therapies for urinary dysfunction associated with aging.

Pathophysiology of Lower Urinary Tract Dysfunction in a Mouse Model of Alzheimer's Disease  
R21AG061609 01/15/2019 – 11/30/2020  
Xiangyou Hu, Phillip P. Smith, multiple PI (corresponding: Smith)  
We will use a unique mouse model to evaluate the innovative hypothesis that an AD bladder phenotype can be identified. Data and results from this project will support a future more intensive investigation evaluating the mechanisms relating AD and urinary incontinence, with the goals of contributing to the understanding of AD pathophysiology, providing a potential set of novel biomarkers allowing pre-clinical disease detection, and identifying new therapeutic targets aimed at arresting or reversing the progress of the disease.

Does Central Nervous System Myelination Impact Bladder Function?  
Grant #: PP-1905-33994, National Multiple Sclerosis Society 10/01/2019 - 09/30/2020  
Stephen Crocker, Phillip P. Smith, multiple PI  
We will establish a mouse model linking demyelination characteristic of MS to lower urinary tract dysfunction, and test the possibility of remyelination therapy in improving urinary dysfunction. This project will provide crucial preliminary data for future studies evaluating the role of demyelination in urinary dysfunction in MS and novel treatment approaches.

Focused Ultrasound Neural Stimulation for Spinal Cord Injury  
W81XWH-17-1-0538 Dept. of Defense--Army, CDMRP 09/15/2017 – 09/14/2020  
Kim, Han PIs  
We will design several variations of the first-pass ultrasonic transducers that can focus 2–20 MHz sound waves onto mm-sized spots on spinal cord in vivo. Demonstrate various ultrasonic transducer with focal size between 0.07 and 0.7 mm in diameter, focal length > 10 mm and in vivo bladder voiding without hyper reflexive voiding.  
Role: Co-investigator

Completed Support

University of Connecticut Research Excellence Program Award  
Smith (PI) 05/14/2018 - 06/30/2019

The Age-Sensitive Role of HCN in Detrusor Responses to Adrenergic Stimulation: Addressing Reviews of  
1R01 AG068815-01  
The goal was to gain needed resources to address the critiques of the first submission of the named R01

The Connecticut Institute for the Brain and Cognitive Sciences, Seed Grant  
Smith (PI) 05/01/2017 - 05/01/2018

Redefining the Aging Bladder: A Genomic Approach  
Our goal was to specifically target cell types likely to be involved with HCN and the brain-mediated regulation of bladder volume sensitivity

The Connecticut Institute for the Brain and Cognitive Sciences, Seed Grant  
Smith, Mulkey (Co-PI) 05/01/2016 - 09/30/2017

HCN - Interstitial Cell Interactions in the Autonomic Control of Bladder Muscle  
Our goal was to test the role of the HCN channel in beta-adrenergic detrusor relaxation and its mechanism.
NAME: Andrew Franklin Teich

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

POSITION TITLE: Assistant Professor

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

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<td>Columbia University</td>
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<td>05/05</td>
<td>Neurobiology</td>
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<td>Columbia University</td>
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<td>05/06</td>
<td>Medicine</td>
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<td>New York-Presbyterian Hospital, Columbia University</td>
<td>M.D.</td>
<td>05/08</td>
<td>Anatomic Pathology</td>
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<td>New York-Presbyterian Hospital, Columbia University</td>
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<td>06/10</td>
<td>Neuropathology</td>
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A. Personal Statement
I did my MD-PhD at Columbia University, where my PhD thesis concerned computational modeling of neural networks in primary visual cortex. I then completed my clinical training at Columbia, where I have obtained dual board certification in Anatomic Pathology and Neuropathology. I have subsequently performed post-doctoral work in the laboratory of Dr. Ottavio Arancio where I have investigated mechanisms of synaptic dysfunction in Alzheimer’s disease. My current research focus is on the intersection of systems biology and neurodegenerative disease. Specifically, ongoing work in my laboratory is focusing on computational analysis of RNA expression data from Alzheimer’s disease brain tissue, with the goal of identifying master regulators of gene expression in Alzheimer’s disease that contribute to both synaptic dysfunction as well as microglial dysfunction. We have identified several putative master regulators relevant to AD pathogenesis, and we are currently characterizing associated gene regulatory networks.

B. Positions and Honors

Positions and Employment

2010 – 2011  Clinical Fellow and Attending in the Division of Neuropathology, Department of Pathology and Cell Biology, New York – Presbyterian Hospital, Columbia University

2011 - Present Assistant Professor and Attending in the Division of Neuropathology, Department of Pathology and Cell Biology, New York – Presbyterian Hospital, Columbia University

2016 - Present Co-Director of New York Brain Bank, Neuropathology Core Co-Leader, Columbia University Alzheimer’s Disease Research Center (ADRC), New York, NY
Honors and Awards
2016 Paul B. Beeson Emerging Leaders Career Development Award in Aging, NIH-NIA
2014 Margaret M. Cahn Research Award (Alzheimer’s Association)
2011 Gerstner Scholar, Columbia University, NY NY

C. Contributions to Science

*Investigating dysregulation of gene expression at a systems level in Alzheimer’s Disease*

My laboratory’s primary focus is to use the tools of systems biology to better understand how gene expression is disrupted in neurodegenerative diseases of aging in general, and in Alzheimer’s disease (AD) specifically. This line of investigation integrates my background in computational biology with my post-doctoral work (see next section) and my clinical training in neuropathology. My most advanced project involves an investigation of synaptic dysfunction in AD from a systems level. In an effort to better understand the molecular drivers of synaptic and neurophysiologic dysfunction in AD, we analyzed neuronal gene expression data from human AD brain tissue to identify master regulators of synaptic gene expression. Master regulator analysis identified ZCCHC17 as normally supporting the expression of a network of synaptic genes, and predicts that ZCCHC17 dysfunction in AD leads to lower expression of these genes. We have demonstrated that ZCCHC17 is normally expressed in neurons and is reduced early in the course of AD pathology. We have also shown that ZCCHC17 loss in rat neurons leads to lower expression of the majority of the predicted synaptic targets and that ZCCHC17 drives the expression of a similar gene network in humans and rats. These findings support a conserved function for ZCCHC17 between species and identify ZCCHC17 loss as an important early driver of lower synaptic gene expression in AD.


*Investigating Molecular Mechanisms of Synaptic Dysfunction in Alzheimer’s Disease*

After my clinical training, I performed post-doctoral work in the laboratory of Dr. Ottavio Arancio. In Dr. Arancio’s lab, I focused on investigating mechanisms of synaptic dysfunction in Alzheimer’s disease, and contributed to studies of therapeutic compounds that rescue synaptic function in this disease. To give some historical context, Alzheimer’s disease is a disorder that currently has no cure. Beta-amyloid protein accumulates in the brains of patients’ with Alzheimer’s disease, and clearance of beta-amyloid has been a therapeutic strategy pursued by many groups. Unfortunately, therapeutic trials based on beta-amyloid clearance have failed. Although clearance of beta-amyloid may still prove successful, it is appropriate at this stage to pursue additional, parallel strategies. Since synaptic dysfunction is the direct correlate of dementia in Alzheimer’s disease, rescuing synaptic function is a simple, straight-forward approach. In addition, loss of synapses in Alzheimer’s disease brains at autopsy correlates far better with the degree of dementia during life than either beta-amyloid load or the accumulation of tau protein (another protein that accumulates in Alzheimer’s disease). For all of these reasons, I have been interested in rescuing synaptic function in Alzheimer’s disease. The first paper below validates PDE5 as a therapeutic target in human brain tissue; in this study, we have validated for the first time that PDE5 is expressed in human neurons and we have started to characterize which neurons express PDE5. This is relevant to a large body of literature showing that PDE5 inhibition rescues synaptic dysfunction in mouse models of AD. The next two references are studies where we tested different therapeutic compounds that rescue synaptic function in mouse models of Alzheimer’s disease; these studies show rescue both at the electrophysiologic level as well as at the behavioral level. The fourth reference below is a study that helps us understand a related issue; what beta-amyloid is normally doing during life. Although beta-amyloid protein accumulates to high levels in Alzheimer’s disease, it is present at lower levels throughout life in normal subjects. Intriguingly, beta-amyloid appears to facilitate synaptic communication as part of its normal function, and only begins to disrupt synaptic function at high, toxic levels. To better understand the role of beta-amyloid at the synapse at low, normal levels, we need to be able to reliably detect beta-amyloid at low, physiologic concentrations in wild-type mice. This turns out be very
difficult, as beta-amyloid antibodies cross-react with many other proteins. We compared several commercially available beta-amyloid ELISAs, and also developed our own in-house ELISA for beta-amyloid. In the fourth publication below, we provide our results for how to best detect endogenous beta-amyloid in wild-type mice. These results are being used for ongoing projects in our lab where we are investigating the normal physiologic role of beta-amyloid at the synapse.


**Modeling Mechanisms of Orientation Tuning in Primary Visual Cortex**

I performed my Ph.D. thesis in the laboratory of Dr. Ning Qian at Columbia University. My thesis consisted of computationally modeling how simple cells in Primary Visual Cortex (V1) acquire the property of orientation tuning. V1 is the first step of the visual pathway where cells acquire this property. Before V1, cells in the visual pathway have concentric receptive fields (i.e. retina, thalamus). There are two schools of thought on how cells in V1 acquire orientation tuning. One theory states that the alignment of inputs from the thalamus determines the orientation of V1 cells. Another, opposing theory states that V1 cells have only a very weak orientation bias from the thalamus, and that intra-cortical recurrent connections in V1 are primarily responsible for creating sharp orientation tuning in these cells. My thesis modeled electrophysiologic data acquired from V1 in both cats and macaque monkeys. What my data showed was that if a cell’s orientation tuning was highly malleable (i.e. if synaptic fatigue could cause distortions in its orientation tuning properties), that this implied a strong component of intra-cortical sharpening to its orientation tuning. However, if a cell’s orientation tuning properties are relatively inflexible to synaptic fatigue, then that cell’s orientation tuning is primarily influenced by the hard wiring of inputs from the thalamus. Since cells in V1 have varying degrees of plasticity of orientation tuning after fatigue, this implies that both mechanisms are present in V1, depending on the species and layer of V1 you are recording from. This work was published in three successive publications, as detailed below.


**Complete List of Publications:**
http://www.ncbi.nlm.nih.gov/pubmed/?term=Teich+AF
D. Additional Information: Research Support and/or Scholastic Performance

### Ongoing Research Support

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<tr>
<td>NIH-NIA</td>
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<tr>
<td>Title: A Translational Bioinformatics Approach to Rescuing Synaptic and Neurophysiologic Dysfunction in Alzheimer's Disease</td>
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<td>In this project we will use validated bioinformatic tools to screen a library of FDA-approved compounds for their ability to support synaptic function in AD. This will be accomplished in a two-step process, by first screening a library of compounds for their ability to therapeutically modulate disease-relevant synaptic master regulators in rat neuronal cultures, followed by examining our top candidates in an iPSC human neuronal culture screen.</td>
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<tr>
<td>Alzheimer’s Disease Research Center at Columbia University</td>
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<td>This project supports a wide spectrum of research on Alzheimer’s disease.</td>
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### Completed Research Support

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<td>NIH-NIA</td>
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<tr>
<td>Title: An integrative analysis of DNA methylation, transcriptomic changes, and cognitive dysfunction in Alzheimer’s disease</td>
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<tr>
<td>This grant funds my training as a clinician-scientist, and will support protected time for my professional development. My scientific proposal for this award involves investigating the relationship between gene expression and DNA methylation in several different collections of Alzheimer’s disease brain tissue that I have carefully archived.</td>
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<td>Alzheimer’s Association</td>
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<tr>
<td>Title: A Cross-Species Study of DNA Methylation in Alzheimer’s Disease Dementia</td>
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<td>This grant funds a study of DNA methylation in a mouse model of Alzheimer’s disease. The grant seeks to address three questions: 1) Do genes normally methylated during a learning event have abnormal methylation in APP-PS1 mice?, 2) Which genes are differentially methylated during a learning event in APP-PS1 mice?, and 3) Which of the candidate genes in Aims 1 and 2 are relevant for cognition in human Alzheimer’s Disease patients?</td>
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<tr>
<td>Title: Alzheimer’s Disease Research Center at Columbia University</td>
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<tr>
<td>This is an administrative supplement to the Columbia University ADRC grant (Scott Small PI) that is facilitating my training in brain banking.</td>
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<td>NIH-NIA</td>
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<tr>
<td>Title: A systems approach to DNA methylation, gene expression, and cognitive dysfunction in Alzheimer’s disease</td>
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<tr>
<td>This grant funds my training as a clinician-scientist, and will support protected time for my professional development. My scientific proposal for this award involves investigating the relationship between gene expression and DNA methylation in several different collections of Alzheimer’s disease brain tissue that I have carefully archived.</td>
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</table>
NAME: Kelly M. Trevino

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

POSITION TITLE: Assistant Professor of Psychology in Medicine, Weill Cornell 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>Bucknell University; Lewisburg, PA</td>
<td>BA</td>
<td>06/2002</td>
<td>Psychology</td>
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<tr>
<td>Bowling Green State University; Bowling Green, OH</td>
<td>PhD</td>
<td>08/2007</td>
<td>Clinical Psychology</td>
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<td>VA Boston Healthcare System; Brockton, MA</td>
<td>Postdoctoral</td>
<td>08/2008</td>
<td>Geropsychology</td>
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<tr>
<td>Dana-Farber Cancer Institute; Boston, MA</td>
<td>Postdoctoral</td>
<td>06/2013</td>
<td>Psychosocial Oncology</td>
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A. Personal Statement

As an Assistant Professor of Psychology in Psychiatry and a clinical psychologist with fellowship training in psychosocial oncology, I have research and clinical expertise in the psychosocial care of cancer patients and their informal caregivers with a focus on the needs of patients with advanced cancer. My research examines prognostic understanding, advance care planning, and distress and quality of life in patients with advanced cancer and their informal caregivers. I apply this work to the development and evaluation of psychosocial interventions to reduce distress and improve illness understanding and advance care planning in these populations. My research has been funded by the NIH/NIA, American Cancer Society, and American Federation for Aging Research. I have over 50 peer-reviewed publications demonstrating my expertise in these areas and my strong skills in research methodologies and data analysis.


B. Positions and Honors

Positions

2003-2004 Graduate Teaching Assistant, Bowling Green State University, Bowling Green, OH
2006-2007 Psychology Intern, Wayne State University, Detroit, MI
2007-2008  Psychology Postdoctoral Fellow, VA Boston Healthcare System/Harvard Medical School, Brockton, MA
2008-2009  Adjunct Professor, University of Massachusetts-Boston, Boston, MA
2008-2010  Staff Psychologist, Mental Health Service, VA Boston Healthcare System, Brockton, MA
2010-2013  Psychology Postdoctoral Fellow, Dana Farber Cancer Institute, Boston, MA
2012-2013  Adjunct Professor, Emmanuel College, Boston, MA
2013-2014  Assistant Professor, Rowan University, Glassboro, NJ
2014-2018  Assistant Professor of Psychology in Medicine, Weill Cornell Medicine, New York, NY
2018-Present  Assistant Attending Member, Memorial Sloan Kettering Cancer Center, New York, NY
2018-Present  Assistant Professor of Psychology in Psychiatry, Weill Cornell Medicine, New York, NY

Other Experience and Professional Memberships

2001-   American Psychological Association
2005-2006  Cheiron: International Society for the History of Behavioral and Social Sciences
2008-   Gerontological Society of America, Full Member
2008-   American Psychological Association Division 36, Full Member
2008-2010  Psychologists in Long Term Care, Full Member
2008-2010  American Psychological Association Division 12-2, Full Member
2011-   American Psychosocial Oncology Society
2011-2014  American Society of Clinical Oncology
2011-2013  LiveStrong Young Adult Alliance
2015-   Alliance for Clinical Trials in Oncology, Symptom Intervention Committee member
2019-2021  American Psychological Association, Committee on Aging (CONA), Full member

Honors

2000    Psi Chi, National Honor Society in Psychology
2001    National Academic All-American, College Sports Information Directors of America
2001, 2002  The Bucknell President’s Award for Distinguished Academic Achievement, Bucknell University
2002    Phi Beta Kappa Honor Society
2002    Mortar Board, National College Senior Honor Society
2002    Graduated Summa Cum Laude, Bucknell University
2003    Phi Kappa Phi Honor Society, Academic excellence in higher education
2005    Katzner and University Bookstore Fund ($1000), Bowling Green State University, Bowling Green, OH
2005    Donald Leventhal Award ($1000), Bowling Green State University, Bowling Green, OH
2012    ASCO Annual Meeting Merit Award, American Society of Clinical Oncology
2015    Accepted to the NIH Office of Behavioral and Social Sciences Research; Summer Institute on Randomized Clinical Trials Involving Behavioral Interventions
2015    Featured in Advances in Geriatrics, New York Presbyterian Hospital
2016    Accepted to the Massachusetts General Hospital Workshop in Research Methods in Supportive Oncology
2016    Society of Behavioral Medicine, Spirituality and Health Special Interest Group, New Investigator Award
2016    Invited; NCI National Clinical Trial Network workgroup meeting on Adolescent and Young Adult Oncology ALL
2016    Accepted to the Tideswell Emerging Leaders in Aging Program, University of California-San Francisco
2017    Accepted to the Mentored Training for Dissemination and Implementation Research in Cancer, Washington University in St. Louis
2017    American Psychosocial Oncology Society, New Investigator Award
2017    Accepted to the Mentored Training for Dissemination and Implementation Research in Cancer, Washington University in St. Louis
2018    Accepted to the Advanced Research Institute in Geriatric Mental Health, Dartmouth University
C. Contribution to Science

1. **Advance care planning and end-of-life care:** My work has examined factors associated with patient engagement in advance care planning and care received at the end of life with a focus on patient and caregiver illness and prognostic understanding. This research also examined racial/ethnic differences in end-of-life care including differences in patients’ understanding of their illness, preferred source of information on their prognosis, and the impact of end-of-life care discussions on patients’ engagement in advance care planning. This work highlighted the low rates of illness understanding in patients with advanced cancer and their caregivers and suggests that racial and ethnic differences in illness understanding may explain differences in the care patients receive close to death. These projects provide the foundation for research on strategies for providing culturally sensitive care to ensure patients understand their illness and treatment options and receive their preferred care. My role in these projects included data analysis and manuscript publication.


2. **Cancer patient and caregiver distress:** My research has examined the nature and indicators of distress in cancer patients and their informal caregivers. This research indicated that distress is experienced in various ways by cancer patients and their caregivers and identified risk and protective factors (e.g., coping strategies) for distress in this population. This work highlights the diverse contexts of distress (i.e., advanced cancer, bereavement) and the importance of considering this context in the development and implementation of interventions to reduce distress. My role in these projects included project management, program development and implementation, data analysis, and manuscript preparation.


3. **Race/ethnicity and end of life care:** I have also examined racial/ethnic differences in end-of-life care including differences in patients’ understanding of their illness, preferred source of information on their prognosis, and the impact of end-of-life care discussions with patients’ engagement in advance care planning. This work highlighted racial and ethnic differences in illness understanding that may explain differences in the care patients receive close to death and the need to provide culturally sensitive care in order to ensure patients receive their preferred treatment. My role in these projects included data analysis and manuscript publication.


4. **Patient-oncologist therapeutic alliance**: I have also conducted research on the patient-oncologist therapeutic alliance or the bond between the patient and oncologist and the relationship between this alliance and patient outcomes. This research highlighted a largely unexamined aspect of cancer care, providing evidence of the importance of the patient-oncologist relationship for patient outcomes. These outcomes include indicators of severe psychiatric distress such as suicidal ideation. This research supports additional research on the active ingredients of the patient-oncologist relationship and the development of training resources to improve the patient-oncologist alliance. My role in these projects included project management, data analysis, and manuscript preparation.


**Link to publications in MyBibliography:**

D. **Research Support**

**Ongoing**

1R21CA224874-01A1 Trevino/Shen (MPI) 9/20/18-8/31/20

NIH/NCI

*A communication-based intervention for advanced cancer patient-caregiver dyads to increase engagement in advance care planning and reduce caregiver burden*

The goals of this study are to: (1) develop a communication-based intervention to improve advanced cancer patients’ and caregivers’ prognostic understanding using communication strategies (e.g., acknowledgment, validation of fears) and distress management (e.g., deep breathing, muscle relaxation) techniques; (2) evaluate the feasibility and acceptability of the intervention among advanced cancer patients and their caregivers; and (3) test the preliminary efficacy of the intervention on patients’ and caregivers’ prognostic understanding (primary outcome); completion of DNR order, living will, and health care proxy; psychological distress; communication quality; caregiver burden; and healthcare utilization (secondary outcomes).

Role: Co-Principal Investigator

PEP-18-052-01-PCSM Trevino/Shen (MPI) 12/15/18-11/14/20

American Cancer Society Pilot and Exploratory Project

*Dyadic communication intervention to increase patient advance care planning*

Aims: To develop and pilot test an intervention that improves Latino/a patient and caregiver prognostic understanding (terminal nature of illness, life-expectancy) using theoretically grounded techniques in distress tolerance and communication skills to increase engagement in advance care planning and reduce rates of futile aggressive end-of-life care.

Role: Co-Principal Investigator
Anxiety with cancer in the elderly (ACE): A cognitive-behavioral intervention
Aims: To develop and evaluate a cognitive-behavioral intervention for anxiety in older adults with advanced cancer and their primary informal caregiver.
Role: PI

Psychosocial Approaches to Better Understanding & End-Stage Cancer Care (PROTECT)
This application proposes to support novel research to develop promising psychosocial approaches to improve the delivery of EoL cancer care.
Role: Co-Investigator

American Federation for Aging Research  Trevino (PI)  5/16-4/30/17
Improving older adult cancer patients’ access to psychological services: Convening older adults, family members, oncology providers, researchers
Aims: To identify barriers to and facilitators of older adult cancer patients' access to evidence-based psychological care and to develop recommendations for improving patient access to these services
Role: PI
Dr. Kathleen Unroe is a geriatrician and nursing home physician and an Associate Professor of Medicine at Indiana University and a Scientist in the Center for Aging Research in the Regenstrief Institute. Her focus is improving the quality of care in nursing homes, including the optimal use of palliative care and hospice in long term care settings. Her Beeson K23 work focused on examining the use of hospice services in the nursing home. She is the PI and Project Director for the $30.3 million CMS funded clinical and payment demonstration project OPTIMISTIC (Optimizing Patient Transfers, Impacting Medical Quality, and Improving Symptoms: Transforming Institutional Care). Dr. Unroe is the CEO and founder of a health care start-up to disseminate the OPTIMISTIC clinical care model. She is co-PI of an NIA R21/R33 pragmatic clinical trial to improve advance care planning in nursing homes through the implementation of an ACP Specialist program.

She was a 2009-2010 Atlantic Philanthropies Health and Aging Policy Fellow and through that program had a placement in the Office of the Assistant Secretary of Planning and Evaluation in Health and Human Services in the Division of Disability, Aging and Long term care. She served as Chair of the American Academy of Hospice and Palliative Medicine Research Committee and is Chair of the American Geriatrics Society Public Policy Committee. She is on the Editorial Board of the Journal of the American Geriatrics Society. She is a member of the CMS Technical Expert Panel for the Nursing Home Compare 5 star rating system. Dr. Unroe completed a three year Geriatric Medicine fellowship and internal medicine residency at Duke University. She received her MD, with a Specialization in Aging, and Masters in Health Administration from The Ohio State University.
Sara J. Czaja, Ph.D. is the Director of the Center on Aging and Behavioral Research and a Professor of Gerontology in the Division of Geriatrics and Palliative Medicine at Weill Cornell Medicine. She is also an Emeritus Professor of Psychiatry and Behavioral Sciences at the University of Miami Miller School of Medicine (UMMSM). Prior to joining the faculty at Weill Cornell, she was the Director of the Center on Aging at the UMMSM and a Professor in the Department of Psychiatry. She is also the Director of NIH funded Center for Research and Education on Aging and Technology Enhancement (CREATE). Her research interests include: aging and cognition, aging and healthcare access and service delivery, family caregiving, aging and technology, training, and functional assessment. She received continuous funding from the National Institutes of Health, Administration on Aging, and the National Science Foundation to support her research. She is a fellow of the American Psychological Association (APA), the Human Factors and Ergonomics Society and the Gerontological Society of American. She is also Past President of Division 20 (Adult Development and Aging) of APA. She served as a member of the National Research Council/National Academy of Sciences Board on Human Systems Integration. Dr. Czaja also served as a member of the Institute of Medicine (IOM) Committee on the Public Health Dimensions of Cognitive Aging and as a member of the IOM Committee on Family Caregiving for Older Adults. Dr. Czaja is also the recipient of the 2015 M. Powell Lawton Distinguished Contribution Award for Applied Gerontology, of GSA; the 2013 Social Impact Award for the Association of Computing Machinery (ACM); the Jack A. Kraft Award for Innovation from HFES and the APA Interdisciplinary Team, both with CREATE; and the Franklin V. Taylor Award from Division 21 of APA.
NAME: Edmondson, Donald

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

POSITION TITLE: Associate Professor of Medicine, Columbia 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>History</td>
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<td>University of Connecticut, Storrs, CT</td>
<td>M.A.</td>
<td>2007</td>
<td>Psychology</td>
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<tr>
<td>University of Connecticut, Storrs, CT</td>
<td>Ph.D.</td>
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<td>MPH</td>
<td>2012</td>
<td>Effectiveness and Outcomes Research</td>
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A. Personal Statement

I am a tenured Associate Professor of Behavioral Medicine at Columbia University Medical Center (CUMC), and Director of the Center for Behavioral Cardiovascular Health at CUMC. I am PI of two cohort studies of PTSD due to cardiovascular events, and its association with secondary cardiovascular risk in acute coronary syndrome and stroke patients. I am an expert in psychological adjustment to life-threatening illness as well as psychosocial influences on CVD. My scientific strengths are in bringing disparate ideas, often from different disciplines, together to answer important questions. As a graduate student, I created a lab to test a synthesis of a theory of intergroup behavior rooted in death anxiety with cognitive models of PTSD. That work led to my Enduring Somatic Threat (EST) model of PTSD-like reactions in patients with acute life-threatening illnesses. I received the 2018 American Psychological Association award for Distinguished Scientific Contribution in Early Career for my EST theory and research. I was also the first to show that the hospital environment itself contributes to patients’ subsequent PTSD-like symptoms. I founded the first emergency medicine research lab at Columbia to enroll patients in the emergency department, to ask them about their experience during evaluation for a life-threatening CVD event. I received the 2014 Neal Miller award for early career contributions to behavioral medicine by the Academy of Behavioral Medicine Research for that work. Consequently, I am well positioned to bring my expertise in PTSD assessment and in particular, PTSD impact on cardiovascular disease and outcomes to this project evaluating PTSD and hypertension management in cancer survivors. I have a long track record of mentoring early stage investigators to independence (6 of my mentees have received one or more R01s and have successfully carried out the proposed science).


**B. Positions and Honors**

**Position and Employment**

2006-2009  Instructor, Abnormal Psychology and Theories of Personality, University of Connecticut, Storrs, CT
2008  Instructor, Structural Equation Modeling, Yale University, New Haven, CT
2009-2010  Postdoctoral Research Scientist, Center for Behavioral Cardiovascular Health, Columbia University Medical Center, New York, NY
2011-2016  Assistant Professor of Medicine (Depts of Medicine and Psychiatry), Center for Behavioral Cardiovascular Health, Columbia University Medical Center, New York, NY
2014-present  Director of Emergency Medicine Research, Columbia University/ NY Presbyterian Hospital
2016-present  Associate Professor of Medicine (Depts of Medicine and Psychiatry), Center for Behavioral Cardiovascular Health, Columbia University Medical Center (received tenure, 2018)

**Other Experience and Professional Memberships**

2011-present  Faculty mentor, BEST-DP: Biostatistics Enrichment Summer Training Diversity Program. Begg, P.I. (R25 HL096260)
2012-2016  Faculty mentor, Short term research training for medical students (T35 HL007616)
2013  Guest Editor, *Progress in Cardiovascular Diseases*, Special Issue on Psychosocial Factors in Cardiovascular Disease
2014  Grant reviewer, Israel Science Foundation
2014-2018  Grant reviewer, Merit Review Neurobiology-A Subcommittee, VA study section
2014-2018  Permanent member: Social Psychology, Personality, and Interpersonal Processes (SPIP) study section, National Institutes of Health
2016  Member, ZHL1 CSR-X (M1) Career Development Program in Emergency Care Research (K12) study section
2017  Member, ZRG1 ETTN-U (80) S; USU-NHLBI Collaborative Health Initiative Research Program (CHIRP) study section

**Honors**

1997-2001  Scholars of Excellence Provost’s Scholar’s Award, Union University, TN
2003  Psi Chi (national psychology honors society), University of Memphis, TN
2006  Sydney Jourard Award, Division 32 of the American Psychological Association
2014  Neal E. Miller Young Investigator award, Academy for Behavioral Medicine Research
2018  Distinguished Scientific Contribution in Early Career (Health Psychology), American Psychological Association

**C. Contribution to Science**

1. **Prevalence and cardiovascular consequences of posttraumatic stress disorder in CVD patients**
   My work focused first on systematically reviewing the literature on the prevalence and prognostic significance of PTSD after acute cardiac events. We found that 1 in 8 acute coronary syndrome (ACS) patients screen positive for PTSD, and that a positive PTSD screen is associated with a doubling of risk for ACS recurrence and mortality. Similarly, 1 in 4 stroke/TIA patients screen positive for PTSD in the first year after stroke.

2. PTSD and medication nonadherence in ACS and stroke patients

We found that stroke survivors with PTSD were 3 times more likely to be nonadherent to secondary prevention medications as their counterparts without PTSD, and that the association was explained by greater ambivalence about medications (not differential beliefs about their necessity). In a follow-up study in ACS patients, PTSD was associated with avoidance of medications because they remind patients of their index ACS event and future cardiac risk. Similarly, ACS patients with high levels of PTSD symptoms report avoiding physical activity because the physiological response to exercise induces fear of ACS recurrence.


3. PTSD and incident cardiovascular risk

PTSD due to external (non-medical) events increases incident CVD risk, and there are a number of pathways by which that association may be carried. We have focused on modifiable pathways, and attempted to capture them using ambulatory monitoring when possible.


4. Contributions to theory, and methods for assessing attention to threat and ambulatory psychophysiology

My theoretical work focuses on the existential underpinnings of psychological disorders in survivors of acute manifestations of chronic disease, as well as the unique influence of PTSD due to medical events on short-term prognosis. My contribution to research methods


Complete List of Published Work in MyBibliography:

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

**Ongoing Research Support**

R01 HL117832 (Edmondson, PI) 09/15/2013-7/31/2019
NIH/NHLBI
IMPACT OF SOCIAL-INTERPERSONAL FACTORS IN THE ER ON PTSD/CARDIAC OUTCOMES
The purpose of this prospective cohort study [named Reactions to Acute Care and Hospitalization (REACH)] is to identify emergency department factors (such as poor doctor-patient communication and overcrowding) that influence the development of PTSD in acute coronary syndrome (ACS) patients, and to determine whether PTSD is associated with 1-year cardiac event recurrence and mortality in ACS patients.
Role: Principal Investigator

R01HL128497 (Edmondson, PI) 01/01/2016-12/31/2019
NIH/NHLBI
TESTING BIOPSYCHOSOCIAL MECHANISMS OF THE POSTHOSPITAL SYNDROME OF EARLY REHOSPITALIZATION IN ACUTE CORONARY SYNDROME PATIENTS
The goal of the proposed research is to test the Posthospital Syndrome (PHS) Model to explain the high risk of all-cause rehospitalization experienced by acute coronary syndrome patients in the 30 days after they are discharge and identify modifiable hospital factors that contribute most to PHS.
Role: Principal Investigator

R01HL132347 (Edmondson/Kronish) 06/20/2016-03/31/2020
NIH/NINDS
IMPACT OF PTSD ON CARDIOVASCULAR RISK IN SURVIVORS OF STROKE AND TRANSIENT ISCHEMIC ATTACK
The aim of this study is to evaluate the prevalence and outcomes related to PTSD after stroke.
Role: Co-Principal Investigator

R01HL128310 (Edmondson, PI) 07/15/2015-03/31/2019
NIH/NHLBI
TEST OF A NEW THEORY TO EXPLAIN EXCESS RISK IN CARDIAC PTSD
The goal of the proposed research is to identify targets for new interventions to reduce the doubled cardiac event recurrence and mortality risk faced by the 1 in 8 survivors of non-ST elevation myocardial infarction and unstable angina who develop PTSD secondary to their life-threatening cardiac event.
Role: Principal-Investigator

U24 AG052175 (Davidson, Edmondson, Co-PI) 09/30/2015-05/31/2020
NIH/NIA
COLUMBIA UNIVERSITY SCIENCE OF BEHAVIOR CHANGE RESOURCE AND COORDINATING CENTER
The overall aim of this SOBC Resource and Coordinating Center (RCC) application is to provide strategic leadership, efficient coordination, inspired support, and pioneering dissemination of the innovative
experimental medicine approaches that SOBC consortium scientists will adopt to identify, validate assays, and engage novel behavior change targets.

**R01HL141494 (Shechter, PI) 05/01/2018-03/31/2023**

**NIH/NHLBI**

**POOR SLEEP, SEDENTARY BEHAVIOR, AND SECONDARY CARDIOVASCULAR RISK IN STROKE AND TIA PATIENTS.**

The goal of this ancillary R01 is to evaluate sleep and sedentary behavior after stroke or transient ischemic attack (TIA) as potential therapeutic targets to reduce risk of secondary cardiovascular disease (CVD).

**Ongoing Research Support**

**ECRIP-HPR iSCRIPT Center (Davidson, PI) 1/15/2014-1/14/2016**

NYS Department of Health

Innovative Strategies to Decrease Readmissions Improving Patient & System Stress & Behavior.

The purpose of this project is to identify novel hospital systems, care processes, and patient factors that adversely influence 30-day readmissions.

Role: Training Director

**Loan Repayment Grant (Edmondson, PI) 2011-2016**

**NIH/NHLBI**

PTSD Due to Acute Coronary Syndromes

Role: Awardee

**P01 HL47540 (J Schwartz, PI) 1993-2015**

**NIH/NHLBI**

Psychosocial Factors and Cardiovascular Disease

Role: Co-Investigator

**R01 HL123368 (Kronish, PI) 09/01/2014-6/30/2018**

**NIH/NHLBI**
A. Personal Statement
Dr. Amy Kind, MD, PhD is one of the few physicians in the country with PhD training in population health, an active research laboratory in health disparities and geo-analytics, clinical training in geriatrics and memory disorders, and a translational research agenda focused on vulnerable older adult populations with Alzheimer’s Disease. She leads a robust research program focused on health equity, the social determinants of health, neighborhood disadvantage and Alzheimer’s Disease. Dr. Kind’s work has fundamentally changed the way many conceptualize health disparities, by catalyzing a broader focus of policy, research, and clinical delivery from the single individual to the neighborhood context. With her unique skills, Dr. Kind developed the Neighborhood Atlas (www.neighborhoodatlas.medicine.wisc.edu), a free first-of-its-kind on-line tool that breaks down socioeconomic factors for every neighborhood in the US including Puerto Rico. Her Atlas data have already found widespread application including in the US House of Representatives, NIH, CDC, VA, HHS, AARP, health systems, and industry. Her work has had far-reaching policy impact on a national and global scale, has been actively promoted by the NIH and published in top journals including NEJM. To directly intervene on health disparities, Dr. Kind has successfully designed, implemented, and tested models of care to improve patient outcomes in low resource and safety net areas. Her interventions, such as low-cost models of care to improve coordination of care transitions in low-resource areas, have been disseminated widely. Dr. Kind has multiple active R01s from the NIH/National Institute on Minority Health and Health Disparities (NIMHD), the NIH/National Institute on Aging (NIA), and routinely advises state, federal and international entities. Her most recent R01 will provide a novel window into the sociobiologic mechanisms underlying neighborhood disadvantage exposure and AD neurobiology. She is a dedicated clinician and serves as an outstanding research mentor, with many successfully funded mentees (NIH K awards, Diversity supplements).

B. Positions and Honors

Positions and Employment

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<tr>
<th>Year</th>
<th>Position</th>
</tr>
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<tbody>
<tr>
<td>2017-present</td>
<td>Founding Director, UW Dept of Medicine Health Services and Care Research Program</td>
</tr>
<tr>
<td>2018-present</td>
<td>Chair, Oversight and Advisory Committee, Wisconsin Partnership Program ($389 million grant-making endowment within UW School of Medicine and Public Health [UWSMPH])</td>
</tr>
<tr>
<td>2015-present</td>
<td>Associate Professor with Tenure, UWSMPH, Department of Medicine, Division of Geriatrics</td>
</tr>
<tr>
<td>2007-present</td>
<td>Clinical Duties: Director-Dementia and Cognitive Care Clinic; Director, VA Coordinated Transitional Care (C-TraC) Program and Attending Physician, Geriatric Inpatient Consult Service, William S Middleton VA Hospital, Madison, WI</td>
</tr>
<tr>
<td>2007- 2015</td>
<td>Clinical Instructor CHS (2007-2009), Assistant Professor CHS (2009-2010), Assistant Professor Tenure Track (2010-2015) UW School of Medicine and Public Health, Department of Medicine, Division of Geriatrics</td>
</tr>
</tbody>
</table>
National-Level Committees and Honors (Selected)

2019-present  Chair, NIA/NIH Review Committee, Clinical Aging Study Section (NIA-C)
2019-2021  Member, Health Policy PIA Executive Steering Committee of the Alzheimer’s Association
           International Society to Advance Alzheimer’s Research and Treatment (ISTAART)
2019  Invited Scholar, US Census
2019-present  Academy Health and Robert Wood Johnson Foundation Paradigm Project to Innovate and
           Transform the Health Services Research Field, Member
2019-2020  Executive Leadership in Academic Medicine (ELAM) Program, Fellow
2019  American Geriatrics Society Thomas and Catherine Yoshikawa Award for Outstanding Scientific
           Achievement for Clinical Investigation
2019  Elected as Member to the American Society of Clinical Investigation (ASCI)
2019 NIH/NHLBI Predictive Analytics and Implementation Research Agenda Panel
2018-2022  NIA/NIH Review Committee, Clinical Aging Study Section (NIA-C), Standing Member
2016  White House Task Force on Research and Development for Technology to Support Aging
           Adults, Member
2013-present  Multiple NIA/NIH Review Committees (ad hoc) including, Research Infrastructure
           Development for Interdisciplinary Aging Research R21/R33, PAR-16-367 Special
           Emphasis Panel; Special Emphasis Review Panel for Secondary Analyses and
           Archiving of Social and Behavioral Datasets in Aging (R03); GEMSSTAR (Grants for
           Early Medical/Surgical Specialists’ Transition to Aging Research) (R03); NIA-C; others
2016  Centers for Medicare and Medicaid Services (CMS)/Department of Veterans Affairs,
           Measurement of Long Term Services and Supports Workgroup Committee, Member
2016  CMS/Medicare Technical Expert Panel (TEP), Population Health Measures: Composite
           Measure of Social, Socioeconomic and Environmental Factors, Member
2015-2016  CMS/Department of Veterans Affairs, National Outcomes Workgroup Committee, Member
2014-2015  Consultant on Socioeconomic Adjustment for Hospital Readmissions, State of Maryland
2014-2015  CMS/Medicare Technical Expert Panel (TEP), Excess Days in Acute Care Measures after
           Hospitalization for Heart Failure, Pneumonia, and Acute Myocardial Infarction, Member
2009-2011  CMS Care Transitions Measure Development Technical Expert Panel (TEP), Member
2010  NIH/National Institute on Aging Beeson Scholar Award

Board Certified- Internal Medicine, 2004, 2014; Geriatrics, 2005, 2015

C. Contributions to Science

1.) Dr. Kind is an expert on the impact of neighborhood disadvantage on health with particular focus on
Alzheimer’s Disease. Neighborhood disadvantage, a fundamental social determinant, impacts health, leads to
greater disease burden and likely operates independently of individual socioeconomic status. Dr. Kind’s research
has supported the hypothesis that being poor in a wealthier neighborhood may be better for health than being
equally poor in a highly disadvantaged neighborhood. Her research has also demonstrated that living in a highly
disadvantaged neighborhood raises risk for certain diseases, for poorer outcomes of those disease, and is linked
to higher rates of health system utilization. To better clarify some of the socio-biological mechanisms underlying
these associations, she is leading multi-institutional research to determine the impact of timing and dosage of
lifetime neighborhood disadvantage exposure on AD, with particular interest in AD-specific pathologic features,
vascular burden and cognitive decline. She leads multiple active NIH R01s to support this research, and has
served as a technical expert on these issues for state, federal and international entities. To dramatically broaden
real-world use, Dr. Kind made her metrics freely available to the public through an easily accessible customized
mapping and data platform, named the Neighborhood Atlas (www.neighborhoodatlas.medicine.wisc.edu). The
Atlas is a first-of-its-kind neighborhood map that breaks down socioeconomic factors for every neighborhood in
the US and Puerto Rico, and includes cross linkages of these data to over 69 million nine-digit zip codes. The
Atlas has been accessed well over 100,000 times, with over 10,000 data downloads since its public launch. Atlas
data is already employed by many state and federal entities and has been promoted actively by the NIH. It is
being used by researchers across a wide variety of fields, including obesity, pediatrics, diabetes, cardiology,
health policy, cancer, infectious disease and others. The goal is that these data will serve as a catalyst for the
kinds of policy efforts, research studies, resource alignment, and clinical interventions that are needed to
eliminate health disparities in the US.


2.) As an expert in implementation science, Dr. Kind designs and tests systems interventions that improve care and are particularly applicable in low-resource and safety-net hospital settings with the goal of improving health equity in the real-world. These programs particularly target highly vulnerable and disadvantaged populations with AD and other dementias. Some of these programs have disseminated widely. One of these, the Coordinated-Transitional Care (C-TraC) Program, is a low-cost, mostly phone-based intervention designed to improve hospital-to-home transitions, has disseminated to multiple US hospitals.


3.) Early in her career, Dr. Kind employed mixed methods approaches to examine and improve care for older adults transitioning from the hospital to the community. This vulnerable population relies heavily on system-to-system communication to convey care plans between settings; yet, such communication is typically very poor. Her work in this area has influenced national discharge communication standards of practice, especially for hospital-to-nursing home transitions. Of late, she has mentored many others in this field:


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

Ongoing Research Support

1RF1AG057784 (PI: Kind; MPI: Bendlin)  9/15/17-6/30/22
NIH/ National Institute on Aging (NIA)
(An RF1 is a NIA mechanism in which all years of an R01’s funding are provided in year 1)
Project: Neighborhood Socioeconomic Contextual Disadvantage and Alzheimer’s Disease
This study will establish the necessary assessments, infrastructure and methods to allow for an examination of the impact, mediators and moderators of exposure to socioeconomic contextual disadvantage on the development of Alzheimer’s Disease-specific pathologic features, vascular burden and cognitive decline.

1R01MD010243 (PI: Kind)  9/23/15-6/30/20
NIH/National Institute on Minority Health and Health Disparities Research
Project: Neighborhood Socioeconomic Disadvantage and Medicare’s 30-Day Rehospitalization Policy: Eliminating Rehospitalization Disparities by Informing Policy Design and Implementation
This proposal updates and validates a novel method for measuring socioeconomic contextual disadvantage, the Area Deprivation Index (ADI), and examines its utility in adjusting for the impact of socioeconomic factors on Medicare’s thirty-day rehospitalization penalties with the goal of informing policy.

3R01MD010243-04S1 (PI: Kind)  7/1/18 – 6/30/20
NIH/National Institute on Minority Health and Health Disparities Research
Project: Race, Neighborhood Socioeconomic Disadvantage, and Risk for 30-Day Rehospitalization among Medicare Beneficiaries with Alzheimer's Disease

P30AG062715 (PI: Asthana; Core H Leader: Kind)  4/1/2019-3/31/2024
NIH National Institute on Aging (NIA)
Wisconsin Alzheimer’s Disease Research Center P30
Project: Alzheimer’s Disease Care Research Core (Core H)
The Dementia Care Research core will leverage existing care-specific research resources and create precisely targeted new infrastructure to contribute to the overall focus of the Wisconsin ADRC, further catalyzing and supporting AD care research.

VA Geriatrics and Extended Care Grant Program (PI: Kind)  10/1/19-9/30/20
VA Central Office
Project: Implementation of the VA C-TraC Supportive Care Pathway; a collaboration with Boston VA

1R01AG060737 (MPI: Asthana/Herd; Co-I: Kind)  9/15/18-5/31/23
NIH/ National Institute on Aging (NIA)
Project: Wisconsin Longitudinal Study – Initial Lifetime’s Impact on Alzheimer’s Disease and Related Dementias
This study tracks the progression into dementia in the Wisconsin Longitudinal Study. The project will clarify the influence of the early life period on dementia risk- as well as adult behaviors that can offset risk.

1R01AG050504 (PI: Shah; Co-I: Kind)  8/15/15-5/31/20
NIH/ National Institute on Aging (NIA)
Project: Paramedic Coached ED Care Transitions to Help Older Adults Maintain Their Health
The goal of this project is to test the hypothesis that community-based paramedic-coordinated ED-to-home CTI will improve community-dwelling older adults’ post-ED health outcomes and reduce costs.

1R01AG054059 (PI: Gleason; Co-I: Kind)  8/1/16-4/30/21
NIH/ National Institute on Aging (NIA)
Project: African Americans Fighting Alzheimer’s in Midlife (AA-FAiM)

Cultivating Multidisciplinary Science Award (PI: Busse; Co-I: Kind)  12/1/2019-11/30/2021
University of Wisconsin Department of Medicine
Project: Asthma as a Risk Factor for Alzheimer’s Disease (AD)
Ongoing Research Support as Mentor
1F31AG062116 (PI: Hunt; Mentor: Kind) 7/1/2019-6/30/2022
NIH/ National Institute on Aging (NIA)
Project: Determining The Effects of Neighborhood Disadvantage in Preclinical Alzheimer’s Disease

K23AG057805 (PI: Pulia; Primary Mentor: Kind) 9/1/2018 – 5/31/2023
NIH/ National Institute on Aging (NIA)
Project: Novel Therapeutic Interventions for Patients with Alzheimer's Disease and Comorbid Dysphagia

1K76AG060005-01 (PI: Gilmore-Bykovskyi; Mentor: Kind) 9/1/18 - 6/30/23
NIH/ National Institute on Aging (NIA) Beeson Career Development Award
Project: Novel Approaches to Identifying and Engaging Disadvantaged Patients with Alzheimer's Disease (AD) in Clinical Research

K08 HS025224 (PI: Ingraham; Mentor: Kind) 7/1/2018-6/30/2023
AHRQ
Project: A Critical Assessment of and Opportunities for Improvement in the Interhospital Transfer of Emergency General Surgery (EGS) patients

KL2 Scholars’ Program (PI: Werner; Mentor: Kind) 7/1/2017-6/30/2020
NIH/UW Institute for Clinical and Translational Research
Project: Design of a Web-Based Mobile Application to Support Distributed Informal Caregiving Networks

KL2 Scholars’ Program (PI: Bishop-Fitzpatrick; Mentor: Kind) 7/1/2017-6/30/2020
NIH/UW Institute for Clinical and Translational Research
Project: Providing Tools to Reduce Distress in Middle Aged and Older Adults with Autism Spectrum Disorder

Pending Research Support
1R01DA047889 (PI: Westergaard; Co-I: Kind) 12/1/19-11/30/24
NIH National Institute on Drug Abuse (NIA)
Project: Health Systems Innovations for Supporting Transitions of Care for Incarcerated People Living with HIV, Hepatitis C and Opioid Use Disorder

Fast Track STTR (PI: Banker; MPI: Kind) 4/1/2020-3/31/2023
NIH/ National Institute on Aging (NIA)
Project: Development of Wearable Device for AD/ADRD Patients Providing Repetitive Message and Music Therapy as a Non-Pharmacological Intervention

R21 TBD (PI: Werner; Co-I: Kind) 4/15/2020-4/14/2022
NIH/ National Institute on Aging (NIA)
Project: HelpCare Connect: A Web-Based App to Harness the Potential of the Caregiver Networks of Patients with Alzheimer's Disease or Related Dementias

Completed Research Support in Last Two Years (Selected)
2P50AG033514-P50 (PI: Asthana; Project PI: Kind) 4/1/14-3/31/19
NIH National Institute on Aging (NIA)
Wisconsin Alzheimer’s Disease Research Center P50
Project: RCT to Test a Low-Cost Intervention Designed to Improve Transitions for Patients with Dementia

UW-Madison / DZNE Collaborative Research Project (Co-PI Kind, Thyrian) 10/1/2016-12/31/2018
Project: Development of a Multi-National Interventional Framework to Improve Alzheimer’s Disease Care and Caregiver Support for Undersupplied Populations.

Collaborative Health Equity Research Pilot Program (PI: Gilmore-Bykovskyi; Primary Mentor: Kind) 2018
UW Institute for Clinical and Translation Research
Project: Development of Tailored Approaches for Optimizing Research Engagement among Disadvantaged Patients with Alzheimer’s Disease and their Caregivers in Acute Care Settings.

CMS Special Innovation Project for Innovations that Advance Efforts for Better Care at Lower Costs (Contract: Telligen; Sub-Contract PI/Implementation Mentor: Kind) 10/1/15-9/30/17
Project: Coordinated Transitional Care Program Dissemination
Dana PLUDE

Title: Deputy Director, DBSR

Office(s): Division of Behavioral and Social Research (DBSR)

Phone Number: 301-435-2309

Email Address: dana.plude@nih.gov

Biography

Dr. Dana Jeffrey Plude is Deputy Director in the Division of Behavioral and Social Research (DBSR) where he also manages a research portfolio on cognitive aging (including experimental aging research, driving and memory/attention/decision-making). He also serves as the point-person for training/career development applications, conference grants and small business activities. Prior to joining NIA in December, 2016, he served as Associate Director and Research/Review Integrity Officer in the Division of Receipt & Referral in the Center for Scientific Review (CSR) before which he was Chief of the Bio-behavioral and Behavioral Processes Integrated Review Group (BBBP IRG) and Scientific Review Officer for the Cognition and Perception study section as well as Special Emphasis Panels including those involving fellowships and small business applications. During his tenure at CSR he also served as Acting Division Director (AIDS, Behavioral and Populations Sciences), Acting NIH Research Integrity Officer and Acting Chief of the Population Sciences and Epidemiology IRG. He has won several NIH Director/CSR Director awards and has contributed to several NIH Regional Seminars. Before joining CSR in 2002, he was Associate Professor and Associate Chair in Psychology at the University of Maryland – College Park for 17 years. He earned a Ph.D. in Psychology from Syracuse University, where he specialized in lifespan development and mental function in the elderly. His basic and applied research centered on aging, selective attention and memory and this research was supported in part by funding from NIA, including pre-doctoral T32 support, a post-doctoral F32 NRSA award and R01 and SBIR funding.
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: Kristine Yaffe, MD

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

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

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>
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<th>DEGREE</th>
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<tr>
<td>Yale University, New Haven, CT</td>
<td>BS</td>
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<td>Biology/Psychology</td>
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<td>University of Pennsylvania School of Medicine</td>
<td>MD</td>
<td>06/89</td>
<td>Medicine</td>
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<td>University of Pennsylvania Hospital</td>
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<td>UCSF-San Francisco VA Medical Center</td>
<td>Fellowship</td>
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<td>Fellowship</td>
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<td>Clinical Epidemiology</td>
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A. Personal Statement

I am the Scola Endowed Chair and Vice Chair and Professor of Psychiatry, Neurology and Epidemiology at UCSF as well as the Chief of Neuropsychiatry and Director of the Memory Evaluation Clinic at the San Francisco Veterans Affairs Medical Center. In my research, clinical work, and mentoring, I have directed my efforts towards improving the care of patients with cognitive disorders and other geriatric neuropsychiatric conditions. As the principal investigator of almost a dozen NIH and DoD grants, my research focuses on the epidemiology of cognitive aging and dementia. I have published over 500 peer-reviewed articles (H-index=135) in numerous prestigious journals including the Lancet, BMJ, JAMA, and NEJM. I co-chaired the Institute of Medicine’s Committee on the Public Health Dimensions of Cognitive Aging and received the Potamkin Prize for dementia research in 2017.

I have played a significant role in clinical and translational research training in the field of aging and have a well-established record in mentoring and career development. During the past 20 years at UCSF, I have directly mentored 19 pre-doctoral students, 44 post-doctoral fellows or residents, and 25 junior faculty with an emphasis on multidisciplinary training in dementia and cognitive aging research. I have published over 130 peer-reviewed research articles with trainees as first-author in addition to serving as a primary or co-mentor on 25 career development awards. As one indicator of my leadership and mentoring, I received a NIA K24 award, which was renewed in 2013 in order to gain protected time for mentoring. I co-lead the Research and Education Cores of the UCSF Pepper Center and the UCSF Alzheimer’s Disease Center and serve as a mentor and steering committee member on multiple T32 and K12 grants in Behavioral Neurology, Geriatrics, Health Psychology, and Epidemiology. I’ve served on the Beeson Program Advisory Committee for over 8 years, and I currently serve as multiple PI with Dr. Thomas Gill on the R13 grant supporting the Beeson Annual Meeting as well as multiple PI along with Ms. Odette van der Willik, Dr. Thomas Gill, and Dr. Jeremy Walston on the new Clinician-Scientists Transdisciplinary Aging Research (Clin-STAR) program. The following are recent examples of research published with my mentees:


B. Positions and Honors

Positions and Employment

1996- Director, Memory Disorders Clinic, San Francisco VA Medical Center
1997-99 Assistant Clinical Professor, Department of Psychiatry, UCSF
1997- Chief, Neuropsychiatry, San Francisco VA Medical Center
1999-03 Assistant Professor, Depts. of Psychiatry, Neurology & Epidemiology, UCSF
2003-07 Associate Professor, Depts. of Psychiatry, Neurology & Epidemiology, UCSF
2004-08 Editorial Board, American Journal of Geriatric Psychiatry
2005-07 Co-Director, Clinical and Translational Sciences Training Program, UCSF
2007- Professor, Depts. of Psychiatry, Neurology & Epidemiology, UCSF
2008- Adjunct Investigator, Division of Research, Kaiser Permanente
2009-16 Vice Chair of Research in the Department of Psychiatry, UCSF
2009- Roy and Marie Scola Endowed Chair in Psychiatry
2015- Director, CTSI Pilot Award Program
2015- Co-Director Global Brain Health Initiative Pilots and Projects
2017- Vice Chair, Weill Institute for Neurosciences

Other Experience and Professional Memberships

1999- PI, San Francisco Dementia Core of Mental Illness Research, Educational, & Clinical Center
1999-12 PI, Translation Core & Co-Director, California Alzheimer's Disease Research Center, UCSF
2007-14 Scientific Program Committee, Alzheimer's Association International Conference
2008-15,17- Program Advisory Board, The Beeson Scholars in Aging Program
2009-14 NIA-N Study Section (standing member)
2011-13 Chair, Scientific Program Committee, Alzheimer's Association International Conference
2012-18 Senate, Council of the German Center for Neurodegenerative Diseases
2014-15 Co-Chair, National Academy of Medicine’s (IOM) Committee on the Public Health Dimensions of Cognitive Aging
2014-18 Alzheimer's Association Medical & Scientific Advisory Council
2015-16 National Academy of Medicine’s (IOM) Committee on Decreasing the Risk of Developing Alzheimer's-Type Dementia, Mild Cognitive Impairment, and Age-related Cognitive Impairment
2018- Governance Committee, Global Council on Brain Health
2019- Committee on Developing a Behavioral and Social Science Research Agenda on Alzheimer's Disease and Alzheimer's Disease-Related Dementias, The National Academies of Sciences, Engineering, and Medicine

Honors

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

C. Contributions to Science

1. My research program has been at the forefront of dementia epidemiology with a primary focus on the identification of modifiable risk factors for cognitive aging. Over the past 19 years, I have developed innovative analytical methods to more fully leverage the power of data from longitudinal studies, and as
result, I have made significant advances in several key areas of inquiry. I was one of the first investigators to examine hormone therapy and risk of dementia, and I have developed an extensive body of work on the role of cardiovascular and metabolic factors and risk of cognitive aging. In addition, my group has examined how sleep disorders may affect cognitive outcomes and we have identified several risk factors including sleep disordered breathing and abnormal circadian rhythms. Furthermore, I have also embarked on a series of studies to define “successful” cognitive aging. While most research has focused on dementia and cognitive decline, I am interested in the cognitive heterogeneity that occurs with aging. Recently, I have expanded our theoretical framework to determine the effects of this extensive list of modifiable risk factors over the life course.


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


List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/1dcRsDgP2sgQi/bibliography/40278854/public/?sort=date&direction=descending

D. Research Support: Kristine Yaffe, MD

Ongoing Research Support as PI

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<td>U24 AG065204</td>
<td>Yaffe/Van Der Willik/Gill/Walston (Multiple PI)</td>
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<td>R01 AG066137</td>
<td>Yaffe/O'Bryant (Multiple PI)</td>
<td>Sleep Quality and Mechanistic Links to Alzheimer Disease and Related Disorders among older Mexican Americans and Non-Hispanic Whites (HABLE-Dormir)</td>
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<td>09/19 – 06/24</td>
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<td>W81XWH-19-1-0669</td>
<td>Yaffe/ Gardner/Tosun (Multiple PI)</td>
<td>Neuroimaging Endophenotypes &amp; Predictors Post-TBI Dementia in A Nationwide Cohort of Veterans</td>
<td>Multiple-PI</td>
<td>10/19 – 09/23</td>
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The goal of the project is to leverage big data to identify neuroimaging predictors and endophenotypes of post-TBI mixed dementia. Role: Multiple-PI.

R01 AG063887          Yaffe/Sidney (Multiple PI)     09/19 – 08/23
NIH: National Institute on Aging

Lifecourse CVD Risk and Midlife Cognitive Trajectories and Brain Aging
The goal of the project is to determine the cardiovascular risk factors for cognitive aging in the mid to late-life transition and to investigate how these are related to structural brain changes. Role: Multiple-PI.

W81XWH-18-1-0692         Yaffe/Plassman (Multiple PI)          09/18 – 09/21
Department of Army

Genetics, comorbidities, and ethnicity: Effects of TBI on Dementia
The goal of this research collaboration is to leverage two established epidemiological datasets to investigate factors associated with adverse cognitive outcomes among veterans with head injuries. Role: Multiple-PI

R01 AG058537              Yaffe/O’Bryant (Multiple PI)            06/18 – 05/21
NIH: National Institute on Aging
An Alzheimer’s Blood Test for Primary Care
The goal of the project is to administer the first-ever examination of an AD blood test within a primary care setting. Role: Multiple PI

Alzheimer’s Drug Discovery Foundation      Yaffe/Zeki Al-Hazzouri (Multiple PI)       06/18 – 05/20

Connection Between Depressive Symptoms and Dementia: When Best to Intervene?
The goal of this project is to create a pooled cohort of four prospective studies to determine depressive symptoms as a risk factor for Alzheimer’s disease and dementia. Role: Multiple PI

Global Brain Health Institute          Yaffe/Kenny (Multiple PI) 06/18 – 05/20
Leveraging New Data on Cognitive Aging & Dementia from Around the World
The goal of this project is to establish a platform of longitudinal aging datasets to investigate brain health. Role: Multiple PI

R01 AG057508                        Yaffe/Larson (Multiple PI)     09/17 – 11/21
NIH: National Institute on Aging
Systematic Multidomain Alzheimers Risk Reduction Trial (SMARRT)
The goal of the project is to conduct a randomized trial of a personalized, multi-domain Alzheimer’s disease risk reduction intervention in older adults. Role: Multiple PI

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

R13 AG058415         Yaffe/Gill (Multiple PI)      09/17 – 05/22
American Federation for Aging Research
Paul B Beeson Emerging Leaders Career Development Awards in Aging Annual Meeting
The goal of this project is to support the Beeson annual meeting, which cultivates the career development and leadership of exceptionally talented clinician investigators in aging research and geriatrics. Role: Multiple PI

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

W81XWH-16-1-0507          Yaffe (PI)     08/16 – 08/20
Department of Defense

Risk and Resiliency for Dementia: Comparison of Male and Female Veterans
The goal of this project is to identify factors that are associated with risk and resiliency for cognitive impairment and dementia in older Veterans and determine how they differ by gender. Role: PI

Doris Duke Charitable Foundation     Yaffe (PI)          01/16 – 12/21
Doris Duke Fund to Retain Clinical Scientists
The goal of this project is to provide supplemental, flexible funding to young faculty members working on clinical research projects and facing extraprofessional demands of caregiving. Role: PI

R01 HL122658
NIH: National Heart, Lung, and Blood Institute
Determinants of Midlife & Longitudinal Change in Cognitive Function
The goal of this project is to examine the cardiovascular, metabolic, and lifestyle risk factors for cognitive aging in midlife and to investigate their relationships with structural brain changes and genetic risk. Role: Multiple PI.

K24 AG031155
NIH: National Institute on Aging
Predictors of cognitive aging across the lifecourse
The goal is to apply a lifecourse approach to the investigation of risk factors for cognitive aging and structural brain integrity and to provide mentoring to the next generation of leaders in cognitive health. Role: PI

Ongoing Research Support as Co-Investigator
P30 AG062422
NIH: National Institute on Aging
New Approaches to Dementia Heterogeneity (Alzheimer's Disease Research Centers)
The goal for this project is to define and detect subtypes of healthy aging and dementia, improve early recognition and tracking, and stimulate drug development. Role: REC Lead, Co-Investigator on Core C.

Larry L. Hillblom Foundation
Hillblom Network for the Prevention of Age-Associated Cognitive Decline
The overarching goal of this Hillblom Network is to unite University of California researchers in an effort to better understand, predict, prevent and treat age-associated brain changes. Role: Co-Investigator

Completed Research Support (in last 3 years, as PI)
W81XWH-12-PHTBI-CENC
Department of Defense/VA
Chronic Effects of Neurotrauma Consortium: Epidemiology Project
The goal of this project will be to examine trajectories and neurosensory outcomes of mild TBI (mTBI) among military service members and veterans. Role: PI
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Improving Aging in Place for Older Adults Living in Subsidized Housing

Rebecca T. Brown, MD, MPH,1,2 Judith A. Long, MD,2,3 Anne R. Cappola, MD, ScM,4 Michael A. Steinman, MD5

1Division of Geriatric Medicine, Perelman School of Medicine of the University of Pennsylvania, Philadelphia, PA
2Center for Health Equity Research and Promotion, Michael J. Crescenz VA Medical Center, Philadelphia, PA
3Division of General Internal Medicine, Perelman School of Medicine of the University of Pennsylvania, Philadelphia, PA
4Division of Endocrinology, Diabetes, and Metabolism, Perelman School of Medicine of the University of Pennsylvania, Philadelphia, PA
5Division of Geriatrics, University of California, San Francisco, San Francisco, CA

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.
Frailty Predicts Increased Length of Stay, Discharge Destination, and Delirium Risk in Older Surgical Inpatients

Kathryn E. Callahan, MD, MS;2,4 Angie F. Edwards, MD;3 Eric S. Kirkendall, MD;2 Jeff D. Williamson, MD, MHS;2,4 and Nicholas M. Pajewski, PhD1,2

1Division of Public Health Sciences, 2Center for Healthcare Innovation, 3Department of Anesthesiology, and 4Section on Gerontology and Geriatric Medicine, Wake Forest School of Medicine, Winston-Salem, NC

Background. Numerous studies have examined instruments for frailty assessment in the pre-operative setting, demonstrating a strong association between frailty and an increased risk of post-operative complications, readmissions, and mortality. However, the majority of these instruments require burdensome clinical data collection (i.e. comprehensive geriatric assessment, grip strength, gait speed, etc.) that impedes implementation in busy clinical practices. We have previously developed an automated, electronic frailty index (eFI) based on information routinely captured in the Electronic Medical Record (EMR). The purpose of this study was to explore frailty as a marker for post-operative complications that affect older adults' cognition (delirium), physical function, healthcare utilization, and subsequent independence.

Methods. We extracted data from the EHR for 6,085 patients 65 years or older undergoing elective surgery with inpatient admission across 10 months. We examined the association of the eFI with hospital length of stay (LOS) and discharge destination as well as the risk of post-operative delirium.

Results. The cohort was 50.8% female, 87.0% white, with a mean age of 73.5 (SD=6.3) years. The eFI could be calculated for 79.1% of patients, with 31.1% classified as frail (eFI>0.21). For surgeries with inpatient admission, a 0.1 increase in the eFI was associated with a 0.45 day (95% CI: 0.25 to 0.66 days) increase in median LOS, and 0.49 (95% CI: 0.42 to 0.58) lower odds of being discharged home without home health services, adjusting for age, sex, Charlson score, American Society of Anesthesiologists (ASA) class, and the presence of impaired cognition. While delirium was infrequently documented within the EHR (97 events), a 0.1 increase in the eFI was associated with a 1.46 (95% CI: 1.05 to 2.01) higher odds of post-operative delirium.

Conclusion. Our results indicate that a passive digital marker for frailty can identify a subgroup of older adults at risk for post-op delirium, prolonged stay, and the need for post-acute care. Functional and cognitive outcomes are inconsistently gathered during inpatient care; improved outcomes tracking is needed for post-operative mobility and delirium.

Future Directions. Using the Consolidated Framework for Implementation Research (CFIR), our team will identify barriers and facilitators to the use of this passive digital marker to (a) identify frail older adults at high risk for poor functional outcomes and prolonged LOS, and (b) develop a peri-operative care pathway to reduce delirium, promote mobility, and reduce LOS. Additional team efforts are addressing outcomes tracking for delirium and mobility.
Individuals without Potential Surrogate Decision-Makers in a Nationally Representative Sample
Andrew B. Cohen, MD, DPhil; Darcé Costello, EdD, MPH; John O’Leary, MS; Terri R. Fried, MD

Background:
Medical decision-making is highly challenging for patients who are unrepresented, in the sense that they have diminished capacity and no suitable surrogate decision-maker. Little is known about the prevalence and characteristics of persons at risk of becoming unrepresented. These are individuals who currently have decision-making capacity but would not have a suitable surrogate if their ability to make decisions became impaired.

Methods:
We conducted a cross-sectional study using data from Wave 1 of the National Social Life, Health, and Aging Project (NSHAP), a nationally representative probability sample of community-dwelling persons without cognitive limitations, aged 57 to 85 years, who were interviewed at home between July 2005 and March 2006. The main outcome measure was the answer to the question, “do you have someone who you would like to make medical decisions for you if you were unable, as for example if you were seriously injured or very sick?” We used multivariable logistic regression to identify factors associated with answering “no” to this question, including demographic and health-related factors typically available in the medical chart as well as social network factors measured in detail in the NSHAP survey.

Results:
Among 2,767 participants, 227 (8.2%) reported that they did not have a potential surrogate. Those without potential surrogates were more likely to be male (AOR, 1.91; 95% CI 1.38, 2.65) and Hispanic (AOR, 2.30; 95% CI 1.45, 3.64) and less likely to be age 75 and older (AOR, 0.64; 95% CI 0.41, 0.99), to be married (AOR 0.56; 95% CI 0.35, 0.88), or to have children (AOR 0.32; 95% CI 0.19, 0.54). Persons with higher social network density – that is, with a more tightly knitted social context — were less likely to lack a potential surrogate (AOR, 0.09; 0.01, 0.77), but there was no association between a participant’s total number of confidantes and the availability of a potential surrogate. Only 7% of participants without potential surrogates had no confidantes. A large majority (89%) had family members in their social network who would be considered default surrogate decision-makers under most state statutes.

Conclusions:
A sizeable number of community-dwelling older adults do not have a person whom they would want to make medical decisions for them. Most individuals who cannot name a potential surrogate nevertheless have confidantes in their social network, including, in most cases, family members who would qualify as default decision-makers in many states. Further work is required to develop an approach to advance care planning for these persons that better accomplishes the goal of preserving their autonomy if their capacity is impaired.
Genetically-Elevated Lipid Levels are Associated with Decreased Risk of Frailty

Noche RB, Acosta JN, Both C, Kirsch E, Brown S, Sheth KN, Gill TM, Falcone GJ

Background: Evidence from clinical trials, observational studies, and genetic analyses indicate that, in contrast to most cardiovascular outcomes, higher levels of total and LDL cholesterol are associated with lower risk of spontaneous intracerebral hemorrhage, the most severe manifestation of cerebral small vessel disease. We hypothesize that genetically-elevated lipid levels are associated with reduced frailty in persons that have not sustained an acute cardiovascular event.

Methods: We analyzed data from the UK Biobank, a prospective population study that enrolled persons aged 40-65 in the United Kingdom. Our analysis was restricted to persons of genetically-determined European ancestry who did not sustain an acute myocardial infarction or stroke. To quantify the genetic contribution to lipid levels, we constructed one polygenic risk score (PRS) per lipid trait (total cholesterol, LDL, HDL and triglycerides) using previously identified independent single nucleotide polymorphisms (SNPs) associated with each trait at $p<5\times10^{-5}$. Subjects were classified as having low, intermediate or high genetically-determined lipid levels according to tertiles of each score. We used the Fried criteria to evaluate frailty and implemented multivariable ordinal logistic regression to test for association between the each PRS and frailty.

Results: From the 503,703 people in the UK Biobank, 379,292 (mean age 57 [SD 8], female sex 206,732 [66%]) were of genetically-determined European ancestry without prevalent myocardial infarction or stroke. According to the Fried criteria, there were 228,553 (60%), 138,819 (37%) and 11,920 (3%) persons who were non-frail, pre-frail and frail, respectively. We identified 375, 306, 379, and 315 lipid-related SNPs for total cholesterol, LDL, HDL and triglycerides, respectively. All four PRSs were strongly associated with their corresponding trait (all $p<1\times10^{-100}$). Compared with people with low genetically-determined lipid levels, people with high genetically-determined total cholesterol (OR 0.98; 95%CI 0.96-0.99; $p=0.006$) and LDL (OR 0.98; 95%CI 0.96-0.99; $p=0.008$) were less likely to be frail. Secondary analyses restricted to non-statin users yielded similar results, indicating that persons with high genetically-determined total cholesterol (OR 0.89; 95%CI 0.84-0.94; $p=5\times10^{-5}$) and LDL (OR 0.91; 95%CI 0.86-0.96; $p=8\times10^{-4}$) were less likely to be frail. No associations were found for HDL and triglycerides.

Conclusion: Genetically-determined total cholesterol and LDL levels are associated with decreased risk of frailty in this large European cohort. Considering the widespread use of lipid-lowering drugs and the increasingly strict lipids targets recommended by cardiovascular guidelines, further studies to confirm these associates are warranted.
Racial and Geographic Disparities in 30-Day Rehospitalization Rates among Medicare Beneficiaries with Alzheimer’s disease and Related Dementias

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Background: Patients with Alzheimer’s and Related Dementia (ADRD) experience frequent transitions into and out of hospital settings and are at heightened risk for experiencing a 30-day rehospitalization, contributing to excessive care costs, high caregiver/patient burden and subsequent adverse clinical outcomes. Disadvantaged populations, such as those from low socioeconomic backgrounds and racial/ethnic minorities, are more likely to experience potentially avoidable rehospitalizations, and are exposed to multiple, compounded risk factors that may heighten their risk for 30-day rehospitalization risk by virtue of fundamental drivers of health disparities such as exposure to more disadvantaged neighborhoods. Despite well-documented disparities in AD prevalence, incidence, diagnosis and treatment, estimates of 30-day rehospitalization rates among diverse, nationally representative ADRD populations are lacking.

Methods: A retrospective cohort study of a 100% national sample of Medicare beneficiaries with a diagnosis of Alzheimer’s disease or related dementia with a qualifying index hospitalization in the year 2014 (n= 1,033,144 unique beneficiaries and 1,672,238 unique stays). The primary outcome was rate of 30-day rehospitalization by race/ethnicity and level of neighborhood disadvantage as measured by the Area Deprivation Index. Generalized estimating equations with robust estimates of variance were used to estimate 30-day rehospitalization risk adjusting for baseline comorbidities consistent with Medicare policy.

Results: Race was one of the strongest predictors of re-hospitalization risk. African Americans had a 30-day rehospitalization rate of 24.1%, other minority groups had a re-hospitalization rate 21.2% and non-Hispanic whites had a re-hospitalization rate of 18.58%. Residing in the least disadvantaged neighborhoods did not confer reduced re-hospitalization risk among African Americans. Conversely, residing in the most disadvantaged neighborhoods for African Americans was associated with a 6% increased re-hospitalization risk for African Americans while non-Hispanic whites in the most disadvantaged neighborhoods had a 23% greater risk for re-hospitalization than non-Hispanic whites in the least disadvantaged neighborhoods.

Conclusions: Findings demonstrate racial and geographic disparities in 30-day rehospitalization rates from a nationally representative sample of Medicare beneficiaries, and suggest that there are distinct mechanisms driving disparities that influence different racial/ethnic subpopulations differently. As we are unable to control for disease severity, the influence of later diagnosis or more advanced disease on re-hospitalization risk cannot be examined using this approach.
Potentially harmful and beneficial intensification of older adults’ outpatient diabetes medications at hospital discharge

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Background: Elevated blood glucoses are common in hospitalized older adults and may lead clinicians to intensify outpatient diabetes medications at discharge, risking overtreatment when patients return home. Thus, we sought to assess how often hospitalized older adults are discharged with intensified diabetes medications and the likelihood of benefit from these intensifications.

Methods: Retrospective cohort study of adults 65 years and older with diabetes not previously requiring insulin who were hospitalized for common medical conditions between 2011 and 2013 in the Veterans Health Administration national health system. The primary outcome was Intensification of outpatient diabetes medications, defined as receiving a new or higher dose medication at discharge than was being taken prior to hospitalization. Mixed effect logistic regression models were used to control for patient and hospitalization characteristics.

Results: Of 16,178 cohort patients (mean [SD] age, 73 [8]; 15,895 men), 53% had a preadmission hemoglobin A1c (HbA1c) below 7.0%, and 6% had an HbA1c above 9.0%. Overall, 1,626 (10%) patients were discharged with intensified diabetes medications including 781 (5%) with new insulins and 557 (3%) with intensified sulfonylureas. The majority of patients receiving intensifications were classified as being unlikely to benefit due to limited life expectancy or already being at goal HbA1c (57%, 929/1626). Both preadmission HbA1c and inpatient blood glucose recordings were strongly predictive of discharge with intensified diabetes medications. Among patients with a preadmission HbA1c less than 7.0%, the predicted probability of receiving an intensification was 4% (95% CI, 3% to 4%) for patients without elevated inpatient blood glucoses and 21% (15% to 26%) for patients with severely elevated inpatient blood glucoses.

Conclusions: One in ten older adults with diabetes hospitalized for common medical conditions were discharged with intensified diabetes medications, the majority of whom were unlikely to benefit due to limited life expectancy or already being at HbA1c goal.

Key words: Diabetes, Prescribing, Hospitalization
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

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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 MCPI and monocyte increases in both postoperative cognitive dysfunction and delirium, and postoperative connectivity changes within the brain’s default mode network.

By 10/29/2019, 134 patients have been enrolled in INTUIT. Here we summarize characteristics of the first 45 INTUIT patients (Table 1) and show data on postoperative changes in CSF monocyte numbers, delirium rates, and postoperative cognition (Fig 3) in this initial INTUIT patient group.

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.
Association of Pre-Critical Illness Muscle Mass with Disability and Physical Function in Survivors of Critical Illness

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Mentors: E. Wes Ely, MD MPH (‘01) and Tom Gill, MD (‘97)

RATIONALE
Pre-existing low muscle mass is associated with greater short-term mortality in older adults with critical illness. Its association with disability and physical function is unclear. We hypothesized that lower skeletal muscle mass index would be associated with worse disability in ADLs and worse self-reported physical function at 3- and 12-month follow-up.

METHODS
To test these hypotheses, we conducted a nested cohort study of patients who were enrolled in the BRAIN-ICU prospective cohort study. We included patients with respiratory failure and/or shock from the medical or surgical intensive care unit (ICU) from a single academic center who underwent abdominal computerized tomography (CT) in the 6 months prior to intensive care unit admission and participated in follow-up. We analyzed axial CT images at the L3 vertebrae midbody using an automated version of Slice-O-Matic software. We used validated Hounsfield Unit attenuation thresholds to quantify the cross-sectional area of skeletal muscle, subcutaneous adipose tissue, and visceral adipose tissue. We calculated the skeletal muscle mass index (SMMI) by dividing the cross-sectional area of skeletal muscle by height. At 3 and 12 months after hospital discharge, trained study personnel assessed disability in basic ADLs using the Katz ADL, instrumental ADLs using the Functional Activities Questionnaire (FAQ) and self-reported physical function using the Physical Component Score of the 36-item Short Form Survey (SF-36 PCS). We used multivariable regression to determine the independent association between SMMI and outcomes, adjusting for age, sex coexisting illnesses, baseline Katz ADL score, baseline FAQ score, mean daily severity of illness, and days of mechanical ventilation.

RESULTS
We enrolled 826 patients, 510 of whom survived the index hospitalization and participated in follow-up. Of these, 133 had abdominal CT images available for analyses. These patients were a median [IQR] of 56 [47-64] years old, 63 (47%) were female, 121 (91%) were mechanically ventilated, and 89 (67%) were enrolled from the surgical ICU. At baseline the median SMMI was 51.9 [42.3 to 64.9]. Using sex-specific cut-offs for SMMI, 54 (40%) of patients had low muscle mass. At 3 and 12 months, baseline SMMI was not associated with greater odds of a worse Katz ADL score (OR 1.0 [0.9 to 1.0] and 1.0 [0.9 to 1.1], respectively) or a worse FAQ score (OR 1.0 [0.9 to 1.0] and 1.0 [0.9 to 1.0], respectively). Likewise, SMMI was not associated with worse SF-36 PCS scores at either 3- or 12-month follow-up (0.9 [0.9 to 1.0] and 0.9 [0.9 to 1.0], respectively).

CONCLUSIONS
In this nested cohort of survivors of critical illness, low skeletal muscle mass was present in 4 out of 10. Though common, skeletal muscle mass was not associated with long-term disability or physical function. Study of muscle mass trajectories and their association with long-term outcomes after critical illness is needed.
Title: The Nurse Intervention to Facilitate Transitions to home Environment (NIFT-E)

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Key Words: Care Transitions, Nursing Homes, Skilled Nursing Facilities, Subacute Rehabilitation, Post-acute care

Introduction: After an acute hospital admission, more than 20% of Medicare beneficiaries will discharged to one of the more than 15,000 skilled nursing facilities in the United States before returning home. Older adults are susceptible to adverse outcomes during the transition from skilled nursing facility to home including: hospital readmissions, medication errors, functional decline, and loss of independence.

Objective: Design and test the feasibility of an intervention to bridge the transition from skilled nursing facility back to home.

Population: Medicare, Medicaid and private insurance beneficiaries hospitalized in Indiana University Hospitals, discharged to one of two partner facilities in the area and then back to the community.

Setting: Indiana University hospitals, two nursing homes in the area and

Methods: The intervention applies a rapid approach to the care transition with a nurse facilitator who works to visit the patient in the home within 30 hours of the discharge from the skilled nursing facility to home. The nurse facilitator works closely with multiple modalities of facility staff (therapy, nursing, social work, medical) to understand and translate the discharge instructions to the patient and their caregiver when applicable. The nurse also contacts the primary care office to alert them to the discharge and the course of care in the nursing facility. Instruments to measure mood, distress, function, and readiness for discharge are administered to both patient and caregiver at discharge, at 1-3 weeks post discharge and at 6 months post discharge.

Results: This work is ongoing. The goal is to recruit 25 patients (and their caregivers when applicable) to the intervention arm and 25 patients to a control arm.
Healthcare utilization in older adults after emergency general surgery versus acute medical illness
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Abstract

Importance: Emergency general surgery (EGS) represents 11% of hospitalizations and almost half of these patients are older adults. Older adults suffer high rates of mortality and readmissions after EGS, yet little is known how these outcomes compare to acute medical conditions that have been targets for quality improvement.

Objective: To determine whether Medicare beneficiaries who undergo EGS experience similar one-year outcomes compared to patients admitted with acute medical conditions.

Design: Retrospective cohort study using 2008-2014 Medicare claims

Setting: Acute care hospitals

Participants: Adults ≥ 65 years, with at least one year of Medicare claims, admitted urgently or emergently with one of the five highest-burden EGS procedures (partial colectomy, small-bowel resection, peptic ulcer disease surgery, lysis of adhesions, laparotomy) or a primary diagnosis of an acute medical condition (pneumonia, heart failure, acute myocardial infarction). EGS and medical patients were 1:1 matched in a two-step algorithm: 1) Exact match by hospital; 2) Propensity-score match with age, sex, race, Charlson score, individual comorbid conditions, claims-based frailty index, year of admission, and any intensive care unit (ICU) stay

Main Outcomes and Measures: One-year mortality, post-discharge healthcare utilization (emergency department [ED] visit, rehospitalization, ICU stay, total hospital encounters), and days at home over one-year.

Results: There were 481,417 matched pairs with adequate covariate balance. Mean (SD) age was 79 (8) years and 57% were female. EGS patients experienced higher 30-day mortality (12.6% vs 11.8%; p<0.001) yet lower one-year mortality compared to medical patients (29.7% vs 32.9%; p<0.001). Among 409,363 pairs who survived discharge, medical patients experienced higher rates of total hospital encounters in the year after discharge (4 vs 3 per person-year; incidence rate ratio [IRR], CI: 1.31 [1.30-1.32]), but had similar mean days at home compared to EGS (293 vs 309 days; IRR, CI: 1.004 [1.004-1.004]).

Conclusions and Relevance: Older EGS patients experience similarly high one-year rates of mortality, hospital use, and days away from home as acutely ill medical patients. These findings suggest that EGS should also be targeted for national quality improvement programs.
Optimizing postoperative cognition in the elderly

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Objective: Little is known about whether postoperative cognitive decline (POCD) is associated with new disability after surgery, which would inform whether POCD impacts patient centered outcomes.

Background: POCD is the most common complication after major surgery in older adults and occurs in 15% of older surgical patients 3 months after surgery. POCD is a decline in neuropsychiatric tests scores from presurgical baseline, often not detectable to the patient.

Methods: We performed a prospective cohort study of 167 older adults undergoing major non-cardiac surgery (requiring at least a 2 day hospital stay). Exclusion criteria were: history of dementia, cardiac or intracranial procedure, inability to consent for themselves, or emergency surgery. We administered formal neuropsychiatric testing, basic and instrumental activities of daily living, pain, and depression screening before and 3 months after surgery.

Results: Patients with POCD (21/167, 14.1%) had twice the proportion of new impairment in instrumental activities of daily living as compared to those without POCD (57% vs. 27%, p=.01). The most common areas of decline were social activities, ability to find items around the house, remember appointments, shop and pay for items, do laundry, drive a car/use public transport, and do housework. Predictors of IADL change after surgery included POCD, presurgical cognition, presurgical function, postoperative depression, and the development of postoperative complications.

Conclusions: Patients with POCD experience a much higher incidence of new disability after surgery. Baseline cognitive or functional limitations are also risk factors for new disability. Many patients are not aware of their limitations prior to surgery. Future study is needed to identify practical ways to routinely screen patients and reduce risk. Patients need to be informed of their risk for new disability after surgery to inform their medical decision making.
Using Human-Centered Design to Mitigate the Impact of Neoliberalism on Burdensome End of Life Care

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Keywords: burdensome care, clinical ethics, medical sociology, neoliberalism, human-centered design, overly aggressive care, qualitative research, comparative ethnography, consumerization

Burdensome, overly aggressive life-sustaining treatments (LST) near the end of life have the potential to create ethical challenges where treatments induce harm and suffering with little chance of benefit. Burdensome LSTs can include ICU admission, vasopressors, mechanical ventilation, or resuscitation. Interventions to improve end-of-life care have commonly focus on the clinician/patient/family dyad, some of which have had disappointing results. This reflects the failure to capture the complex interactions within the care ecosystem.

There is a need to understand the broader macro-sociological factors that influence institutional culture and individual behavior that impact burdensome care. This can in turn facilitate the design of effective systems-level interventions using design methods to design interventions that change the culture of burdensome LST. One macro-sociological phenomenon is neoliberalism, which has been the dominant political and economic ideology in the US from the 1980s onwards. Neoliberalism is characterized by free-market capitalism, decreased government spending, and deregulation, as well as a focus on economic indicators and metrics over human elements. This further manifests in a culture of atomization (division of society into self-sufficient and self-interested individuals rather than a collective community) and alienation (estrangement from self and one’s own actions) amongst homo economicus (version of humans as rational, self-interested entities who maximize utility as a consumer).

We conducted semi-structured in-depth interviews were conducted with 37 clinicians and hospital administrators (with additional interviews underway) at one high intensity and one low intensity hospital for aggressiveness of end-of-life care in California. Participants were purposively sampled by profession and sub-specialty (internal medicine subspecialties only) to provide a range of perspectives and contribute to understanding emerging patterns and themes. Transcripts were analyzed using thematic analysis.

Interviews reveal different patterns of practices and behavior in response to ethical challenges around burdensome LST. These patterns reflect different support structures that mitigate the influences of neoliberalism at an institutional level. Stronger systems-level support structures at the low-intensity hospital appear to support clinicians in making decisions in a patient’s best interest, which appear to modulate aggressiveness of end-of-life care. In contrast, the high-intensity hospital reflected a culture of neoliberalism, which encouraged clinical momentum towards aggressive and potentially burdensome end-of-life care. This was characterized by a prioritization of a reductionist notion of patient autonomy to equal choice; extreme deference towards the consumerization of medicine; clinician alienation and a powerlessness to act ethically; a focus on metrics and in particular, patient satisfaction at the expense of holistic medical care; and the coopting of ethics committees into a regulatory body. Understanding how macro-sociological phenomena influence systems-level patterns and behaviors can facilitate the development of systems-level interventions using human-centered design.
The Impact of ‘Tele-Savvy’ on the Caregiving Experience of Dementia Family Caregivers: Qualitative Findings

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Abstract

Tele-Savvy is a 3-arm randomized controlled trial (RCT) of a psychoeducation intervention that equips family caregivers of people living with dementia with the knowledge and skills they need to provide care to their person, while also caring for themselves. This RCT is currently underway, with cohorts rotating through over a period of 12 months. The purpose of this presentation is to describe the effectiveness of Tele-Savvy (active) versus Healthy Living Intervention (attention control) or usual care (wait-list) on the caregiving experience among dementia family caregivers. We conducted semi-structured interviews with 16 caregivers at the 6 month time point and after their initial participation in either the active, attention control, or usual care groups. Interviews elicited caregivers’ perceptions regarding the program’s influence on their caregiving experience. Caregivers who participated in Tele-Savvy reported positive experiences such as recognizing that their experience has become more pleasurable and happier. They also shared that the program expanded their knowledge and allowed them to become patient while implementing caregiving strategies learned. Majority of caregivers who participated in the Healthy Living program indicated that nothing changed related to their caregiving experience. Half of the caregivers in the usual care group, expressed frustration and unhappiness, while the others expressed no change in their caregiving experience. Results suggest that psychoeducation caregiver interventions are meaningful and can enact positive changes in their outlook on caregiving. Thus, results of this study may guide future policies and further development of caregiver programs and interventions.

Keywords: Alzheimer’s disease, psychoeducation intervention, caregiving rewards, caregiver appraisal
Title: Feeding tubes inserted post-stroke among older patients are associated with high rate of mortality.

Background: Elderly patients with stroke represent a growing proportion of critical care admissions in the U.S. Older patients are at four-fold greater risk for severe and persistent dysphagia post-stroke than younger patients. There is a lack of high quality evidence describing outcomes in older patients who have a feeding tube inserted post-stroke. Thus, the objectives of this report are to use nationwide secondary data sources to describe rates of long-term feeding tube dependence, and long-term survival in this population admitted to a skilled nursing facility (SNF) post-stroke.

Methods: Nationwide Medicare Part A files were used to identify subjects meeting the following eligibility criteria: 1. Age ≥ 65; 2. Hospitalized for acute ischemic stroke between January 1, 2012 and December 31, 2014; 3. Had a surgically placed feeding-tube (any type) inserted during index hospitalization for stroke; and 4. Were discharged alive to a SNF. The cohort was then linked with Minimum Data Set (MDS) assessments to further describe and examine feeding tube use at 90-days (or discharge from sub-acute care). Medicare claims data were used to examine mortality or hospice enrollment up to 12-months post hospital discharge date.

Results: There were 41,475 stroke patients over age 65 with feeding tubes inserted post stroke and 31,594 (76%) were admitted to a SNF post-hospitalization. On admission to SNF, most patients (77% of total N=31,594) were at least moderately cognitively impaired (cognitive performance scale (CPS) ≥3), and 40% of N=31,594 were severely cognitively impaired (CPS ≥5). The majority of nursing home patients 22,748 (72%) remained dependent on tube feedings at 90-days. By 12-months, 15,477 (49%) of patients had enrolled in hospice (median time to enrollment, 114-days). All-cause mortality rate was 31% at 90-days, and 53% one-year following stroke (Median time to death 297-days).

Conclusions: Most older patients with feeding tubes inserted post stroke remain feeding tube dependent at 90-days, and more than half die within 1-year. The high rate of feeding tube dependence and long-term mortality can inform decision making for these complex patients who are often in the critical care setting.
Title: Development and External Validation of a Risk Prediction Model for Persistent Functional Decline among Older ICU Survivors

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Rationale: Critical illness often leads to functional decline among older adults, but clinicians currently have no way to identify which patients are at increased risk of this poor outcome. Our objective was to develop and externally validate a risk prediction model for persistent functional decline among older ICU survivors.

Methods: For the development cohort, participants were drawn from the Precipitating Events Project (PEP), a study of 754 initially nondisabled community-dwelling older adults who were evaluated monthly for disability in 7 functional activities from 1998-2016. The analytic sample included participants who survived an ICU hospitalization (“ICU survivors”), who were not residing in a nursing home prior to hospitalization and who were not discharged to hospice. The primary outcome was persistent functional decline over the 6 months after an ICU hospitalization, defined as failure to recover to the pre-ICU level of function (measured in the month before ICU hospitalization) during the 6 months of follow-up, or death before recovery could be achieved during the same 6 months. To develop the risk prediction model, we considered a comprehensive list of factors that are associated with post-ICU disability, including demographics, geriatric syndromes, and hospital-related factors. We used backwards selection based on the Bayesian information criterion to choose the final model. Discrimination was assessed using the area-under-the-curve (AUC); calibration was assessed using the Hosmer-Lemeshow (H-L) statistic. For the external validation cohort, participants were drawn from the National Health and Aging Trends Study (NHATS), a nationally representative study of 8,245 Medicare beneficiaries age ≥65 who completed annual, in-person interviews from 2011-2015. Functional status before and after the ICU admission in the same 7 functional activities was determined from NHATS data. We gave NHATS participants the same 6-month opportunity for functional recovery as had been allowed in PEP by defining the primary outcome as functional decline measured 6-12 months after the ICU hospitalization (relative to function measured in the year before ICU hospitalization) or death within the first 6 months. External validation was first performed by directly applying the coefficients from the development model to the validation cohort. We then re-estimated the global intercept from NHATS to improve calibration, a process known as recalibration-at-large. Discrimination was again assessed using the AUC, and calibration was assessed by plotting the observed probabilities against the corresponding average predicted probabilities over deciles of the predicted distribution.

Results: The development cohort included 264 participants (mean age 82.3 years (SD=5.5)), and the validation cohort included 336 participants (mean age 78.8 years (SD=7.4)). The rate of the primary outcome was 33% in the development cohort and 56% in the validation cohort. Three factors were retained in the final risk prediction model: Fried frailty phenotype (FFP; range 0-5), hearing impairment, and hospital length of stay. The model demonstrated good discrimination (AUC 75%) and calibration (H-L p>0.05). When the risk prediction model was directly applied to the external validation data, the model again demonstrated good discrimination (AUC 69%), but unacceptable calibration (H-L p<0.05), which was resolved through recalibration at large (H-L p>0.05)

Conclusions: We developed and externally validated a risk prediction model for persistent post-ICU functional decline among older ICU survivors. This model will inform development of a tool to identify patients at increased risk of post-ICU functional decline, with a goal of targeting those at greatest risk for additional interventions.
Abstract Title: Pre-injury cognitive and functional status in older adults who present acutely with traumatic brain injury: The Transforming Research and Clinical Knowledge in Geriatric TBI Pilot Study (TRACK-GERI Pilot)

Raquel C. Gardner, Michele Diaz, Chelsea M. Camara, Molly R. Morrissey, Kristine Yaffe, and Geoffrey T. Manley

Background: While pre-morbid cognitive and functional status are well-established outcome predictors among hospitalized older adults, few geriatric traumatic brain injury (TBI) studies measure these important pre-injury variables. Our aim was to measure pre-injury cognitive and functional status via informant report and explore impact on functional recovery 3-months post-injury.

Methods: Older adults (age 65y+) were recruited from our level 1 trauma center within 72 hours of TBI and co-enrolled with a study-partner. Pre-TBI cognitive function and activity of daily living (ADL) / instrumental ADL dependence was measured within 2-weeks of injury via retrospective study-partner interview using the Clinical Dementia Rating scale (CDR) and a geriatric function survey (GFS), respectively. Post-TBI complete recovery was defined as Glasgow Outcome Scale-Extended (GOS-E) 8 measured at 3-months.

Results: 30 patient/study-partner dyads were enrolled. Patient average age was 78y (range: 65-98y). Most sustained a mild TBI (90%) as a result of a fall (76%), 83% were admitted to the hospital ward/intensive care unit, and 70% had a positive head CT.

Among patients with a pre-injury CDR (n=25), 64% had normal cognition, 32% mild cognitive impairment (MCI), and 4% dementia. Of those reaching the 3-month time point, 0% of those with pre-injury MCI/dementia had achieved complete recovery vs. 42% with pre-injury normal cognition.

Among patients with a pre-injury GFS (n=28), 68% had ADL/IADL impairment. Of those reaching the 3-month time point, 14% of those with pre-injury ADL/IADL impairment had achieved complete recovery vs. 43% without pre-injury ADL/IADL impairment.

Conclusion: In this small study, 36% of geriatric TBI patients had pre-injury MCI or dementia and 68% had pre-injury functional impairment. Older adults with pre-injury cognitive and functional impairment had lower rates of complete recovery 3-months post-injury. Larger studies with longer follow-up and geriatric-appropriate predictor and outcome measures are needed to elucidate the impact of these highly prevalent pre-injury impairments on recovery after geriatric TBI and to inform management and rehabilitation strategies.
**Title:** Increased Healthcare Utilization in the Year Following Non-Muscle Invasive Bladder Cancer Diagnosis Among Older Adults with Multiple Chronic Conditions

**Authors:** Tullika Garg, Andrea Berger, Terrence Murphy, H. Lester Kirchner

**Background:** More than two-thirds of older adults with cancer have two or more chronic conditions, i.e. multiple chronic conditions (MCC). Non-muscle invasive bladder cancer (NMIBC) disproportionately affects older, medically complex adults and is a burdensome chronic condition in itself requiring frequent surveillance procedures, weekly bladder instillations, and ambulatory surgery. Frequent health system contacts may not align with the goals and preferences of older adults with cancer and MCC, but little is known about how NMIBC diagnosis impacts healthcare utilization. The study objective was to describe healthcare utilization in the year following NMIBC diagnosis in older adults with and without MCC.

**Methods:** We identified all older adults (age ≥60) with Geisinger primary care physicians diagnosed with NMIBC (stage< II) between January 1, 2003 and September 30, 2015. Healthcare utilization was defined as the number of days of health system contact in the form of outpatient visits (e.g. imaging, procedures, labs, nurse visits), inpatient days, and emergency department visits. Multiple visits on the same day counted as one contact day. We used AHRQ Clinical Classifications Software and Chronic Condition Indicator tools applied to outpatient and inpatient encounter diagnosis codes to identify 50 chronic conditions. MCC was defined as two or more chronic conditions prior to 30 days after NMIBC diagnosis. A multivariable linear regression model adjusted for age and prior cancer diagnosis was used to estimate the difference in healthcare utilization in the year prior to and following NMIBC diagnosis.

**Results:** Of 317 patients in the cohort, 263 (83%) had MCC. MCC patients tended to be older (74 years versus 68.6 years), had prior cancers (29.7% versus 14.8%), and had more prescribed medications in the year prior to NMIBC diagnosis (7 versus 2). MCC patients had higher healthcare utilization in the year prior to diagnosis (14 days versus 2 days). In the year following diagnosis, MCC patients had 21 contact days versus 17 days. Patients without MCC had a greater change in healthcare utilization following NMIBC diagnosis with an average increase of 13.9 days compared to 7.5 days in the MCC group. In the multivariable model, patients without MCC had an increase of 6.23 days more than those with MCC (95% CI 1.34-11.12, p=0.01).

**Conclusion:** In the year following NMIBC diagnosis, healthcare utilization increased in older adults with and without MCC. We found that older adults without MCC had significantly greater increases in healthcare utilization than those with MCC. Adding a new chronic condition such as NMIBC increases the volume of healthcare work that older adults perform. These data may serve as a baseline for future studies to reduce burdens related to bladder cancer diagnosis and treatment in medically complex older adults.
**Title:** Subjective Cognitive Decline Profiles: Identifying Etiological Differences

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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. SCD has been related to multiple markers of unhealthy brain aging including amyloidosis, tau deposition and neurofibrillary tangle burden, medial temporal lobe atrophy, and cerebral small vessel disease. Beyond these biological drivers, neuropsychiatric symptoms (e.g., depression, anxiety, and personality factors) contribute to increased SCD. The heterogeneity of SCD has limited its clinical application and assessment methods lack the specificity to identify or distinguish among the underlying causes of SCD. Existing SCD measures have been developed based on the content of items without consideration of the underlying pathology driving the concern, thus propagating the heterogeneity of SCD by insufficiently teasing apart the underlying pathways. We present preliminary data that leverages a novel and data-driven approach to SCD quantification to deliver a unique SCD assessment method.

**Participants and Methods:** Cognitively unimpaired Vanderbilt Memory & Aging Project participants free of clinical stroke (n=176, 73±7 years) completed a comprehensive SCD protocol, multimodal brain MRI, with a subset also undergoing CSF acquisition (n=83). We used least absolute shrinkage and selection operator (LASSO) modeling, a penalized regression, for variable (feature) selection. The cohort was divided into training and validation subsamples using a 70/30% random split. In training, predictors included all SCD items and outcomes included amyloidosis (CSF Aβ42) and neuropsychiatric symptoms (GDS score minus cognitive items) as the primary SCD pathways. Separate analyses were completed for each pathway (amyloidosis, neuropsychiatric symptoms). LASSO parameters were determined using 5-fold cross-validation for each model and analyses adjusted for age, education, and APOE-ε4 status. Items with non-zero weights were selected. In validation sample, independent variables were each SCD item (profile) selected during training, with the weights used as fixed betas in the regression model. R² and p-values were generated reflecting the correspondence between predicted pathway score (based upon inputs from LASSO) to actual pathway score.

**Results:** Training modeling results revealed that SCD questions could be selected based upon underlying pathway, with unique items identified for amyloidosis and neuropsychiatric symptoms. In validation, the SCD-amyloid profile was the most strongly predictive of CSF Aβ42 level and the SCD-neuropsychiatric profile was most strongly associated with neuropsychiatric symptom score (GDS). The SCD-amyloid profile did not predict neuropsychiatric symptom score and vice-versa. We used the items selected by LASSO and calculated a SCD-profile score for each pathway (amyloidosis and neuropsychiatric symptoms). After adjusting for age, sex, and education, in the entire cohort the SCD-amyloid profile explained 13% of CSF Aβ42 level whereas the SCD-neuropsychiatric profile explained 10%. The SCD neuropsychiatric profile explained 12% of GDS score whereas the SCD-amyloid profile explained 9% variance.

**Conclusions:** Results highlight the ability to create a analytical pipeline to identify SCD profiles that improve prediction of the underlying pathway driving SCD. Future work is needed to replicate these findings in a larger sample and with expansion of SCD pathways for optimization and development of novel SCD assessment tools.
RI FitTest: the Development of an App for Apple Watch that Actively and Passively Collects Gait, Cognitive and Motor Function, and Fall Data from Older Individuals with a Recent Fall

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Keywords: geriatric falls; emergency department; app development; Apple Watch

BACKGROUND
Falls are the leading cause of injury-related mortality in older adults and cost $50 billion dollars in US health care expenditures per year. Seniors often underreport falls and therefore primary care physicians do not initiate effective fall prevention programs. Underreporting of falls causes missed opportunities for fall prevention and has important implications for older adults, caregivers, and payors. Eight million people 55 and older in the US already own the Apple Watch and digital technology use in seniors is expected to increase exponentially. Health insurance companies are subsidizing fitness trackers, including the Apple Watch, which improves its affordability and uptake. The Apple Watch is considered an industry-leader in smartwatch technology because of the superior accuracy of its accelerometer, gyroscope, and physiologic sensors to measure gait, functioning, and falls.

METHODS
We used an interface that connects REDCap to Apple ResearchKit (an open-source framework for Apple Watch) to create the app. The “Status/Post” interface allowed app programming using REDCap, the institution’s HIPPA-compliant server, without the need for a developer. We will conduct field testing with older adult ED patients (n=25) who sustained a fall and their caregivers (n=5) to determine whether they can use the Apple Watch either (1) continuously or (2) periodically (with or without telephone assistance from the research staff) to assess gait, fitness and/or falls over time. We will assess the feasibility, acceptability and usability of the Apple Watch in the ED and for home monitoring. Because cognitive impairment and age affect ability to use the Apple Watch, we will recruit two cohorts: (1) cognitively impaired, per Six Item Screener score < 4 (n=5 participants, n=5 caregivers); and (2) not cognitively impaired; four age groups: 65 to 69 years-old (n=5), 70 to 74 years-old (n=5), 75 to 79 years-old (n=5), and 80 years-old and older (n=5).

RESULTS
We built the Apple Watch app “RI FitTest” using the following steps: (1) we programmed surveys (demographic and fall-related) into REDCap, (2) we selected Apple Researchkit “Active Tasks” relevant to geriatric fall assessments and entered code into REDCap to enable these assessments on the app, (3) we chose Apple “Healthkit” measures relevant to falls and entered code into REDCap to extract sensor-obtained data from the Apple Watch. Participants can now complete a daily fall diary in the app to supplement and validate the Apple Watch “Healthkit”-reported fall occurrences. They can access the app to complete surveys and perform study procedures to assess gait, balance, and cognitive function at home. Recruitment and field testing of the Apple Watch and app will begin in November 2019. Usability testing using semi-structured interviews and validated usability surveys will commence in December 2019.

CONCLUSIONS
The Apple Watch and the RI FitTest app will overcome the limitations of self-report and proxy observations by objectively measuring gait and fitness and fall occurrence using the accelerometer, gyroscope, and physiological sensors built into the Apple Watch.
Cerebral microbleeds in the aging population: Relationship to amyloid and antithrombotic medications

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

Background: Cerebral microbleeds (CMBs) detected on brain MRI occur in over 20% of the population over age sixty. CMBs are an established risk factor for intracerebral hemorrhage and cognitive impairment. The presence of CMBs leads to clinical management dilemmas particularly in individuals on antithrombotic medications. The objectives of this proposal are to 1) determine the epidemiology of CMBs; 2) determine the risk factor for CMBs; 3) identify the 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 1,215 Mayo Clinic Study of Aging participants with T2* Gradient recall echo sequences from October 2011-February 2017. 92% underwent amyloid PET scans. A subset of 651 underwent MRI at two separate time points. 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. We then investigated the association between antithrombotic medication use and CMBs.

Results: CMB frequency increased with age by decade 11% aged 60-69 years, 22% 70-79 years, and 39% 80 years and older. After adjusting for age, sex, and hypertension, amyloid load was associated with increased odds of a CMB. The association between amyloid and CMBs was location-specific; amyloid was associated with lobar CMBs but not deep CMBs. The overall population-incidence rate for CMBs was 3.6/100 person years and increased with age: from 1.5/100 new CMBs at age 50 to 11.6/100 person years at age 90. Using the piecewise exponential model 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 was associated with more amyloid at baseline, and higher amyloid, particularly occipital amyloid load, in turn increased the risk of a new lobar CMB; (2) the presence of CMBs at baseline increased the risk of a lobar CMB and had a larger effect size than amyloid load. CMBs were associated with anticoagulants but not antiplatelet agents.

Conclusions: The prevalence and incidence rate for CMBs increases significantly with age. Age and APOE4 carrier status act through amyloid (particularly occipital amyloid) to increase the risk of subsequent lobar CMBs, but the presence of baseline CMBs is the most important risk factor for future CMBs. Anticoagulant use but not antiplatelet use is associated with CMBs.
Due in large part to the successful development of antiretroviral therapy, adults with HIV infection are living longer; in the United States, 47% of all people living with HIV are age 50 and older. This aging population increasingly experiences multimorbidity, polypharmacy, and significant mental health and psychosocial challenges. Older HIV-positive adults also experience a high frequency of geriatric conditions including falls, frailty, and functional impairment. Geriatric assessment and management could help address this medical and social complexity. Supporting a role for geriatric assessment, studies show that assessments can predict hospitalization and mortality among older HIV-positive adults and geriatric conditions are associated with poorer quality of life. Yet little is known on how to best integrate geriatric assessment and management in HIV care settings. Strategies developed need to be efficient, able to be administered by non-geriatrics trained clinicians, and also tailored to the unique aging issues that are influenced by HIV infection. My K76 proposal addresses this knowledge gap by developing and testing a tailored Geriatric Assessment and Initial Management guide focused on the needs of older HIV-positive adults, also referred to as G-AIM HIV. We will present the aims of the K76 proposal and preliminary work.
A Group-Based Yoga Program for Urinary Incontinence in Ambulatory Older Women: Feasibility, Tolerability, and Change in Incontinence Frequency over Three Months

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Key words: urinary incontinence, yoga therapy, integrative medicine, clinical trials

Background: Due to the limitations of existing clinical treatments for urinary incontinence, many older women are interested in complementary strategies for improving their bladder control. Yoga has been recommended as a complementary behavioral management strategy for incontinence in women, given its potential beneficial effects on pelvic floor strength, peripheral autonomic function, and overall physical function. However, evidence of the feasibility, tolerability, and efficacy of yoga for this indication is lacking.

Objectives: To evaluate the feasibility and tolerability of a group-based therapeutic yoga program designed for ambulatory older women with urinary incontinence and examine changes in incontinence frequency after 3 months of yoga practice.

Methods: We conducted a pilot randomized trial of a group-based, therapeutic yoga program designed by an expert yoga panel to address multiple potential contributors to urinary incontinence in older women. Ambulatory women aged 50 years or older who reported daily stress-, urgency-, or mixed-type incontinence and were not already engaged in yoga were recruited from the San Francisco Bay area community. Women were randomized to take part in twice weekly group classes focused on Iyengar alignment-based yoga techniques, led by an instructor who had completed study-specific training, versus non-specific muscle stretching and strengthening exercises designed to provide a rigorous time-and-attention control for the yoga program. Women were also instructed to practice their assigned intervention (yoga or stretching/strengthening) for at least an hour per week at home using a study-specific manual and set of home yoga or exercise props. All participants also received written information about behavioral incontinence self-management techniques consistent with usual first-line care of incontinence in the community. Incontinence frequency and type were assessed by validated voiding diaries at baseline and 3 months.

Results: Of the 56 women randomized over three intervention waves (28 to yoga, 28 to control), mean age was 65 (range 55-83) years, and mean baseline incontinence frequency was 3.5 (±2.0) episodes/day. Fifty women (89%) completed their 3-month intervention, including 27 in the yoga and 23 in the control group (P=0.19). Of those, 89% in the yoga group and 87% of controls attended ≥80% of group classes. Over 3 months, total incontinence frequency decreased by an average of 76% among yoga participants and 56% among controls (P=0.07 for between-group difference). Stress incontinence frequency also decreased by an average of 61% among yoga participants and 35% among controls (P=0.045 for between-group difference), but changes in urgency incontinence frequency over 3 months did not differ significantly between groups. No serious adverse events were detected, although 29% of women in the yoga and 25% in the control group reported minor musculoskeletal complaints during the study (no significant between-group differences).

Conclusions: Findings demonstrate the feasibility of recruiting and retaining ambulatory incontinent women across a range of ages into a therapeutic yoga program and provide promising preliminary evidence of reduction in incontinence frequency after 3 months. When taught with appropriate attention to clinical needs, yoga may offer a potential community-based management strategy for incontinence that can enhance conventional clinical treatment.
Hypothalamic Leptin Signaling Dysfunction in Preclinical Alzheimer’s Disease

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**Background:** While cognitive deficits are the major manifestation of Alzheimer’s disease (AD), weight loss can precede the cognitive decline in the preclinical stage of AD, where amyloid-beta (Aβ) and tau have accumulated but cognition is intact. As the mechanisms underlying the weight loss are unclear, we hypothesize that early Aβ accumulation disrupts hypothalamic circuits that regulate body weight and alter signaling of the fat hormone leptin. In prior studies, compared to wild-type littermates, Tg2576 mice with Aβ pathology had lower body weight, lower plasma leptin levels, and dysfunction of leptin-responsive hypothalamic neurons prior to memory impairment. Here, we examined whether alterations in plasma leptin levels and hypothalamic atrophy are found in individuals with preclinical AD.

**Methods:** Cognitively intact (CDR=0) non-obese (body mass index, BMI<30) volunteers (age>50 years) from the Healthy Aging & Senile Dementia and Adult Children Study (Missouri, USA) with 3T MRI scans and fasting plasma samples were included. Preclinical AD was defined by established cerebrospinal fluid (CSF) criteria. Plasma leptin levels were measured by immunoassays. Hypothalamic volumes were measured in T1-weighted MRI scans by manual segmentation (MRIcron) and voxel-based morphometry (SPM8).

**Results:** Compared to controls, male preclinical AD subjects have lower BMI and lower plasma leptin levels, which were associated with CSF Aβ1-42 levels. Interestingly, there were no differences in BMI and plasma leptin levels between female preclinical AD and controls. While total hypothalamic volumes trended lower in preclinical AD, there was significantly reduced gray matter densities in specific regions within the hypothalamus of preclinical AD subjects compared to controls.

**Conclusions:** Together with our mouse studies, these results suggest that hypothalamic leptin signaling dysfunction occurs early in AD. Although the findings need verification in additional cohorts and the mechanisms defined including any sex differences, these findings may provide key insights into the mechanisms underlying weight loss in AD.
Title: Adapting Acceptance and Commitment Therapy for Chronic Pain in Older People Living with HIV

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Background: Older people living with HIV (PLWH) experience chronic pain at high rates due to direct effects of HIV, antiretroviral medication use, and psychosocial factors such as social isolation, depression, and anxiety. Acceptance and Commitment Therapy (ACT) is a form of psychotherapy shown to improve management of chronic pain that has yet to be assessed in the context of HIV-related chronic pain.

Method: A non-randomized group of older PLWH (N=8, 4 male, 4 female, ≥50 years) diagnosed with chronic non-cancer pain completed a 6-week group ACT program administered by two ACT-trained facilitators. Following completion of the program, a focus group (N=6) was used to gather feedback of the ACT program and discuss how ACT could be adapted to address the needs of older PLWH. Focus group audio was recorded, transcribed, and analyzed using inductive thematic analysis. Findings were presented to a study steering committee to further discuss potential changes to ACT administration.

Results: Four major themes emerged from qualitative analysis of the focus group: positive experience with group therapy, interaction of pain and psychosocial factors, improvement of coping strategies with ACT, and need for adaptation of ACT for older PLWH (in content and process). The study steering committee proposed moving the values portion of training to the beginning of ACT program, altering teacher training manuals to steer focus away from pain from the start, and including examples more attuned to the needs of older PLWH such as emphasis on relationships, emotions and stigma in teacher and participant training manuals.

Discussion: Older PLWH favorably viewed group ACT for chronic pain management and provide some recommendations to address the needs of older PLWH. However, limitations included only one focus group so we likely did not achieve saturation and one very vocal focus group member that dominated conversation. The successful utilization of ACT in a small cohort of older PLWH confirms the need for a larger randomized control trial.
Binge eating among older women: Prevalence rates and health/wellness correlates across three independent samples

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**Background:** Emerging research indicates that older women struggle with disordered eating more frequently than once thought. Among older women, binge eating (BE; defined as eating an unusually large amount of food while simultaneously feeling a loss of control) appears to be the most common form of disordered eating. Numerous factors associated with aging among women, such as hormonal fluctuations during menopause, sleep disruptions typical of peri- and postmenopausal women, mood changes (e.g., increased negative affect), psychosocial stressors such as caregiving demands, and body function/appearance changes may result in unique elevated risk for BE among older women. Notably, BE is associated with significant medical morbidity, including metabolic and cardiac dysfunction, sleep problems, and chronic pain in the general population. Yet, little has been documented regarding health and wellness correlates of BE among older populations in the literature to date. The goals of the

**Method:** This poster comprises a 3-sample comparison of BE prevalence and health correlates among older women. We gathered self-reported frequencies of BE in three separate samples of older women, using three different methods and validated measures. 

Sample 1: $N = 185$ women aged 60-83, collected online via combination of snowball sampling and Amazon MTurk. Demographics: 86% White.

Sample 2: $N = 100$ women aged 55-79, collected online via snowball sampling. Demographics: 72% White; 50% Masters or Doctoral Degree; 72% currently married.

Sample 3: $N = 64$ women aged 66+ living with food insecurity (i.e., inadequate access to sufficient food, both in terms of quality and quantity), collected in person at local food pantries. Demographics: 65% Hispanic; 16% African American; 39% disabled status; 48% less than high school diploma/GED; 47% reported a household income of less than $10,000/year.

**Results:** Per DSM-5 frequency criterion of BE at least weekly, we found prevalence rates ranging from 19%-26.5% across the 3 samples. Health/wellness correlates included: elevated negative mood, depressive symptoms, and worry; higher BMI (obese status OR: 2.05; 95% CI [1.50; 2.79]); and less frequent nutritious food consumption.

**Conclusions:** These preliminary data indicated that across three very different samples in terms of race/ethnicity, education, and food security status, we found consistent rates of self-reported BE at least weekly (roughly 1/5). In our ongoing study, we will expand these findings to investigate additional aging-related factors relevant to BE frequency and severity among older women and apply these data to develop a behavioral BE intervention tailored for older women.
Measuring Frailty in Administrative Claims Data: Comparative Performance of Four Claims-Based Frailty Measures in the United States Medicare Data

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Background: There has been increasing effort to measure frailty in the United States Medicare data. The performance of claims-based frailty measures has not been compared.

Methods: This cross-sectional study included 3,097 community-dwelling fee-for-service Medicare beneficiaries (mean age 75.6 years) who participated in the 2008 Health and Retirement Study examination. Four claims-based frailty measures developed by Davidoff, Faurot, Segal, and Kim were compared against frailty phenotype, a deficit-accumulation frailty index (FI), and activities-of-daily living (ADL) dependence using Spearman correlation coefficients and C-statistics.

Results: Claims-based frailty measures were positively associated with frailty phenotype (prevalence in ≤10th vs >90th percentile: 8.0% vs 41.3% for Davidoff; 5.9% vs 53.1% for Faurot; 3.3% vs 48.0% for Segal; 2.9% vs 51.0% for Kim) and FI (mean in ≤10th vs >90th percentile: 0.17 vs 0.33 for Davidoff; 0.13 vs 0.37 for Faurot; 0.12 vs 0.31 for Segal; 0.10 vs 0.37 for Kim). The age and sex-adjusted C-statistics for frailty phenotype for Davidoff, Faurot, Segal, and Kim indices were 0.73, 0.74, 0.73, and 0.78, respectively, and partial correlation coefficients with FI were 0.18, 0.32, 0.26, and 0.55, respectively. The results for ADL dependence were similar (prevalence in ≤10th vs >90th percentile: 3.7% vs 50.5% for Davidoff; 2.3% vs 55.0% for Faurot; 3.0% vs 38.3% for Segal; 2.3% vs 50.8% for Kim). The age and sex-adjusted C-statistics for the indices were 0.79, 0.80, 0.74, and 0.81, respectively.

Conclusions: The choice of a claims-based frailty measure can influence the identification of older adults with frailty and disability in Medicare data.
The Epidemiology of Loneliness and Social Isolation among Older Adults during the Last Years of Life

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Background: While the last years of life have an intense focus on medical care, the same emphasis has not been placed on social well-being. Consequently, the prevalence and correlates of key markers of social health, such as loneliness and social isolation, have not been well described among older adults during the years of life.

Methods: We used nationally-representative Health and Retirement Study data to examine adults age >50 who died while enrolled (N=3,540). Subjects were interviewed once in the last four years of life and classified into one of eight 6-month cohorts based on the number of months between the interview and death. We used validated measures of loneliness (3-item UCLA Loneliness Scale) and social isolation (13-item scale describing whether an individual lived alone, was unmarried/unpartnered, had minimal interaction with children, family, or friends, and had minimal community engagement). We modeled the relationship between loneliness or social isolation and time before death adjusting for age, gender, education, net worth, race/ethnicity, co-morbid conditions, ADLs, IADLs, cognition, hearing impairment, vision impairment, incontinence, current pain, and recent hospitalizations.

Results: The mean age at death was 76 (SD=11.4), 50% were female, 11% black, and 6% Hispanic. The prevalence of loneliness and social isolation in the last 4 years of life was 51% and 9%, respectively, and these rates were constant for four years prior to death. After adjustment, there were distinct risk factors for loneliness and social isolation (p<0.01); cognitive impairment (Normal: 44%, CIND: 52%, Dementia: 56%), vision impairment (54% vs 46%), and incontinence (54% vs 46%) were risk factors for loneliness, whereas race (White: 11% vs Non-White: 5%), low income (20% vs 8%), and inability to walk a block (12% vs 8%) were risk factors for social isolation.

Conclusion: Loneliness occurs in half of older adults and social isolation occurs in 1 in 10 of older adults, with a consistent prevalence for the four years prior to death. Study results provide insight into the burden of and populations at highest risk for end-of-life loneliness and social isolation.
Characterization of Aging Pathways in the COPD Bronchial Epithelium

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The long-term goal of this project is to identify Fibroblast Growth Factor (FGF) 23 and klotho as potential aging markers in COPD subgroups and develop future therapeutic strategies targeting these pathways. Chronic obstructive pulmonary disease (COPD) currently represents the third leading cause of mortality in North America and the majority of cases are caused by cigarette smoke. Both clinical and cellular evidence support the concept that accelerated lung aging serves as an underlying mechanism for its pathogenesis.

We have good in vitro models and in vivo models to analyze the crosstalk between FGF23 and klotho and their effect on cell senescence in the airway epithelium. In addition, we will employ the COPDGene cohort to translate these findings to determine their relevance in individuals with COPD.

Both FGF23 and klotho have been associated with chronic airway inflammation and accelerated aging in COPD and we hypothesize that a dysregulated klotho/FGF23 ‘rheostat’ contributes to airway epithelial cell senescence. We therefore propose to investigate the underlying molecular mechanisms in order to identify future novel therapeutic targets.

Aim 1 will investigate the impact of increased FGF23 signaling on airway epithelial cell senescence by primary human airway epithelial cell cultures and mice, deficient in klotho or overexpressing klotho and expose them to cigarette smoke ± FGF23.

Aim 2 will determine the underlying molecular mechanisms on accelerated airway aging in individuals with COPD and characterize klotho and FGF23 as prognostic aging markers by using the COPDGene cohort with access to plasma samples and de-identified clinical data.

Overall, this proposal will identify a novel pathway involved in airway epithelial cell senescence leading to smoke induced lung diseases such as COPD and therefore open novel therapeutic options in diseases that are on the rise due to an aging population.
2019 Beeson Meeting Abstract

Title: Effect of sleep on CSF tau and p-tau

Authors: Nicolas Barthélemy, Haiyan Liu, Randall J. Bateman, Brendan P. Lucey

Background: In rodents and humans, amyloid-β (Aβ) concentration in cerebrospinal fluid (CSF) fluctuates with the sleep-wake cycle as a diurnal pattern and is modified by changes in sleep-wake activity. Further, a recent study in rodents showed that sleep loss-mediated increases in tau leads to spreading of aggregated tau. In humans, CSF tau measured via ELISA also found a diurnal pattern. However, p-tau and full length tau was not measured. The purpose of this study is to measure full length and truncated tau and p-tau in human CSF collected under different sleep conditions to determine mechanism of tau release.

Methods: We previously collected serial CSF samples via intrathecal lumbar catheter every 2 hours for 36 hours in 8 cognitively normal, amyloid-negative participants who were 30-60 years old and repeated interventions for behavioral sleep deprivation, pharmacologic sleep induction with sodium oxybate, and control. Sleep-wake activity was monitored with polysomnography. Full length and truncated tau and p-tau were quantitated by mass spectrometry.

Results: We found that unphosphorylated tau at threonine-181 (T181), serine-202 (S202), and threonine-217 (T217) increased ~35-40% when participants were sleep-deprived compared to both sodium oxybate and control (p<0.0001). Full length tau was undetectable. Although phosphorylated T181 (pT181) showed a similar increase to the unphosphorylated forms, pS202 did not increase with sleep deprivation compared to controls (p>0.05) while pT217 increased 65-80% in sleep-deprived participants compared to controls (p<0.0001).

Conclusions: Disturbed sleep is hypothesized to increase risk of Alzheimer’s disease (AD) via an Aβ mechanism and recent work suggests that tau may also be involved. Our findings show that the increase in tau mediated by sleep loss is due to truncated tau, supporting that the mechanism of this increase is physiologic extracellular release and not neuronal disruption. Diseases with neuronal disruption can increase full length tau (e.g. TBI), however, in AD there is not an increase in full length tau, indicating there is active processing of tau as part of AD pathophysiology and sleep deprivation. The effect of sleep deprivation on p-tau depends on the phosphorylated site. Future investigations are needed to assess if these patterns change in the presence of Alzheimer pathology, such as amyloid deposition.

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Objectives:
Describe how group visits can support behavior change.
List core components of a primary care-based advance care planning (ACP) group visit model.
Compare the effectiveness of an ACP group visit intervention with mailed materials on ACP outcomes.

Background: Group visits can support behavior change. In primary care, an advance care planning (ACP) group visit intervention may leverage group dynamics to increase ACP engagement. This trial aims to test the effect of a novel group visits intervention, Engaging in Advance Care Planning Talks (ENACT), to improve ACP documentation and readiness in older adults.

Methods: We conducted a patient-level randomized trial of ENACT Group Visits compared to Mailed ACP materials in a geriatric clinic. Patients were at least 60 years old and did not have significant hearing or cognitive limitations. ENACT Group Visits are two 2-hour sessions with up to 12 patients, co-facilitated by a physician and social worker. ACP topics include preferences for future medical care, surrogate decision makers, and ACP documents. The Mailed ACP materials arm received the Conversation Starter Kit and a Medical Durable Power of Attorney form. The primary outcome was advance directives in the electronic health record (EHR) at 6 months. Secondary outcomes included medical decision maker documentation and readiness to engage in ACP actions (validated ACP Engagement Survey, 4-items on a 5-pt scale).

Results: Participants were a mean of 77 years old, 60% female and 79% white. At six months, 45% of Mailed arm participants had an advance directive in the EHR, whereas 71% of ENACT participants had an advance directive (26% higher). Similarly, 73% in the Mailed Arm compared to 93% of ENACT participants had surrogate decision maker documentation in the EHR (29% higher) (p<0.001, both). Participants in the ENACT arm reported higher readiness to engage in ACP compared to the Mailed arm at 6 months (4.1 vs 4.5), (p=0.05).

Conclusions: An ACP group visit increased documentation and readiness to engage in ACP.

Implications: Primary care clinicians and researchers can explore implementation strategies and adaptation of ENACT Group Visits into routine care.
Title: Conversations About Cognition: The Use of a Cognitive Screening Tool in the Outpatient Oncology Setting - A University of Rochester NCI-Community Oncology Research Program (NCORP) Randomized Study

Presenting author: Allison Magnuson, D.O

Co-authors: Lianlian Lei, Michelle Christine Janelins, Eva Culakova, Feng Vankee Lin, Robert Ferguson, Maxence Gilles, Arti Hurria, William Dale, Paul Duberstein, Marsha Wittink, Javier Bautista, Sandy Plumb, Margaret Sedenquist, Supriya Gupta Mohile

Background: The prevalence of cognitive impairment and how it is discussed in the community oncology setting is not well understood. We assessed how a cognitive screening test influences conversations about cognition between patients, caregivers and oncologists and the content of these discussions.

Methods: Pts aged ≥70 with advanced cancer were recruited to a cluster-randomized community-based multisite geriatric assessment (GA) intervention study (N=542, URCC 13070; PI: Mohile). Cognitive screening was performed as a component of the GA, including Mini-Cog (normal/abnormal) and Blessed Orientation Memory Concentration Test (BOMC) (scored 0-28, score >11 is impaired). Cognitive screening tests were administered prior to an audio-recorded clinic visit including patients, their caregivers (when present and consented) and their oncologists. Practices were randomized to usual care vs GA intervention (GA summary, including the cognitive screening test results, were provided to the oncologists). The audio-recorded clinical encounters were transcribed by 2 blinded coders who coded conversations about cognition with a priori scheme as follows: cognition discussed (Y/N), type of concern, and who initiated the concern.

Results: The mean age was 77 (range 70-93); 33.4% of patients had abnormal Mini-Cog scores and 2.2% screened positive by BOMC. Patients with abnormal Mini-Cog were more likely to have impaired activities of daily living (ADL) (34 vs 24%), Instrumental ADL (64 vs 52%), Timed Up and Go (47 vs 34%) and positive depression screen (28 vs 19%), (p<0.05 for all). Conversations about cognition occurred in 22% of encounters and were more common in the intervention arm (OR 3.61, 95%CI: 2.27-5.75, p<.001). Differences were most notable for pts with abnormal Mini-Cog: conversations occurred in 62.5% of patients with abnormal Mini-cog in the intervention arm vs 14.2% in usual care, p<.001. Oncologists were more likely to initiate conversations about cognition in the intervention arm (90% vs 57%, p<.001). Cognitive concerns had 5 themes: memory (54.4%), comprehension (15.2%), confusion/delirium/orientation (13.9%), concentration (3.2%) and other (13.3%).

Conclusion: In community oncology practices, 1/3 of older patients screen positive for cognitive impairment using the Mini-Cog, and these patients were more likely to have other GA impairments. Providing oncologists with results of a cognitive screening test significantly increased conversations about cognition. The main themes discussed were memory and comprehension.
Angiotensin-II stimulating antihypertensives are associated with lower incident dementia rates in community-dwelling older people

**Presenting author:** Zachary A. Marcum, PharmD, PhD  
**Co-authors:** Jan-Willem van Dalen, PhD; Shelly L. Gray, PharmD, MS; Douglas Barthold, PhD; Eric P. Moll van Charante, MD, PhD; Willem A. van Gool, MD, PhD; Paul K. Crane, MD, MPH; Eric B. Larson, MD, MPH; Edo Richard, MD, PhD

*Work conducted as part of the Prevention of Dementia by Intensive Vascular Care (PreDIVA) trial at the University of Amsterdam, Amsterdam, the Netherlands in collaboration with the University of Washington and Kaiser Permanente Washington Health Research Institute, Seattle, WA, USA.

**Importance:** Antihypertensive drug subclasses have been differentially associated with dementia risk. According to the “angiotensin hypothesis”, antihypertensives that increase angiotensin-II mediated activity at the angiotensin-2 and angiotensin-4 receptors (Ang+) may provide greater brain protection than those decreasing this activity (Ang-).

**Objective:** To test whether Ang+ antihypertensives (thiazides, dihydropyridine calcium channel blockers, and angiotensin-1 receptor blockers) convey a lower risk of incident dementia compared to Ang- antihypertensives (angiotensin-converting enzyme inhibitors, beta blockers, and non-dihydropyridine calcium channel blockers).

**Design:** Observational longitudinal cohort study with 6-8 years follow-up from the Prevention of Dementia by Intensive Vascular Care (PreDIVA) trial

**Setting:** Community-dwelling older people in Dutch general practices

**Participants:** 1909 antihypertensive users from a general practice population sample comprising 3526 community-dwelling individuals aged 70-78 years

**Exposure:** Baseline prescription of Ang+ antihypertensive medication subclasses compared to Ang- subclasses.

**Main Outcomes and Measures:** Blinded committee adjudicated clinical diagnosis of incident dementia confirmed by 1-year follow-up after diagnosis, and mortality as competing risk.

**Results:** Mean participant age was 74.5 ±2.5 years and 54% (1025/1909) were women. After 6-8 (median 6.7) years of follow-up, dementia outcome was available for 1870 (98%) and mortality for 1904 (>99%) participants. Dementia occurred in 5.6% of Ang+ users (27/480), 8.2% of Ang- users (59/721), and 6.9% (46/669) of participants using both types. Cox regression analyses indicated that, adjusted for dementia risk factors including blood pressure and medical history, Ang+ users had a 44% lower incident dementia rate (HR=0.56, 95%CI=0.35-0.91) than Ang- users; without a higher mortality rate (HR=0.80, 95%CI=0.59-1.08). Individuals using both Ang+ and Ang- antihypertensives had a non-significant 19% lower dementia rate (HR=0.81, 95%CI=0.54-1.21) compared to Ang- antihypertensives users, and a similar mortality rate (HR=0.96, 95%CI=0.75-1.22). Results were consistent for subgroups based on diabetes and stroke history, but they may be specific for individuals without a history of cardiovascular disease.

**Conclusions and relevance:** Use of Ang+ antihypertensives conveyed a markedly lower dementia risk compared to Ang- antihypertensives. Confounding by indication must be examined further, although sub-analyses suggest this did not influence our results. If replicated, dementia prevention could become a compelling indication for older individuals receiving antihypertensive treatment.

**Key words:** dementia prevention, pharmacoepidemiology, antihypertensive
**Title:** Positive Attitudes towards a Decision Aid for Left Ventricular Assist Devices

**Authors:** Daniel D. Matlock, MD, MPH; Monica D. Edwards, BA; Jocelyn S. Thompson, MA; Colleen K. McIvnenan, DNP, ANP; Russell E. Glasgow, PhD; Megan A. Morris, PhD, MPH; Matthew K. Wynia, MD, MPH; Diane L. Fairclough, DrPH, MSPH; Bridget S. Mosley, MPH; Larry A. Allen MD, MHS;

**Purpose:** The left ventricular assist device (LVAD) is now more common than heart transplants for people dying from end-stage heart failure. Although patients’ chances of survival are markedly increased with an LVAD, the LVAD poses many risks – including stroke, serious infection, bleeding – and major lifestyle changes. Our prior work found that a decision aid for LVADs significantly increased both patient knowledge and values-choice concordance. The goal of the next phase is to implement the decision aid at as many of the 178 LVAD programs in the United States as possible. In order to better understand how ready LVAD programs are to use the decision aid, we conducted a national survey.

**Methods:** In April and May 2019, the survey was distributed using four professional society list serves that specifically target heart failure clinicians including physicians, nurses, and social workers. The survey was sent electronically twice over a month period. Questions included attitudes towards LVAD decision making, barriers to adoption based on domains from the Diffusion of Innovations theory, and demographics about the respondent and their program. All respondents received a $20 gift card.

**Results:** Currently, 530 individuals from 125 different LVAD sites have completed the survey, with 63 LVAD sites having more than one responder. Among respondents, 15.1% are physicians, 23.2% are advanced practice providers (e.g. physician assistants or nurse practitioners), 40.6% are registered nurses, 12.6% are social workers, and 8.5% other, such as an LVAD educator or coordinator. Overall, attitudes towards shared decision making and a decision aid were overwhelmingly positive (Table).

**Conclusions:** The overwhelmingly positive attitudes towards shared decision making are encouraging that the decision aid for LVADs could be implemented nationally. However, some beliefs about the decision aid being unnecessary or inadequate in informing patients may be a barrier to broad implementation. This suggests the decision aid may be better adopted if used as part of a larger shared decision-making conversation with clinicians to enhance discussions and not as a standalone tool.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think shared decision making is very important to clinical practice for LVADs.</td>
<td>68%</td>
<td>30%</td>
<td>2%</td>
<td>0%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Most clinicians (physicians, nurses, social workers, etc.) in my heart failure program feel that shared decision making is very important.</td>
<td>58%</td>
<td>37%</td>
<td>4%</td>
<td>1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Most clinicians in my heart failure program regularly practice shared decision making with their patients.</td>
<td>34%</td>
<td>50%</td>
<td>10%</td>
<td>6%</td>
<td>0.2%</td>
</tr>
<tr>
<td>I have a good understanding of what a patient decision aid is.</td>
<td>19%</td>
<td>52%</td>
<td>15%</td>
<td>12%</td>
<td>2%</td>
</tr>
<tr>
<td>I worry that a patient decision aid for LVADs would be biased against LVADs.</td>
<td>1%</td>
<td>6%</td>
<td>29%</td>
<td>52%</td>
<td>11%</td>
</tr>
<tr>
<td>Sometimes, I feel we provide less than optimum care due to pressure to maintain or increase LVAD volumes.</td>
<td>6%</td>
<td>18%</td>
<td>16%</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>By the time patients see me, most of them have already decided whether or not to get an LVAD.</td>
<td>4%</td>
<td>17%</td>
<td>21%</td>
<td>47%</td>
<td>11%</td>
</tr>
<tr>
<td>My heart failure program is more receptive to shared decision making than other programs I’ve seen.</td>
<td>12%</td>
<td>27%</td>
<td>53%</td>
<td>7%</td>
<td>1%</td>
</tr>
<tr>
<td>I worry that a patient decision aid for LVADs would not capture the complexity of the decision.</td>
<td>7%</td>
<td>33%</td>
<td>18%</td>
<td>37%</td>
<td>5%</td>
</tr>
<tr>
<td>Patients in our program are sometimes given false hope about the LVAD.</td>
<td>6%</td>
<td>39%</td>
<td>15%</td>
<td>31%</td>
<td>8%</td>
</tr>
<tr>
<td>I can fully inform patients about LVADs without using a patient decision aid.</td>
<td>9%</td>
<td>37%</td>
<td>28%</td>
<td>23%</td>
<td>3%</td>
</tr>
</tbody>
</table>
In vivo Model of Human Enthesis Regeneration

(1,2) Rowena McBeath, (3) Susan Parks, (2) Andrzej Fertala, (4) Robert Mauck, and (2) Irving Shapiro

(1) Thomas Jefferson University, Orthopaedic Surgery
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(3) Thomas Jefferson University, Geriatrics Division
(4) University of Pennsylvania, Biomedical Engineering

Tendinopathies are ubiquitous and age-related. The natural history of tendinosis includes age-related tissue degeneration of the tendon mid-substance, or of the enthesis – the tendon-bone interface – often resulting in acute pain, loss of function and chronic disability. The primary reason for poor outcomes after surgical repair is failure of the endogenous cells to recreate fibrocartilage at the tendon-bone interface. Our prior studies of aged and young human tendon have revealed tenocytes develop a fibrochondrocyte and mineralized fibrochondrocyte phenotype depending on relative intracellular levels of Rac1 and RhoA GTPase activity, which are determined by the cell microenvironment. We have characterized this effect of RhoA/Rac1 GTPase activity on the human tenocyte phenotype, and have discovered an essential role of combined Rac1 in-activity and RhoA over-activity in development of the fibrochondrocyte phenotype.

One of our goals is to create a fibrocartilage construct fit for eventual clinical translation. First we will create a human tenocyte-engrafted electrospun nanofiber scaffold and culture it under conditions of hypoxia or normoxia, under tension or compression in a bioreactor. Biochemical, immunohistochemical and kinematic assays will be used to evaluate time and oxygen-dependent changes in human tenocyte phenotype on the scaffolds, via expression of selected markers, assessment of tissue organization and mechanical strength. Human tenocytes will then be treated with RhoA/Rac1 agents to produce Rac-1 in-activity and RhoA over-activity and cultured as above. We anticipate that differential RhoA and Rac1 activity will efficiently instruct (>95%) human tenocytes to display a fibrochondrocyte phenotype which will be maintained in bioreactor culture.

The final goal of this proposal is to create an in vivo rabbit model for enthesis regeneration. First we will perform proof-of-concept studies: enthesis defects will be created in the Achilles tendon of rabbits and observed for healing at week 6 and 12 after defect creation, harvested and analyzed as above. Using the same enthesis defect model, tenocyte-engrafted scaffolds with stable Rac1 in-activity and RhoA over-activity will then be used to repair the enthesis defects, harvested at week 6 and 12, and analyzed as described above to evaluate maintenance of the enthesis phenotype as well as construct integrity during physiologic loading in vivo.

Our aging patient population is in dire need of an innovative, consistent therapy for tendinosis. Our proposed interdisciplinary approach using cell biology, biochemical, tissue engineering and translational techniques will create a novel enthesis construct, fit to undergo clinical testing, with the goal of decreasing pain and restoring function in the elderly.
Discordant Self-Reported and Actigraphic Short Sleep Duration in Older Persons

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Key Words: sleep duration, aging, actigraphy, sleep quality, primary sleep disorder

Introduction: The evaluation of short sleep duration (SSD), lasting ≤6 hours, may be clinically-meaningful, given previously established associations with adverse health outcomes. However, since older persons may have altered symptom awareness, concerns are raised regarding potentially high rates of discordance between self-reported and objective (actigraphic) measures of SSD.

Methods: Using data on 5,717 older persons from the Study of Osteoporotic Fractures and the Osteoporotic Fractures in Men Sleep Study, we evaluated the prevalence of self-reported and actigraphic SSD. The Pittsburgh Sleep Quality Index (PSQI) evaluated self-reported sleep duration. Objective estimates of sleep duration were assessed by wrist actigraphy and were averaged over approximately 5 days. Using multivariate logistic regression, we examined the agreement between self-reported and actigraphic SSD and the correlates associated with discordance. Correlates included age, sex, race, depression (Geriatric Depression Scale ≥6), impairments in cognition (Teng 3MS <22) and physical function (inability to do a chair stand), multimorbidity (≥3 chronic medical conditions), medication use, poor sleep quality (PSQI >5), and primary sleep disorders (restless legs syndrome [RLS] and obstructive sleep apnea [OSA]).

Results: Mean age was 80 years (SD 5.8); 50% were female and 90% were white. Self-reported and actigraphic SSD were established in 767 (13.4%) and 1,617 (28.3%) participants, respectively. The correlation between self-reported and actigraphic SSD was poor (κ=0.11). The positive and negative predictive values of self-reported for actigraphic short sleep duration were 42% and 74%, respectively. In multivariable models, the odds of discordance in self-reported vs. actigraphic SSD were significantly higher among non-Whites (1.38 [1.12, 1.70]) and participants with multimorbidity (1.24 [1.04, 1.48]), poor sleep quality (1.38 [1.22, 1.57]), RLS (1.62 [1.16, 2.28]), and OSA (1.65 [1.39, 1.97]).

Conclusion: Self-reported and actigraphic SSD were poorly correlated in our sample of older persons, most evident in those who were non-white or had multimorbidity or sleep disruption (poor sleep quality or primary sleep disorders). However, it remains to be established whether a misdiagnosis of self-reported SSD (present or absent), relative to actigraphy-measured SSD, is associated adverse health outcomes.
A randomized pilot study to evaluate graft-first versus fistula-first vascular access strategy in older patients with advanced kidney disease: results of a feasibility study

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Keywords: arteriovenous vascular access; hemodialysis; kidney disease; older adults; randomized trial.

Background. Older adults encompass 40\% of patients with advanced kidney disease, but it is not clear which vascular access method—arteriovenous (AV) fistula (AVF) or AV graft (AVG)—is better with respect to access effectiveness and patient satisfaction. To date, clinical outcomes based on the type of AV access placed and used for long-term hemodialysis (HD) have not been evaluated with a randomized controlled trial. This pilot study tested the feasibility of randomizing older adults to the two types of AV vascular access surgeries.

Study Design: Pilot randomized controlled trial.

Setting & Participants: Patients 65 years or older, with pre-dialysis chronic kidney disease (CKD) or incident end-stage kidney disease (ESKD) and no prior AV access intervention, referred for surgical intervention for AV access creation, medically and surgically suitable for placement of either type of AV access placement, were approached for study participation.

Intervention: Participants were randomized in a 1:1 ratio to undergo either AVF-first or AVG-first access placement.

Outcomes & Measurements: Trial feasibility was evaluated as (i) proportion of eligible patients recruited, (ii) proportion of participants who receive AV access placement as randomized, (iii) adherence to study-related assessments, and (iv) proportion of participants with ≥12 months of follow-up. Clinical outcomes included rate of primary AV access failure and patient satisfaction with AV access outcomes. Incidence rate of vascular access infection was included in safety outcomes. Grip strength and functional independence was measured at enrollment and at set time-points post-surgery. The analysis of the outcomes was based on descriptive statistics and estimates reported using point (95\% confidence intervals).

Results: Between September 2018 and October 2019, 44 (81\%) of 54 eligible patients consented and enrolled in the study; of these, 11 had pre-dialysis CKD and 33 had ESKD. After randomization, 21 (100\%) of the 21 patients assigned to AVF-first surgery and 18 (78\%) of the 23 (23 \%) patients assigned to AVG-first surgery underwent index AV access placement by a median (1\textsuperscript{st}, 3\textsuperscript{rd} quartile) of 5.0 days (1.0, 14.0) and 13.0 days (5.0, 44.3), respectively, after referral to vascular surgery. During follow-up (median, 215.0 days from date of enrollment), assessments of grip strength, functional independence and vascular access satisfaction, across those who reached a pre-specified time-point, were completed in 90\%, 95\% and 100\% of expected first, second and third post-operative assessments, respectively.

Conclusions: This pilot study demonstrated adequate patient recruitment rate and proved to be feasible based on the pre-specified benchmarks. Results gleaned from this pilot will be used to design a well-powered, multisite randomized clinical trial to compare the effects on health outcomes and patient satisfaction between AVF-first and AVG-first strategy in older adults with incident ESKD.
Ketone bodies as signaling metabolites in health and aging
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Buck Institute for Research on Aging
University of California San Francisco, Division of Geriatrics
University of Southern California, Davis School of Gerontology

Ketone bodies are a normal part of human metabolism, small molecules made by the body during fasting, exercise, or other times when carbohydrates become scarce. They are made in the liver from fats mobilized from adipose tissue, and then act as a convenient source of energy for the brain, muscles, heart, and other organs. But alongside this classic role as a fasting fuel, we are learning that ketone bodies act as signals, too. By binding to proteins, inhibiting enzymes, and activating receptors, they can have effects on gene expression, inflammation, metabolism, and other processes. We helped identify ketone bodies as endogenous histone deacetylase inhibitors. These signaling activities are only beginning to be understood, but suggest discrete mechanisms by which ketone bodies can affect health and diseases. We recently showed that exposing mice to ketone bodies long-term using a non-obese ketogenic diet can extend healthy lifespan, and identified a new mechanism by which ketone bodies affect Alzheimer’s disease. We also developed a set of compounds that permit feeding ketone bodies in a normal diet, and allow the mechanistic study of the effects of ketone bodies on aging phenotypes. Understanding the signaling activities of ketone bodies will help to guide the creation of new therapies derived from ketone bodies, target these therapies to certain diseases, and inform their clinical use.
Defining The Role of T cells in the Pathophysiology of Atherosclerosis in Younger and Older Patients

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Cardiovascular Institute¹, Division of Cardiovascular Medicine, Stanford University²
Institute for Immunity, Transplantation and Infection³, Department of Cardiothoracic Surgery⁴, Division of Plastic Surgery⁵

Background: Atherosclerosis-related diseases are a leading cause of death worldwide. Patients with atherosclerosis are at risk of developing heart attack and stroke, which may result in death. The prevalence of atherosclerosis increases with age. While previous studies have shown that aging of the innate immune affects atherosclerosis progression, whether differences in T cell aging has similar effects is unknown.

Objective: To compare the genotype and phenotype of T cells isolated from coronary atherosclerotic plaque in younger patients (≤65 years old) and older patients (>65 years old)

Methods: Plaques were digested in single cell suspension and sorted for CD4+ and CD8+ T-cells. For gene expression analysis, the cell suspension was submitted for 10x transcriptomics. For repertoire analysis, cell suspensions were sorted into 96-well plates using fluorescence-activated cell sorting (FACS). From there, RT-PCR was performed on the RNA from the cells and two sets of nested PCR were performed specific for the α or β regions of the TCR. The DNA was barcoded then sequenced using Illumina MiSeq. This data was then used for clonality and CDR3 motif analysis.

Findings: We found differential T cell gene expression in severe plaques isolated from younger and older patients. T cells from older patients also displayed less clonal expansion, suggesting a diminished ability to respond to antigens.

Conclusion: Our data suggests that T cells isolated from severe plaque of young and older patients have functional differences that need further exploration.
Long-term Aspirin Use is Associated with a Lower Prevalence of Frailty and Self-reported Slow Walking in Men: The Physicians’ Health Study

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1VA Boston Healthcare System, Boston, MA; 2Brigham & Women’s Hospital, Harvard Medical School, Boston, MA; 3Institute for Aging Research, Hebrew SeniorLife, Harvard Medical School, Boston, MA

Funding: Boston Pepper Center CDA

Background: Mobility limitation is a component of frailty that shares a bidirectional relationship with cardiovascular disease (CVD). Whether established CVD prevention therapies such as aspirin can prevent frailty and mobility limitation is unknown.

Methods: We examined the association between frequency of long-term aspirin use and prevalent frailty and mobility limitation using a cross-sectional cohort of participants ≥60 years in the Physicians’ Health Study I, a completed aspirin randomized controlled trial (1982-1986). Annual follow-up questionnaires collected self-reported data on aspirin use, lifestyle and clinical variables. Average frequency of aspirin use was summed into 3 categories: <60 days/yr, 60-180 days/yr, and >180 days/yr. Frailty was assessed using a 33-item index administered in 1999. A score ≥0.21 was considered frail. Mobility was assessed in 2001 according to self-reported walking pace categorized as: don’t walk regularly, easy casual <2mph, normal ≥2-2.9mph, or brisk or very brisk ≥3mph. Propensity scoring (PS) balanced covariates across categories of aspirin use. Aspirin randomization was included as a covariate. Multinomial logistic regression models estimated the odds of prevalent frailty and walking group according to aspirin use.

Results: There were 12,101 and 14,896 participants in the frailty (1999) and walking-pace (2001) analyses, respectively. Median age was 70 years (range 60-101); mean duration of aspirin use was 9 and 11 years. For frailty, 15%, 61%, and 24% of participants reported aspirin use <60, 60-180, and ≥180 days/year, respectively. Rates were similar for the mobility group, 15%, 62% and 23%. 2422 participants (20%) were frail. For walking, 12% reported not walking regularly, 13% reported an average walking pace of <2mph, 45% ≥2-2.9mph, and 31% ≥3mph. Frequency of aspirin use was positively associated with smoking, alcohol consumption, exercise, hypertension, CVD and stroke, but negatively associated with prior bleeding and Coumadin use. After PS adjustment, the ORs (95% CIs) of prevalent frailty were 0.87 (0.77-0.99) and 0.92 (0.80-1.06) for average aspirin use 60-180 and >180 days/yr, respectively, compared to aspirin use of <60 days/yr. For walking, the OR (95% CIs) of not walking regularly were 0.78 (0.69-0.90) and 0.84 (0.72-0.99) for 60-180 and >180 days/yr of aspirin use vs <60 days. In analyses considering all walking speed categories, increasing aspirin use was consistently associated with greater walking speed (p-trend=0.017).

Limitations: Observational data, all male participants, dose of aspirin unknown.

Conclusion: These results suggest that in older men long-term aspirin use is associated with a lower prevalence of frailty and slow walking pace. Further work is needed to understand possible mechanisms for this association such as anti-inflammatory effects of aspirin.
ABSTRACT

Title: Identifying the prevalence and correlates of symptoms in home hospice patients at the end of life

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Key words: hospice, symptoms, end of life

Background: Symptoms (e.g., pain, shortness of breath, fatigue) at the end of life (EoL) are common. While symptoms can contribute to poor quality of life at the EoL, much remains unknown regarding their prevalence and correlates in home hospice care.

Objectives: To determine the prevalence and correlates of caregiver reported symptoms in home hospice patients during the last week before discharge using the Edmonton Symptom Assessment Scale (ESAS).

Design: A cross-sectional study measuring perceived patient symptoms using caregiver proxy data. Bivariate and multivariate analyses were conducted to examine patient and caregiver characteristics associated with ESAS scores.

Setting/Subjects: An urban, non-profit home hospice organization.

Measurements: Symptoms were measured using the ESAS.

Results: The mean ESAS score was 51.2 (SD +/-17.4). In bivariate analyses, higher perceived symptom score was associated with younger patient age (p<0.001), younger caregiver age (p<0.001), having a cancer diagnosis (p=0.006), and lower caregiver comfort level managing symptoms (p<0.001). Regression model analyses showed that younger patient age (p=0.0009, p=0.0036) and lower caregiver comfort level managing symptoms (p=0.0047, p<0.0001) were associated uniquely with higher symptom scores.

Conclusions: Multiple symptoms of high severity were perceived by caregivers in the last week on home hospice. Patient age and caregiver comfort level in managing symptoms were associated with higher symptom scores. Further work is needed to improve management and treatment of symptoms in this care setting.
Harnessing Community Paramedicine for Transformative Fall Prevention Solutions
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Key words: Fall prevention, lift assists, community paramedicine

Background: Healthcare costs for falls are expected to reach nearly 55 billion dollars annually in the US by 2020 with falls in older adults impacting nearly every family, in every sector, of every community.\(^1\,^2\) Although falls lead to life-threatening injuries and death, there is a powerful yet underutilized solution if we leverage the hidden opportunities of fall events that do not result in catastrophic consequences. 911 is increasingly used for lift assists (falls that do not result in transport) and diverts care from higher acuity emergencies. Astonishingly, nearly 50% of lift assists result in a second fall call within 2 weeks and 60% of older patients who utilize 911 for a lift assist die or have further emergency visits within 6 months. Leveraging 911 calls as trigger events to activate fall prevention solutions could transform our ability to identify high-risk individuals and significantly improve fall prevention strategies globally.

Methods: An innovative pilot program entitled Community-centered Fall Intervention Team (Community FIT). Community FIT that leverages 911 calls, implementation science approaches, community partnerships, and collaboration among multiple healthcare disciplines including physical therapists, community paramedics, physicians, and social service coordinators was used to design and implement a community paramedicine fall intervention program. 911 call reports from February 2016 – August 2019 were analyzed using time series analyses to measure community level outcomes in fall-related calls and transports.

Results: Over an 18-month period, time series analysis indicated an approximate demonstrated a consistent drop in the average fall-related 911 calls per month from 11.6 to 4.5 calls (a change of 61.21%) and a decrease from 36.67% to 15.91% in the transport rates for fall-related 911 calls. Figures 1 and 2 break the trends down by phases of prior to the community paramedic fall prevention, and implementation of Community FIT. As evidenced by the dashed lines (which represent upper and lower control limits) in Figures 1 and 2, the month-to-month variation also decreased indicating a more stable system. 911 referrals to the community paramedicine program have also increased by 83%, demonstrating increased activation of fall prevention strategies with Community FIT.

Conclusions: Collectively, these pilot study results provide preliminary support for individual and system level improvements in fall prevention by leveraging 911 calls to activate a community medicine fall prevention program. Future studies are needed to determine reach, long-term effectiveness, and sustainability of the program.
“MINDFULNESS AND GUIDED IMAGERY FOR SPANISH-SPEAKING FAMILY DEMENTIA CAREGIVERS: FEASIBILITY AND ACCEPTABILITY STUDY OF MENTALIZING IMAGERY THERAPY”

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Background: Due to psychological and physical strain, family caregivers of patients with Alzheimer’s disease and related dementias are at high risk of depressive and anxiety disorders and physical morbidity. We are investigating the feasibility of a Spanish language Mentalizing Imagery Therapy (MIT) adaptation, which provides guided imagery and mindfulness skills training to facilitate self-regulation and increase perspective on the mental life of self and others.

Methods: In this pilot study, we aim to adapt the Mentalizing Imagery Therapy (MIT) protocol for Spanish-speaking family AD/ADRD caregivers through an iterative refinement process, and to pilot test the feasibility of implementing MIT among diverse, Spanish-speaking Family Dementia Caregivers. The 4-week program, with 6- and 12-week follow-up sessions, is deliverable by master’s-level mental health professionals with expertise in dementia care. We will adapt the MIT program for Spanish-speaking caregivers of persons with dementia. The project has the following aims: 1) To iteratively refine the Mentalizing Imagery Therapy (MIT) for Spanish-speaking Family Dementia Caregivers, 2) To conduct a pilot study to establish feasibility and acceptability of the Mentalizing Imagery Therapy (MIT) for Spanish-speaking Family Dementia Caregivers.

Results - We have translated the intervention materials to Spanish and are currently in the recruitment phase. Our strategies for recruitment include posters and flyers to clinics serving Spanish language dementia patients, networking with Primary Care Physicians, Social Workers, Psychiatrists and Neurologists in Spanish Language Clinics, targeted recruitment from Spanish language clinics based on patient diagnosis, advertisements in Spanish language church bulletins and local newspaper advertisements.

Conclusion- Although MIT might be a useful treatment for improving mood and reducing stress in Spanish language family dementia caregivers by teaching them skills of mentalizing and mindfulness, feasibility of MIT in Spanish language caregivers remains to be demonstrated. Recruitment of Spanish language caregivers is challenging and requires a multi-modal strategy.
Systemic Determinants of Age-Related Frailty and Heart Failure

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BACKGROUND: Heart failure (HF) is strongly associated with frailty and is a major cause of morbidity and mortality in older adults. HF remains the leading cause of hospitalization in older adults with five-year survival rates < 50%. Furthermore, no treatment to date has demonstrated mortality benefit in heart failure with preserved ejection fraction (HFpEF), the predominant form of HF in older adults, highlighting a substantial unmet need for novel therapeutic approaches in HF.

HYPOTHESES: Given the strong association with advanced age, frailty, and multi-organ system comorbidities, we hypothesize that 1) there are systemic mediators that drive HFpEF pathophysiology in older adults, 2) that these same processes may be causally related to frailty, and 3) that these candidate pathways can be targeted for effective therapeutic development in age-related frailty and HFpEF.

METHODS: Aptamer-based proteomic screening was performed on plasma from older adults phenotyped for HF and frailty to identify circulating proteins increased with human aging, frailty, and HF. Cardiac expression levels of the candidate protein, follistatin-like 3 (FSTL3), a biomarker of Activin type II receptor (ActRII) activity, was measured in aged (28 month) C57BL/6 mice and correlated with HFpEF phenotypes, including resting systolic and diastolic function, cardiac reserves, exercise capacity, and sarcopenia. Targeted ActRII inhibition with CDD866 (ActRII neutralizing Ab) versus isotype control was then performed on a subgroup of aged (24 month) C57BL/6 mice to determine if this intervention could reverse age-related HFpEF phenotypes.

PRELIMINARY RESULTS: Circulating FSTL3 levels increase with age, frailty, and HF severity in older adults with severe aortic stenosis. In aged mice, cardiac FSTL3 expression inversely correlates with exercise capacity, resting cardiac function, and contractile reserves, but not with chronotropic reserves or sarcopenia. Targeted ActRII inhibition with clinical-stage inhibitors had positive effects on maintaining exercise capacity in aged mice, and significantly increased cardiac systolic function, contractile reserves, and skeletal muscle mass. There was no effect on diastolic function or chronotropic reserves.

CONCLUSION: Catabolic ActRII signaling, as indicated by circulating FSTL3 levels, is systemically increased in human aging, frailty, and HF. Targeted ActRII inhibition presents a potentially promising therapeutic strategy for age-related frailty and HFpEF.
Characteristics of Victims, Perpetrators, and Circumstances Surrounding Episodes of Physical Elder Abuse: Analysis of Legally Adjudicated Cases


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Background: Elder abuse is common and has serious health consequences, but is under-appreciated and poorly understood. Little is known about characteristics of victims, perpetrators, and circumstances surrounding episodes of physical elder abuse. Our goal was to describe these characteristics in legally adjudicated cases of physical elder abuse.

Methods: Partnering with a large, urban district attorney’s office, we closely examined a pilot sample of 100 successfully prosecuted physical elder abuse cases from 2003-2014. We evaluated law enforcement, legal, and medical records including photographs from these legally adjudicated cases to explore the characteristics of the older adult victims, perpetrators, and circumstances surrounding the abuse.

Results: Victims were primarily female (73%) with a median age of 71±9 years (IQR), and the abuser was most commonly the victim’s son (41%) or spouse/companion (17%). 97% of victims lived in the community. 69% of victims were concurrently suffering from other type(s) of elder abuse, most commonly verbal/emotional/psychological abuse (55%) or financial exploitation (21%). Co-occurring child abuse was found in 4% of cases and domestic violence against a younger adult in 6%. 54% of abusers had a history of alcohol or illicit drug use, with 18% using at the time of the offense. 12% of abusers had a documented history of mental illness. A history of violence between victim and abuser existed in 58% of cases, with police reports for abuse filed previously in 42%. 60% of victims reported to the responding officer being fearful of the abuser, and 9% of abusers had known access to firearms. 33% of victims received care in the ED after abuse was detected, with many refusing Emergency Medical Services transport. The most common mechanisms of physical abuse were blunt assault with hands/fists (62%), push/shove or fall during altercation (23%), blunt assault with object (21%), or blunt assault with foot/knee (17%), with 36% of perpetrators using multiple mechanisms. Weapons most frequently used by perpetrators were body parts (XX%), with closed fists (62%) and open hand (19%) most common. A wide variety of household objects were used in XX% of cases, most commonly liquor bottle (3%) and knife (3%), with an additional 4% of cases involving the perpetrator using the ground as a weapon.
**Perioperative Assessment of Cognitive Function in Older Surgical Patients**

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**Background:** Cognitive impairment is common in older surgical patients, and it has been associated with postoperative delirium. However, cognitive function is inconsistently assessed preoperatively, leading to missed opportunities to recognize at-risk patients. We designed a prospective cohort study to assess the validity of the Mini-Cog screening tool when administered immediately prior to surgery, and to determine whether a positive preoperative screen is associated with postoperative delirium in the post anesthesia care unit (PACU).

**Methods:** We conducted a cohort study of patients aged 65-89 years, scheduled for elective, inpatient surgery under general anesthesia between June 20 and August 3, 2018. The Mini-Cog tool and the Edmonton Frailty Scale were administered in the preoperative medicine clinic. The Mini-Cog was reassessed on the day of surgery. The Confusion Assessment Method (CAM) was performed in the PACU and on postoperative day 1. The agreement between preoperative clinic and day of surgery Mini-Cog score was estimated using Pearson correlation. Multivariable logistic regression was used to determine the association between positive screen for cognitive impairment and post anesthesia care unit delirium. Odds ratio analysis was performed to determine whether Mini-Cog score or frailty score was associated with the development of PACU delirium.

**Results:** Of 104 patients meeting eligibility criteria, 80 patients were enrolled in the study; the mean age was 73.13 (5.7) and 44% were women. In the preoperative clinic, 10 patients had a Mini-Cog score <3, and 10 patients scored <3 on the day of surgery. The two assessments had high agreement with a Pearson correlation coefficient of 0.838 (p <0.001). In a comparison between patients with a Mini-Cog score compatible with cognitive impairment versus patients with normal cognitive function, the OR for post anesthesia care unit delirium 0.08 (95% CI:0.02, 0.39, p=0.002) Patients with a score ≥ 8 (more frail) on the Edmonton Frail scale had higher odds of post anesthesia care unit delirium relative to patients with scores ≤ 5 (OR 13.8, 95% CI: 2.57, 73.6).

**Conclusions:** These data support the validity of administering the Mini-Cog on the day of surgery to screen for cognitive impairment in older patients. Importantly, Mini-Cog scores suggestive of cognitive impairment (≤ 2) and higher frailty scores ≥ 8 were associated with PACU delirium.
PLD3 is a neuronal lysosomal phospholipase D associated with β-amyloid plaques and cognitive function in Alzheimer’s disease

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ABSTRACT

Phospholipase D3 (PLD3) is a protein of unclear function that structurally resembles other members of the phospholipase D superfamily. A coding variant in this gene confers increased risk for the development of Alzheimer’s disease (AD), although the magnitude of this effect has been controversial. Because of the potential significance of this obscure protein, we undertook a study to determine whether it is relevant to memory and cognitive function in sporadic AD, to observe its distribution in normal human brain and in AD-affected brain, to describe its subcellular localization, and to evaluate its molecular function.

PLD3 mRNA levels in the pre-frontal cortex correlated with the degree of β-amyloid pathology and the rate of decline in cognitive function in 531 human subjects enrolled in the Rush-Religious Orders Study/Memory and Alzheimer’s Project. PLD3 levels across genetically diverse BXD mouse strains and strains crossed with 5xFAD mice correlated strongly with learning memory performance in a fear conditioning task. In human neuropathological samples, PLD3 was primarily within neurons and colocalized with markers of lysosomes (LAMP2, progranulin and cathepsins D and B). This colocalization was also present in AD brain with prominent enrichment on lysosomal accumulations within dystrophic neurites surrounding β-amyloid plaques. This pattern of protein distribution was conserved in mouse brain in wild type and the 5xFAD mouse model of cerebral β-amyloidosis. We discovered that PLD3 has phospholipase D activity in lysosomes. A coding variant in PLD3 reported to confer AD risk significantly reduced enzymatic activity compared to wild-type PLD3.

This study identified a new functional mammalian phospholipase D isoform which is lysosomal and closely associated with β-amyloid pathology and cognitive function. The enrichment of PLD3 within dystrophic neurites in AD should bring greater attention to this neuropathology.
Management of Primary Hyperparathyroidism Among Older Adults in a National Privately Insured Population

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Background: Primary hyperparathyroidism (PHPT) is a common endocrine disorder of aging that is associated with morbidity from osteoporosis, nephrolithiasis, and chronic kidney disease (CKD). Parathyroidectomy can prevent these morbid sequelae. Consensus guidelines for surgical management of PHPT have expanded over time, but prior studies have documented poor adherence among older adults in certain practice settings1, 2. We sought to investigate the management of PHPT within a national privately-insured population, focusing on disparities in treatment according to patient age.

Methods: We performed a retrospective cohort study using the national Optum Clininformatics private insurance database. We identified patients ≥34 years-old with first observed PHPT diagnosis from January 2004-December 2016. Patients were required to have continuous enrollment 1+ year before and after PHPT diagnosis, and patients without severe kidney disease, kidney transplant or previous parathyroidectomy were excluded. Chi-square tests and multivariable logistic regression were used to determine patient/provider characteristics associated with parathyroidectomy within one year of diagnosis.

Results: Of 26,522 PHPT patients, 10,101 (38.1%) underwent parathyroidectomy. The rate of surgical management decreased linearly with increasing age, with 37.3% of patients 65-74, 25.% of patients 75-84, and 12.0% of patients 85 and older undergoing parathyroidectomy (p<0.001).Patients managed with surgery were more likely to be young, White/non-Hispanic, educated, live in the Midwest, and have fewer comorbidities (all p<0.001). Most patients who met consensus criteria for surgery were managed non-operatively. Parathyroidectomy rates were low among patients with stage III CKD (22%), osteoporosis (37%), age <50 (46%), and nephrolithiasis (50%). Multivariable analysis indicates that meeting consensus criteria based on nephrolithiasis and osteoporosis increased the odds of parathyroidectomy (ORs 1.62 [95%CI 1.51–1.75] and 1.15 [95%CI 1.08–1.22]) but having stage III CKD decreased the odds of surgical management (OR 0.79 [95%CI 0.71–0.89]). Increasing age was strongly inversely associated with parathyroidectomy (age 75-84 OR 0.50 [95%CI 0.45–0.55], age ≥85 OR 0.21 [95% CI 0.17–0.25] vs. age 35-49), as was increasing comorbidity (OR 0.62 [95%CI 0.58–0.66] for Charlson Comorbidity Index ≥2 vs. 0). Receiving endocrinologist care within 6 months of PHPT diagnosis was associated with increased odds of surgical management (OR 1.1 [95%CI 1.04–1.16]).

Conclusions: The majority of privately insured patients with PHPT in the U.S. are managed non-operatively despite meeting guidelines for surgical management. Increasing age and comorbidity are independently associated with decreased odds of parathyroidectomy. Further research is needed to understand the gap between guidelines and clinical management in older adults with PHPT with the goal of targeting parathyroidectomy to those most likely to benefit.

References:
The Surgery for Cancer with Option of Palliative Care Expert (SCOPE) Trial

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Key Words: surgery; cancer; palliative care; surgical oncology; randomized, controlled trial

Abstract:

Background: In medical oncology settings, early specialist palliative care interventions have demonstrated improvements in patient quality of life and survival compared with usual oncologic care. However, the effect of early specialist palliative care interventions in surgical oncology settings is not well studied.

Methods: The Surgery for Cancer with Option for Palliative Care Expert (SCOPE) Trial is a single-center, prospective, single-blind, randomized, controlled trial of a specialist palliative care intervention for cancer patients undergoing non-palliative surgery. It will enroll 236 patients scheduled for major abdominal operations for malignancy, who will be randomized 1:1 at enrollment to receive usual care (control arm) or specialist palliative care consultation (intervention arm). Intervention arm patients will receive consultations from a palliative care specialist (physician or nurse practitioner) pre-operatively and post-operatively. The primary outcome is physical and functional wellbeing at 90 days post-operatively. Secondary outcomes are quality of life at 90 days post-operatively, post-traumatic stress disorder symptoms at 180 days post-operatively, days alive at home without an emergency room visit in the first 90 post-operative days, and overall survival at one year post-operatively. Participants will be followed for three years after surgery for exploratory analyses of their ongoing quality of life, healthcare utilization, and mortality.

Progress to Date: The trial opened on March 1, 2018. It has currently enrolled 107 participants. Enrollment is expected to be complete in 2021.

Discussion: SCOPE is an ongoing randomized, controlled trial evaluating specialist palliative care interventions for cancer patients undergoing non-palliative oncologic surgery. Findings from the study will inform ways to identify and improve care of surgical patients who will likely benefit from specialist palliative care services.
Do nursing homes have PC-SENSE?
Preliminary Findings from the Palliative Care Staff Educational Survey Evaluation
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Background: Nearly 70% of nursing home (NH) residents are palliative care eligible, yet few receive formal palliative care (PC) outside of hospice. Little is known about NH staff PC knowledge, attitudes, skills, behaviors relating to death and dying.

Methods: We administered a modified Attitudes Towards Death (ATD) survey to 146 NH staff (54 CNAs, 37 licensed nurses, 7 other clinical staff, 23 non-clinical staff, 9 administrators, and 16 unknown) from 14 NHs.

Results: NH staff generally feel comfortable caring for the dying, however half believe end-of-life (EOL) is a time of great suffering. Pain control (66%), loneliness (56%), and depression (50%) were the most important issues identified in caring for these patients, with ambivalence about possible dangers of strong pain medication and utility of feeding tubes at EOL. Top priorities identified for improving PC/EOL care included: greater family involvement (53%); education/training on pain control (45%) and management of other symptoms (39%); and use of a PC team (37%) at their facility.

Conclusions: Findings show there is a need for more palliative care training and education and would need to be built on staff knowledge, skills and attitudes to palliative care.
Improving Outcomes of Older Adults with Psychosocial Vulnerability Undergoing Major Surgery

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This application for the Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) describes the five-year career development plan of Dr. Victoria Tang, a geriatrician and young physician-scientist in the Division of Geriatrics at the University of California, San Francisco. Dr. Tang’s long-term career goal is to develop a research niche that bridges the field of aging and surgery to improve the care of older surgical patients.

The specific career development goals outlined in this application include developing expertise in implementation science, intervention development, clinical trial design/analysis, and building a research niche that bridges the field of aging and surgery to improve the care of older surgical patients at the national level. The primary mentor for accomplishing these career development goals is Dr. Ken Covinsky, Professor of Medicine at UCSF and Principle Investigator of the UCSF Older Americans Independence Center. Dr. Covinsky will be assisted by co-mentor Dr. Emily Finlayson, Professor of Surgery and Director of UCSF’s Center for Surgery in Older Adults. The career development plan of Dr. Tang includes individualized mentorship with her mentorship team, formal coursework, one-on-one tutorials, and leadership training.

The overall objective of the research plan is to understand the role of psychosocial vulnerability in post-operative outcomes with the largest cohort of older surgical patients to date and to develop a pilot test a psychosocial intervention to improve depressive symptoms, coping skills, and social support. The central hypothesis of this project is that preoperative psychosocial vulnerability is associated with post-operative functional recovery, and a greater understanding of psychosocial vulnerability and interventions designed to mitigate its effects will improve post-operative outcomes, such functional recovery. The specific aims of the project include (1) determining the independent association between pre-operative psychosocial vulnerability with 2-year overall mortality and functional decline following major surgery; (2) understanding how psychosocial vulnerability impacts post-operative recovery in older surgical patients through semi-structured interviews with older surgical patients and caregivers; and (3) comparing 6-month functional recovery outcomes between those randomized to a psychosocial intervention (navigator-led social support and problem solving therapy) versus usual care. These aims will permit a better understanding of psychosocial vulnerability, a geriatric-specific risk factor, in older adults that may be especially important in a time of major surgery. The application is relevant to NIH and NIA because Dr. Tang’s career goal is to leverage an understanding of the geriatric-specific risk factors to elucidate potential aspects needing interventions and to improve shared surgical decision-making among older adults and their physicians.
Population-level trajectory of cognitive change preceding and following coronary revascularization

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Key words: Aged; older adults; aging; cognition; surgery; CABG; PCI; heart disease; POCD; cognitive decline

Background: Methods of coronary revascularization (coronary artery bypass grafting [CABG] and percutaneous coronary intervention [PCI]) have been implicated in causing cognitive decline in older adults, but very little is known about long-term cognitive change preceding and following revascularization.

Methods: We used population-based data from the Health and Retirement Study (HRS) linked to Medicare claims data to identify older adults who participated in HRS cognitive assessments prior to undergoing CABG or PCI at the age of 65 or older and between the years 2000 and 2012. The “memory score” we modeled is a composite score generated from biennial HRS cognitive testing, which includes immediate and delayed word recall, serial-7 subtractions and other components of the Telephone Interview for Cognitive Status, and a proxy assessment for respondents too impaired to perform cognitive testing. An unstructured model with nonparametric locally weighted scatterplot smoothing (Loess) curves was fit to the unadjusted data cloud of memory scores for all eligible participants, normalized such that “time 0” is the calendar time of the claim in which coronary revascularization was performed. Further modeling included heart-healthy and heart disease comparison groups, using linear mixed effects models with restricted cubic splines (discontinuity at 0y, nodes at 0.5 and 5y). We modeled up to 5 years of cognitive change prior to, and 10 years following, the revascularization procedure.

Results: Preliminary unstructured models indicate that cognitive change accelerates within the 2-4 years prior to coronary revascularization, with a decreased slope of decline (i.e., improvement compared with pre-procedure trajectory) in the 2-4 years following revascularization. After roughly 4 years post-revascularization, the slope of cognitive change returns to its pre-procedure (i.e., slightly accelerated compared with immediate post-procedure) rate. Mixed effects models do not fully recapitulate these features, but unadjusted analysis suggests an accelerated rate of decline in heart disease controls compared with other groups, and a qualitatively greater acute decline in cognition after CABG than after PCI.

Conclusions: In these highly preliminary descriptive findings, coronary revascularization is associated with qualitative changes in population-level cognitive trajectory, which include pre-procedure acceleration of cognitive decline and a post-procedure period of slowed cognitive decline. If further analysis confirms this initial impression, this will be the first population-level description of long-term cognitive change surrounding coronary revascularization, and will offer a new perspective on the phenomenon of postoperative cognitive decline.
Mixed methods comparison of functional decline during chemotherapy, immunotherapy, and/or targeted therapy in older adults with non-small cell lung cancer (NSCLC)

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Background: Functional decline during NSCLC treatment is critically important to older adults. Yet, data on functional decline—particularly during chemoimmunotherapy, immunotherapy, and targeted therapy—remain limited. Additionally, the best measures to capture functional decline from the patient’s perspective remain unknown.

Methods: We conducted a multisite, mixed methods prospective cohort study to characterize function during systemic NSCLC treatment and compare quantitative measures with gold standard qualitative descriptions of patients’ lived experience. Prior to and at 2 months after treatment initiation, 72 adults age ≥65 with advanced NSCLC starting chemo, immunotherapy, and/or targeted therapy underwent geriatric assessments including instrumental activities of daily living (IADL), European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C30 Physical Functioning (PF), and Life-Space Assessment (LSA). LSA measures where a person goes in their environment, how frequently, and how independently. Pretreatment functional impairment and decline at 2 months were assessed. In a qualitative substudy, 19 purposively sampled patients with diverse pretreatment function completed two semi-structured interviews (pretreatment, 2 months) to explore treatment effects on daily functioning. Thematic analysis was used to code for functional decline. Using the qualitative patient experience as the gold standard, sensitivity and specificity were calculated for each functional measure.

Results: Median age was 74 (range 65-94). NSCLC treatment included immunotherapy (39%), targeted therapy (28%), chemoimmunotherapy (22%), and chemo (11%). Pretreatment functional impairment was common and 27-40% of patients experienced functional decline on quantitative measures at 2 months (Table). Qualitatively, 58% described functional decline at 2 months. LSA had the highest sensitivity (73%) while IADL had the highest specificity (88%).

<table>
<thead>
<tr>
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<th>Pretreatment Impairment (%)</th>
<th>Functional Decline at 2 Months (%)</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
</tr>
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<tbody>
<tr>
<td>IADL</td>
<td>68</td>
<td>27</td>
<td>60</td>
<td>88</td>
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<tr>
<td>PF</td>
<td>67</td>
<td>30</td>
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<tr>
<td>LSA</td>
<td>39</td>
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<td>73</td>
<td>63</td>
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Conclusions: Functional decline during NSCLC treatment is common. LSA provides a sensitive patient-centered measure of function.

Keywords: geriatric oncology, lung cancer, functional decline, mixed methods
NLRP3 Inflammasome Activation and Mitochondrial Function in the Setting of Aging and HIV Infection

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Both the aging and the aging HIV-infected population are characterized by increased rates of metabolic syndrome (defined by abdominal obesity, dyslipidemia, insulin resistance and hypertension). Notably, metabolic syndrome is associated with the dysregulated, age-associated pro-inflammatory environment—termed “Inflamm-aging”—characterized by elevated levels of cytokines, acute phase reactants, and clotting factors. Chronic stimulation of innate immune receptors by both pathogen-associated molecular patterns (PAMPs) and damage associated molecular patterns (DAMPs) is thought to contribute to age-associated chronic inflammation, but the mechanisms underlying the pathogenesis of metabolic syndrome in the context of aging and HIV disease remain an incompletely understood knowledge gap in the field. The NLRP3 (NOD-like receptor pyrin domain-containing 3) inflammasome is an intracellular protein complex, that is part of the innate immune response and mediates the caspase-1-dependent cleavage of pro-IL-1β and pro-IL-18 to their activated forms. While the NLRP3 inflammasome is activated by PAMPs, there is increasing evidence for a role of NLRP3 as a sensor of host metabolism via DAMPs, as shown by NLRP3 activation by a wide range of metabolites. Moreover, NLRP3 inflammasome activation is dependent on mitochondrial function. The NLRP3 inflammasome has been linked to the development of insulin resistance and other metabolic syndromes in mouse models, and has been minimally explored in both older adults and HIV-infected adults. The purpose of this proposal is to determine the effects of age and HIV infection on the NLRP3 inflammasome, and its relationship with mitochondrial function by comparing the following groups of subjects, young adults (21-35), and older adults (≥ 60 yrs) with and without HIV-infection. Aim 1 seeks to characterize the NLRP3 inflammasome and its relationship with mitochondrial function, in myeloid cells from peripheral blood and adipose tissue. Aim 2 seeks to characterize the metabolic pathways that are induced with activation of the NLRP3 inflammasome through RNA sequencing and CyTOF in myeloid cells from peripheral blood and adipose tissue. Data from both aims will be collected in conjunction with clinical characteristics including the components of metabolic syndrome. Our hypothesis is that increased age and HIV infection will result in dysregulated NLRP3 inflammasome function at baseline and with activation that is linked to mitochondrial dysfunction—ultimately contributing to the development of metabolic syndrome in older and HIV-infected adults.
Physical Activity and Fatigue as Measures of Day-to-Day Resilience in Older Hemodialysis Patients

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Background: Hemodialysis (HD) is a physiological stressor requiring day-to-day resilience, or an innate ability to recover after a HD session. Our objective was to assess whether physical activity (PA) and self-reported fatigue are representative measures of day-to-day resilience.

Methods: We recruited ambulatory adults aged ≥55 years receiving HD who did not have advanced dementia, hospice care, or long-term care residence. Participants completed PA monitoring via wrist actigraphy for 14 days with concurrent fatigue assessment: “On a scale from 0-10, rate your fatigue, with 10 being fatigue as bad as you can imagine”. Fatigue was assessed within 4 hours after HD and in the morning and afternoon on non-HD days. Prior to a HD session, we assessed physical function via the short physical performance battery (SPPB) (range, 0-12) and grip strength. We measured correlation between PA (steps) and concurrent fatigue in 4-hour intervals. PA variability, a measure of PA change when not at HD, was calculated from the standard deviation of the difference (absolute value) in steps of each 4-hour interval. We measured correlation between PA variability and physical function.

Results: Among 29 participants, mean±SD age was 70.6±4.8 years, 55.2% (n=16) male, 72.4% (n=21) black race, and mean years of dialysis was 3.9±3.6. Mean SPPB, gait speed (from SPPB), and grip strength were 6.3±3.2 (<10 indicates functional impairment), 0.72±0.3 m/s, and 57.8±16.7 kg, respectively. Mean PA monitoring time was 12.9±5.7 days. Mean daily steps was lower on HD days than non-HD days (967.1±557.0 vs. 1158.6±816.4) (p=0.004). Mean fatigue scores on HD days and non-HD days were similar (4.1±2.7 vs. 3.5±2.5) (p=0.06). The correlation between 4-hour post-dialysis PA and fatigue was -0.19 (n=102, p=0.06). The correlation between PA and fatigue at all other 4-hour intervals was -0.17 (n=210, p=0.01). Mean PA variability was 140.0±67.3 steps and its correlation with SPPB, gait speed, and grip strength was 0.47 (n=28, p=0.01), 0.52 (n=27, p=0.01), and 0.71 (n=27, p<0.0001), respectively.

Conclusion: In this sample of older HD patients, higher PA and greater PA variability were associated with lower fatigue and better physical function, respectively. PA monitoring and interval fatigue may be useful measures for resilience.

Keywords: accelerometry; physical function; renal insufficiency
Multicomponent Intervention to Improve Delirium and Sleep-Wake Rhythms in Older ICU Patients

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Introduction: Older adults (≥65 years old) now comprise the majority of patients in intensive care units (ICUs). In the ICU setting, older patients frequently experience delirium and sleep-wake disruption, placing them at high risk of poor outcomes after ICU discharge. Despite rising interest in these common geriatric problems, few ICU delirium-sleep-wake interventions have been implemented. Use of rigorous quality improvement (QI) methods are necessary to initiate, evaluate and sustain such interventions.

Methods: Using an established “knowledge translation” QI model and an interdisciplinary team, we are halfway into a yearlong process of designing a 48-week multicomponent nighttime and daytime intervention for implementation in two ICUs at UC San Diego (UCSD) Health. Key outcomes in older ICU patients include delirium, as measured using the Confusion Assessment Method-ICU (CAM-ICU), and sleep-wake rhythms, as measured using wrist actigraphy. Prior to initiation, we are employing established QI methods to design the intervention, including identification of key implementation barriers.

Results: Planning a sustainable multicomponent, multi-ICU nighttime-daytime intervention is a multifaceted undertaking requiring systemwide buy-in, an interdisciplinary team, a detailed landscape analysis, effective staff education, a clinical data infrastructure, EHR integration and easy-to-collect outcome measures. As part of this planning, we are addressing a variety of key intervention areas, as follows:

1. Stakeholder buy-in: Support for this intervention has been garnered from key UCSD Health leadership, including the Chief Executive/Medical/Nursing (CEO/CMO/CNO) Officers, Respiratory Care, Therapy Services, Pharmacy, and ICU directors. Additionally, the PI (Kamdar) has established himself as a central member of the UCSD Delirium Collaborative, Critical Care Committee, and Restraint Committee.

2. Interdisciplinary team: In addition to stakeholders above, engaged champions and team members have been recruited to assist with intervention implementation, including ICU staff, educators and research personnel from various disciplines, including nursing, therapy (respiratory and PT/OT) and pharmacy.

3. Clinical analytics: In partnership with UCSD nursing and the CTRI, the PI is developing a “perceptions and practices” survey of ICU staff, along with a comprehensive EHR-based dataset aimed at identifying factors influencing delirium and sleep-wake rhythms (e.g., sedative medications, restraints).

4. Environmental analytics: We are using commercial meters to evaluate sound and light levels in various ICU rooms at various times of the day. This evaluation will help identify key environmental nighttime (i.e., sources of disruptive sounds and lights) and daytime (i.e., sources of bright light) components.

5. Webinars: Educating hundreds of ICU staff on an upcoming intervention is challenging. As a novel method to reach a wide audience, the PI is teaming with research assistants and nurse educators to produce webinars on various topics including delirium, sleep-wake disruption and intervention strategies.

6. EHR integration: An order set based on the Society of Critical Care Medicine 2013 PAD (Pain, Agitation, Delirium) guidelines is integrated into the UCSD EPIC EHR, but is underutilized and outdated. I am working with the UCSD Delirium Collaborative to update the order set to reflect the SCCM 2018 PADIS (PAD plus Immobility and Sleep) guidelines, with inclusion of evidence-based information for ordering providers.

7. Delirium outcome: As CAM-ICU completion and performance varies and older adults are vulnerable to CAM-ICU non-completion, the PI is leveraging his prior EHR-based analysis (developed at UCLA) to develop a comprehensive UCSD Delirium & CAM-ICU dataset (>300 variables). Such data will help highlight factors influencing CAM-ICU non-completion, errors and opportunities for improvement.

8. Sleep-wake outcome: The PI has developed expertise in actigraphy (wristwatch-like accelerometer) in the ICU, and is working with UCSD statisticians to develop ICU-specific algorithms that will merge multiple actigraphy files and enable automated activity and circadian analyses of the rest-activity rhythms.

Conclusion: Delirium and sleep-wake disruption commonly affect older ICU patients. Despite rising awareness of these problems, intervention implementation is challenging, and requires employment of established QI methods to ensure successful intervention initiation, evaluation and sustainability. Importantly, an interdisciplinary team has been assembled and is employing established QI methods to engage in intervention planning, including a comprehensive assessment of barriers to implementation.
mHealth in Palliative and End of Life Care: Innovative Interventions for Older Adults with Serious Illness and their Caregivers and Family

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Introduction: Mobile health (mHealth) can increase access to and awareness of palliative and end of life (PCEOL) care among older patients, families, and caregivers from diverse backgrounds. However, the design and development of mHealth typically cater to younger, affluent, and healthier populations. Many emerging mHealth technologies exist for older adults, however, the needs of older palliative care patients are often not considered.

Objective: To present results from two mHealth studies: (1) a scoping review describing PCEOL-specific mobile applications (apps) currently available for older adults with serious illness and their caregivers and family; and (2) a qualitative exploration of provider perspectives regarding the utility of mHealth in PCEOL. Findings from these studies will inform future mHealth design for older adults with serious illness and their family caregivers.

Methods: We first conducted a systematic search of PCEOL mHealth that included: 1) research-based mobile applications (apps) from PubMed, PsycINFO, and Web of Science published between 1/1/10-3/31/19, and 2) commercially available apps for iPhone, Google Play, and Amazon Appstore in April 2019. Apps were included if they focused on at least one element of PCEOL and targeted adults with serious life-limiting illness and/or their family and caregivers. Two reviewers independently assessed abstracts, app titles, and descriptions against the inclusion and exclusion criteria. Informed by the scoping review results, we conducted a qualitative phenomenological study exploring provider perspectives regarding the utility of mHealth in PCEOL. The research team conducted 20 semi-structured interviews with providers from multiple disciplines (i.e., physicians, nurses, spiritual providers, social workers). Interviews were transcribed verbatim and thematically analyzed using an iterative, team-based approach.

Results: The review resulted in 10 articles describing 9 individual research-based apps and 22 commercially-available apps were identified (N=32). Apps targeted symptom management (74.2%) followed by decision support (19.4%) and bereavement or grief (16.1%). Commercially available apps were designed for both patients and family caregivers (n=9/22, 40.9%), while research apps were designed for patient use (n=8/9, 88.9%). Only 2/32 (6.3%) of apps considered contextual factors such as marriage, social isolation, or socioeconomic status of the patient or family caregivers. Interviews with providers resulted in five recommendations for mHealth design, including: 1) thoughtfulness to language, context, and delivery when assessing palliative care needs; 2) include tools for prognosis and advance care planning; 3) tailor health and quality of life goals; 4) emphasize supports for family and caregivers; 5) consider technology abilities of older adults.

Discussion: Results suggest there is an emerging presence of apps for older patients and caregivers dealing with serious illness. mHealth enthuses geriatric PCEOL providers specifically for improving care coordination, facilitating communication, enhancing symptom monitoring, and bolstering patient-family support. However, there are many needs for developers and researchers to address. Additional research is needed for apps that embrace a team approach to information sharing, target family and caregiver specific issues, promote access to palliative care, and comprehensively address palliative needs. Such findings provide promise in ensuring palliative care mHealth tools remain relevant and meaningful to providers, older patients, and families, thus advancing geriatric PCEOL practice.
Clinician perspectives on over-screening for cancer in older adults with limited life expectancy
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KEY WORDS: geriatrics, cancer screening, life expectancy, qualitative research

Background: Guidelines recommend against routine screening for breast, colorectal, and prostate cancers in older adults with <10 year life expectancy. However, clinician often continue to recommend cancer screening in older adults with limited life expectancy. We aimed to examine primary care clinicians’ perspectives regarding over-screening as defined by limited life expectancy.

Methods: We conducted semi-structured, in-depth individual interviews with 30 primary care clinicians from 21 academic and non-academic clinics in Maryland in 2018. We explored whether the clinicians believed that there is over-screening for breast, colorectal, or prostate cancers as defined by limited life expectancy and reasons for their beliefs. Audio-recordings of the interviews were transcribed verbatim. Two investigators independently coded all transcripts using qualitative content analysis with differences reconciled by consensus.

Results: The 30 participants’ mean age was 48.2 years; specialties included 17 internal medicine, 6 family medicine, 2 medicine/pediatrics, and 5 geriatric medicine. Only 17 participants perceived that there was a problem with over-screening. Perceived drivers of over-screening included clinician factors such as fear of missing cancer, patient factors such as patients over-estimating the benefit of screening, and system factors such as mis-aligned quality metrics. Other participants either did not believe there was over-screening or disagreed with defining over-screening by limited life expectancy. Their reasons included: a) perception that the benefits of screening outweigh harms even in patients with <10 year life expectancy; b) distrust of the recent guideline changes about screening cessation; c) distrust of life expectancy predictions; d) belief that the guidelines did not capture important non-mortality related benefits of screening, such as less invasive treatment for cancers diagnosed at early-stage; e) belief that it was not feasible to apply population-based evidence to individual patients; f) belief that this approach failed to account for patient choice. Further, some clinicians believed there is actually under-screening and expressed concern for unintended harms from using life expectancy to define over-screening.

Conclusions: Many clinicians disagree with guideline frameworks of using limited life expectancy to guide cancer screening cessation. Some disagreement stems from contradictory beliefs about the benefits and harms of cancer screening, and may indicate a need for better dissemination of the guidelines to clinicians. Other reasons for disagreement raise valid concerns that highlight the need to refine the current cancer screening guidelines and identify strategies to avoid unintended consequences.
Aging-associated loss of ARNT limits skeletal muscle regeneration

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The ability for skeletal muscle to regenerate decreases significantly with aging. Hypoxia signaling, which is required for robust muscle regeneration, similarly declines with aging. Using a focused PCR array, we discovered the majority of hypoxia response genes were downregulated 3-fold or more in skeletal muscle from old (24 months old) versus young (3 months old) mice. We further observed that protein levels of aryl hydrocarbon receptor translocator (ARNT), a critical component of the hypoxia signaling pathway, is 5-fold lower in old versus young skeletal muscle. Notch1 and Notch1 Intracellular Domain (N1ICD), which is enhanced by hypoxia signaling and critical for muscle regeneration, also decreases with aging. Following cryoinjury (to induce regeneration), cross-sectional area (CSA) of regenerating fibers was 40% lower in old mice versus young. Of note, old mice exhibit similar capillary density in comparison to young mice, but exhibited a 30% decrease in femoral blood flow by doppler ultrasound. To test whether there are direct effects of hypoxia signaling on muscle regeneration, we next examined siRNA knockdown of ARNT in a primary muscle cell line. A 50% knockdown of ARNT resulted in impaired differentiation in C2C12 cells in vitro, as evidenced by a 40% decrease in fiber diameter. Next, using a genetically modified mouse model with an inducible, skeletal muscle specific ARNT deletion (mKO ARNT), we further observed a 30% decrease in regenerating fiber CSA of mKO ARNT mice versus littermate controls following cryoinjury, along with a 2-fold reduction in skeletal muscle Notch1 levels. In mKO ARNT mice, ARNT expression in skeletal muscle was decreased by 80%. These mice exhibit no differences in capillary density or blood flow in comparison to littermate controls. Administration of a systemic hypoxia pathway activator (ML228) rescued skeletal muscle regeneration and Notch1 and N1ICD levels in both old and mKO ARNT mice by increasing ARNT signaling in comparison to young mice and littermate controls, respectively. ML228 also did not affect capillary density or femoral blood flow. Therefore, restoration of hypoxia signaling may directly restore myogenic potential in aging, mediated by an increase in skeletal muscle Notch signaling.
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Paul B. Beeson
Emerging Leaders
Career Development
Awards in Aging

2019 Report featuring
the 2017 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 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, 249 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.

About Paul B. Beeson, MD (1908-2006)

Arti Hurria, MD, a leader in geriatric cancer care and a former Beeson scholar, died from injuries sustained in a traffic accident on November 7, 2018. She was Director of the Center for Cancer and Aging at City of Hope in Duarte, California, where she served in many additional roles as well.

Dr. Hurria earned her MD at Northwestern University, and was inspired by her mother, a radiation oncologist, to pursue a career in oncology. It was during her internship at Beth Israel Medical Center in 1995 when she became interested in the needs of older adults undergoing chemotherapy. She completed a geriatrics fellowship at Harvard and an oncology fellowship at Memorial Sloan Kettering Cancer Center, and was a pioneer in integrating geriatric medicine and cancer care.

Among numerous awards and honors, Dr. Hurria received a Paul B. Beeson Emerging Leaders Career Development Award in Aging in 2005. She was well-regarded for her collaborative and innovative research in geriatric oncology, including recently published work on functional decline in older, female chemotherapy patients. She was passionate about performing high quality patient-oriented research in geriatric oncology to improve the care of older adults with cancer, and training the next generation of geriatric oncology researchers. She also was one of the founding members of the Cancer and Aging Research Group. In Dr. Hurria’s honor, the American Geriatrics Society Health in Aging Foundation has established the Arti Hurria Memorial Award for Emerging Investigators in Internal Medicine. And Conquer Cancer, the ASCO Foundation, has established a Young Investigator Award (YIA) in Geriatric Oncology in honor of Dr. Arti Hurria.

AFAR was proud to call Dr. Hurria one of its own. Dr. Hurria’s early achievements were noted in the AFAR 2010 Annual Report highlighting women in science. Here, Dr. Hurria noted: “My mother, a physician, paved a path for me, my mentors taught me the skills, and my patients inspire my passion for research.”

“Arti exemplified the spirit of giving back and paying forward,” says Stephanie Lederman, AFAR Executive Director. “The collaboration and comradery she brought to the field were extraordinary and will continue to inspire AFAR’s commitment to supporting young researchers.”
Creating a cadre of clinician-scientists to take leadership roles in aging research has been the aim of the Beeson Program for more than 20 years. With the 2017 class of Beeson Scholars, we can see how our field has grown. Unlike most years, there are no geriatricians in this class, and remarkably there are two geriatric anesthesiologists, as well as a critical care physician, a neurologist, and a geropsychiatric nurse. The interest of these subspecialists in aging research reflects maturation of our field.

The 2017 Scholars also represent diverse types of research, including translational, epidemiologic, palliative care, and clinical trials. Yet there is a theme across their research programs: cognition is prominent focus. This aligns nicely with the heavy investment of the National Institute on Aging (NIA) in Alzheimer’s disease and related dementias. These Beeson Scholars will be well positioned to take advantage of the extra resources to support their research going forward as it relates to the aging brain.

Another notable feature of this small, but select, class is that three out of five received NIA GEMSSTAR awards prior to their Beeson awards. The connection between the GEMSSTAR and Beeson awards has been strengthened over the years, and it has become an outstanding pipeline for Beeson Scholar candidates. Another path for new applicants has been opened by a recent initiative—travel awards that allow non-Beeson early stage investigators to learn more about the field of aging by attending the Beeson Annual Meeting.

Leadership potential is a criterion of the Beeson Award, and the 2017 Scholars already are having an impact through a variety of leadership roles at the national level. For fields that are not heavily populated yet with investigators focused on aging, there are perhaps even more opportunities for leadership than in more mature fields.

We are delighted to introduce here the 2017 Beeson Scholars. With their stellar accomplishments they are leading the way in bringing an aging focus to a range of medical fields.

Before closing, we would like to take this opportunity to express our sincere gratitude to Dr. Robin Barr, who will be retiring in early 2020 after 32 years at the National Institute on Aging. As highlighted elsewhere in this report, Dr. Barr was instrumental in transitioning the Beeson Program from private sponsorship to its unique public-private partnership. With each new class of Beeson Scholars, his legacy will grow over time.
Alcohol consumption accounts for a growing burden of death and disability in Ireland. But the impact of alcohol on brain health is poorly understood. The amount of alcohol consumed, from abstinence to heavy use, plays a role as do factors such as loneliness, socioeconomic status, and emotional stress.

For this study, the researchers are harnessing data from two long-term studies, The Irish Longitudinal Study on Ageing (TILDA) and the Northern Ireland Cohort for the Longitudinal Study of Ageing (NICO-LA). Using these data they will characterize and compare alcohol consumption patterns in older adults in Ireland; determine associations between alcohol patterns and cognitive function; and identify psychosocial mechanisms underpinning relations between alcohol and cognitive function.

Ultimately, a better understanding of the role of alcohol in cognitive health can inform policy about alcohol recommendations for older adults. The results of this project also could lead to a wider program of research on the health impact of alcohol during aging, and provide a basis for interventions aimed at reducing alcohol-related harm.

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Winning teams were chosen based on persuasiveness, innovation, scientific merit, and feasibility.

Team: Claire McEvoy, PhD, MPhil, RD (Beeson 2015); Joanne Feeney, PhD, and Joanna McHugh Power, PhD, CARDI Fellows

Alcohol Consumption and Brain Health in Older Adults Across the Island of Ireland

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For this study, the researchers are harnessing data from two long-term studies, The Irish Longitudinal Study on Ageing (TILDA) and the Northern Ireland Cohort for the Longitudinal Study of Ageing (NICO-LA). Using these data they will characterize and compare alcohol consumption patterns in older adults in Ireland; determine associations between alcohol patterns and cognitive function; and identify psychosocial mechanisms underpinning relations between alcohol and cognitive function.

Ultimately, a better understanding of the role of alcohol in cognitive health can inform policy about alcohol recommendations for older adults. The results of this project also could lead to a wider program of research on the health impact of alcohol during aging, and provide a basis for interventions aimed at reducing alcohol-related harm.

Winning teams were chosen based on persuasiveness, innovation, scientific merit, and feasibility.

Team: Charlotte Neville, PhD, CARDI Fellow, and Claire McEvoy, PhD, MPhil, RD (Beeson 2015)

Food Biomarkers in Older Adults: A Metabolomics Study

Adherence to a Mediterranean diet, rich in fruits, vegetables, whole grains, nuts, olive oil, and fish, has been shown to reduce mortality and the occurrence of major chronic diseases of aging. However, understanding how diet impacts healthy aging is hampered by imprecise, self-reported measures of diet. The novel technology of metabolomics is emerging as a less biased tool than self-report for measuring diet. It provides a chemical ‘fingerprint’ of food intake and specific dietary profiles that can then be studied in relation to disease risk.

For this study, metabolomics are used to analyze existing blood, saliva, and urine samples from older Northern Irish adults to identify patterns associated with a Mediterranean style diet. This work addresses the challenge of measuring diet in an aging population. It will improve how we characterize individual nutritional status, and more accurately quantify exposure to specific dietary metabolites. Ultimately, identifying biomarker patterns for diets associated with healthy aging may pave the way for greater adoption of ‘omics’ technology in dietary intervention studies and for determining relationships between diet and health outcomes in longitudinal cohorts.
“My interest in geriatrics got piqued when I was an anesthesiology resident,” says Miles Berger, MD, PhD. “I realized that we were taking care of more and more older patients, and many of them weren’t back to their cognitive baseline within hours or days after surgery. Nobody really had a great answer for why.”

In fact, of the 16 million older Americans who undergo anesthesia and surgery each year, up to 40 percent develop delirium or postoperative cognitive dysfunction that does not resolve within a year. These changes in cognition include problems with memory, attention, and executive function.

“Cognitive problems can sometimes limit their ability to reap the benefits of the surgery,” says Dr. Berger, who is a geriatric neuro-anesthesiologist. “Somebody may get a hip repair or a hip replacement, so they can walk better. But they don’t necessarily anticipate that they’re going to have fuzzy thinking afterward.”

Dr. Berger’s research leading up to his Beeson award, as well as other studies, has shown that inflammation in the brain is common after surgery. “What’s really unknown is whether those two things are related,” he says. “Does the inflammatory response in the brain or in the central nervous system drive cognitive or memory deficits in our patients? That’s the question we’re trying to answer in the Beeson work.”

Evidence for this connection is mounting. Research in animal models supports the theory that brain inflammation after surgery causes memory problems. In a preliminary study in patients, Dr. Berger and colleagues found an increase in white blood cells in the spinal fluid after surgery, consistent with a neuroinflammatory process. The spinal fluid bathes the brain, and is simple to collect with a lumbar puncture. Testing it can help diagnose brain disorders.

For his Beeson research, Dr. Berger is leading the Investigating Neuroinflammation Underlying Postoperative Cognitive Dysfunction (INTUIT) study, which measures markers of inflammation in the cerebrospinal fluid of 200 surgical patients over age 65. He and colleagues will determine whether these markers are associated with postoperative cognitive function and/or with delirium, an acute fluctuating disturbance in attention and the level of consciousness that typically occurs within days after surgery.

Participants undergo cognitive testing before, six months after, and one year after surgery. Half the patients also undergo pre- and postoperative functional magnetic resonance imaging (fMRI) scans. The scans assess changes in brain connectivity that may be associated with inflammation.

Neuroinflammation is thought to play a role in Alzheimer’s, and the study may also shed light on this disease. Dr. Berger and colleagues have shown that there are changes in brain connectivity before and after surgery that correlate with cognitive changes, similar to brain connectivity changes seen in Alzheimer’s patients. It is also known that the brain changes underlying Alzheimer’s begin to develop years before any symptoms. It could be that people who have these early changes are at increased risk of cognitive dysfunction after surgery, and/or that delirium or other cognitive dysfunction after surgery themselves portend an increased long-term risk for developing dementia.

“Ultimately, we need strategies to prevent post-operative delirium and cognitive dysfunction, but first we need to understand what causes them,” says Dr. Berger.

Beyond supporting his research, Dr. Berger notes the value of the leadership component of the Beeson award. “There’s an increasing awareness that leadership and management skills are really key for leading a research team, yet they’re often not taught in medical school or graduate school,” he says.

The annual meeting is “one of the great things about the Beeson program,” he adds. “It brings together clinical researchers, basic scientists, and even translational researchers like me, to share their perspectives on how to take better care of older patients, age-related disease processes, and so on, all the way from the molecular level up to the social and behavioral level. And that’s a special thing about the Beeson meeting, to hear about people working at all those different levels.”
Delirium is a common complication of surgery for older adults, in particular after heart surgery and surgery for hip fracture. This short-term episode of extreme confusion is associated with later difficulties as well, including an increased risk of cognitive and functional decline.

“During my cardiac anesthesia training, both in residency and fellowship, I saw a lot of older adults undergoing surgery, and the unique needs that were part of that,” says Charles H. Brown, IV, MD, MHS. “I had some patients with delirium afterwards, and got interested in why it was happening and what we were doing about it.” His Beeson project is examining how swings in blood pressure during hip fracture surgery may contribute to delirium, and how maintaining a targeted blood pressure may prevent it.

The brain needs a constant supply of oxygenated blood. In a process called autoregulation, a constant flow of blood to the brain is maintained over a wide range of blood pressure in the body. Without autoregulation, blood flow would go down or up along with changes in blood pressure. If blood flow, and oxygen levels, dropped regularly, brain injury could occur.

But during surgery, not only does blood pressure vary widely, it also can dip below, or rise above, the range that the brain can correct to “just right.” That puts older adults at risk of delirium.

“It turns out we don’t really have a gold standard for defining adequate blood pressure during surgery,” says Dr. Brown, who is a geriatric anesthesiologist. In research leading up to his Beeson award, he and colleagues developed methods to define optimal blood pressure during heart surgery. In one study they investigated the lower limit of autoregulation—the lowest blood pressure allowing adequate blood flow to the brain.

They found that this lower limit varies considerably from person to person. Also, the farther and longer blood pressure fell below it, the more likely patients were to have kidney injury, delirium, and other complications. The next step was a randomized clinical trial in which, for some heart surgery patients, the lower limit of cerebral autoregulation was identified during surgery before they were put on the heart-lung machine. While these patients were on cardiopulmonary bypass, their mean arterial pressure was targeted to be greater than their individual lower limit of autoregulation.

The results of the study, published this year in JAMA Surgery suggested that optimizing mean arterial pressure to be greater than the individual patient’s lower limit of cerebral autoregulation during bypass may reduce the incidence of delirium after cardiac surgery.

With his Beeson award, Dr. Brown is extending this work to patients undergoing surgery for hip fracture. Whereas heart surgery patients tend to have hypertension, stroke, and diabetes, those having surgery for hip fracture “are often older, have a high prevalence of dementia, and are frail. It’s a very distinct population,” he says.

“We’re asking similar questions as for the heart patients. How much does the lower limit vary in a population? And how is the amount of blood pressure below that limit associated with delirium?” A pilot study will test whether setting a blood pressure target during hip fracture surgery results in less delirium and other complications.

As a Beeson scholar Dr. Brown has taken on new leadership roles, as president-elect of the Society for the Advancement of Geriatric Anesthesia, and as deputy vice-chair of research in his department. Beyond research support, Dr. Brown says that “the mentors and meetings that go along with the Beeson award are critical for developing that larger national and international community. I have a great team of mentors. And the annual meetings have been a good time to get a different set of eyes on both research problems and career decisions.”
As a pulmonary and critical care physician, Lauren Ferrante, MD, MHS, is working to incorporate geriatric medicine into the hospital intensive care unit (ICU). “I was drawn to this area after caring for critically ill older adults in the ICU, and recognizing that functional recovery after discharge would be an uphill battle,” she says.

Adults over 65 account for one in four ICU admissions in the United States. They bring with them complex health histories which are very different from younger patients. Beyond their critical illness, risk factors like frailty and chronic diseases affect their ability to recover. Each year 1.4 million of them survive the ICU experience—but at a price. Most leave the hospital with new or worsened disabilities.

What separates those who recover fully from those who do not regain their previous independence? For her Beeson research, Dr. Ferrante is developing a tool to identify people at risk of persistent functional decline after the ICU. Knowing which patients are at risk, physicians can then provide interventions and support in the months after the ICU period, with the goal of preventing long-term disability.

To do so, Dr. Ferrante’s research takes advantage of data collected through Yale’s Precipitating Events Project (PEP), a large cohort of older adults living in the New Haven, Connecticut area whose health has been monitored regularly since 1998. Previous studies of disability after ICU admission have enrolled patients when they arrived at the hospital. Looking at data from participants in the Yale cohort who have been admitted to the ICU allows her to get both a “before” and an “after” picture of their health.

“The longitudinal follow-up in PEP has given us a lot of insight into what preexisting risk factors will impact the post-ICU functional outcomes of older adults,” says Dr. Ferrante. Such risk factors include frailty, cognitive impairment, and hearing and vision impairment. “We have also learned from our work that the pre-ICU functional trajectory is extremely important.”

“For the Beeson award, we wanted to bring all of this together and develop a prediction tool that would identify older patients at greatest risk of persistent disability after a critical illness,” says Dr. Ferrante. “We evaluated more than 20 factors when developing the risk prediction model.”

Dr. Ferrante and colleagues externally validated the risk prediction model in a cohort of ICU survivors from the National Health and Aging Trends Study, a nationally representative sample of Medicare beneficiaries ages 65 and older. This winter, Dr. Ferrante will pilot test the risk-prediction tool in the ICU to find out how feasible it is to administer it to patients before hospital discharge and how acceptable patients find it. The pilot testing will inform Dr. Ferrante’s application for a research grant to evaluate and refine the tool with a much larger cohort.

Dr. Ferrante says the support of the Beeson award has given her protected time to focus on research. Being a Beeson scholar also has supported her success in leading and developing a new field of geriatric critical care medicine. With another Beeson Scholar, Nathan Brummel (2016), she is co-chair of the American Thoracic Society’s Aging in Critical Care Interest Group, as well as a new aging-focused group in the Society of Critical Care Medicine that is being launched this year. Dr. Ferrante also co-chairs the American Geriatrics Society’s Medical Subspecialties Section.

“I am a strong advocate of integrating geriatrics principles into the subspecialties and increasing collaboration between the subspecialties and geriatrics. The Beeson program, GEMSSTAR program, and aging-focused subspecialty groups unite those of us who share a vision,” says Dr. Ferrante, “and the success of these programs helps inspire other people to pursue this path.”
Bleeding in the brain becomes more common with aging. In fact, about 20 percent of people over age 60, with normal cognition, have at least one of the small hemorrhages known as cerebral microbleeds. This frequency rises to 40 percent at age 80. “Cerebral microbleeds are asymptomatic. But they’re important to assess, because they are an established risk factor for a future symptomatic bleed in the brain—a hemorrhagic stroke—later in life,” says Jonathan Graff-Radford, MD.

Yet doctors currently cannot predict whether a patient with microbleeds will go on to have a hemorrhagic stroke. And at the same time, older adults often have conditions like atrial fibrillation or heart disease that are typically treated with medications that reduce blood clotting, and thereby promote bleeding.

“What do you do for patients who have these competing risks?” asks Dr. Graff-Radford. As a neurologist with subspecialties in behavioral neurology and stroke, he routinely sees such patients, and “right now there’s not enough evidence to guide clinicians,” he says.

Dr. Graff-Radford’s Beeson research aims to help resolve this clinical dilemma, provide guidance on treating cerebral microbleeds and assessing stroke risk, and better understand the underlying mechanisms that lead to these bleeds. His project harnesses data gathered through the Mayo Clinic Study of Aging, which launched in 2004. In this population-based study, thousands of individuals over the age of 50 come in for routine cognitive testing and neurologic examinations. They also undergo MRI and PET scans of the brain, which can identify microbleeds and also provide insight into their cause.

Most earlier studies followed patients who already had stroke or dementia. The long-term population data is helping Dr. Graff-Radford lay the foundation for understanding how common microbleeds are in people who have no symptoms, what factors predict developing a cerebral microbleed, and how many of these people go on to develop a more serious hemorrhage.

One factor known to cause microbleeds is deposition of amyloid protein in the brain’s blood vessels, a condition called cerebral amyloid angiopathy. Such microbleeds are more common in people who have Alzheimer’s disease, and in those patients, are associated with a worse prognosis. In the Mayo Clinic study, participants’ PET scans measure amyloid in the brain. “We can see how many of these people with microbleeds likely have significant amyloid in their brain, and what happens to them,” says Dr. Graff-Radford.

Finally, some study participants have agreed to donate their brains after death, and Dr. Graff-Radford is examining this tissue to better understand the mechanisms that cause cerebral microbleeds.

Ultimately the results will help clinicians assess a patient’s risk of a bleed, and guide therapy. “Who is it with atrial fibrillation who’s going to have a large bleed? If you have one microbleed, does that have clinical significance? People who have microbleeds but also have amyloid in the brain — are those the ones that have particularly high risk? We hope the population-based study can answer some of those questions,” says Dr. Graff-Radford.

The Beeson award also has given Dr. Graff-Radford time to develop as a researcher, for example by working in the neuroimaging laboratory of his mentors. “They’ve trained me how to do quantification of these imaging variables, and then how to be able to analyze them for my project,” he says. He has also worked with neuropathologists to learn how to grade vascular changes in the brain. And courses in epidemiology and statistical analysis have helped him complete more complex parts of the project.

“Going to the annual meeting has been a great chance to network with other Beeson awardees, but also I’ve had really good input into my career trajectory and tips on future grant writing,” he says. “I can’t speak highly enough about those meetings.”
People with serious illness who live in nursing homes often make repeated trips to the hospital. Having been a young caregiver to both her parents, and as a geropsychiatric consultant in more than 100 nursing homes in three states, Caroline Stephens, PhD, RN, GNP, FAAN has witnessed first-hand the stress and increased disability that result from this cycle of hospital visits. That’s what drives her to work for improved access to palliative care in nursing homes.

In a study aimed at finding ways to reduce hospital readmissions, Dr. Stephens found that in three northern California nursing homes, 70 percent of residents were eligible for palliative care—and none were receiving it. “The underlying theme of all of the people who were stuck in the revolving door of the emergency room of the hospital was that they had unmet palliative care needs,” she says. “Ultimately what we do in the nursing home is really focused on managing symptoms and improving function and quality of life, which are the core tenets of palliative care.” So why weren’t these needs being met?

Further research revealed the complexity of the issue. Dr. Stephens found that nursing home staff tended to equate palliative care with hospice, thinking it was only meant for people who were dying. When questions about care arose, far-away family members chose to send their loved ones to the hospital, and tended to not trust the assessments by nursing home staff. And even though nearly 100 percent of nursing home residents had completed physician’s orders for life-sustaining treatment, very few remembered doing so. The conversations about goals and values for end-of-life care had been lost.

“So I started to think about how we can bring the appropriate palliative care expertise to the nursing home setting when we don’t have sufficient work force to meet that need,” says Dr. Stephens.

With her Beeson award, she is pilot testing tele-health for palliative care consultations. The technology includes a secure platform that can bring together the nursing home resident and palliative care specialist, and also tie in family members, nursing home staff, and others for video, audio, and text meetings to coordinate care, manage symptoms, facilitate goals-of-care discussions, and educate staff.

Dr. Stephens relates a striking success story from her pilot study. After much effort to schedule a video visit that included a nursing home resident, family that was off-site, and the palliative care provider, “we got to the facility and the resident had been taken to dialysis early,” she says. Usually an in-person visit would have been canceled or simply conducted without the family. “But the technology can follow the person,” says Dr. Stephens. “We went to dialysis, with his permission, and the family’s permission, and we did the video visit there. It was so powerful for the family to actually see their loved one go through dialysis, because they never knew what that was like. They also saw the toll that it took. It was a powerful opportunity for the palliative care provider to have a conversation with both the family and the resident, clarifying the symptoms and the goals.”

When the pilot study concludes this year, the research will provide proof of concept data necessary for funding a larger trial. Already, she and colleagues have secured a grant to expand the project to assess the palliative care needs of residents in assisted living facilities.

“Being a part of the Beeson community has been a phenomenal opportunity,” says Dr. Stephens, who was inducted as a fellow in the American Academy of Nursing in 2018 and recently accepted a faculty position at the University of Utah College of Nursing as the Helen Lowe Bamberger Colby Presidential Endowed Chair in Gerontological Nursing. “I have been able to have a much greater impact earlier in my career than I would have had otherwise. The Beeson award has played a big role in that.”
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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](http://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 $181 million to the field of aging research, supporting close to 4,200 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](http://www.afar.org).
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