

A Transdisciplinary Approach to Engage Specialty Investigators in Aging Research:

Using Functional Assessment to Define Therapeutic Goals and Treatment

Co-funded by grants from The John A Hartford Foundation
and The National Institute on Aging (7U13AG040938)

Co-Principal Investigators

Kevin High

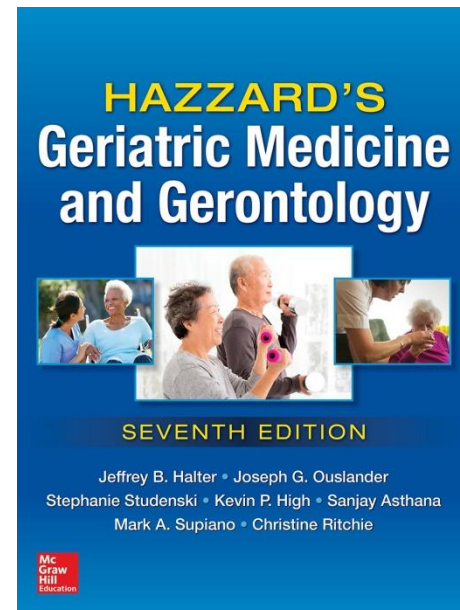
Stephen Kritchevsky

Ken Schmader

Sue Zieman

Integrating Geriatrics Project Background

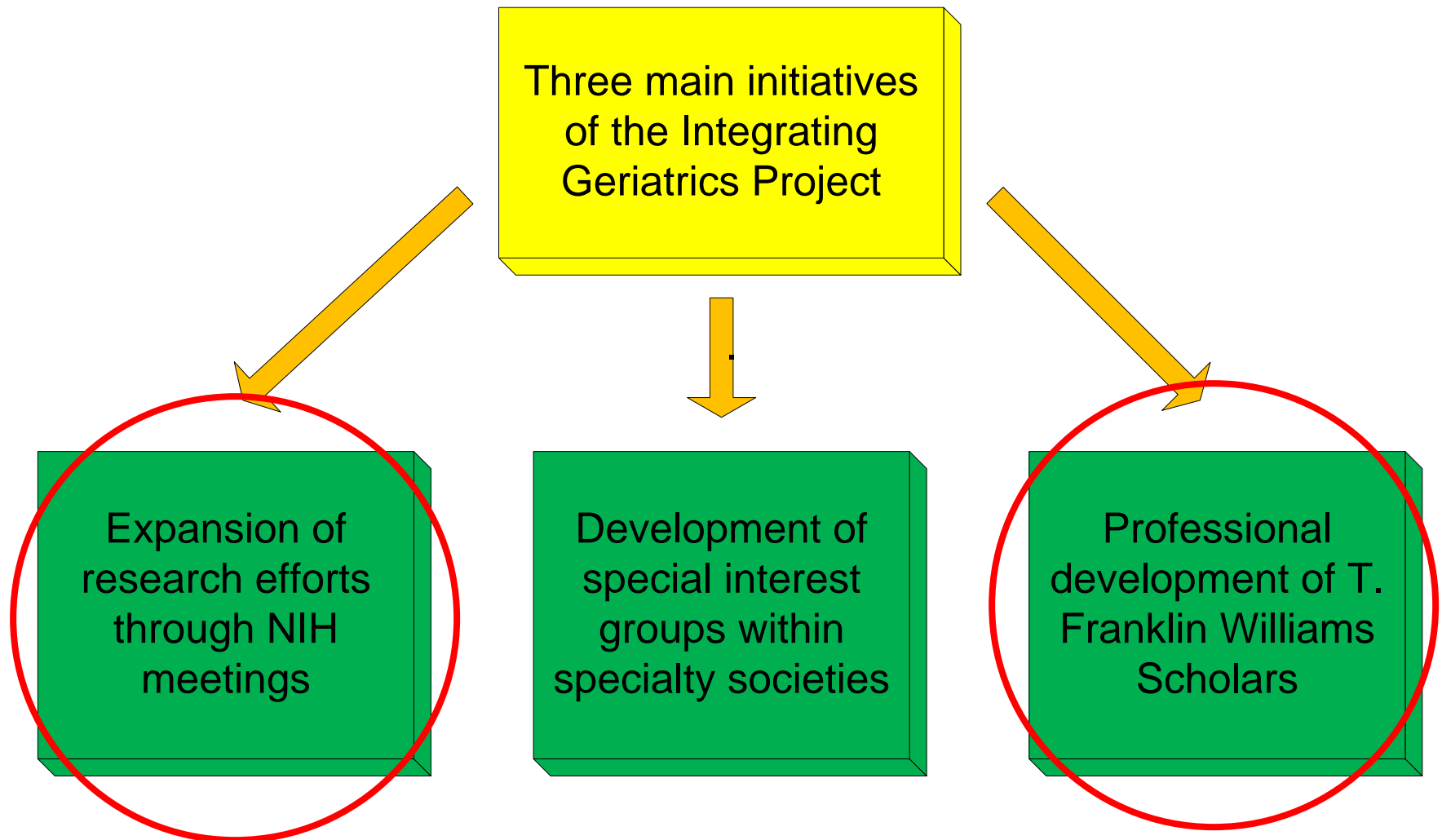
- The precursor to this project, led by William R. Hazzard, MD, “Toward Optimal Geriatric Care: Integrating Geriatrics into the Subspecialties of Internal Medicine”
- Goal was to develop interest in geriatrics through a series of 12 Geriatrics Education Retreats held over a six year period (1995-2001)



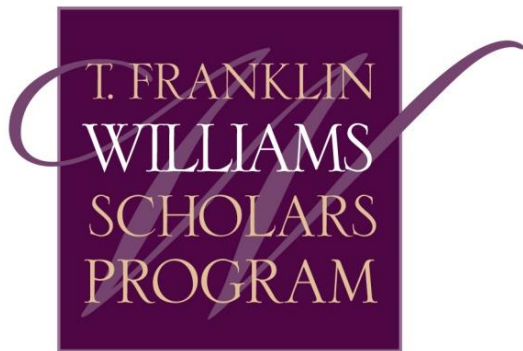
Integration Grant - Introduction

- Funded by generous grants from the John A. Hartford Foundation since 2002
- Project Leadership:
 - Kevin High, MD, Principal Investigator
 - Jeffrey Halter, MD, Co-Principal Investigator
 - Kenneth Schmader, MD, Co-Principal Investigator
 - Arti Hurria, MD, Co-Investigator
- Project Administration
 - Erika Tarver
 - Kelly Middleton
 - Nancy Woolard
- Consultant
 - William Hazzard, MD; PI of the first two JAHF grants

Overview of Integrating Geriatrics Project Components



T. Franklin Williams Scholars Program



Goal: The T. Franklin Williams Scholars Program was focused on improving the health care of older Americans by creating a critical mass of internal medicine specialists advancing research, education, and clinical care focused on this population.

Funding: John A. Harford Foundation and Atlantic Philanthropies, Inc + 12 subspecialty societies

T. Franklin William Scholars Program

2002-2015

Honoring T. Franklin Williams, M.D., a founding father of the field of geriatric medicine, the program has supported the research and professional development of 104 young physician investigators working at outstanding institutions located across the nation.

Allegheny General Hospital

Baylor College of Medicine

Boston University School of Medicine

Brigham and Women's Hospital

Case Western Reserve University

City of Hope National Medical Center

Cornell University

Creighton University

Duke University

Harvard Medical School

Johns Hopkins University

Medical College of Wisconsin

Mount Sinai School of Medicine

University of Alabama

Northwestern University

Oregon University

Rush University

Stanford University

Texas A&M University

Tufts University

University of California

University of Chicago

University of Cincinnati

University of Colorado

University Of Maryland

University of Miami

University of Michigan

Yale University

University of Missouri

University of North Carolina

University of Pennsylvania

University of Pittsburgh

University of Southern California

University of Texas

University of Utah

University of Vermont

University of Wisconsin

Vanderbilt University

Wake Forest University

Wayne State University

T. Franklin William Scholars Program

2002-2015

After receiving this award, many Scholars have gone on to create outstanding records in research, education and clinical care to improve the care of all patients.

Scholars Receiving NIH Funding*	71
PubMed listed publications	> 600
Number of Research Awards	166
Total Amount for Federal Research Awards	\$151,650,528

*NIH funding data were drawn in April 2015 from the National Institutes of Health (NIH) Research Portfolio Online Reporting Tool and reflects the grant funding received by TFWS Scholars for class years 2002 – 2014. Includes projects funded by the FDA (1), VA (8), and AHRQ (5).

T. Franklin William Scholars Program 2002-2015

<u>Administrative Institute or Center</u>	<u># Awards</u>	<u>\$ Awards</u>
National Heart, Lung, and Blood Institute	32	\$78,179,852
Cardiology	8	\$45,195,314
Endocrinology	3	\$7,347,273
Oncology	1	\$1,061,700
Pulmonary/Critical Care	18	\$24,295,611
Rheumatology	2	\$279,954
National Institute on Aging	53	\$29,772,735
Cardiology	2	\$335,022
Endocrinology	4	\$1,463,733
Gastroenterology	2	\$306,215
General Internal Medicine	10	\$4,626,986
Geriatrics	7	\$4,513,456
Hematology	1	\$561,799
Hospital Medicine	2	\$370,500
Infections Disease	9	\$6,438,689
Nephrology	5	\$3,165,952
Oncology	5	\$3,658,794
Pulmonary/Critical Care	3	\$1,050,407
Rheumatology	3	\$3,281,182

T. Franklin William Scholars Program 2002-2015

<u>Administrative Institute or Center</u>	<u># Awards</u>	<u>\$ Awards</u>
National Institute of Allergy and Infectious Diseases	14	\$7,838,912
Allergy	4	\$1,179,747
Infections Disease	5	\$3,975,356
Rheumatology	5	\$2,683,809
National Institute of Arthritis and Musculoskeletal and Skin Diseases	15	\$12,774,038
General Internal Medicine	1	\$1,454,238
Rheumatology	14	\$11,319,800
National Institute of Biomedical Imaging and Bioengineering	1	\$200,520
Allergy	1	\$200,520
National Institute on Drug Abuse	1	\$83,187
Allergy	1	\$74,187
Infections Disease	1	\$9,000
National Institute of Diabetes and Digestive and Kidney Diseases	18	\$17,269,725
Endocrinology	5	\$3,247,207
Gastroenterology	1	\$721,440
Nephrology	12	\$13,301,078

T. Franklin William Scholars Program 2002-2015

<u>Administrative Institute or Center</u>	<u># Awards</u>	<u>\$ Awards</u>
Food & Drug Administration	1	\$150,000
Rheumatology	1	\$150,000
National Center for Complementary and Integrative Health	2	\$559,674
General Internal Medicine	2	\$559,674
National Cancer Institute	5	\$3,051,081
General Internal Medicine	2	\$770,668
Oncology	2	\$1,880,770
Rheumatology	1	\$399,643
National Center for Research Resources	11	\$1,770,804
Allergy	1	\$75,361
Cardiology	3	\$41,482
Endocrinology	2	\$476,003
Oncology	1	\$250,525
Pulmonary/Critical Care	2	\$655,714
Rheumatology	2	\$75,102

Similar program in surgical and related specialties – Dennis W. Jahnigen Scholars

Table 1. Total Number of Applications and Funded Scholars per Specialty

Specialty	n	
	Total Applications 2002–2008	Funded 2002–2008
Anesthesiology	16	5
Emergency medicine	43	13
General surgery	35	16
Gynecology	12	4
Ophthalmology	23	9
Orthopedic surgery	14	5
Otolaryngology	9	5
Physical medicine and rehabilitation	17	7
Thoracic surgery	7	2
Urology	18	6
Total	194	72

Table 4. Total Scholar Presentations for Selected Cohorts*

Scholar Cohort	n	
	Presentations Accepted	Invited Presentations Presented
2005	130	37
2006	125	22
2007	92	14
Total	347	73

*Based on self-reporting by scholars.

JAGS 57:2324–2327, 2009

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

- Since its inception, the amount of the award has grown from \$100,000 to \$150,000 for two years of support. The TFWS program and its partners have provided GEMSSTAR awardees up to \$50,000 in support for the professional development component of the program and \$3,000 in travel support to attend annual meetings/workshops including a U13 series for GEMSSTAR “alums.”
- In 2014, NIA received approval to renew the GEMSSTAR program through 2019.
- Although the TFWS program ended its support with the 2015 cycle due to the close of the matching funds grant from Atlantic Philanthropies, AAIM continues to support the program with advertising and dissemination of materials
- The DWJS program cont’s to have some matching societies, and GEMSSTAR match can come from many sources

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

<https://www.nia.nih.gov/research/dgcg/grants-early-medical-surgical-specialists-transition-aging-research-gemsstar>

The receipt dates are typically **early October**; Letter of Intent is typically due **early September** (optional but appreciated for review planning).

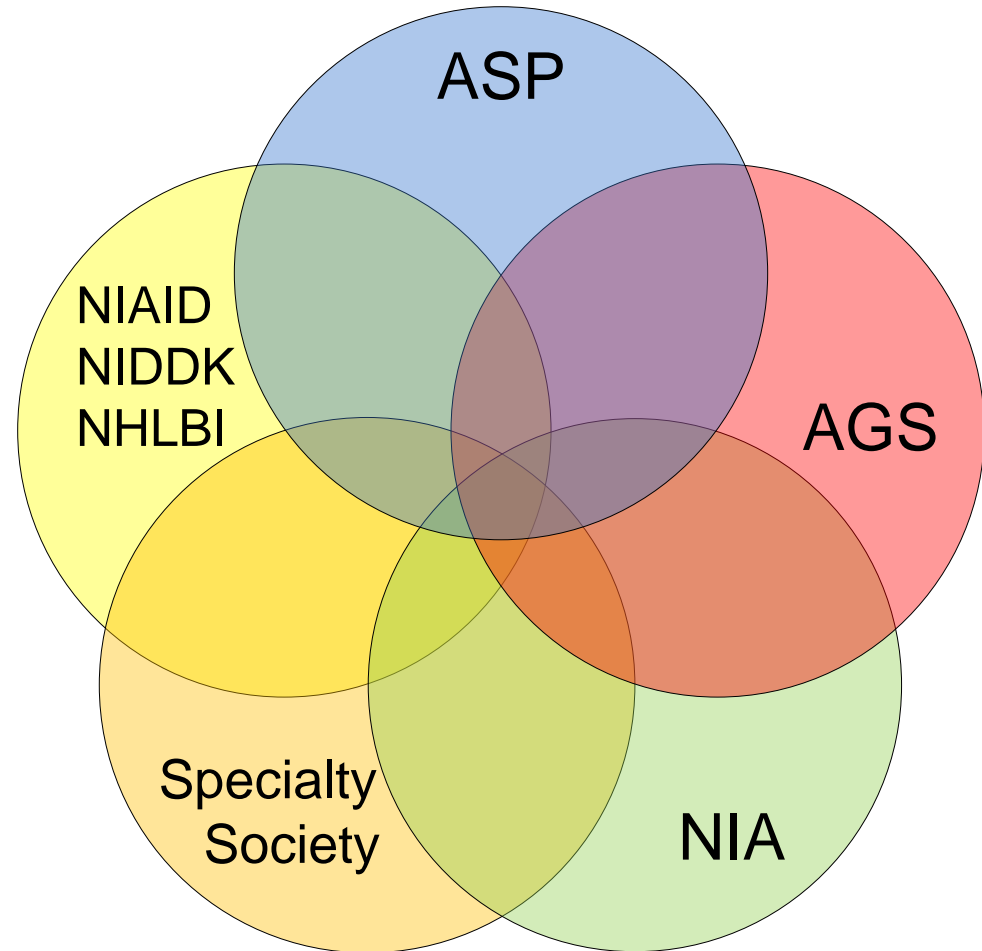
Goal

The overall goal of the GEMSSTAR Program is to provide support for **early stage clinician-scientists** to establish a track record in aging research. The GEMSSTAR award is targeted to early faculty members who have **recently completed their clinical training in any medical or surgical specialty or dentistry** and are embarking on a career in clinical aging research in their specialty area. The award is intended to offer support in a particularly vulnerable time in a new clinical faculty member's career.

Expanding Research Efforts through NIH Workshops

Participants:

- Representatives of Specialty Societies (e.g., ASP, AGS, and organ/disease-specific society)
- National Institute on Aging (NIA) extramural program leaders
- Specialty oriented NIH Institute extramural program leaders



NIH Workshops, cont'd

Two-day workshops focused on specific geriatrics research questions linked to the specialty – funded by JAHF

Workshops

2005	Anemia in the Elderly
2006	Thrombosis and Venous Thromboembolism in Seniors
2007	HIV in Aging
2008	(1) Chronic Kidney Disease in Seniors (2) Immunization and Aging
2009	Idiopathic Pulmonary Fibrosis
2010	Acute Kidney Injury in Older Adults

U13 NIH Workshop Grant

NIA co-funding via U13 mechanism: A Transdisciplinary Approach to Engage Specialty Investigators in Aging Research 1U13AG040938

Three Workshops co-funded with JAHF

2012 Solid Organ Transplantation

2013 Diabetes and Cardiovascular Morbidities

2014 Wound Repair and Regeneration

Each with jr. faculty invites/research skills workshop

NIH Workshops

- Anticipated Outcomes
 - Published manuscript on the meeting topic
 - Symposium at the annual meeting of the relevant specialty society
 - Junior faculty engagement/education
- Potential Outcomes
 - Federally funded initiative for research on the topic or related topics
 - Future expansion of the integrating geriatrics effort to additional specialties
 - Energize the field and provide synergy between specialties

NIH Workshops: Publication of Proceedings

- The proceedings of each workshop are to be published
- The planning committee acts as the writing group on behalf of the meeting attendees
- Each meeting has a science writer present to capture the discussion
 - 1st draft < 6 weeks after meeting
 - Sent to individual speakers to edit within 10 business days: need to be very sensitive to page limitations
 - Revisions with final editing by planning committee
 - Submission to journal within 90 days of meeting

Publications of NIH Workshop Proceedings

HIV in Aging

Publication: Effros RB, Fletcher CV, Gebo K, et al. *Aging and Infectious Diseases: Workshop on HIV Infection and Aging: What is Known and Future Research Directions*. *Clinical Infectious Diseases*. 2008 Aug 15; 47(4):542-53.

Chronic Kidney Disease

Anderson S, Halter JB, Hazzard WR, Himmelfarb J, et al. *Prediction, Progression, and Outcomes of Chronic Kidney Disease in Older Adults*. *Journal of the American Society of Nephrology*. Jun;20(6):1199-209.

Immunization

High KP, D'Aquila RT, Fuldner RA, Gerding DN, et al. *Workshop on Immunizations in Older Adults: Identifying Future Research Agendas*. *Journal of the American Geriatrics Society*. 2010 Apr;58(4):765-76.

Idiopathic Pulmonary Fibrosis

Castriotta RJ, Eldadah BA, Foster WM, Halter JB, et al. *Workshop on Idiopathic Pulmonary Fibrosis in Older Adults*. *Chest* 2010;138;693-703.

Publications of NIH Workshop Proceedings

Acute Kidney Injury

Anderson S, Eldadah B, Halter JB, Hazzard WR, et al. *Acute Kidney Injury in Older Adults*. J Am Soc Nephrology 22: 28–38, 2011.

Transplantation in Older Adults

Abecassis M, Bridges ND, et al. *Solid-organ transplantation in older adults: current status and future research*. Am J Transplant. 2012 Oct;12(10):2608-22.

Diabetes and CV Complications

Halter JB, Musi N, et al. *Diabetes and cardiovascular disease in older adults: current status and future directions*. Diabetes. 2014 Aug;63(8):2578-89..

Wound repair and tissue regeneration

Gould L, Abadir P, et al. *Chronic wound repair and healing in older adults: current status and future research*. Wound Repair Regen. 2015 Jan-Feb;23(1):1-13.

High Priority Aging Research Funding

Research Agenda-Setting Workshops

Year	Focus	NIH FOAs	Funded Research \$
2005	Anemia	1	\$ 2,500,000
2006	Thrombosis/Embolism	1	\$ 3,200,000
2007	HIV	9	\$ 14,718,493
2008	Kidney Disease	2	\$ 15,610,116
2008	Immunization	1	\$ 6,951,448
2009	Idiopathic Pulmonary Fibrosis	1	\$ 1,893,108
2010	Acute Kidney Injury	2	\$ 597,167
2012	Solid Organ Transplantation	3	\$ 2,146,618
2013	Diabetes Mellitus and Cardiovascular Disease	3	\$ 0
2014	Wound Repair	0	\$ 0

Note: In general, it requires two to three years for the findings of a workshop to be incorporated into a funding opportunity. This includes the process of grant applications to be submitted, reviewed, resubmitted and finally funded.

Diffusion of Gerontologic/Geriatric Concepts “Frailty” in Article Titles

Breakthrough article: *Frailty phenotype* – Fried et al, 2001

Journal Type	2008	2012	To 8/2016
Total Uses	76	229	443
% in Aging*	65%	52%	40%
% Cardiol	2%	5%	9%
% Surg	0%	2%	9%
# specialties	7	15	20

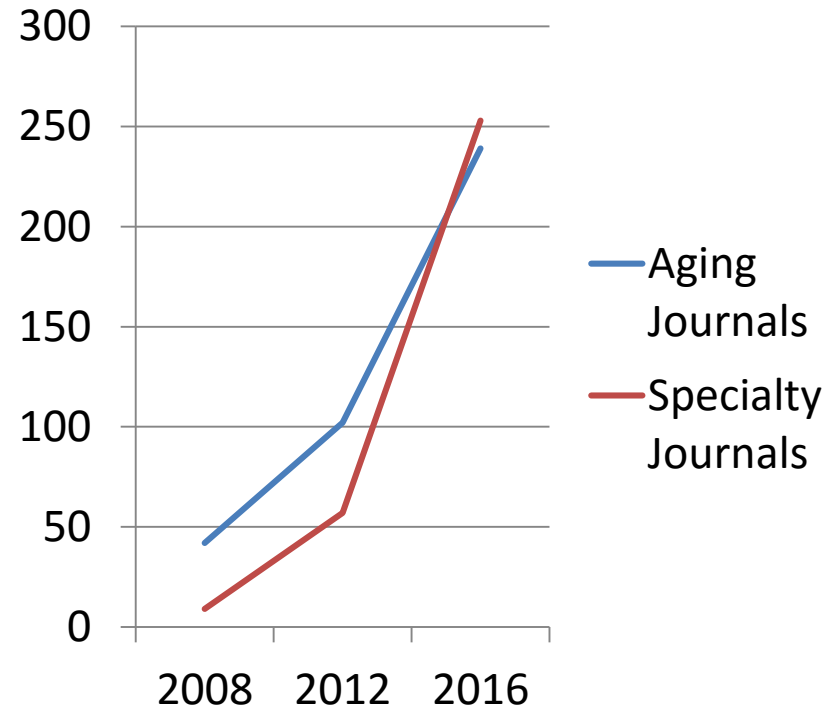
*Statistical use of ‘frailty’ omitted from denominator

Pubmed search of ‘frailty’ as a title word.

Up to 200 citations in a year reviewed.

Journal names including aging, gerontology or geriatrics in the title = Aging.

Journal names referring to a specific organ / problem / technique = specialty



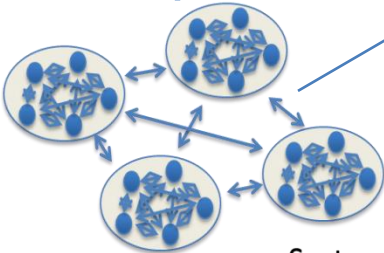
Est. # of Articles in “Aging” and “Specialty Journals” (2016 data annualized)

Slide: courtesy Steve Kritchevsky

The Patient's Lived Experience

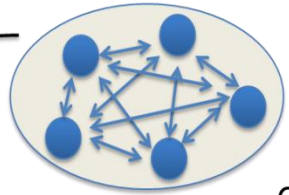


Focus of Geriatrics

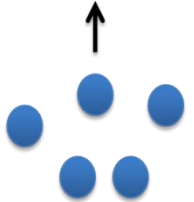


Systems of Organs

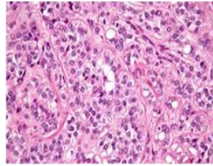
Focus of Subspecialty Medicine



Organ



Cells



What is the science of physiologic integration?

Function Centered

Organ Centered

U13 Renewal (7U13AG040938-05)

“Focus on Function . . . ”

Aim 1: Conduct three transdisciplinary meetings to create a “roadmap” of knowledge gaps and priority areas for research regarding:

Meeting 1 - bench ↔ bedside: *Central Contributors and Correlates of Functional Impairment across Specialties*

- What do assessments of function measure, and what outcomes do they predict that current, widely-applied measures of disease and disease severity do not?
- Are there common physiologic correlates of diminished function across conditions?
- Are there functional measures that are applicable across diseases or restricted to individual diseases?
- How do function and functional measures contribute to health disparities across specialties?
- Can we harmonize biologic sample collection and storage to optimize translational research in aging/function?

Meeting 2 - efficacy ↔ care: *Using Functional Assessment to Define Therapeutic Goals and Treatment*

- Among clinically viable measures of physical, cognitive and sensory function which are most strongly associated with patients’ perceptions of health, well-being and quality of life across disease contexts?
- How should functional status inform the specialty physician/patient discussion on prognosis and goals?
- How should function guide care transitions between providers and across sites of care?
- What is meaningful change in cognitive, sensory or physical function as an outcome of interest?
- How does race/ethnicity/gender influence the use of function to drive therapeutic goals?

Meeting 3 - care ↔ practice: *Embedding/Sustaining a Focus on Function in Specialty Research and Care*

- What is the “minimum functional criteria” as part of patient assessment?
- How can we adapt research tools (e.g. NIH Toolbox) for clinical care in specialty medicine?
- Can resources (ICD-10 library, EMR templates) be built to focus on function across the care continuum?
- What are the best ways to motivate seniors, including the use of culturally sensitive means, to participate in interventions that enhance function?

U13 Renewal (2 U13 AGo40938)

Aim 1

Aim 1: Conduct three transdisciplinary meetings to create a “roadmap” of knowledge gaps and priority areas for research regarding:

Meeting 2 - efficacy ↔ care: *Using Functional Assessment to Define Therapeutic Goals and Treatment*

- Among clinically viable measures of physical, cognitive and sensory function which are most strongly associated with patients' perceptions of health, well-being and quality of life across disease contexts?
- How should functional status inform the specialty physician/patient discussion on prognosis and goals?
- How should function guide care transitions between providers and across sites of care?
- What is meaningful change in cognitive, sensory or physical function as an outcome of interest?
- How does race/ethnicity/gender influence the use of function to drive therapeutic goals?

Meeting #2 Organizers: Heather Whitson, Sue Zieman, Kevin High – and of course, Nancy Woolard

Aims 2 & 3

Aim 2: Accelerate research to promote a focus on function across a wide range of disciplines and funding agencies by:

- Uniting clinical innovators and gerontological researchers, disseminating key conference outcomes in high impact journals, providing content for specialty society meetings/symposia
- Tying key NIA programmatic goals to research agendas in other NIH institutes, PCORI CMS, CDC and other federal agencies.

Aim 3: Support an expanded pool of physician-scientists focused in aging research by:

- developing cross-disciplinary networking and critical ties to aging-focused research infrastructure
- identifying and filling key gaps in faculty development training

providing post-meeting workshops for junior faculty, including underrepresented minority faculty

“Rules of the Game”

- Ties/formal attire are **STRONGLY** discouraged
 - Informality is the goal → junior faculty go up to the most famous person in the field and ask a question
- Present what is known, what is not known, prioritize what should be known - in a minimum # of slides!!
 - Very sophisticated audience – don’t need much background, focus on the key gaps in current data
 - Engage in **LIVELY** discussion!!!
- No applause is necessary, except
 - To thank our funders
 - JAHF – Marcus Escobedo, JAHF Program Officer
 - NIA U13 grant – Basil Eldadah, NIA Program Officer