OMB Number: 4040-0010
Expiration Date: 12/31/2022

APPLICATION FOR FEDERAL ASSISTANCE
SF 424 (R&R)

3. DATE RECEIVED BY STATE	**State Application Identifier**

1. TYPE OF SUBMISSION*

❍ Pre-application ● Application ❍ Changed/Corrected Application

4.a. Federal Identifier
AG074920

b. Agency Routing Number

2. DATE SUBMITTED | **Application Identifier**

c. Previous Grants.gov Tracking Number

5. APPLICANT INFORMATION **Organizational DUNS*:** 122452563

Legal Name*: University of Arkansas for Medical Sciences
Department:
Division:
Street1*: 4301 W. Markham St.
Street2:
City*: Little Rock
County: Pulaski
State*: AR: Arkansas
Province:
Country*: USA: UNITED STATES
ZIP / Postal Code*: 722057199

Person to be contacted on matters involving this application
Prefix: First Name*: Suzanne Middle Name: Last Name*: Alstadt Suffix:
Position/Title: Director, Research & Sponsored Programs
Street1*: 4301 W. Markham St.
Street2: #812
City*: Little Rock
County: Pulaski
State*: AR: Arkansas
Province:
Country*: USA: UNITED STATES
ZIP / Postal Code*: 722057199
Phone Number*: 501-686-5502 Fax Number: Email: oraawards@uams.edu

6. EMPLOYER IDENTIFICATION NUMBER *(EIN) or (TIN)** 1716046242A1

7. TYPE OF APPLICANT* H: Public/State Controlled Institution of Higher Education

Other (Specify):
Small Business Organization Type ❍ Women Owned ❍ Socially and Economically Disadvantaged

8. TYPE OF APPLICATION*

❍ New ● Resubmission
❍ Renewal ❍ Continuation ❍ Revision

If Revision, mark appropriate box(es).
❍ A. Increase Award ❍ B. Decrease Award ❍ C. Increase Duration
❍ D. Decrease Duration ❍ E. Other *(specify)* :

Is this application being submitted to other agencies?* ❍Yes ●No What other Agencies?

9. NAME OF FEDERAL AGENCY*
National Institutes of Health

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER
TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT*
Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation

12. PROPOSED PROJECT
Start Date* Ending Date*
07/01/2022 06/30/2027

13. CONGRESSIONAL DISTRICTS OF APPLICANT
AR-002

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SF 424 (R&R) APPLICATION FOR FEDERAL ASSISTANCE

14. PROJECT DIRECTOR/PRINCIPAL INVESTIGATOR CONTACT INFORMATION

Prefix: First Name*: Jennifer Middle Name: L Last Name*: Vincenzo Suffix:
Position/Title: Associate Professor
Organization Name*: University of Arkansas for Medical Sciences
Department: Physical Therapy
Division: College of Health Professions
Street1*: 4301 W Markham
Street2: Slot #100
City*: Little Rock
County: Pulaski
State*: AR: Arkansas
Province:
Country*: USA: UNITED STATES
ZIP / Postal Code*: 722057199
Phone Number*: (479) 713-8600 Fax Number: Email*: JLVINCENZO@UAMS.EDU

15. ESTIMATED PROJECT FUNDING

a. Total Federal Funds Requested*	$1,068,199.00
b. Total Non-Federal Funds*	$0.00
c. Total Federal & Non-Federal Funds*	$1,068,199.00
d. Estimated Program Income*	$0.00

16.IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?*

a. YES ○ THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:

DATE:

b. NO ● PROGRAM IS NOT COVERED BY E.O. 12372; OR

○ PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. By signing this application, I certify (1) to the statements contained in the list of certifications* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances * and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

● I agree*

** The list of certifications and assurances, or an Internet site where you may obtain this list, is contained in the announcement or agency specific instructions.*

18. SFLLL or OTHER EXPLANATORY DOCUMENTATION File Name:

19. AUTHORIZED REPRESENTATIVE

Prefix: First Name*: Suzanne Middle Name: E Last Name*: Alstadt Suffix:
Position/Title*: Director
Organization Name*: University of Arkansas for Medical Sciences
Department: Research & Sponsored Programs
Division: Research Administration
Street1*: 4301 W. Markham St.
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City*: Little Rock
County: Pulaski
State*: AR: Arkansas
Province:
Country*: USA: UNITED STATES
ZIP / Postal Code*: 722057199
Phone Number*: 501-686-8845 Fax Number: Email*: sealstadt@uams.edu

Signature of Authorized Representative*

Suzanne.Alstadt

Date Signed*

10/22/2021

20. PRE-APPLICATION File Name:

21. COVER LETTER ATTACHMENT File Name:Vincenzo_K76_cover_letter_and_referee_list.pdf

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424 R&R and PHS-398 Specific
Table Of Contents

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OMB Number: 4040-0010
Expiration Date: 12/31/2022

Project/Performance Site Location(s)

Project/Performance Site Primary Location

❍ I am submitting an application as an individual, and not on behalf of a company, state, local or tribal government, academia, or other type of organization.

Organization Name:	University of Arkansas for Medical Sciences
Duns Number:	122452563
Street1*:	4301 W. Markham St.
Street2:	
City*:	Little Rock
County:	Pulaski
State*:	AR: Arkansas
Province:	
Country*:	USA: UNITED STATES
Zip / Postal Code*:	722057199
Project/Performance Site Congressional District*:	AR-002

Additional Location(s) File Name:

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OMB Number: 4040-0010
Expiration Date: 12/31/2022

RESEARCH & RELATED Other Project Information

1. Are Human Subjects Involved?* ● **Yes** ❍ **No**

1.a. If YES to Human Subjects

Is the Project Exempt from Federal regulations? ● Yes ❍ No

If YES, check appropriate exemption number: _ 1 ✔ 2 _ 3 ✔ 4 _ 5 _ 6 _ 7 _ 8

If NO, is the IRB review Pending? ❍ **Yes** ❍ **No**

IRB Approval Date:

Human Subject Assurance Number 00001119

2. Are Vertebrate Animals Used?* ❍ **Yes** ● **No**

2.a. If YES to Vertebrate Animals

Is the IACUC review Pending? ❍ Yes ❍ No

IACUC Approval Date:

Animal Welfare Assurance Number

3. Is proprietary/privileged information included in the application?* ❍ **Yes** ● **No**

4.a. Does this project have an actual or potential impact - positive or negative - on the environment?* ❍ **Yes** ● **No**

4.b. If yes, please explain:

4.c. If this project has an actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed? ❍ Yes ❍ No

4.d. If yes, please explain:

5. Is the research performance site designated, or eligible to be designated, as a historic place?* ❍ **Yes** ● **No**

5.a. If yes, please explain:

6. Does this project involve activities outside the United States or partnership with international collaborators?* ❍ **Yes** ● **No**

6.a. If yes, identify countries:

6.b. Optional Explanation:

	Filename
7. Project Summary/Abstract*	AbstractProject_Summary.pdf
8. Project Narrative*	FINAL_Project_Narrative.pdf
9. Bibliography & References Cited	Bibliography.pdf
10.Facilities & Other Resources	Facilities_and_Resources_FINAL.pdf
11.Equipment	

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Abstract/Project Summary

Falls among adults ≥ 65 years are a leading cause of morbidity, mortality, and high healthcare costs. Clinical guidelines indicate that all healthcare providers should conduct annual falls prevention (FP) by screening all older adults and assessing and intervening for those at risk. FP efforts using CDC's STEADI (Stopping Elderly Accidents, Deaths, and Injuries) are used in primary care, but barriers limit uptake and sustainability. Physical therapists (PTs) are trained and qualified healthcare providers who can provide FP within their scope of practice and have more one-on-one time and frequent follow-up compared to primary care, positioning them to incorporate STEADI in outpatient rehab (rehab). Yet, studies indicate PTs are not providing FP to at-risk older adults in rehab. We will examine how to best support uptake of STEADI and address this gap through the following aims: (1) Identify clinic-, provider-, and patient-level barriers to and facilitators of implementing STEADI in rehab; (2) Develop implementation strategies to support the adoption of STEADI in rehab; (3) Pilot test the impact of implementation strategies for STEADI in rehab on implementation outcomes (clinic- and provider-level) and explore clinical outcomes. We will use innovative methods, including implementation science (IS) and mixed-methods approaches (Aims 1 and 3) and a stakeholder-driven evidence-based quality improvement (EBQI) process (Aim 2). Dr. Vincenzo's background, career development plan, and mentor support make her an excellent Beeson award candidate. She is an Associate Professor of Physical Therapy and Geriatrics, and a board-certified clinical specialist in geriatric physical therapy with an MPH and PhD in exercise science. She has been a leader in aging and FP research for the past 8 years. Her career development objectives complement the proposed research aims. She will obtain training, mentorship, and skills in IS, mixed methods research (used in IS), leadership, and geriatric research. The University of Arkansas for Medical Sciences (UAMS) is an ideal environment for her career development and research. UAMS and its Translational Research Institute (TRI) supported Dr. Vincenzo's career through a KL2 award and will continue to provide training, equipment, consultation, and mentoring. The UAMS Center for Implementation Research, led by Geoffrey Curran, PhD (primary mentor), will support her career development and mentored research in IS. Jeanne Wei, MD, PhD (advisor), UAMS Institute on Aging executive director, will support development in geriatric research. Co-mentors Jonathan Bean, MD, MPH, and Jennifer Brach, PhD, PT, are experts in geriatric rehab and existing collaborators with Dr. Vincenzo. Dr. Vincenzo will also benefit from the expertise of STRIDE (Strategies to Reduce Injuries and Develop Confidence in Elders) study director Nancy Latham, PhD, PT (advisor). The research strategy, career development objectives, and mentoring plan support Dr. Vincenzo's goals of becoming a leader in aging research and independent investigator in IS and FP.

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Project Narrative

Falls among older adults are a leading cause of disability, death, and high healthcare costs. This proposal addresses the National Institute on Aging and Healthy People 2030 objectives to develop strategies to reduce falls, their consequences, and fall-related deaths by developing and testing strategies to implement the CDC-developed STEADI (Stopping Elderly Accidents, Deaths, and Injuries) for falls prevention of all older adults attending outpatient rehabilitation. Our proposed research will investigate and test how best to incorporate falls prevention into outpatient physical therapy visits that many older adults already attend and, how to best help older individuals follow the recommendations they receive about how to prevent falls.

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FACILITIES AND RESOURCES

1. Academic and Research Environment

The University of Arkansas for Medical Sciences is the only medical, nursing, pharmaceutical, and public health education university in Arkansas. The University of Arkansas for Medical Sciences (UAMS) is also the state's largest, most comprehensive facility for medical treatment and biomedical research. UAMS is part of the University of Arkansas system and has an enrollment of more than 2,500 students in 5 colleges (Medicine, Nursing, Pharmacy, Public Health, and Health Professions) and a Graduate School. Matrixed into the colleges are 7 institutes of excellence that include Cancer, Aging, Psychiatric Research, Eye, Spine and Neurosciences, Translational Research, and Digital Health and Innovation. UAMS employs over 10,000 individuals, including clinical providers that deliver medical care to patients at UAMS and its affiliates, Arkansas Children's Hospital and the VA Medical Center. UAMS Regional Clinics are located across Arkansas, and UAMS has eight satellite Centers on Aging. UAMS also provides an interactive video infrastructure throughout the state. In addition, UAMS has the largest biomedical library in the state that serves students and faculty on all UAMS campuses by providing access to collections of basic and applied science and clinical materials.

UAMS Rehabilitation Therapy Clinics in Arkansas. The proposed research will be conducted at five UAMS outpatient therapy clinics. Of all the patients seen at these clinics, a range of 12%-85% are over the age of 65, with a combined total of 1,200 older adults seen each year for rehab across the outpatient clinics. The UAMS clinics are located in 3 cities in Arkansas and are interconnected by telehealth technology with each other and the Central Administration office on the UAMS campus in Little Rock. Such a broad and strategic network enables UAMS to translate the latest knowledge, skills, resources, and best healthcare practices to communities throughout Arkansas, both quickly and efficiently. UAMS outpatient therapy clinics will help contribute to this study's success by providing clinical environments and access to physical therapists, physical therapist assistants, and patients.

Center for Implementation Research. UAMS's Colleges of Medicine and Pharmacy established the Center for Implementation Research (CIR) in 2014. This center is directed by project mentor Geoffrey Curran, PhD. The CIR brings together research expertise in implementation across both clinical and community settings. The work of CIR has expanded into the College of Public Health and the College of Nursing as well as clinical services of the hospital, outpatient centers, and Veteran's administration. CIR's goals are to 1) develop and test strategies to facilitate uptake and sustained use of evidence-based practices across a wide range of healthcare contexts, 2) support integration of evidence-based practices in community settings and UAMS programs, 3) evaluate the effectiveness of promising practices while preparing for their future implementation by simultaneously documenting barriers and facilitators to implementation, and 4) nurture the development of investigators, residents, and students interested in implementation and implementation science.

CIR investigators are striving for a nationally -recognized, extramurally -funded program with a dual focus on developing generalizable knowledge from research and conducting demonstration projects in high priority implementation areas. CIR is grounded in the principles of community-based participatory research, with "community" being broadly defined. Projects are developed and enacted in partnership with multiple stakeholders (e.g., patients, healthcare practitioners, healthcare managers, payers, and/or policy makers). The mix of partners varies by the scope and needs of each project.

For over 15 years, this group has led cluster-randomized trials, adaptive designs, and hybrid effectiveness-implementation designs in many large NIH- and VA-funded implementation research studies. Of significance, these implementation science experts developed and demonstrated the effectiveness of a "blended external-internal facilitation strategy" that combines leadership engagement, audit and feedback, local adaptation of evidence-based practices, academic detailing, and technical support to foster uptake of evidence-based practices now being widely used and adapted.

CIR has a strong focus on education, training, and mentoring. Dr. Vincenzo will continue participating in various training activities for the K76 within CIR. CIR's Director, Dr. Curran, currently teaches two graduate-level courses in implementation and implementation research (College of Medicine Graduate school and College of Public Health PhD Program in Health Services Research), which Dr. Vincenzo will complete. Students and residents interested in quality improvement/implementation are supported by CIR faculty in pursuing projects. Junior faculty at CIR receive close mentoring from the Director, and CIR faculty work

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collaboratively, across disciplines and Colleges, on developing, writing, and submitting projects for funding. CIR collaborators meet twice monthly to consult on ongoing projects or grant applications. CIR also sponsors the Little Rock Implementation Science Journal Club, a cross-agency collaboration with the VA QUERI and Health Services Research and Development Center of Innovation. Dr. Vincenzo has participated in these meetings and journal clubs since she started her KL2 award. The expertise of this center will continue to be used to develop Dr. Vincenzo's knowledge and competency in principles of Implementation Research (Career Development Aim 1) and to mentor her research across all years of the project. Dr. Curran and the experts at the CIR will also consult on the development of the R01 application in Years 3 and 4.

UAMS Translational Research Institute. UAMS is one of 62 institutions that was selected to receive a Clinical and Translational Science Award from the NIH National Center for Advancing Translational Sciences, which is designed to help scientists achieve better, faster and more relevant results for public health. The Translational Research Institute (TRI) provides innovative resources and key infrastructure to support research activities at UAMS. Expert staff help investigators navigate UAMS's research infrastructure and facilitate access to UAMS and TRI resources, ensuring that researchers receive timely and appropriate support. The institute fosters long-term partnerships with communities to guide the development of meaningful research projects. In other words, TRI is helping "translate" our most relevant knowledge and discoveries to the clinics and people who need it most. TRI will provide shared core resources that will strengthen the project. Specifically, TRI has a Biomedical Informatics Core and a Biostatistics Core that will provide expertise and service to support the proposed work. The Biostatistics Core, through TRI, is jointly administered by the Colleges of Medicine and Public Health. While administered by two colleges, the unit functions as one department. The department has 10 full-time faculty members, 11 faculty members with secondary or adjunct appointments, and 7 research associates with master's degrees in biostatistics. In addition, TRI supports a Biomedical Informatics Core that can provide support in managing the data collection and database for the project. The Biomedical Informatics Core has 6 full-time faculty, a post-doctoral fellow, 3 FTE of administrative staff, and 3 information technology (IT) staff. They work closely with UAMS IT and share in the oversight of IT staff working on joint initiatives. TRI offers Biomedical Informatics and Data Services support, including support and consultation regarding Electronic Data Capture for community-based studies, survey instrument development, and investigator consultation. TRI's shared core resources will contribute to the project's success by providing the research team with expertise and consulting in biostatistics and biomedical informatics. Dr. Vincenzo will combine the expertise from the CIR and TRI to design the best possible data systems approach for this project. The Biostatistics & Research design program area assists investigators with statistical analysis and interpretation. James Selig, PhD, an advisor on this project and a consultant for the TRI, will be actively engaged with statistical analyses of this project.

UAMS Donald W. Reynolds Institute on Aging and Department of Geriatrics. UAMS is one of only nine medical schools in the country to have a separate department of geriatrics. The Reynolds Institute on Aging (RIOA) and the Department of Geriatrics have multiple connections and collaborations for clinical care and research. A separate Department of Geriatrics gives the faculty greater independence and autonomy to enable them to carry through on their mission objectives and commitments that are unique to geriatrics. Chaired and directed by advisor Jeanne Wei, MD, PhD, the department and RIOA has resources for the conduct of research in gerontology and geriatrics include two program projects that study various biomedical aspects of aging, the Memory Research Center; the Center for Translational Research on Aging and Longevity, the Nutrition, Metabolism, and Exercise Laboratory. There are also many research projects in basic and applied geriatrics, as well as in health outcomes and health care delivery; a federally supported Arkansas Geriatric Workforce Enhancement Program (GWEP); and a Hartford Center of Geriatric Nursing Excellence (one of only eight such centers in the nation), also provide support for the RIOA investigators and trainees.

UAMS Clinical Informatics. UAMS Health uses the flagship electronic medical record system Epic, which currently houses over 250 million patient records. UAMS Health has over 200,000 inpatient and outpatient visits annually. The UAMS Information Technology and Clinical Informatics teams support Epic Modules that enable inpatient, ambulatory, rehabilitation, and hospital information management. The UAMS Clinical Informatics team consists of 4 physician informaticists with at least 50% FTE dedicated to clinical informatics duties, 2 full-time administrators, 6 full-time nurse informaticists, and 20 physicians that have completed advanced Epic training to allow them to program the electronic medical record. Information

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technology has over 40 FTEs including application analysts and project managers dedicated to electronic medical record projects.

Kevin Sexton, MD, will assist Dr. Vincenzo with changes to the Epic system required by her research. He is an Assistant Professor in the Department of Surgery, the Department of Biomedical Informatics, and the Department of Health Policy and Management at the University of Arkansas for Medical Sciences (UAMS). He also serves as Associate Chief Medical Informatics Officer for Innovation, Research, and Entrepreneurship at UAMS and co-directs the Division of Healthcare Analytics in the UAMS Institute for Digital Health and Innovation. Dr. Sexton's clinical focus is general surgery and his administrative focus is on developing technologies for market. He spends 80% of his time on evaluating healthcare technologies for implementation, co-development opportunities, and novel market potential for UAMS.

Research Support Services and Infrastructure. UAMS is the state's largest research institution and manages more than $125 million in extramural research and programmatic funding each year. UAMS offers a number of key administrative and research support services to assist investigators. The UAMS Institutional Review Board has been fully accredited by the Association for the Accreditation of Human Research Protection Programs since 2005. The office is responsible for ensuring the rights and welfare of all human subjects research conducted by UAMS research programs. The Office of Research Compliance (ORC) coordinates UAMS' comprehensive research compliance program and offers compliance consultations and program reviews for the entire research community. The ORC offers tools and templates to researchers who request assistance with assessment and evaluation of their own research processes. They also offer a free 28 credit hour Certified Research Specialist program that includes CITI human subject protection training and modules on research ethics and misconduct, research protocols, record keeping and regulatory compliance, research billing and grant management, and long-distance collaboration through webinars and workshops. The department includes four research compliance analysts, a research compliance education specialist, and the UAMS research compliance officer. The UAMS Office of Research and Sponsored Programs provides support during the acquisition, performance, and administration of programs and projects funded by extramural sources. The UAMS Office of Sponsored Programs Administrative Network (OSPAN) provides sponsored programs administration to all UAMS investigators. OSPAN provides expert and professional support for all grant submissions based on a timely, streamlined, and standardized processes. The pre-award services include administrative and financial review and facilitation of the internal approval process. Post-award services include award acceptance and modification, budget reconciliation and review, interim financial reporting, payment of subcontract invoices, closeout procedures, contract development and execution, and coverage analysis. OSPAN is located at several places across the campus and provides sponsored programs administration to all stakeholders of the UAMS, including CON. The OSPAN service includes provision of expert and professional support for all grant submission and manuscript submission based on timely, streamlined, and standardized processes. The Office of Research Regulatory Affairs includes a staff of eleven regulatory specialists and research administrators that provide assistance with regulatory submissions to federal agencies, quality assurance and monitoring, research agreements, including material and data transfer, and other research support services. The Office of Clinical Programs Education supports research enhancement activities that include online staff training, continuing education, and consultation.

Institutional Support and Mentoring of New Investigators. Dr. Vincenzo is classified as a new investigator. She holds a PhD in Kinesiology/Exercise Science from the University of Arkansas, a Masters of Public Health, and is a board certified in geriatric physical therapy and community health education. Dr. Vincenzo has more than 9 years of research and evaluation experience across the fields of health and older adults and is an Associate Professor in the UAMS College of Health Professions, Department of Physical Therapy. She has been guided for the past 2 years by a KL2 mentoring committee composed of faculty members from the departments of Community Health Research, Nursing, and Implementation Science as well as the leaders in the Translational Research Institute. Dr. Vincenzo has received institutional support for research since she started in her position in 2015. She received the Junior Geriatric Faculty Development Award from Arkansas Geriatric Education Collaborative at UAMS and the KL2 Mentored Research Career Development Award by the UAMS Translation Research Institute. UAMS's commitment to the advancement and mentoring of early stage investigators will contribute to the study's success by ensuring that Dr. Vincenzo has administrative, educational, and institutional support throughout the funding period.

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2. Computer and Data Collection Resources

Computer and Technology Support. All faculty and staff at UAMS use Dell E6540 laptops, docking stations, and external monitors. The E6540 laptops have a memory upgrade, a processor upgrade, and a larger hard-drive to ensure there will be enough RAM, processing power, and file storage available to run multiple software applications. The E6540 laptops have a 9-cell battery to enable staff to work in multiple off-site locations where power sources may not be available. The data collection team will also have access to 35 13" Apple iPads for data entry. All computers are equipped with Windows 10 Professional, Microsoft Office products, and various software that allows investigators and administrative staff to perform job-specific tasks, including SAS, SPSS, Adobe Creative Suite. UAMS investigators and staff have access to a shared drive, and all files inputted on the shared drive from the personal computers are backed up nightly to a protected server. All investigators and staff will stay connected through Microsoft teams that provides a secure, yet widely accessible, platform to distribute and store documents, such as meeting agendas, minutes, and curricula. We will also use SharePoint's shared calendar function to post the study calendar and information about all meetings and events. In addition, SharePoint allows users to exchange and store manuscripts during the collaborative interpretation and writing process as needed. UAMS IT staff maintain all computers and drives, and provide technical support for the network, computers, and other technologies. The department currently has 167 employees, including IT specialists that serve on site at the regional clinic sites. Staff will have access to equipment that can be checked out through the UAMS IT department if needed, including additional laptop computers and several digital multimedia LCD projectors. These technologies and IT support will contribute to the project's success by assuring all investigators and staff have tools for optimal communication and productivity.

Data Collection. The research team will use Research Electronic Data Capture suite (REDCap) for data capture and data management across all study sites. REDCap is a comprehensive set of open source software tools for electronic management of clinical trials and associated data. REDCap supports data submission, validation, annotation, filtering, and extraction, as well as study oversight, auditing, and reporting. Quality control of the data entry process will be facilitated by institution range and logic checks. We have successfully completed required documentation and testing to be compliant with the 21 CFR part 11 guidelines. All components of the UAMS REDCap system are web-based, enabling sharing and integration of clinical research information for single- and multi-site trials. All applications are integrated into a portal that allows single point of access with a registered UAMS username and password. All REDCap applications reside on a cluster server with failover capability behind the UAMS firewall, and thus have the benefit of high security, fire protection, and routine backup. UAMS REDCap supports subject registration, study calendar management, participant recruitment, tracking regulatory events, reporting, and electronic data capture.

Data Management and Storage. UAMS Primary Data Center will provide 5 servers that will be utilized for this project. UAMS Primary Data Center is a state-of-the-art data center that resides in its own building on campus It has approximately 3,500 square feet of raised floor space and redundant 1) air handlers; 2) uninterruptible power supplies (UPSs); 3) connectivity to main campus; and 4) generators. UAMS has 2 additional, geographically separated data centers for load-balancing and disaster recovery. In total, the 3 data centers host ~500 physical server machines running ~750 logical (or virtual) servers; ~50 physical servers are virtual machine hosts. The Primary Data Center houses the majority of servers, the primary storage area network (SAN) with a total of 1.2 petabytes of storage, and the mainframe. Power supply is guaranteed by multiple generators, including primary and backup. The secondary data center is the disaster recovery data center, which houses the backup SAN, COLD secondary servers, and passive nodes of active/passive clusters. It is equipped with cooling, two UPSs, and an emergency generator. The third data center is the load-balanced data center, which houses the second node of multi-server load balanced systems. It is equipped with cooling, in-cabinet UPSs, and an emergency generator. UAMS has implemented network and SAN redundancy across three core network switches (one per data center). The resources outlined above will contribute to the project's success by providing the research team and with hardware and software systems needed to support the study's data collection and management plans.

3. Office Resources

Office Space and Equipment. Faculty and staff listed have adequate offices (~150 sq ft each) that can be securely locked and includes a desk, phone, locking file cabinets, bookcases, and several include

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conference tables. All offices are wired for high-speed internet access and staff can also access the internet through the campus' wireless network. The internet can also be accessed off site through VPN. Investigator and staff meetings will occur in the departments' ~550 square foot conference room. Off-site investigators will participate through a dedicated, secure virtual line. Conference rooms have audiovisual equipment, including ceiling projectors that can be used to project videoconferences, DVDs, and PowerPoint presentations onto a 110" tab-tensioned screen. These rooms are wired to hold videoconferences and can accommodate additional audiovisual equipment as needed. Study meetings and dissemination efforts can utilize the UAMS videoconference system to connect investigators at different locations.

Dr. Vincenzo's Department, Office, and Computer. Dr. Vincenzo has a private office located on the 1st floor of the main building on the Northwest campus. This office has all the necessary equipment for successful completion of the proposed project including a private landline telephone, locking file cabinets, a Dell laptop computer with two desktop screens, MAXQDA qualitative analysis software, SPSS and SAS software packages for quantitative analysis, Adobe Acrobat, Microsoft Office, and Refworks software for reference management. She also has a built in webcam for virtual courses and meetings with offsite mentors. She has access to departmental printers, scanners, copiers, and fax machines. Dr. Vincenzo also has a laptop for remote work and access to an Internet hotspot should she need it for work on the project. These facilities and resources will contribute to the project's success by ensuring study personnel and activities have access to the space and functional equipment needed to conduct all work outlined in the proposal.

Library Resources. UAMS affiliated research team members have complete access to the online library services. This includes online free access to one of the largest electronic journal collections in the United States as well as access to the numerous scientific and general libraries of the university. The library also has interlibrary loan. A librarian dedicated to the College of Health Professions provides free literature searches and assistance to faculty and clinical staff.

Animal - Not applicable.

OMB Number: 4040-0010
Expiration Date: 12/31/2022

RESEARCH & RELATED Senior/Key Person Profile (Expanded)

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OMB No. 0925-0001 and 0925-0002 (Rev. 03/2020 Approved Through 02-28-2023)

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.

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POSITION TITLE: Associate Professor

EDUCATION/TRAINING

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Southern Connecticut State University, New Haven, CT	MPH	05/2003	Public Health
University of Arkansas; Fayetteville, AR	Graduate Certificate	05/2015	Educational Statistics and Research Methods
University of Arkansas; Fayetteville, AR	PhD	05/2015	Kinesiology

A. Personal Statement

I am an Associate Professor in the Department of Physical Therapy at the University of Arkansas for Medical Sciences (UAMS). My research focus to date is on functional mobility and falls prevention with aging. I have a broad background as a board-certified clinical specialist in geriatric physical therapy with a Masters in Public Health, a PhD in Kinesiology, and a graduate certificate in educational statistics and research methods. I have extensive training in quantitative and qualitative methods through my graduate certificate in statistics and research methods, PhD program, and KL2 career development research scholar award. I was PI for 2 funded grants (a Jr. Geriatric Faculty Development Grant, 2016-2017, and a KL2 from UAMS, 2019-2022), Co-I on 3 funded studies, and PI on 4 unfunded studies, including 2 with national task forces. As an early career investigator starting in a newly developing physical therapy program in 2015 and developing my line of research, I produced 26 peer-reviewed publications (7 first author, 4 second author), 5 manuscripts under review, and 47 peer-reviewed conference or poster presentations, some with the Centers for Disease Control and Prevention (CDC) and National Council on Aging (NCOA). I also hold numerous leadership positions.

I conducted 2 studies on the CDC's Stopping Elderly Accidents, Deaths, and Injuries (STEADI) falls prevention toolkit. I found that older adults lacked adherence to recommended interventions to ameliorate falls after a one-time community-based falls screening led by physical therapists (PTs). This study highlights the importance of investigating the barriers and facilitators to integrating the STEADI into outpatient rehabilitation because older adults attend outpatient rehab multiple times a week during an episode of care, which may enable older adults to receive support and follow-up to facilitate adherence to falls prevention interventions. In my most recent work through my KL2, I found that older adults are amenable to falls prevention being integrated into physical therapy even if they attend for a different reason. I also have a manuscript under review from my KL2 titled, "*A qualitative study of older adults' facilitators, barriers, and cues to action to falls prevention using health belief model constructs*" and another manuscript in progress titled, "*Older adults' perceptions of a falls prevention self-management plan*." To date, my research has been conducted at the patient level. Finally, I am currently conducted a retrospective study on a large health systems' integration of the STEADI in rehab, resulting in over 20,000 older adults being screened annually. For implementation science, it is essential to understand perspectives about falls prevention from all stakeholder levels. Yet, no studies have been conducted regarding all stakeholders' perspectives of falls prevention embedded in a healthcare setting. For health systems to successfully implement STEADI in outpatient rehab, it is necessary to identify stakeholders' perceived feasibility, acceptability, appropriateness, and barriers and facilitators to implementing STEADI for falls prevention as a standard of care for older adults attending outpatient rehab, as I propose in this project. My experience and my successful research and publication background demonstrate my expertise and ability to carry out the proposed research project.

Ongoing and recently completed projects that I would like to highlight include:

KL2 TR003108 KL2 Mentored Career Development Scholar Award

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Vincenzo (PI)
08/01/2019-06/30/2021
Development of a Falls Prevention Self-Management Plan.
This study aims to identify strategies acceptable to older adults to facilitate falls prevention engagement and develop a falls prevention self-management plan for older adults to use for engagement.

KL2 TR003108 KL2 Mentored Career Development Scholar Award – awarded an additional year of funding
Vincenzo (PI)
07/01/2021-06/30/2021
A Retrospective Study Using the RE-AIM Framework to Describe Implementation Outcomes of STEADI for Fall Prevention in Rehab in a Large Health System.
The purpose of this study is to analyze electronic health systems data to identify the implementation outcomes of a large health systems' implementation of STEADI for falls prevention in outpatient rehabilition.

Citations:

1. **Vincenzo, J. L.,** Patton, S.K. (2021). Older adults' experience with fall prevention recommendations derived from the STEADI. *Health Promotion Practice. 22*(2);236-247. PMID: 31353961.
2. **Vincenzo, J. L.**, Patton, S.K.P., Lefler, L.L., Falvey, J.R., McElfish, P.A., Curran, G., & Wei, J. (2021) Older adults' perspectives regarding the role of physical therapy providers for falls prevention: A qualitative investigation. *Journal of Geriatric Physical Therapy.* Epub ahead of print. PMID: 33782360. PMC Journal – In Process.
3. Nithman, R.W and **Vincenzo, J.L.** (2019). How steady is the STEADI? Inferential analysis of the CDC fall risk toolkit. *Archives of Gerontology and Geriatrics, 83;*185-194. PMID: 31075677
4. Patton, S.K.P., **Vincenzo, J.L**., & Lefler, L.L. (2021). Gender differences in older adults' perceptions of falls and fall prevention. *Health Promotion Practice.* Epub ahead of print. PMID: 33969733. PMC Journal – In Process.

B. Positions, Scientific Appointments, and Honors

Positions

2020-	Associate Professor, Chair of Admissions, Chair of Neurology Curriculum, Department of Physical Therapy, UAMS, Fayetteville, AR
2020-	Adjunct Clinical Associate Professor, Division of Geriatrics, College of Medicine, UAMS, Little Rock, AR
2018-	Adjunct Professor, College of Education and Health Professions, University of Arkansas, Fayetteville, AR
2018-	Consultant, Centers on Aging in Arkansas, Falls Prevention Program, JL Vincenzo Consulting
2017-2019	Consultant, HD Nursing/HD Falls Prevention, Little Rock, AR.
2016-	Consultant, Development of Program of All-Inclusive Care for the Elderly (PACE), Northwest AR
2016-2018	Faculty Advisor, Student Special Interest Group of UAMS
2015-	Physical Therapist, per diem, State Veterans Home of AR, UAMS Outpatient Clinic, Fayetteville,
2015-	Chair, Admissions Committee, Department of Physical Therapy, UAMS, Fayetteville, AR
2015-	Chair, Neurology Curriculum, Department of Physical Therapy, UAMS Northwest, Fayetteville, AR
2015-2020	Assistant Professor, Chair of Admissions, Chair of Neurology Curriculum, Department of Physical Therapy, UAMS, Little Rock, AR
2010-2015	Professor, Physical Therapy Assistant Program, Northwest AR Community College, Bentonville, AR
2010-2015	Physical Therapist, outpatient, per diem, Home Care, Bentonville, AR
2008-2010	Physical Therapist, Health South Rehabilitation Hospital, Fayetteville, AR
2006-2008	Lead Physical Therapist, Cape Fear Valley Medical Center, Fayetteville, NC
2004-2006	Lead Physical Therapist, Carle Arbors, Savoy, IL
1999-2004	Program coordinator/Physical Therapist, Yale-New Haven Hospital, New Haven, CT
1998-1999	Physical Therapist, Collette Physical Therapy, Yalesville, CT.

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Scientific Appointments

2021-	Chair, Governor's Advisory Council on Aging in Arkansas, Appointed
2019-	Member of Research Safety Committee, Veteran's Administration of the Ozarks, Appointed
2019-	Research Lead and Member of the National Council on Aging and American Physical Therapy Geriatrics Task Force, Appointed
2019-	Board Member, National Council on Falls Risk Awareness and Prevention, Appointed
2019-2020	Co-Lead, Center for Integrative Health, UAMS, Little Rock, AR
2019-2022	Chair, Balance and Falls Special Interest Group, American Physical Therapy, Geriatrics, Appointed
2018-	Board Member, Governor's Council on Aging in AR, Appointed
2017-	Institutional Review Board Representative, Department of Physical Therapy, UAMS, Little Rock, AR
2016-	Advisor, Hospital Falls Committee, Veterans Hospital of Northwest AR, Fayetteville, AR
2016-	Advisor, Community-Based Fall Prevention, Northwest Corridor Trauma Advisory Council
2016-	Reviewer, conference proposals and awards, American Physical Therapy, Geriatrics
2016-	Reviewer, conference proposals, Gerontological Society of America
2016-	Reviewer, numerous gerontology journals
2015-	Arkansas State Advocate, Academy of Geriatric Physical Therapy
2015-	Member, American Congress of Rehabilitative Medicine, Geriatric Rehabilitation Committee, Programming Committee, Reviewer
2015-	Advisory board member, Physical Therapy Program, UAMS Northwest, Fayetteville, AR
2014-	Member, Gerontological Society of America
2013-2015	Graduate Student Member, Institutional Review Board, University of AR, Fayetteville, Appointed
2013-2015	Member, Institutional Review Board, Northwest AR Community College, Bentonville, AR, Appointed
2010-	Advisory board member, Northwest AR Community College Physical Therapy Assistant Program, Bentonville, AR
2007-2008	Advisory board member, Communications, Cape Fear Valley Medical Center, Fayetteville, NC
1998-	Member, American Physical Therapy Association, Academy of Geriatric Physical Therapy, Neurology Section, Education Section, Balance and Falls SIG, Health Promotion and Wellness SIG

Clinical Licensures and Certifications

2021-	Board Certified Wound Specialist – American Board of Wound Management
2019-	Certified Brain Injury Specialist – The Academy of Certified Brain Injury Specialists
2018-	Certified Dementia Practitioner – National Council of Certified Dementia Practitoners
2012-	Board Certified Geriatric Clinical Specialist in Physical Therapy – American Board of Physical Therapy Specialties
2003-	Certified Health Education Specialist – National Commission for Health Education Credentialing
1999-	Licensed Physical Therapist – Federation of State Boards of Physical Therapy

Honors

2021	Wise Wordsmith Award, UAMS Translational Institute, Little Rock, AR – most manuscript submissions for rank of Associate Professor during 91-day writing challenge.
2020	Excellence in Research Award, UAMS College of Health Professions, Little Rock, AR
2020	President's Award, Member of task force to develop a Falls Prevention Awareness Toolkit, American Physical Therapy Association, Geriatrics
2020	Distinguished Service Award, American Physical Therapy Association, AR
2019-2022	KL2 Research Career Development Scholar, UAMS
2019	Phenomenal Woman Award UAMS, Little Rock, AR
2016	Junior Faculty Development Award, Geriatric Workforce Enhancement Program (HRSA, DHHS), UAMS, Little Rock, AR
2015	Adopt-A-Doc Award, American Physical Therapy, Geriatrics
2014	Adopt-A-Doc Award, American Physical Therapy, Geriatrics
2013	Outstanding Doctoral Student, University of AR, Fayetteville
2013	Poster Award, Gerontological Society of America, Emerging Scholar and Professional Org.

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C. Contribution to Science

1. *Differences in body composition, muscle function, and mobility among aging physically inactive, recreationally active, and masters athletes.* My early contributions to science, collaborating as a primary or co-investigator with other doctoral students, were focused on assessing differences in functional abilities among aging adults based on physical activity status (physically inactive, recreationally active, masters athletes). We found that masters athletes outperform physically inactive and recreationally active aging adults of comparable age. These investigations highlight the importance of physical activity as an intervention to decrease factors related to falls risk among aging adults.
   a. Glenn, J.M., Gray, M., and **Vincenzo, J.L.** (2015). Differences in regional adiposity, bone mineral density, and physical exercise participation based on exercise self-efficacy among senior adults. *Journal of Sports Medicine and Physical Fitness.* 55(10), 1166-1173. PMID: 24923790
   b. Glenn, J.M., **Vincenzo, J.L.,** Canella, C.K., Binns, A., and Gray, M. (2015). Habitual and maximal dual-task gait speeds among sedentary, recreationally active, and masters athlete late-middle aged adults. *Journal of Aging and Physical Activity, 23*(3), 433-437. PMID: 25342654
   c. Glenn, J.M., Gray, M. **Vincenzo, J.L**., and Stone, M.S. (2016). Functional lower-body power: A comparison study between sedentary, recreationally active, and masters athlete late-middle aged adults. *Journal of Aging and Physical Activity, 24*(4), 501-507. DOI: 10.1123/japa.2015-0208. PMID: 26796422
   d. Glenn, J.M., Gray, M. Powers, M., Paulson, S., **Vincenzo, J.L.**, and Stone, M.S. (2017). An evaluation of functional sit-to-stand power in cohorts of healthy adults aged 18 – 97 years. *Journal of Aging and Physical Activity, 25*(2), 305-310. DOI: 10.1123/japa.2016-0031. PMID: 27768504
2. *Novel assessments and interventions for balance and function in older adults.* I served as PI on projects researching novel assessments and interventions for balance and falls prevention. In the first study, I evaluated the effectiveness of postural sway, evaluated through a smart device, in older adults. I found the application was not discriminant of fall history in older adults. I also served as PI on studies investigating a novel, non-exercise intervention that demonstrated improvements in balance, mobility, and falls in people with multiple sclerosis called Balance-Based Torso-Weighting (BalanceWear; BW). However, the use of BW had not been investigated in older adults with impaired balance and mobility. This led me to conduct a 5-day double-blind, randomized control trial on the short-term effects of BW on mobility in mobility-limited older adults and a 4-month follow-up cohort study. My colleagues and I found improvements in mobility at 5 days and improvements in other measures over 4 months. I also evaluated the discriminant validity of lower extremity power measured during a chair stand in predicting falls history among older adults. We found that average velocity was the most predictive of falls history. These studies highlight my interest in investigating novel methods to assess and improve balance and decrease fall risk among aging adults.
   a. **Vincenzo, J. L.,** Gray, M., and Glenn, J.M. (2018). Validity of a novel, clinically relevant measure to differentiate functional power and movement velocity and discriminate fall history in older adults: A pilot investigation. *Innovation in Aging,* 2(3). PMCID: PMC6200124
   b. Noah, S., Gibson-Horn, C., and **Vincenzo, J.L.** (2018, epub ahead of print). Four months wearing a balance orthosis improves measures of balance and mobility among a cohort of community-living older adults. *Journal of Geriatric Physical Therapy.* 42(4), 216-223. PMID: 29351127
   c. **Vincenzo, J.L.,** Gibson-Horn, C., and Gray, M. (2017). Short-Term Effect of BalanceWear Therapy on Mobility in Older Adults with Mobility Limitations. *Journal of Geriatric Physical Therapy, 40*(4), 175-182. PMID: 27341326
   d. **Vincenzo, J.L.**, Glenn, J.M., Gray, S., and Gray, M. (2016). Postural sway, as measured by the sway balance smart device application, does not discriminate between older persons with and without a fall history. *Aging Clinical and Experimental Research, 28(4),* 679-686. PMID: 26458942

3. *Falls prevention using the CDC's STEADI toolkit*. I have conducted investigations using the CDC's STEADI toolkit for falls risk screening, assessment, and intervention. As a PI under a Geriatric Junior Faculty Development Award grant at UAMS, I conducted 2 studies. The first investigated the sensitivity and specificity of the STEADI with community-dwelling older adults compared to retirement facility-dwelling older adults. We found that the STEADI performed better for community-dwellers but still had a high false-negative rate for falls. In the second study, I investigated older adults' adherence to the falls prevention recommendations after voluntarily attending a community falls risk screening. I found that older adults' adherence was approximately 57% and that none of the older adults adhered to recommendations for

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follow-up for medication management, physical therapy, or podiatry. These findings highlight the need to implement the STEADI in other settings such as outpatient rehab, which allows follow-up to support older adults' engagement in falls prevention.

a. **Vincenzo, J. L.,** Patton, S.K. (2021, Epub ahead of print 2019). Older adults' experience with fall prevention recommendations derived from the STEADI. *Health Promotion Practice. 22*(2);236-247. PMID: 31353961.
b. Nithman, R.W and **Vincenzo, J.L.** (2019). How steady is the STEADI? Inferential analysis of the CDC fall risk toolkit. *Archives of Gerontology and Geriatrics, 83;*185-194. PMID: 31075677

4. *Falls prevention and referrals to evidence-based falls prevention programs.* As research co-lead for the American Physical Therapy Association/National Council on Aging Task Force, I led a national survey study regarding physical therapists' knowledge and management falls risk, the STEADI toolkit, and referrals to evidence-based programs. This project has resulted in 2 first author publications, a coauthor publication, a first-author manuscript under review, and a coauthor manuscript under review. Although PTs report that they are screening older adults for falls, we found that they report screening a low number of older adults. Only 50% of PTs were familiar with STEADI. However, 84% of the PTs familiar with STEADI choose to use it in clinical practice. These data highlight that STEADI can be integrated in clinical practice to support falls prevention for older adults. I also worked with another group of colleagues analyzing the NCOA grantees database to identify the reach and effectiveness of evidence-based falls prevention programs. We found that the programs reach over 85,000 older adults and, in real-world settings, are effective at decreasing fear of falling, falls, and injurious falls. These data highlight the importance of integrating STEADI (including referrals to evidence-based falls prevention programs) into physical therapy for older adults attending rehab.

a. **Vincenzo, J.L.,** Hergott, C., Schrodt, L., Rohrer, B., Brach, J., Tripken, J., Shirley, K.D., Sidelinker, J.C., & Shubert, T.E. (2020). Capitalizing on virtual delivery of community programs to support health and well-being of older adults. *Physical Therapy.* Apr 4;101(4):pzab001. PMCID: PMC8023634
b. **Vincenzo, J.L.,** Hergott, C., Schrodt, L., Perera, S., Tripken, J., Shubert, T.E., & Brach, J. (2021). Physical therapists as partners for community fall risk screenings and referrals to community programs. *Frontiers Public Health.* Published online. PMCID: PMC8267879
c. Schrodt L., Sledge R., Hergott C., Rohrer B., Sidelinker J.C., Brach J.S., **Vincenzo J.L.**, Shirley K., Shubert T. (2021) Clinical-community connections: Incorporating evidence-based programs for improved patient outcomes. *Topics in Geriatric Rehabilitation*;37(3):163-167. PMCID: PMC8336763
d. Brach, J.S., Juarez, G., Perera, S. Cameron, K., **Vincenzo, J.L**., & Tripken, J. (2021). Dissemination and implementation of evidence-based falls prevention programs: Reach and Effectiveness*. Journal of Gerontology: Medical Sciences.* PMC Journal – In Process

5. *Older adults' perspectives regarding falls prevention, strategies, and a falls prevention a self-management plan.* As a PI funded by a KL2 Mentored Research Career Development Grant from UAMS, I investigated older adults' perspectives regarding various aspects of falls prevention. This project has resulted in 2 first-author publications, a coauthor publication, a first-author manuscript under review, and a first-author manuscript in progress. I found that older adults are interested and open to receiving fall prevention as part of their rehab, even if it is an unrelated issue. I also found that there were gender differences regarding falls and prevention among older adults. Older adult suggested strategies to improve engagement in falls prevention are about increasing knowledge concerning falls and prevention rather than engagement. In addition, I have a manuscript under review titled, "*A qualitative study of older adults' facilitators, barriers, and cues to action to falls prevention using health belief model constructs*" and another manuscript in progress titled, "*Older adults' perceptions of a falls prevention self-management plan.*"

a. **Vincenzo, J. L.**, Patton, S.K.P., Lefler, L.L., Falvey, J.R., McElfish, P.A., Curran, G., & Wei, J. (2021) Older adults' perspectives regarding the role of physical therapy providers for falls prevention: A qualitative investigation. *Journal of Geriatric Physical Therapy.* Epub ahead of print. PMID: 33782360. PMC Jouranl – In Process
b. Patton, S.K.P., **Vincenzo, J.L**., & Lefler, L.L. (2021). Gender differences in older adults' perceptions of falls and fall prevention. *Health Promotion Practice.* Epub ahead of print. PMID: 33969733. PMC Journal – In Process

Complete List of Published Work in MyBibliography https://www.ncbi.nlm.nih.gov/myncbi/16ejio6nv6cA9/bibliography/public/

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OMB No. 0925-0001 and 0925-0002 (Rev. 03/2020 Approved Through 02/28/2023)

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: Bean, Jonathan F.

eRA COMMONS USER NAME (credential, e.g., agency login): JBEAN1

POSITION TITLE: Director/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.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Vermont	BA	05/1985	Psychology
SUNY at Buffalo, School of Medicine	MD	06/1989	Medicine
Tufts University	Resident	10/1993	Physical Medicine and Rehabilitation
Boston University	MS	05/1998	
Harvard School of Public Health, Boston, MA	MPH	05/2007	Exercise Physiology Clinical Effectiveness

A. Personal Statement

As a Physiatrist and the Director of the New England Geriatric Research Education and Clinical Center (GRECC), I have the unique opportunity to pursue geriatric rehabilitative research by collaborating with outstanding researchers focusing in rehabilitation, epidemiology, exercise science, geriatrics, mental health, nursing, and neuroscience. I have developed a rich network of collaborators regionally and nationally. Additionally, I have established myself as an accomplished mentor of young investigators in the fields of Aging and Rehabilitation. My role as research mentor has been supported by a K24 award (K24HD070966 and K24 AG069176-06). Through this K24 award, I mentored over 25 trainees from diverse backgrounds in patient-oriented research addressing important questions concerning geriatric rehabilitative care. This work resulted in over 60 publications. My trainees have received awards for their work from national organizations in the fields of aging, geriatrics, and rehabilitation. I am committed to serving as a mentor in a similar capacity within this application. My work focuses on mobility recovery and the prevention of future decline among older adults. I developed an innovative outpatient rehabilitation program, Live Long Walk Strong, that produces large clinically meaningful improvements in mobility among both civilians and Veterans. Dr. Vincenzo's K76 proposal to implement STEADI for falls prevention in outpatient rehabilitation, aligns with my work. Dr. Vincenzo and I have been colleagues for the past 7 years, and regularly meet at national meetings to discuss our related research. Through the K76, Dr. Vincenzo will use implementation science to identify barriers and facilitators to implementing STEADI in outpatient rehabilitation, engage stakeholders to develop implementation strategies to support uptake, and pilot test the implementation strategies to support using STEADI in outpatient rehabilitation. Dr. Vincenzo's long-term career goal is to be an Implementation Scientist leading transformation of falls prevention in rehabilitative care. I will serve as a co-mentor on this award, specifically regarding geriatric research, leadership, and implementing programs in outpatient rehabilitation. I will leverage our environment and resources to ensure Dr. Vincenzo has everything needed to successfully complete the aims of this K76 proposal. Dr. Vincenzo is clearly an outstanding junior investigator who is on the path to independence, and I fully support her career development application.

Ongoing and recently completed projects that I would like to highlight include:

RX003095-01A1 Bean (PI) 10/1/2019-6/30/2023
Veterans Health Administration
Rehabilitation Research and Development Service
The Live Long Walk Strong Rehabilitation Program: What Features Impact Mobility Skills?
Slow walking speed is highly prevalent among Veterans beginning in midlife and a predictor for subsequent hospitalization, disability, and death. Live Long Walk Strong (LLWS) is a rehabilitative-based preventative care program targeting patients with slow gait speed. This study will address 3 aims:1) To conduct a phase II

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RCT of LLWS in comparison to controls and evaluate its efficacy; 2) Evaluate the attributes that lead to improved gait speed after 8 weeks of LLWS treatment; and 3) Identify the attributes that are associated with sustained gait speed gains 16 weeks after LLWS ends

1 I50 RX003430-01 Bean-PI, Co-PIs Moy; Scioli 10/1/2020-9/30/2025
VA Research Enhancement Award Program
The VA Reserve Education Assistance Program Center for Prehabilitative Care: Optimizing Mobility, the Mind, and Motivation
The average age of US Veterans is 64 years old, and when compared to civilians of the same age, Veterans are more functionally impaired. To better serve aging Veterans, we must identify treatments that improve health and independence across the lifespan. We will bring together 3 recently funded VA Rehabilitation Research and Development grants through their joint focus on rehabilitative care as a mode of care that focuses on secondary prevention of functional decline and disability. Our research program will support research derived from the joint platform of these 3 studies. It will develop personalized treatments that target physical function, cognition, and motivation of middle aged and older Veterans impacting VA care regionally and nationally.

K24 AG069176-06 Bean (PI) 9/30/2020-5/31/2025
National Institute of Aging
A Research Mentoring Program in Geriatric Rehabilitative Care
There is a great need for the development of experienced research mentors in the field of geriatric rehabilitation care. The goal of this project is to support the mentoring and training of young investigators in geriatric rehabilitative Patient-Oriented Research. Elements of the training will include direct mentoring with the PI, training in the responsible conduct of research, training in research project management, data analysis training and support, biostatistical consultation, and a K24 advisory board consisting of senior scientists with expertise in important content areas including implementation research.

B. Positions, Scientific Appointments, and Honors

Positions and Scientific Appointments

2019-	Professor, Department of Physical Medicine and Rehabilitation (PM&R), Harvard Medical School, Boston, MA
2015-	Director, New England GRECC, Boston VA Health Care System
2015-	Adjunct Associate Professor, Boston University School of Medicine
2013-2015	Co-Chair, American Congress of Rehabilitation Medicine, Geriatric Rehabilitation Networking Group
2012	Member, American Congress of Rehabilitation Medicine
2011-	Adjunct Professor, Massachusetts General Hospital Institute of Health Professions
2010-2019	Associate Professor, Department of PM&R, Harvard Medical School, Boston, MA
2007-2014	Co-Chair, American Geriatrics Society Liaison, American Academy of Physical Medicine and Rehabilitation (AAPM&R), National
2006-2014	Director, Research Training and Education, Department of PM&R, Harvard Medical School, Boston, MA
2004-2006	Chairperson, Geriatric Rehabilitation Special Interest Group, AAPM&R
2004	Associate Editorial Board Member, Archives Physical Medicine & Rehabilitation
2003-2017	Member, Research Committee, AAPM&R,
2001-2003	Education Coordinator, Geriatric Rehabilitation Special Interest Group, AAPM&R
2001	Member, American Geriatric Society
2002-2010	Assistant Professor, Department of PM&R, Harvard Medical School, Boston, MA
2000-	Consultant, Brigham and Women's Hospital, Boston, MA
1999	Member, Gerontological Society of America
1999	Member, Association of Academic Physiatrists
1998-	Consultant, Massachusetts General Hospital, Boston, MA
1998-2005	Director, Geriatric PM&R, Spaulding Rehabilitation Hospital, Boston, MA
1998-2004	Director, Geriatric PM&R, Hebrew Rehabilitation Center for the Aged, Boston, MA
1998-2002	Instructor, Department of PM&R, Harvard Medical School, Boston, MA
1997-1998	Chief, Physical Medicine and Rehabilitation Services, VA Medical Center, Boston, MA

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1996-1997 Acting Chief, Physical Medicine and Rehabilitation Services, VA Medical Center, Boston, MA
1994-1996 Staff Physiatrist, VA Medical Center, Boston, MA
1993-1994 Staff Physiatrist, New England Medical Center, Boston, MA
1990-2020 Member, AAPM&R

Honors

2017 Excellence in Rehabilitation of Aging Persons Award, Gerontological Society of America
2015 Carolyn Braddom Ritzler Research Award, Association of Academic Physiatrists
2015 Excellence in Writing Award, Honorable Mention Mentor, Association of Academic Physiatrists
2013 Best Paper Award-Medical Student Mentor, Association of Academic Physiatrists
2011 Partners in Excellence Award, Partners HealthCare
2010 Presidential Poster Award, Annual Meeting American Geriatrics Society
2009 Outstanding Poster Award, Annual Meeting Association of Academic Physiatrists
2008 Best Poster Award, Annual Meeting American Geriatrics Society
2007 Best Paper Award-Medical Student Mentor, Association of Academic Physiatrists
2004 Poster citation for excellence in musculoskeletal research, Physiatric Association of Spine, Sports, and Occupational Rehabilitation/AAPM&R
2002 Best Paper Award-Medical Student Mentor, Association of Academic Physiatrists
2003 Dennis W. Jahnigan Career Development Scholar Award, American Geriatrics Society
2001 Best Poster, Association of Academic Physiatrists Annual Meeting
1999 Geriatric Research Fellowship Award, Harvard/Hartford Center for Excellence in Geriatric Medicine
1998 Director's Commendation, Department of Veteran Affairs
1998 The New Investigator Award, Educational Research Fund, AAPM&R

C. Contributions to Science

1. *Identification of Modifiable Risk Factors for Mobility Decline.* To enhance mobility, rehabilitation targets the impairments that are most responsible for mobility decline. Prior to our work, the subset of neuromuscular impairments that are most responsible for mobility decline were not known. Our work has identified a subset of neuromuscular impairments that are responsible for mobility decline including limb strength, limb velocity, trunk extensor muscle endurance and limb range of motion. Many of these discoveries have emanated from the National Institute on Aging-funded Boston Rehabilitative Impairment Study of the Elderly (RISE) cohort, which is unique, given that it is conceptually designed around a rehabilitative care paradigm for older adults.
   a. Bean, J.F., Latham, N.K., Holt, N.E., Kurlinski, L., Ni, P., Leveille, S., Percac-Lima, S. & Jette, A. (2013). Which neuromuscular attributes are most associated with mobility among older primary care patients? *Arch Phys Med Rehabil*. 94(12), 2381-8.PMCID:PMC3874862.
   b. Jor'dan, A.J., Jabcob, M.E., Leritz E., Bean, J.F. (2020) Neuromuscular attributes are associated with poor mobility in older adults with vascular risk conditions. *J Frailty Aging.* 9(1):30-36. PMCID: PMC8040132
   c. Jacob M.E., Travison T.G., Ward R.E., Latham N.K., Leveille S.G., Jette A.M., Bean J.F. (2019) Neuromuscular Attributes Associated With Lower Extremity Mobility Among Community-Dwelling Older Adults. *J Gerontol A Biol Sci Med Sci*. 74(4):544-549. PMCID: PMC6417482.

2. *Identifying the relationships between Pain, Cognitive Impairment and Mobility.* While pain has long been the focus of clinicians caring for older patients with musculoskeletal disorders, it had not been formally identified as an important risk factor for falls or incident mobility problems. Similarly, cognitive impairment was not recognized as a condition closely linked to mobility problems. Our work has: 1) identified pain as independent risk factor for falls and decline in mobility skills, 2) identified the association of cognitive impairment with both observed and self-reported mobility, and 3) identified that the presence of both pain and cognitive impairment are associated with augmented limitations in mobility.
   a. Leveille, S.G., Jones, R.N., Kiely, D.K., Shmerling, R.H., Hausdorff, J.M., Guralnik, J.M., Kiel, D.P., Lipsitz, L.A. & Bean, J.F. (2009). Chronic Musculoskeletal Pain and the Occurrence of Falls in an Older Population: The MOBILIZE Boston Study. *JAMA.* 302(20), 2214-2221. PMCID:2927855.
   b. Pedersen M.M., Holt N.E., Grande L., Kurlinski L.A., Beauchamp M.K., et al. (2014). Mild Cognitive Impairment Status and Mobility Performance: An analysis from the Boston RISE Study. *J Gerontol Med Sci*. 69(12), 1511-8. PMCID 4296116.

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c. Eggermont, L.H., Leveille, S.G., Ling, S., Kiely, D.K., Shmerling, R.H., Jones, R.N., Guralnik, J.M. & Bean, J.F. (2014). Pain characteristics associated with the onset of disability in older adults: The MOBILIZE Boston Study. *J Am Geriatr Soc*. 62(6),1007-16. PMCID:2423985.
d. van der Leeuw G., Leveille S.G., Dong Z., Shi L., Habtemariam D., Milberg W., Hausdorff J.M., Grande L., Gagnon P., McLean R.R,. Bean J.F. (2018) Chronic Pain and Attention in Older Community-Dwelling Adults. *J Am Geriatr Soc.* 66(7):1318-1324. PMCID: PMC6181226.

3. *Developing new paradigms of rehabilitative care.* While rehabilitative exercise is considered a standard of care treatment for patients with mobility problems and falls, the optimal approach of care is not known. Our laboratory has been engaged in clinical trials focusing on novel rehabilitative exercise paradigms addressing the enhancement of mobility skills among older adults. This has included efficacy studies comparing modes of strength and power training and effectiveness trials targeting patients with hip fracture and falls. We participated in designing the intervention for an ongoing multi-center trial targeting the prevention of fall related injuries. Successful civilian-based and VA-based clinical demonstration projects have been developed based on these series of investigations.
    a. Latham, N.K., Harris, B.A., Bean, J.F., Heeren, T., Goodyear, C., Zawacki, S., Heislein, D.M., Mustafa, J., Pardasaney, P.K., Giorgetti, M., Holt, N.E., Goerhing, L. & Jette, A. (2014). Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: a randomized clinical trial. *JAMA.* 311(7):700-8. PMCID: PMC4454368
    b. Brown LG, Ni M, Schmidt CT, Bean JF. (2017) Evaluation of an outpatient rehabilitative program to address mobility limitations among older adults. *Am J Phys Med Rehabil*. 96(8):600-606.
    c. Bean JF, Brown L, DeAngelis TR, et al. (2019) The Rehabilitation Enhancing Aging Through Connected Health Prehabilitation Trial. *Arch Phys Med Rehabil*. 100(11):1999-2005. doi:10.1016/j.apmr.2019.04.015. PMID: 31152705

4. *Research Training.* This laboratory is established as a training ground for medical students, resident physicians, doctoral and post-doctoral fellows, and junior faculty focused on the care of older adults. Trainees have received awards for their work from national organizations in the fields of aging, geriatrics and rehabilitation. In recognition of my excellence as a mentor, I was awarded a NIH K24 mid-career award funded by the National Institute of Child Health and Human Development in 2012.
    a. Suri, P., Kiely, D.K., Leveille, S.G., Frontera, W.R. & Bean, J.F. (2011). Increased trunk extension endurance is associated with meaningful improvement in balance among older adults with mobility problems. *Arch Phys Med Rehabil.* 92(7), 1038-43. PMCID:PMC3124606
    b. Ward RE, Beauchamp MK, Latham NK, Leveille SG, Percac-Lima S, Kurlinski L, Ni P, Goldstein R, Jette AM, Bean JF. (2016) Neuromuscular impairments contributing to persistently poor and declining lower-extremity mobility among older adults: new findings informing geriatric rehabilitation. *Arch Phys Med Rehabil*. 97(8):1316-1322. PMCID: PMC4967009
    c. Quach L, Ward RE, Pederson MM, Leveille S, Bean J. (2017) The Association between Cognitive Impairment, Social Engagements, and Falls among Older Primary Care Patients. *Arch Phys Med Rehabil*. 98(12):e159. doi: 10.1016/j.apmr.2017.09.033. PMCID: PMC7282702

List of Published Work in MyBibliography: http://www.ncbi.nlm.nih.gov/sites/myncbi/jonathan.bean.1/bibliography/41146972/public/?sort=date&direction=ascending

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BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
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NAME: Brach, Jennifer S.

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

POSITION TITLE: Professor of Physical Therapy

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

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
East Carolina University, Greenville, NC	BS	05/1992	Physical Therapy
University of Pittsburgh, Pittsburgh, PA	MS	12/1994	Physical Therapy
University of Pittsburgh, Pittsburgh, PA	PhD	08/2000	Epidemiology
University of Pittsburgh, Pittsburgh, PA	Postdoctoral	08/2001	Epidemiology/Aging
University of California, San Francisco, CA	certificate	06/2021	Implementation Science

A. Personal Statement

I am a physical therapist and epidemiologist with a background in patient-oriented research in aging and disability prevention. Since my graduate work in 1995, I have been involved with large scale epidemiological studies of aging (Cardiovascular Health Study [CHS] and Health Aging and Body Composition Study), focusing on measures of gait and physical function. In 2005, I was the first nonphysician to receive the prestigious Paul Beeson Career Development Award in Aging from the National Institute on Aging to study gait variability in older adults. Over the past several years, I have identified gait characteristics that contribute to impaired mobility and have developed a task specific exercise intervention focusing on the timing of coordination of gait to improve mobility. I currently have an R01 to examine the efficacy and sustained effects of this intervention in older adults with impaired mobility (R01 AG045252). I translated this task-specific exercise intervention into a group exercise program for older adults (On the Move, or OTM) and recently completed a Patient-Centered Outcomes Research Institute (PCORI) funded cluster randomized trial that established the effectiveness of the OTM program when taught by research personnel.

Over my research career, I have developed expertise in mobility and aging, attracting individuals from a wide variety of disciplines–engineering, epidemiology, physical therapy, geriatric medicine, and health and physical activity to seek mentorship with me. I have demonstrated a strong commitment to a career in patient-oriented research, publishing 106 manuscripts, 30 as first author and 23 as senior author. I have served as PI on NIH K23 and R01 applications and on a Clinical Effectiveness Research PCORI, and I served as Co-I on a PCORI, on NIH R01, R18, and R21 applications and on a National Science Foundation grant. I have a substantial and growing track record of mentorship of trainees from a variety of disciplines and in the last 5 years, I have mentored 9 PhD students, 4 postdoctoral fellows, and 5 junior faculty. In 2017, I was awarded a K24 Mid-Career Research and Mentoring Program grant that provides additional protected time from teaching and administrative responsibilities for me to conduct patient-oriented research and to mentor health professional trainees and junior faculty in patient-oriented aging research. I have been collaborating on several projects with Dr. Vincenzo over the past year including the Academy of Geriatric Physical Therapy task force on clinic-community connections and with the National Council on Aging, resulting in 4 peer-reviewed publications together. My expertise complements Dr. Vincenzo's expertise and experience. I am pleased to serve as a co-mentor for this Career Development Award, focusing my mentorship on mixed methods research and implementation science of programs for older adults.

Ongoing projects that I would like to highlight include:

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PCORI
Brach (PI)
12/1/2020 – 11/30/2022
Establishing a Distribution Approach for the On the Move Group Exercise Program
The overall objective of this dissemination effort is to increase the number of sites offering OTM and the number of older adults participating in OTM. We will accomplish the overall objective by pursuing the following three aims: Aim 1: Identify all key end users of OTM and determine the best approach to reach each end user. Aim 2: Promote further awareness and adoption of OTM among key end users. Aim 3: Evaluate the success of our dissemination efforts and explore the influence of contextual factors on that success.

P30 AG024827
Greenspan (PI), Role: Co-Director Research Education Component
07/01/20-06/30/25
Claude D. Pepper Older Americans Independence Center
The specific aims of the Pepper Center are to develop interventions to improve function and independence in older adults with balance disorders, integrate studies of physiologic, biomechanical and psychosocial mechanisms affecting balance with clinical studies, and foster multidisciplinary research and research training. Role: Co-Director Research Education Component

K24 AG057728
Brach (PI)
09/01/2017-08/31/2022
Midcareer Investigator Award in Translational Patient-Oriented Research in Aging
The goals of this K24 Midcareer Investigator Award in Patient-Oriented Research are for Dr. Brach to 1) establish a research training and mentoring program that will prepare beginning scholars to become successful, independent, patient-oriented researchers in disability prevention in aging, 2) obtain additional training and participate in practical experiences in dissemination and implementation science that will enhance her translational research skills, and 3) extend her currently funded work to bridge the gap between clinical research and practice settings and the community.

R01 AG057671-01A1
Rosso (PI), Role: Co-investigator
08/01/2018-07/31/2023
Restoring Central Motor Control to Improve Community Mobility of Older Adults.
Motor skill training therapy aims to improve the brain’s control of walking and can improve clinic-based measures of walking in older adults. However, it is unknown whether the benefits of motor skill training extend to real world mobility measures. We will test the effects of motor skill training on measures of community mobility of older adults and assess the mechanisms through improved motor control at the level of the brain. These results will inform intervention approaches to maintain community mobility of older adults and prevent disability and institutionalization.

I01 RX003095
Bean (PI), Role: Co-investigator
07/01/2019-06/30/2023
VA Health System
The Live Long Walk Strong rehabilitation program: What features improve mobility skills?
Slow walking speed is highly prevalent among Veterans beginning in midlife. We have strong clinical support that a new model of physical therapy care known as Live Long Walk Strong (LLWS) may be an efficacious treatment for those screened with slow gait speed. LLWS is highly innovative, as it prioritizes unconventional treatment targets not typically addressed in standard care, including impairments in: 1) leg power; 2) trunk muscle endurance; 3) gait coordination (smoothness of walking); and 4) self-efficacy to engage in exercise. We will conduct a phase II randomized controlled clinical trial (RCT) among Veterans 50 years and older to identify if LLWS care enhances these attributes and if by augmenting each, sustained improvements in gait speed result.

B. Positions, Scientific Appointments, and Honors

Positions

2019- Associate Dean for Faculty Affairs and Development, School of Health and Rehabilitation Sciences, University of Pittsburgh, Pittsburgh, PA

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2018-	Professor, Department of Physical Therapy, University of Pittsburgh
2011-2018	Associate Professor, Department of Physical Therapy, University of Pittsburgh
2004-2011	Assistant Professor, Department of Physical Therapy, University of Pittsburgh
2001-2004	Visiting Assistant Professor, Department of Physical Therapy, University of Pittsburgh
2000-2001	Post-Doctoral Researcher, Department of Epidemiology, University of Pittsburgh
1998-2000	Research Associate, Department of Epidemiology, University of Pittsburgh
1995-2001	Adjunct Clinical Assistant Professor, Department of Physical Therapy, University of Pittsburgh
1995-1998	Clinical Specialist/Team Leader CORE Network, LLC, Pittsburgh, PA
1993-1994	Graduate Student Assistant, Department of Physical Therapy, University of Pittsburgh
1992-1993	Staff Physical Therapist, Lancaster General Hospital, Lancaster, PA

Scientific Appointments

1/2019-	Member, Academy of Geriatric Physical Therapy/National Council on Aging Partnership Task Force
8/2018-12/2018	Completion of the Training Institute in Dissemination and Implementation Research in Health
7/2007-8/2008	Member, National Advisory Council, National Framework for Geriatric Home Care Practice, Center for Home Care Policy & Research
2008-2012	Member, American Geriatric Society
8/2007-	Member, Executive Advisory Board, Physical Activity Resource Center for Public Health
2001-	Member, Research Committee, Geriatric Section, American Physical Therapy Association
1992-	Member, Sections on Research and Geriatrics, American Physical Therapy Association
1992-	Member, Pennsylvania Physical Therapy Association

Honors

2019	Catherine Worthingham Fellow of the American Physical Therapy Association
2008	Excellence in Research Award, Section on Geriatrics, American Physical Therapy Association
2005	Paul B. Beeson Career Development Award in Aging
2005	New Investigator Award, American Geriatric Society
2002	Geriatric Award of Excellence, Pennsylvania Physical Therapy Association
2000	Induction into Delta Omega National Honor Society for Schools of Public Health
2000-2001	Best Written Doctoral Dissertation, Department of Epidemiology, University of Pittsburgh
2000-2001	Outstanding Doctoral Student, Department of Epidemiology, University of Pittsburgh
1998-1999	Doctoral Opportunities for Clinicians and Scholars, Promotion of Doctoral Studies I Award, Foundation for Physical Therapy
1998-2000	Adopt-a-Doc Scholarship, Geriatrics, American Physical Therapy Association
1996	Chattanooga Research Award, Best Clinical Research Article in Physical Therapy, Chattanooga Corp.
1988-1991	Alumni Scholarship, East Carolina University

C. Contributions to Science

1. *The association between physical activity and physical function.* My dissertation work and post-doctoral work focused on examining the association between physical activity and physical function in community dwelling older adults. My most notable publication in this area was in the Archives of Internal Medicine in 2003 (ref 1a). Here I present the results of a 14-year prospective study in which physical activity at baseline was strongly related to physical function 14 years later. I also began to examine different ways to quantify physical activity variables so that they would be meaningful to the reader. Many times, researchers will use arbitrary cut-points or percentiles to define physical activity groups. Using physical data from the Health Aging and Body Composition (ABC) Study, I created a physical activity classification variable that grouped individuals as being inactive, lifestyle active, or an exerciser. I showed that these meaningful groupings were related cross-sectionally to physical function (ref 1b). Health ABC researchers quickly adopted this method of classification and have used it in subsequent publications examining physical activity (ref 1c and 1d).
    a) **Brach JS**, FitzGerald S, Newman AB, Kelsey S, Kuller L, VanSwearingen JM, Kriska AM. Physical activity and functional status in community-dwelling older women: A fourteen-year prospective study. *Archives Intern Med* 2003;24:2565-2571. PMID: 14638556

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b) **Brach JS**, Simonsick EM, Kritchevsky S, Yaffe K, Newman AB, for the Health, Aging, and Body Composition Study Research Group. Lifestyle Activity and Exercise: The Association with Physical Function in the Health, Aging, and Body Composition (Health ABC) Study. *J Am Geriatr Soc* 2004;52:502-509. PMID: 15066063
c) Colbert LH, Visser M, Simonsick EM, Tracey RP, Newman AB, Kritchevsky SB, Pahor M, Taafe D, **Brach JS**, Cummings SR, Rubin S, Harris TB. Physical Activity, Exercise, and Inflammation in Older Adults: Findings from The Health, Aging, and Body Composition Study. *J Am Geriatr Soc* 2004;52:1098-1104. PMID: 15209647
d) Visser M, Simonsick EM, Colbert LH, **Brach JS**, Rubin SR, Kritchevsky SB, Newman AB, Harris TB. Type and Intensity of Activity and Risk of Mobility Limitation: The Mediating Role of Muscle Parameters. *J Amer Geriatric Soc* 2005;53:762-770. PMID: 15877550

2. *Gait variability: contributors, consequences, and measurement.* Throughout my career development award training, I focused on gait variability. I examined measurement issues such reliability and responsiveness (ref 3d). Often researchers overlook step width variability as a measure because it does not behave like other measures of gait variability. We showed that, unlike other measures of gait variability in which greater variability is unfavorable, step width variability has a desired measurement and that having either too much or too little step width variability can be detrimental (ref 2a). In conjunction with the Cardiovascular Health Study, I assembled one of the largest databases of gait variability measures in community older adults. I used this database to examine factors that contribute to gait variability (ref 2c). In this manuscript we showed that not all gait variability is the same and that different types of gait variability have different underlying contributors. This was instrumental in the gait variability literature and since this publication (ref 2c) others have been looking at the differences between different types of gait variability. We were the first to show the prospective association between gait variability and mobility disability in older adults (ref 2b). Specifically, we showed that gait variability added to the prediction of disability above and beyond that of gait speed.
   a) **Brach JS**, Berlin JE, VanSwearingen JM, Newman AB, Studenski SA. Too much or too little step width variability is associated with a fall history in older persons who walk at or near normal gait speed. *J Neuroengineering Rehabil* 2005,2:21. PMCID: PMC1187917
   b) **Brach JS**, Studenski SA, Perera S, VanSwearingen JM, Newman AB. Gait Variability and the Risk of Incident Mobility Disability in Community-dwelling Older Adults. *J Gerontol Med Sci* 2007;62A:983-988. PMCID: PMC2858390
   c) **Brach JS**, Studenski SA, Perera S, VanSwearingen JM, Newman AB. Stance Time and Step Width Variability Have Unique Contributing Impairments in Older Persons. *Gait & Posture* 2008;27:431-439. PMCID: PMC2276116
   d) **Brach JS**, Perera S, Studenski S, Katz M, Hall C, Verghese J. Meaningful Change in Measures of Gait Variability in Older Adults. *Gait & Posture* 2010;31:175-179. PMCID:PMC2818277

3. *Interventions to improve walking in older adults.* In addition to examining measures of function and gait, we have spent the past several years developing a task-specific motor learning intervention to improve walking in older adults (ref 3c). We first examined this intervention in older adults with slow and variable gait (ref 3a). We showed that individuals in the task-specific motor learning intervention had greater gains in gait efficiency and self-reported function than those in the impairment-based group. We also examined the interventions in a more robust group of older adults–older adults with near normal gait speed but impaired skill in walking. Once again, the task-specific motor learning intervention was superior to the impairment-based intervention in improving walking (ref 3b and 3c). This work served as preliminary data for our R01 (R01 AG045252).
   a) VanSwearingen JM, Perera S, **Brach JS**, Cham R, Rosano C, Studenski SA. A Randomized Trial of Two Forms of Therapeutic Activity to Improve Walking: Effect on the Energy Cost of Walking J Gerontol: Med Sci, 2009;64:1190-1198. PMCID: PMC2981453
   b) **Brach JS,** VanSwearingen JM, Perera S, Wert D, Studenski S. Motor Learning versus Standard Exercise in Older Adults with Subclinical Gait Dysfunction. J Amer Geriatr Soc. 2013;61:1879-1886. PMID:24219189, PMCID: PMC3827693
   c) **Brach JS** and VanSwearingen JM. Interventions to improve walking. Curr Transl Geriatr and Exp Gerontol Rep. 2013; 2(4). PMCID: PMC3851025

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d) **Brach JS**, Lowry K, Perera S, Hornyak V, Wert D, Studenski SA, VanSwearingen JM. Improving motor control in walking: A randomized clinical trial in older adults with subclinical walking difficulty. Arch Phys Med Rehabil. 2015;96:388-94. PMCID: PMC4850731

4. *On the Move – A community-based group exercise program for older adults*. In order to extend our clinical intervention to more of a health and wellness application, we developed a group-based exercise program called On the Move (OTM) (ref 4a), which was based on the task-specific motor learning intervention described above. Once we established the feasibility of the program, we involved stakeholders in the design and implementation of the comparative-effectiveness trial (ref 4b). We later conducted a cluster randomized, single-blind intervention trial to compare the effects of OTM and a standard strength and endurance group exercise program in community-dwelling older adults. Thirty-two sites were randomized to OTM (16 sites; 152 participants) or standard (16 sites; 146 participants). We showed that the OTM group exercise program was more effective at improving mobility (gait speed and 6-minute walk distance) than a standard group exercise program, despite lower attendance (ref 4c). We also demonstrated that community lay leaders could not get the same outcomes as research staff leaders who were healthcare and fitness professionals (4d). Future research plans include examining the implementation and dissemination of these findings.

   a) **Brach JS**, Francois SJ, VanSwearingen JM, Gilmore S, Perera S, Studenski SA. Translation of a motor learning walking rehabilitation program into a group-based exercise program for community-dwelling older adults. *PMR* 2016;8:520-8. PMCID: PMC4837083

   b) **Brach JS**, Perera S, Gilmore S, VanSwearingen JM, Brodine D, Wert D, Nadkarni NK, Ricci E. Stakeholder involvement in the design of a patient-centered comparative effectiveness trial of the “On the Move” group exercise program in community-dwelling older adults. *Contemp Clin Trials* 2016 Aug 10;135-142. PMCID: PMC5035644

   c) **Brach JS**, Perera S, Gilmore S, VanSwearingen JM, Brodine D, Nadkarni NK, Ricci E. Effectiveness of a Timing and Coordination Group Exercise Program to Improve Mobility in Community-Dwelling Older Adults: A Randomized Trial. *JAMA Intern Med* 2017;177(10):1437-1444. PMCID: PMC5710210

   d) Coyle PC, Perera S, Albert SM, Freburger JK, VanSwearingen JM, **Brach JS**. Potential long-term impact of "On The Move" group-exercise program on falls and healthcare utilization in older adults: an exploratory analysis of a randomized controlled trial. *BMC Geriatr* 2020 Mar 16;20(1):105. doi: 10.1186/s12877-020-1506-3. PMID: 32178633; PMCID: PMC7075006.

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/jennifer.brach.1/bibliograpahy/47877970/public/?sort=date&direction=ascending

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BIOGRAPHICAL SKETCH

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NAME: Jamie Michelle Caulley

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

POSITION TITLE: Physical Therapist, Clinical Advancement Program Lead

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

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
Linfield College	Bachelors of Science	05/1999	Exercise Science
Pacific University	Masters of Physical Therapy	05/2002	Physical Therapy
Pacific University	Doctorate of Physical Therapy	08/2002	Physical Therapy

A. Personal Statement

I am a physical therapist, the Clinical Advancement Program Lead in Falls and Balance Disorders, and a clinical liaison for the Senior Health Program at Providence Health and Services in Oregon. In these roles, I implemented the Centers for Disease Control and Prevention's Fall Prevention Toolkit, the STEADI (Stopping Elderly Accidents, Deaths, and Injuries), in 34 outpatient rehabilitation clinics in Oregon starting in 2017. With this implementation, I have developed patient and clinical resources, trained staff, and revised the electronic health record, and I continue to do these activities. I have and still work with some of the leading researchers in falls prevention to implement the STEADI in primary care and collaborate on research papers regarding the intersection of falls and dementia and the effects of a geriatric mini-fellowship on falls risk management. My background and experience allow me to serve as a consultant on Dr. Vincenzo's proposal to implement the STEADI in outpatient rehab using implementation science.

B. Positions, Scientific Employment, and Honors

Positions and Scientific Employment

2017-Present Clinical Advancement Program Lead, Providence Oregon Region, Falls and Balance Disorders, Providence Northeast Rehab, Portland, OR

2018-2020 State Advocate for Oregon for American Physical Therapy Association, Geriatrics

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2008-2017	Clinical Advancement Program Lead, Providence Oregon Region, Balance and Vestibular Disorders, Providence St. Vincent, Portland, OR
2008-2016	Guest lecturer, Pacific University, Vestibular Physical Therapy, Hillsboro, OR
2002-2008	Physical Therapist - Acute Care Stroke Team and Neurological Recovery Unit, Providence NorthEast Rehab, Portland, OR

Honors

2021	Nominated for the Providence Employee Values in Action Award

Specializations

2002-Present	Licensed Physical Therapist

Professional Memberships

2002-Present	American Physical Therapy Association
2015-Present	American Physical Therapy Association - Geriatrics, Neurology

C. Contribution to Science

1. Fall Prevention among Older Adults

My research interest and passion started in graduate school with my thesis on "The Ability of the TUG and the TUGmanual to Predict Falls in Varying Populations of Older Adults."
My active participation in this research provided me with my initial love of geriatrics and a solid understanding of the value and limitations of research. This experience prepared me for my current roles with the Providence Senior Health Program and the balance rehab clinical practice leader for our large hospital system. I currently organize clinical education and mentoring for physical therapists at Providence interested in applying fall prevention best practices. Additionally, my work with our primary care providers on fall prevention has led to publications regarding the intersection of falls and dementia and the effect of a four-week, interdisciplinary geriatric mini-fellowship on primary care provider practice.

A. Casey CM, **Caulley J**, Phelan EA. The Intersection of Falls and Dementia in Primary Care: Evaluation and Management Considerations. *Medical Clinics of North America*. 2020. Sep;104(5):791-806. doi: 10.1016/j.mcna.2020.06.003. Epub 2020 Jul 15. PMID: 32773046.
B. Casey CM, **Caulley J**, Fox A, Hodges M. Improving Primary Care Fall Risk Management: Adoption of Practice Changes After a Geriatric Mini-Fellowship. *Journal of Clinical Outcomes Management*. 2020. November;27(6):270-280 | 10.12788/jcom.0026.
C. **Caulley, J**. & Casey, C.M. Staying Flexible: Adapting Fall Risk Programming. GeriNotes, Epub, 2021. March; 28(2).
D. **Caulley, J.** The Ability of the TUG and the TUGmanual to Predict Falls in Varying Populations of Older Adults, Platform Presentation, *Combined Sections Meeting of the American Physical Therapy Association*, 2003.

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BIOGRAPHICAL SKETCH

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Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Geoffrey M. Curran, Ph.D.

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

POSITION TITLE: Professor

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

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Massachusetts, Amherst, MA	BA	05/1987	Sociology
Rutgers University, New Brunswick, NJ	MA	05/1991	Sociology
Rutgers University, New Brunswick, NJ	Ph.D.	10/1996	Sociology

A. Personal Statement

I have the background, training, and expertise to act as primary mentor for Dr. Vincenzo's Mentored Research Scientist Development Award. I have been conducting implementation research for over 20 years. My work focuses primarily on the adaptation and implementation of evidence-based practices in diverse clinical (e.g., primary care, specialty substance use disorders) and community settings (e.g., community pharmacies, churches). Much of this work focuses on developing and testing implementation strategies. I also focus on developing and revising methods and research designs in implementation science—specifically, formative evaluation methods for implementation intervention development and research designs for hybrid effectiveness-implementation studies. Recently, I have focused specifically on developing and testing implementation strategies to support implementation of a range of pharmacy services in community pharmacies. I serve or have served as PI, Co-PI, and Co-I on a wide range of NIH, Agency for Healthcare Research and Quality, Veterans Affairs (VA), Patient Centered Outcomes Research Institute, and foundation grants. I have been continuously extramurally funded for 20 years.

In addition to my scientific contributions, I have a strong history of mentoring. I have served as Director of a VA postdoctoral fellowship program and as Co-Director of a National Institute of Mental Health (NIMH) T32. I have mentored numerous postdoctoral fellows and junior faculty members, most of whom now hold academic positions with the University of Arkansas for Medical Sciences (UAMS) Center for Implementation Research and have extramural funding. I am also on the Steering Committee of the National Institute on Drug Abuse (NIDA) T32 at UAMS and training faculty on a T32 program at the University of Pennsylvania providing didactics and mentoring. I also teach 2 graduate-level courses in implementation science and methods, which Dr. Vincenzo will take for career development during this K76. I am the director of the UAMS Center for Implementation Research, whose mission is to build capacity for implementation research, train and mentor new implementation scientists, and work collaboratively with university and regional settings on quality improvement. Dr. Vincenzo has been a member of the Center for Implementation Research since I started serving as a co-mentor to her on her KL2 in 2019. Dr. Vincenzo has worked diligently on building a foundation in qualitative research to enable her to transition to learn and apply implementation science principles with older adult falls prevention. She and I have an established working and mentoring relationship, and I look forward to continuing our work together. I am confident that she has the intelligence and drive necessary to become an expert investigator and make major contributions to the field.

I will apply my experience with implementation research to mentor Dr. Vincenzo in her proposed research to design and test implementation strategies to support the adoption of falls prevention in outpatient rehabilitation. I also have experience designing and conduction research with stakeholders to facilitate implementation research, which I will use in supporting Dr. Vincenzo's recruitment and direction of a stakeholder panel. I have mentored Dr. Vincenzo to build a solid foundation in qualitative research and grantsmanship during her KL2 to

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support her readiness to pursue a K76 to focus on mixed methods research, implementation science, geriatric research, and leadership. As her primary mentor, I will be responsible for directing the organization of training and research, collaborating with her mentoring committee, and providing specialized mentoring in the area of Implementation Science. I will contribute to provide feedback on performance and progress, help to identify emerging research and training opportunities, clarify goals and expectations, and provide a forum for candid conversations. I will take supportive and corrective action to address any barriers to Dr. Vincenzo's success. I expect to dedicate 5% of my time to mentoring Dr. Vincenzo and agree with her mentoring and career development plan.

Dr. Vincenzo has exceeded my expectations with her KL2 award in her initiative and success. She and I have published one manuscript together from her KL2 and have another under review. Dr. Vincenzo and I are also working on a year-long project regarding the implementation of COVID vaccine events to support the underserved community. Dr. Vincenzo has established herself as an outstanding junior investigator who is on the path to independence as an implementation scientist, and I fully support her career training plan and research strategy.

Ongoing and recently completed projects that I would like to highlight include:

R18 HS025943
Snyder (Co-PI), Role: Co-PI
04/01/19 – 03/31/22
An Evaluation of the Spread and Scale of Patient Toc from Primary Care to Community Pharmacy Practice for the Collection of Patient-Reported Outcomes.

NCATS UL1TR003107
James (PI), Role: Co-investigator
07/01/19 – 06/30/24
Expanding Translational Research in Arkansas

R21 CA231180
Teeter (PI), Role: Co-investigator
04/01/19 – 03/31/22
Improving HPV Vaccination using Implementation Strategies in Community Pharmacies

Eshelman Institute of Innovation/UNC
Livet (Co-PI), Role: Co-PI
10/30/19 – 08/31/21
Evaluating a CMM telepharmacy model: a new frontier for providers and patients in rural communities

Eshelman Institute of Innovation/UNC
Carpenter (PI), Role: Site-PI
06/01/19 – 12/31/21
Rural Research Alliance of Community Pharmacies (RURAL-CP)

UF1 MH121942
Fortney J, Ratzliff A, Saxon A (MPI), Role: co-investigator
09/12/19 – 05/31/24
Collaborating to Heal Addiction and Mental Health in Primary care (CHAMP)

Citations:

1. **Curran GM**, Freeman PR, Martin BC, Teeter BS, Drummond KL, Bradley K, Thannisch MM, Mosley CL, Schoenberg N, Edlund M. Communication between pharmacists and primary care physicians in the midst of a U.S. opioid crisis. *Research in Social and Administrative Pharmacy*. 2019 Aug;15(8):974-985. doi: 10.1016/j.sapharm.2018.08.006. Epub 2018 Aug 10. PMID: 30170901.
2. **Curran GM**, Sullivan G, Mendel P, Craske MG, Sherbourne CD, Stein MB, McDaniel A, Roy-Byrne P. 2012. Implementation of the CALM Intervention for Anxiety Disorders: A Qualitative Study. *Implementation*

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Science. 7:14. PMCID: PMC3319426.
3. **Curran GM**, Bauer M, Mittman B, Pyne JM, Stetler C. 2012. Effectiveness-Implementation Hybrid Designs: Combining Elements of Clinical Effectiveness and Implementation Research to Enhance Public Health Impact. *Medical Care.* 50(3):217-226. PMCID: PMC3731143.
4. **Curran GM**, 2020. Implementation science made too simple: a teaching tool. *Implementation Science Communications*.1:27, Epub 2020 Feb 25. PMCID: PMC7427844.

B. Positions, Scientific Appointments, and Honors

Positions and Appointments

2014-	Professor, Department of Pharmacy Practice, College of Pharmacy, University of Arkansas for Medical Sciences, Little Rock, AR
2014-	Director, Center for Implementation Research, UAMS, Little Rock, AR
2013-	Professor, Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
2008-2014	Associate Director, Division of Health Services Research, Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
2007	Interim Director, Division of Health Services Research, Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
2005-2012	Associate Professor (with Tenure), Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
2002-2004	Implementation Research Coordinator, Mental Health Quality Enhancement Research Initiative, Central Arkansas Veterans Healthcare System (CAVHS), Little Rock, AR
2002-2011	Director, Postdoctoral Fellowship Program, VA HSR&D Center for Mental Healthcare and Outcomes Research, CAVHS, Little Rock, AR
2002-2010	Co-Director, T32 Postdoctoral Fellowship Program, NIMH Division of Health Services Research, Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
1999-2005	Assistant Professor, Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
1998-	Research Health Scientist, VA HSR&D Center for Mental Healthcare and Outcomes Research, CAVHS, Little Rock, AR
1997-1999	Instructor, Department of Psychiatry and Behavioral Sciences, UAMS, Little Rock, AR
1997-1998	Postdoctoral Fellow, HSR&D Field Program for Mental Health, Veterans Affairs Medical Center, Little Rock, AR
1996-1997	Research Fellow, University of Michigan, Substance Abuse Research Center (NIDA T-32)
1990-1996	Lecturer, Rutgers University, Department of Sociology, Courses: Sociology of Drug Use, Sociology of Deviant Behavior, Mass Communication in Modern Society, Introduction to Sociology

Honors

2010	Excellence in Research Education Award, South Central Mental Illness Research Education and Clinical Center, Department of Veterans Affairs
2004-2007	National Institutes of Health Loan Repayment Program
2003-2008	Mentored Career Award (K01), NIDA, NIH
1998	Junior Investigator Award, Research Society on Alcoholism and National Institute on Alcohol Abuse and Alcoholism
1998	Poster of the Year Award (Postdoctoral), Research Society on Alcoholism and National Institute on Alcohol Abuse and Alcoholism
1996	Honorable Mention, Thompson Award-for best paper by a graduate student, American Sociological Association, section on Organizations and Work

C. Contributions to Science

1. Methods in implementation research and study design have been a focus of my work. My earlier work in this area focused on developing formative evaluation methods to assist in the development and continuing refinement of implementation strategies along with making refinements to the evidence-based clinical interventions being supported by the implementation strategies. These methods combine quantitative measures of context (e.g., culture and climate), qualitative data collection from key stakeholders, and observations of clinic operations. My more recent methodological work has focused on identifying and

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refining hybrid (clinical/preventive) effectiveness–implementation trial designs. An effectiveness–implementation hybrid design is one that takes a dual focus *a priori* in assessing clinical/preventive effectiveness and implementation. We articulated 3 hybrid types: 1) testing effects of a clinical/preventive intervention on relevant outcomes while observing and gathering information on implementation, 2) dual testing of clinical/preventive and implementation interventions/strategies, and 3) testing of an implementation strategy while observing and gathering information on the clinical/preventive intervention's impact on relevant outcomes. Both emphasis areas have influenced the conduct of implementation research. Hybrid designs especially have been widely adopted and used in funded NIH and VA implementation research.

a. **Curran GM**, Allee, ME, Mukherjee S, Owen R. 2008. QUERI Series: A Process for Developing An Implementation Intervention. *Implementation Science*. 3:17. PMCID: PMC2278163.
b. Hagedorn H, Hogan M, Smith J, Bowman C, **Curran GM**, Espadas D, Kimmel B, Kochevar L, Legro M, Sales A. 2006. Lessons Learned About Implementing Research Findings Into Clinical Practice: Experiences from VA QUERI. *Journal of General Internal Medicine*. 21(2):S21-S24. PMCID: PMC25571313.
c. **Curran GM**, Pyne J, Fortney JC, Gifford A, Asch SM, Rimland D, Rodriguez-Barradas M, Monson TP, Kilbourne AM, Hagedorn H, Atkinson JH. 2011. Development and Implementation of Collaborative Care for Depression in HIV Clinics. *AIDS Care*. 23(12):1726-1836. PMID: 21714689.
d. **Curran GM**, Bauer M, Mittman B, Pyne JM, Stetler C. 2012. Effectiveness-Implementation Hybrid Designs: Combining Elements of Clinical Effectiveness and Implementation Research to Enhance Public Health Impact. *Medical Care*. 50(3):217-226. PMCID: PMC3731143.

2. In addition to methods contributions, I have also made contributions to the implementation science literature around the development of implementation interventions/strategies, specifically, facilitation strategies to support uptake and sustainability. My colleagues and I have developed and demonstrated the effectiveness of a range of "external" (provided by experts/consultants external to the clinical/preventive context) and "internal" (provided by trained change agents internal to the clinical/preventive context) facilitation strategies (e.g., academic detailing, web-based training, audit and feedback of performance data, use of opinion leaders and local champions, use of automated reminders, and leadership engagement). A "blended external-internal" facilitation approach proved effective in promoting uptake of collaborative care for mental health in primary care settings in the VA. Subsequently, VA mental health operations adopted the practice for supporting implementation of other complex behavioral interventions.
   a. Kirchner JE, Ritchie M, Pitcock JA, Parker LE, **Curran GM**, Fortney JC. 2014. Outcomes of a Partnered Facilitation Strategy to Implement Primary Care – Mental Health. *Journal of General Internal Medicine*. 29(4):904-912. PMID: 25355087; PMCID: PMC4239280.
   b. **Curran GM**, Thrush CR, Smith JL, Ritchie M, Owen RR, Chadwick D. 2005. Implementing Research Findings into Practice Using Clinical Opinion Leaders: Barriers and Lessons Learned. *Joint Commission Journal on Quality and Safety*. 31(12): 700-707. PMID: 16430023.
   c. Stetler C, Legro M, Rycroft-Malone J, Bowman C, **Curran GM**, Guihan M, Hegedorn H, Pineros S, Wallace C. 2006. Role of 'External Facilitation' in Implementation of Research Findings: A Qualitative Evaluation of Facilitation Experiences in the Veterans Health Administration. *Implementation Science.* 1:23 (18 October 2006). PMCID: PMC1635058.
   d. **Curran GM**, Pyne J, Fortney JC, Gifford A, Asch SM, Rimland D, Rodriguez-Barradas M, Monson TP, Kilbourne AM, Hagedorn H, Atkinson JH. 2011. Development and Implementation of Collaborative Care for Depression in HIV Clinics. *AIDS Care*. 23(12):1626-1636. PMID: 21714689.

3. I have also made contributions to the scientific literature and practice around recognizing and treating comorbid psychiatric and substance use disorders. I have completed research demonstrating poorer outcomes associated with such comorbidity compared to "single" diagnoses in multiple health contexts. I have contributed to both science and practice concerning how best to implement screening and interventions for mental health and substance use disorders in substance use disorder treatment settings.
   a. **Curran GM**, Flynn HA, Kirchner JE, Booth BM. 2000. Depression After Alcohol Treatment as a Risk Factor for Relapse. *Journal of Substance Abuse Treatment.* 19(3):259-265. PMID: 11027896.
   b. Fortney JC, Pyne JM, Ward-Jones S, Bennet IM, Diehl J, Farris K, Cerimele JM, **Curran GM**. 2018. Implementation of Evidence Based Practices for Complex Mood Disorders in Primary Care Safety Net Clinics. *Families, Systems, & Health.* 36(3):267-280. Epub 2018 May 28. PMCID: PMC6131024.

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c. **Curran GM,** Booth BM, Kirchner J, Deneke E. 2007. Recognition and Management of Depression in a Substance Use Treatment Population. *American Journal of Drug and Alcohol Abuse.* 33:563-570. PMID: 17668342.
d. **Curran GM**, Woo SM, Hepner KA, Lai WP, Kramer TL, Drummond KL, Weingardt K. 2015. Training Substance Use Disorder Counselors in Cognitive Behavioral Therapy for Depression: Development and Initial Exploration of an Online Training Program. *Journal of Substance Abuse Treatment.* 58:33-42. PMID: 26219680.

Complete List of Published Work in MyBibliography:
https://www.ncbi.nlm.nih.gov/sites/myncbi/geoffrey.curran.1/bibliography/44038743/public/

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OMB No. 0925-0001 and 0925-0002 (Rev. 03/2020 Approved Through 02/28/2023)

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: LATHAM, NANCY K.

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

POSITION TITLE: Clinical Research Director

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

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Toronto, Toronto, Ontario	BS	05/1992	Physical Therapy
McGill University, Montreal, Quebec	MS	06/1995	Rehabilitation Science
University of Auckland, Auckland, NZ	PhD	05/2002	Medicine - Clinical Epidemiology
Boston University, Boston, MA	Postdoctoral Fellow	03/2003	Health Services Research

A. Personal Statement

I am a physical therapist and clinical epidemiologist whose research has focused on clinical trials to evaluate interventions to prevent falls and improve function in older persons, including those with disability or other chronic conditions. I completed a Masters in Rehabilitation Science at McGill University in Canada; a PhD at the University of Auckland in New Zealand; and a post-doctoral fellowship in Health Services Research at Boston University, which was funded by the National Institute of Disability and Rehabilitation Research. In my work, I have developed, adapted and evaluated fall prevention, physical activity, and digital health technologies that use theoretically based behavioral change techniques. This work includes studies of telehealth to promote physical activity in older persons; the adaptation of a virtual coach for physical activity in persons with Parkinson Disease and evaluations of mHealth (mobile health) interventions to support physical activity for older persons. I have been the principal investigator or co-investigator of phase III randomized controlled trials that evaluated the use of innovative protocols and technology to extend the benefits of exercise programs to different patient populations, including the FITNESS trial (n=240) to prevent falls and improve function in frail older persons leaving the hospital, which was published in *JAGS*, and HIP Rehab - Boston Hip Fracture trial (n=232), which was published in *JAMA*. I was the Study Director of the NIA/PCORI funded STRIDE Study (n=5451), which was a pragmatic trial of a fall-injury prevention intervention. I am currently the Co-PI or co-I on several projects that are developing new primary care based interventions to reduce falls in older people. I am excited about working with Dr Vincenzo on her Beeson Fellowship and supporting her important and innovative fall prevention research in physical therapy. I am dedicated to serve as an advisor on her project, contribute my expertise in falls prevention implementation in ambulatory settings in all aims, and meet with Dr. Vincenzo monthly, and the entire team quarterly, or more often as needed.

Ongoing and recently completed projects/publications that I would like to highlight include:

R61AG068926
Dykes (PI) and Latham (co-PI)
08/15/2020-07/31/2022
electronic Strategies for Tailored Exercise to Prevent fallS (eSTEPS)

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Bhasin S, Gill TM, Reuben DB, **Latham NK,** Ganz DA, Greene EJ, Dziura J, Basaria S, Gurwitz JH, Dykes DC, McMahon S, Storer TW et al., for the STRIDE Trial Investigators. (2020) A Randomized Trial of a Multifactorial Strategy to Prevent Serious Fall Injuries N Engl J Med; 383:129-140. PMCID: PMC7421468

Latham NK, Harris B, Bean JF, Heeren T, Goodyear C, Zawacki S, Heislein DM, Mustafa J, Pardasaney P, Giorgetti M, Holt N, Goehring L, Jette AM. (2014) Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: A randomized clinical trial. JAMA 311:700-8. PMCID: PMC4454368

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2020–	Clinical Research Director, Men's Health: Aging and Metabolism, Brigham and Women's Hospital, Boston, MA
2014–	Associate Epidemiologist, Men's Health, Brigham and Women's Hospital, Boston, MA Lecturer, School of Medicine, Harvard University
2007–2017	Research Scientist, Health and Disability Research Institute and Research Assistant Professor School of Public Health, Boston University, Boston, MA., Boston, MA
2003–2006	Research Scientist, Health and Disability Research Institute and Research Assistant Professor Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, MA
1999–2002	Research Fellow, Clinical Trials Research Unit, University of Auckland, Auckland, New Zealand
1998–2001	Lecturer/Senior Lecturer, School of Physiotherapy, Auckland University of Technology, Auckland New Zealand
1995–1995	Lecturer, School of Physiotherapy, Otago Polytechnic, Dunedin, New Zealand

Honors

2012	Fellow, Gerontology Society of America, Health Sciences Section
2007	Mary E. Switzer Distinguished Fellowship, National Institute of Disability and Rehabilitation Medicine
2007	Outstanding Health Policy and Administration Platform Presentation, American Physical Therapy Association Combined Sections Meeting
1994	Bursary from the Fonds de la Recherche en Santé du Québec (FRSQ), Reseau Provincial en Adaptation Readaptation

C. Contributions to Science

1. The aim of the STRIDE pragmatic cluster randomized clinical trial was to determine whether a multifactorial fall injury prevention program embedded within primary care reduces serious fall-related injuries in older adults at risk of fall. I was the Study Director for this trial.
   a. Bhasin, S, Gill TM, Reuben DB, **Latham NK,** Ganz DA, Greene EJ, Dziura J, Basaria S, Gurwitz JH, Dykes DC, McMahon S, Storer TW et al., for the STRIDE Trial Investigators. (2020) A Randomized Trial of a Multifactorial Strategy to Prevent Serious Fall Injuries N Engl J Med; 383:129-140. PMCID: PMC7421468
   b. Bhasin S, Gill TM, Reuben DB, **Latham NK**, Gurwitz JH, Dykes P, McMahon S, Storer TW, Duncan PW, Ganz DA, Basaria S, Miller ME, Travison TG, Greene EJ, Dziura J, Esserman D, Allore H, Carnie MB, Fagan M, Hanson C, Baker D, Greenspan SL, Alexander N, Ko F, Siu AL, Volpi E, Wu AW, Rich J, Waring SC, Wallace R, Casteel C, Magaziner J, Charpentier P, Lu C, Araujo K, Rajeevan H, Margolis S, Eder R, McGloin JM, Skokos E, Wiggins J, Garber L, Clauser SB, Correa-De-Araujo R, Peduzzi P. (2017) Strategies to Reduce Injuries and Develop Confidence in Elders (STRIDE): A Cluster-Randomized Pragmatic Trial of a Multifactorial Fall Injury Prevention Strategy: Design and Methods. J Gerontol A Biol Sci Med Sci. 73(8):1053-1061. PMCID: PMC6037050
   c. Reuben DB, Gazarian P, Alexander N, Araujo K, Baker D, Bean JF, Boult C, Charpentier P, Duncan P, **Latham N**, Leipzig RM, Quintiliani LM, Storer T, McMahon S. (2017) The Strategies to Reduce Injuries and Develop Confidence in Elders Intervention: Falls Risk Factor Assessment and

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Management, Patient Engagement, and Nurse Co-management. J Am Geriatr Soc 65(12):2733-2739. PMCID: PMC572911.

d. Ganz DA, Siu AL, Magaziner J, **Latham NK**, Travison TG, Lorenze NP, Lu C, Wang R, Greene EJ, Stowe CL, Harvin LN, Araujo KLB, Gurwitz JH, Agrawal Y, Correa-De-Araujo R, Peduzzi P, Gill TM; STRIDE Investigators Protocol for serious fall injury adjudication in the Strategies to Reduce Injuries and Develop Confidence in Elders (STRIDE) study (2019) Inj Epidemiol. Apr 15;6:14. doi: 10.1186/s40621-019-0190-2. eCollection 2019. PMCID: PMC6582694.

2. The aim of this randomized controlled trial was to determine if a simple home-based exercise program that older people with a recent hip fracture participate in after standard rehabilitation ended could improve function. After hip fracture, a large proportion of older people continue to have long-term limitations in their function and mobility. A few trials had found that intensive, supervised, clinic-based exercise programs could improve function after hip fracture. This trial was the first to find that a home-based program with minimal physical therapy contact (i.e., 3-4 sessions) could have a clinically meaningful impact on function.
   a. **Latham NK**, Harris B, Bean JF, Heeren T, Goodyear C, Zawacki S, Heislein DM, Mustafa J, Pardasaney P, Giorgetti M, Holt N, Goehring L, Jette AM. (2014) Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: A randomized clinical trial. JAMA 311:700-8. PMCID: PMC4454368
   b. Chang FH, **Latham NK**, Ni P, Jette AM. (2015) Does self-efficacy mediate functional change in older adults participating in an exercise program after hip fracture? A randomized controlled trial. Arch Phys Med Rehabil. Jun;96(6):1014-1020. PMCID: PMC4600403
3. The aim of this factorial randomized controlled trial was to determine if frail older people leaving hospital could improve their function and reduce falls through either vitamin D supplementation or home-based high-intensity training. Previous studies suggested improvements in function from high-intensity training when performed with supervision in gyms/clinics, but the effect in home settings was unknown. The study found no benefit from either intervention on falls or function and that the exercise intervention increased the risk of pain and adverse events. This suggests that while high intensity strength training has benefits in some settings, caution needs to be used when applying this approach to home-based therapy.
   a. **Latham NK**, Anderson CS, Lee A, Bennett DA, Moseley A, Cameron ID. A randomized, controlled trial of quadriceps resistance exercise and vitamin D in frail older people: The Frailty Interventions Trial in Elderly Subjects (FITNESS). J Am Geriatr Soc. 2003 51(3):291-9.
   b. Stretton CM, **Latham NK**, Carter KN, Lee AC, Anderson CS. Determinants of physical health in frail older people: The importance of self-efficacy. Clin Rehabil. 2006 20(4):357-66.
4. The aim of this work was to evaluate the use of mHealth applications to support adherence to physical activity and exercise programs by older adults. This work included studies focusing on persons with Parkinson Disease using mHealth technologies on their own over one year and with trained peer coaches, and older people at risk of falls using an mHealth app for an exercise program.
   a. Colón-Semenza C, **Latham NK**, Quintiliani LM, Ellis TD. Peer Coaching Through mHealth Targeting Physical Activity in People With Parkinson Disease: Feasibility Study J Med Internet Res 2018; 6(2): e42. PMCID: PMC5832905
   b. Ni M, Brown LG, Lawler D, Ellis TD, Deangelis T, **Latham NK**, Perloff J, Atlas SJ, Percac-Lima S, Bean JF. The rehabilitation enhancing aging through connected health (REACH) study: Study protocol for a quasi-experimental clinical trial. BMC Geriatrics. 2017; 17(1):221. PMCID: PMC5607604.
   c. Ellis TD, Cavanaugh JT, DeAngelis TR, Hendron K, Thomas CA, Saint-Hilaire M, **Latham, NK**. (2018) Comparative Effectiveness of mHealth supported exercise compared to exercise alone for people with Parkinson Disease: Randomized controlled pilot study. Phys Ther 2019; 99(2):203-216. PMID: 30715489
5. The aim of this work was to adapt and/or develop the first Virtual Coach for persons with neurological conditions such as PD. Virtual coaches have been effective in changing health behaviors for many different patient populations, no virtual coach had been developed for persons with spinal cord or any

other neurological disability. Our group first conducted a pilot study to explore whether an existing virtual coach would be acceptable and feasible for us by persons with Parkinson Disease.

a. Ellis T, **Latham NK**, DeAngelis TR, Thomas CA, Saint-Hilaire M, Bickmore TW. Feasibility of a virtual exercise coach to promote walking in community-dwelling persons with Parkinson disease. Am J Phys Med Rehabil. 2013 Jun;92(6):472-81; quiz 482-5. PMCID: PMC4266140.

Full List of publications:

http://www.ncbi.nlm.nih.gov/sites/myncbi/nancy.k..latham.1/bibliography/41959696/public/?sort=date&direction=descending

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BIOGRAPHICAL SKETCH

NAME: Selig, James Patrick

eRA COMMONS USER NAME: JPSELIG

POSITION TITLE: Associate Professor of Biostatistics

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	COMPLETION DATE	FIELD OF STUDY
University of Arkansas at Little Rock	BA	05/1995	Psychology/Philosophy
University of Arkansas at Little Rock	MAP	05/2002	Applied Psychology
University of Kansas	PhD	08/2009	Quantitative Psychology

A. Personal Statement

My doctoral training was in Quantitative Psychology, a field devoted to research design and statistical modeling of data in the social sciences. I have had the opportunity to apply my statistical expertise in research on psychology, human development, education, and biomedical research. I am currently the lead biostatistician for the Arkansas Center for Health Disparities (funded by National Institute of Minority Health and Health Disparities) and I am serving as a biostatistician for the Center for Childhood Obesity Prevention (funded by National Institute of General Medical Sciences) in addition to other federally funded projects. My areas of expertise include research design and statistical analysis with specific expertise in structural equation models, factor analysis, analysis of clustered data using mixed effects models, and mediated effects. I have experience working with community-based trials and with clustered data. I am very pleased to join Dr. Jennifer Vincenzo in her K76 career development award to implement the the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) in outpatient rehabilitation. I am currently working with Dr. Vincenzo in a retrospective analysis of a large health system's clinical implementation of the STEADI initiative in outpatient rehabilitation. Dr. Vincenzo's research to identify barriers, facilitators, and strategies to support implementation of STEADI in a systematic manner using implementation science is necessary for other health systems to replicate this important effort. My role in the proposed study will be to collaborate with Dr. Vincenzo on the analysis of quantitative data with particular emphasis on Aim 3 analyses.

Ongoing and recently completed projects that I would like to highlight include:

3R01MD013852-02S3
McElfish (PI), Role: Statistician
07/2019-11/2022
RADx - Connecting our Neighborhoods Need for Enhanced and Coordinated Testing to Achieve Equity: CoNNECT to Achieve Equality COVID

2020-68015-30734, United States Department of Agriculture
Long (PI), Role: Statistician
04/2020-03/2025
Delivering Health: An Integrated Approach to Address Diabetes in the Context of Food Insecurity

R21CA237984, National Cancer Institute
Swindle (PI), Role: Statistician
03/2020-02/2022
Sustainability of Nutrition and Physical Activity Interventions in Childcare

5P20GM109096-05 National Institute of General Medical Sciences
Weber (PI), Role: Statistician
08/2016-07/2021
Center for Childhood Obesity Prevention

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B. Positions, Scientific Appointments, and Honors

Positions and Appointments

2014-present	Associate Professor of Biostatistics; Biostatistics Department; University of Arkansas for Medical Sciences, Little Rock, AR
2009-2014	Assistant Professor of Educational Psychology; Department of Individual, Family, and Community Education; University of New Mexico, Albuquerque, NM
2014-present	Member, American Statistical Association
2009-2015	Member, Society for Research in Child Development
2009-2015	Member, American Psychological Association
2009-2015	Division 5 (Evaluation, Measurement, & Statistics), American Psychological Association

Honors

2014	Teaching Fellow, Center for Teaching Excellence, University of New Mexico
2012	Student Affairs Louie Award for Outstanding Service Provider, University of New Mexico
2007	Society for Multivariate Experimental Psychology Dissertation Award
2007	Society for Research in Child Development Student Travel Award
2002	Post Master's Fellowship, Department of Psychology, University of Arkansas at Little Rock

C. Contributions to Science

1. *Understanding and addressing COVID-19 health disparities.* I have provided expertise in research design, survey design, and survey data analysis, and statistical analysis for ongoing studies related to understanding and addressing COVID-19 Health Disparities.
   a. Willis DE, Andersen JA, Bryant-Moore K, **Selig JP**, Long CR, Felix HC, Curran GM, McElfish PA. COVID-19 Vaccine Hesitancy: Race/Ethnicity, Trust, and Fear. *Clinical and Translational Science*. Forthcoming 2021.
   b. Andersen JA, Felix HC, Su D, **Selig JP**, Ratcliff S, McElfish PA. Factors Associated with Arkansans' First Use of Telehealth during the COVID-19 Pandemic. Submitted to *Digital Health.*
   c. Felix HC, Andersen JA, Willis DE, Malhis JR, **Selig JP,** McElfish PA. Control of Type 2 Diabetes Mellitus during the COVID-19 Pandemic. Submitted to *Primary Care Diabetes*.

2. *Culturally appropriate interventions to address diabetes and other cardiometabolic diseases in Pacific Islander communities.* I have provided expertise in structural equation models, factor analysis, analysis of clustered data using mixed effects models, and mediated effects for several randomized clinical trials testing a culturally adapted family model of diabetes self-management with Marshallese and other Pacific Islander populations.
   a. McElfish PA, Long CR, Kaholokula JK, Aitaoto N, Bursac Z, Capelle L, Laelan M, Bing WI, Riklon S, Rowland B, Ayers BL, Wilmoth RO, Langston KN, Schootman M, **Selig JP**, Yeary KHK. Design of a comparative effectiveness randomized controlled trial testing a faith-based Diabetes Prevention Program (WORD DPP) vs. a Pacific culturally adapted Diabetes Prevention Program (PILI DPP) for Marshallese in the United States. *Medicine*. 2018 May; 97(19): e0677. DOI: 10.1097/MD.0000000000010677. PMID: 29742712. PMCID: PMC5959435.
   b. McElfish PA, Ayers BL, Riklon S, **Selig JP**, Yeary KHK, Carleton A, Wilmoth R, Laukon F, Gittelsohn J, Netwon M, Long CR. Study protocol for a multilevel diabetes prevention program for Marshallese Pacific Islanders in Faith-based organizations. *Contemporary Clinical Trials*. 2020; 17:100528. DOI: 10.1016/j.conctc.2020.100528. PMID: 32025587.
   c. McElfish PA, Long CR, Scott AJ, Hudson JS, Haggard-Duff L, Holland A, Schulz TK, Wilmoth RO, **Selig JP**. Pilot Implementation of the Marshallese Adapted-Family Model DSME in a Clinical Setting. *Journal of Primary Care & Community Health.* 2020 Jan-Dec; 11: 2150132720931289. DOI: 10.1177/2150132720931289. PMCID: PMC7288836. PMID: 32517573.
   d. McElfish PA, Scott AJ, Chatrathi HE, Rowland B, Long CR, Nagarsheth N, Calcagni M, Patolia J, Haggard-Duff LK, **Selig JP**. Undiagnosed hypertension and undiagnosed type 2 diabetes among overweight and obese Marshallese participants in a diabetes prevention program. *Yale Journal of Biology and Medicine*. 2021 Mar; 94(1): 5–12. PMCID: PMC7995951. PMID 33795978

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3. *Lag-moderated effects in longitudinal studies.* Beginning with my dissertation in 2009, I have studied and written about the important issue of choosing time lags between observations in longitudinal studies. When variables are measured over time, the association between any two variables can depend upon the interval of time between observations. I refer to such relations as lag-moderated effects because the effect of one variable on another is often dependent upon the time lag between observations. Since completing my dissertation in 2009, I have published work on this topic in peer-reviewed journals and peer-edited books. I have also presented this work at conferences and as the topic of invited talks.
   a. **Selig, JP** (September, 2014). Matters of time (lags): Why we choose the lags we do, the difference it makes, and how we can make more informed choices. Invited talk presented at the Society for Research in Child Development Themed Meeting on Developmental Methodology, San Diego, CA.
   b. **Selig, JP**, Hoy, R, & Little, TD (2013). Temporal design in organizational research. In E. Paavilainen-Mäntymäki & M. Hassett (Eds.) Handbook of Longitudinal Research Methods in Studies of Organizations. Northampton, MA: Elgar Publishing.
   c. **Selig, JP**, Preacher, KJ, & Little, TD. Modeling time-dependent association in longitudinal data: A lag as moderator approach. *Multivariate Behavioral Research.* 2012; 47(5), 697-716. PMID: 24771950 PMCID: PMC3997054. DOI: 10.1080/00273171.2012.715557
   d. **Selig, JP**, Preacher, KJ, & Little, TD. Lag as moderator models for longitudinal data. *Multivariate Behavioral Research.* 2009; 44, 853 (abstract). PMID: 26801802. DOI: 10.1080/00273170903467497

4. *Improving the application of statistical methods*. A very important part of my professional contribution is my efforts to improve the application of statistical methods through the publication of methodologically oriented work. My aim in this area is to serve as a conduit between developers of statistical methods and those researchers who apply the methods in their work. I have published several peer-reviewed articles and peer-edited chapters aimed at both advancing the application of statistical methods and making such methods more accessible to researchers in a variety of fields.
   a. Coulombe, P, **Selig, JP**, & Delaney, HD. Ignoring individual differences in times of assessment in growth curve modeling. *International Journal of Behavioral Development.* 2015; Published online before print on March 27, 2015, DOI: 10.1177/0165025415577684.
   b. Preacher, KJ, & **Selig, JP**. Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*. 2012; 6(2), 77-98. DOI: 10.1080/19312458.2012.679848
   c. **Selig, JP**, & Preacher, KJ. Mediation models for longitudinal data in developmental research. *Research in Human Development*. 2009; 6, 144-164. DOI: 10.1080/15427600902911247

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/james.selig.1/bibliography/48703108/public/

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OMB No. 0925-0001 and 0925-0002 (Rev. 12/2020 Approved Through 02/28/2023)

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: Sexton, Kevin

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

POSITION TITLE: Associate 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.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
University of Kentucky, Lexington, KY	BS	05/2002	Biology
University of Kentucky College of Medicine, Lexington, KY	MD	05/2007	Medicine
University of Kentucky College Of Medicine, Lexington, KY	Fellow	06/2005	Student Fellowship in Anatomic Pathology
Vanderbilt University Medical Center, Nashville, TN	Postdoctoral Fellow	06/2013	Research Fellowship in Physiology and Biomedical Informatics
Vanderbilt University Medical Center, Nashville, TN	Resident	06/2015	General Surgical Residency

A. Personal Statement

I am an acute care surgeon-scientist with board certifications in Surgery and Clinical Informatics. I completed postdoctoral training in biomedical informatics, surgical quality, signal processing, and software development. My research focuses on surgical outcomes in acute care surgery, where I use data and digital tools to create signal processing software to predict clinical deterioration. I have used this expertise to create software that worked across multiple electronic medical records to predict patient complications in hospital and outpatient settings (Midas+Live). Furthermore, I have used these skills to patent technologies for monitoring patients. This experience led to my current NIH funding as Associate Director of Translational Workforce Development and my current roles as Associate Chief Clinical Informatics Officer and Associate Director of the University of Arkansas for Medical Sciences (UAMS) Institute for Digital Health & Innovation. In these roles, I interface with all products that utilize electronic health record data for our institution and contract with vendors to analyze external data. I helped lead the teams responsible for the design and implementation of the UAMS telemedicine platforms, which saw a 3,000% increase in use and over 100,000 telemedicine visits within a calendar year.

My role in this proposed application is as a collaborator with Dr. Jennifer Vincenzo. I will use my extensive experience with data and software development to assist with the revisions to the electronic health record and collection of clinical data for Dr. Vincenzo's project to implement falls prevention as a standard of care in outpatient rehabilitation. I believe that my expertise in quality, electronic health records, reporting, and data integration are an integral part of this proposal and help justify my expertise to assist Dr. Vincenzo to successfully carry out this much needed, proposed research.

1. Brochhausen M, Ball JW, Sanddal ND, Dodd J, Braun N, Bost S, Utecht J, Winchell RJ, Sexton KW. Collecting data on organizational structures of trauma centers: the CAFE web service. *Trauma Surg Acute Care Open*. 2020;5(1):e000473. PubMed Central PMCID: PMC7394144.
2. Harvin JA, Truong VTT, Green CE, Allen L, Murry J, Radosevich JJ, Bogert JN, Murphy PB, Padilla-Jones BB, Zarzaur BL, Taylor JR, Sexton KW, Decker C, Schroeppel TJ, Wade CE, Kao LS. Opioid exposure after injury in United States trauma centers: A prospective, multicenter observational study. *J Trauma Acute Care Surg*. 2020 Jun;88(6):816-824. PubMed Central PMCID: PMC7802946.
3. Roden-Foreman JW, Rapier NR, Foreman ML, Zagel AL, Sexton KW, Beck WC, McGraw C, Coniglio RA, Blackmore AR, Holzmacher J, Sarani B, Hess JC, Greenwell C, Adams CA Jr, Lueckel SN, Weaver M, Agrawal V, Amos JD, Workman CF, Milia DJ, Bertelson A, Dorlac W, Warne MJ, Cull J, Lyell CA, Regner JL, McGonigal MD, Flohr SD, Steen S, Nance ML, Campbell M, Putty B, Sherar D, Schroeppel TJ.

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Rethinking the definition of major trauma: The need for trauma intervention outperforms Injury Severity Score and Revised Trauma Score in 38 adult and pediatric trauma centers. *J Trauma Acute Care Surg*. 2019 Sep;87(3):658-665. PubMed PMID: 31205214.

4. Smith AR, Karim SA, Reif RR, Beck WC, Taylor JR, Davis BL, Bhavaraju AV, Jensen HK, Kimbrough MK, Sexton KW. ROTEM as a Predictor of Mortality in Patients With Severe Trauma. *J Surg Res*. 2020 Jul;251:107-111. PubMed PMID: 32114212.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2020 -	Associate Professor, Department of Surgery, Department of Biomedical Informatics, Department of Health Policy and Management, Department of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy, UAMS, Little Rock, AR
2020 -	Associate Director, Institute for Digital Health & Innovation, UAMS
2020 -	Director, Institute for Digital Health & Innovation, Division of Innovation, UAMS
2020 -	Chair, Trauma Data Committee, Arkansas Department of Health
2020 -	Associate Chief Medical Officer, University of Arkansas for Medical Sciences
2019 -	Associate Chief Clinical Informatics Officer for Research, Innovation, and Entrepreneurship, UAMS
2019 - 2020	Co-Director, Institute for Digital Health & Innovation, Division of Healthcare Analytics, UAMS
2018 - 2019	Quality Officer, Surgical Specialties Service Line, UAMS
2016 - 2019	Quality Officer, Division of Acute Care Surgery, UAMS
2015 - 2020	Assistant Professor, Department of Surgery, UAMS

Honors

2021	Open Source Computer Vision Library Artificial Intelligence Competition Finalist, Microsoft, Redmond, WA
2017	Red Sash Award for Excellence in Teaching Medical Students, UAMS
2016	Red Sash Award for Excellence in Teaching Medical Students, UAMS
2016	Outstanding Faculty Award, UAMS

C. Contribution to Science

1. Venous waveforms are a novel signal that can be used to predict acute physiologic changes in patients. My lab studies these waveforms to discern the optimal signal processing strategies to predict intravascular volume status or anesthetic dose. We have demonstrated both invasive and transcutaneous ways to collect this signal.
   a. Al-Alawi AZ, Henry KR, Crimmins LD, Bonasso PC, Hayat MA, Dassinger MS, Burford JM, Jensen HK, Sanford J, Wu J, Sexton KW, Jensen MO. Anesthetics affect peripheral venous pressure waveforms and the cross-talk with arterial pressure. *J Clin Monit Comput*. 2021 Feb 19; PubMed PMID: 33606187.
   b. Bonasso PC, Sexton KW, Hayat MA, Wu J, Jensen HK, Jensen MO, Burford JM, Dassinger MS. Venous Physiology Predicts Dehydration in the Pediatric Population. *J Surg Res*. 2019 Jun;238:232-239. PubMed PMID: 30776742.
   c. Bonasso PC, Dassinger MS, Jensen MO, Smith SD, Burford JM, Sexton KW. Optimizing peripheral venous pressure waveforms in an awake pediatric patient by decreasing signal interference. *J Clin Monit Comput*. 2018 Dec;32(6):1149-1153. PubMed PMID: 29511972.
   d. Bonasso PC, Dassinger MS, McLaughlin B, Burford JM, Sexton KW. Fast Fourier Transformation of Peripheral Venous Pressure Changes More Than Vital Signs with Hemorrhage. *Mil Med*. 2019 Mar 1;184(Suppl 1):318-321. PubMed Central PMCID: PMC6433096.

2. Machine learning is a collection of mathematical techniques that our teams use to focus on algorithms that allow computers to define a model for complex relationships without being explicitly programmed. My collaborators and I use these techniques to predict outcomes in acute care settings, including outcomes from the COVID-19 pandemic.
   a. Ranney SE, Tsai MH, Breidenstein MW, Sexton KW, Malhotra AK. Using performance frontiers to differentiate elective and capacity-based surgical services. *J Trauma Acute Care Surg*. 2021 Jun 1;90(6):935-941. PubMed PMID: 34016917.

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b. Syed M, Syed S, Sexton K, Greer ML, Zozus M, Bhattacharyya S, Syed F, Prior F. Deep Learning Methods to Predict Mortality in COVID-19 Patients: A Rapid Scoping Review. *Stud Health Technol Inform*. 2021 May 27;281:799-803. PubMed PMID: 34042688.

c. Syed M, Syed S, Sexton K, Syeda HB, Garza M, Zozus M, Syed F, Begum S, Syed AU, Sanford J, Prior F. Application of Machine Learning in Intensive Care Unit (ICU) Settings Using MIMIC Dataset: Systematic Review. *Informatics* (MDPI). 2021 Mar;8(1) PubMed Central PMCID: PMC8112729.

d. Syeda HB, Syed M, Sexton KW, Syed S, Begum S, Syed F, Prior F, Yu F Jr. Role of Machine Learning Techniques to Tackle the COVID-19 Crisis: Systematic Review. *JMIR Med Inform*. 2021 Jan 11;9(1):e23811. PubMed Central PMCID: PMC7806275.

3. As a board-certified surgeon, my clinical research focus has been quantitative and qualitative studies on institutional and state interventions to improve the quality of care in surgical specialties. I have conducted multiple multicenter trials for acute care surgery where we used retrospective data from multiple resources. My expertise is using mathematical techniques to match individuals across databases to create novel information.

   a. Porter A, Brown CC, Tilford JM, Thomas K, Maxson RT, Sexton K, Karim S, Zohoori N, Rodriguez A. Association of Insurance Status With Treatment and Outcomes in Pediatric Patients With Severe Traumatic Brain Injury. *Crit Care Med*. 2020 Jul;48(7):e584-e591. PubMed PMID: 32427612.

   b. Harvin JA, Truong VTT, Green CE, Allen L, Murry J, Radosevich JJ, Bogert JN, Murphy PB, Padilla-Jones BB, Zarzaur BL, Taylor JR, Sexton KW, Decker C, Schroeppel TJ, Wade CE, Kao LS. Opioid exposure after injury in United States trauma centers: A prospective, multicenter observational study. *J Trauma Acute Care Surg*. 2020 Jun;88(6):816-824. PubMed Central PMCID: PMC7802946.

   c. Roden-Foreman JW, Rapier NR, Foreman ML, Zagel AL, Sexton KW, Beck WC, McGraw C, Coniglio RA, Blackmore AR, Holzmacher J, Sarani B, Hess JC, Greenwell C, Adams CA Jr, Lueckel SN, Weaver M, Agrawal V, Amos JD, Workman CF, Milia DJ, Bertelson A, Dorlac W, Warne MJ, Cull J, Lyell CA, Regner JL, McGonigal MD, Flohr SD, Steen S, Nance ML, Campbell M, Putty B, Sherar D, Schroeppel TJ. Rethinking the definition of major trauma: The need for trauma intervention outperforms Injury Severity Score and Revised Trauma Score in 38 adult and pediatric trauma centers. *J Trauma Acute Care Surg*. 2019 Sep;87(3):658-665. PubMed PMID: 31205214.

   d. Gardner J, Sexton KW, Taylor J, Beck W, Kimbrough MK, Davis B, Bhavaraju A, Karim S, Porter A. Defining severe traumatic brain injury readmission rates and reasons in a rural state. *Trauma Surg Acute Care Open*. 2018;3(1):e000186. PubMed Central PMCID: PMC6135415.

4. As a board-certified Clinical Informaticist, I have research focused on data systems that help with risk adjustment at the individual and facility level. My collaborators and I have developed software tools for comparing organizational structures, automating morbidity index classification, and have used natural language processing to identify named entities to assist with the deidentification of clinical data sets.

   a. Brochhausen M, Ball JW, Sanddal ND, Dodd J, Braun N, Bost S, Utecht J, Winchell RJ, Sexton KW. Collecting data on organizational structures of trauma centers: the CAFE web service. *Trauma Surg Acute Care Open*. 2020;5(1):e000473. PubMed Central PMCID: PMC7394144.

   b. Syed M, Al-Shukri S, Syed S, Sexton K, Greer ML, Zozus M, Bhattacharyya S, Prior F. DeIDNER Corpus: Annotation of Clinical Discharge Summary Notes for Named Entity Recognition Using BRAT Tool. *Stud Health Technol Inform*. 2021 May 27;281:432-436. PubMed PMID: 34042780.

   c. Syed S, Baghal A, Prior F, Zozus M, Al-Shukri S, Syeda HB, Garza M, Begum S, Gates K, Syed M, Sexton KW. Toolkit to Compute Time-Based Elixhauser Comorbidity Indices and Extension to Common Data Models. *Healthc Inform Res*. 2020 Jul;26(3):193-200. PubMed Central PMCID: PMC7438698.

5. Quality is important to every clinician and medical facility. I partner with collaborators to perform quantitative and qualitative research on quality programs at the facility, state, and national levels. My unique skill set is to bring together disparate data sources for analysis.

   a. Duke JM, Porter A 3rd, Karim S, Sexton K, Smeds MR. Effects of the Affordable Care Act on Vascular Patient Amputation Rates in Arkansas. *Ann Vasc Surg*. 2019 Jan;54:48-53. PubMed PMID: 30213742.

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b. Eastin C, Karim S, Hawthorn C, Webb MH, Waheed MA, Buford A, Hutchison M, Mason C, Sexton K. Mandated 30-minute Scene Time Interval Correlates With Improved Return of Spontaneous Circulation at Emergency Department Arrival: A Before and After Study. *J Emerg Med*. 2019 Oct;57(4):527-534. PubMed PMID: 31472942.

c. Greer JW, Reif R, Karim S, Beck WC, Bhavaraju A, Davis B, Taylor JR, Sexton KW. Is It Safe to Fly Patients with Penetrating Trauma in a Rural State? *J Surg Res*. 2019 Mar;235:16-21. PubMed PMID: 30691789.

d. McBain SA, Sexton KW, Palmer BE, Landes SJ. Barriers to and facilitators of a screening procedure for PTSD risk in a level I trauma center. *Trauma Surg Acute Care Open*. 2019;4(1):e000345. PubMed Central PMCID: PMC6699788.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/kevin.sexton.1/bibliography/public/

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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: Jeanne Y. Wei, MD, PhD

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

POSITION TITLE: Professor and Chair

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

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Illinois, Chicago, IL	BS	06/1971	Physics and Mathematics
U of Illinois College of Medicine , Chicago, IL	MD	06/1975	Medicine
U of Illinois Dept of Pharmacology, Chicago, IL	PhD	06/1975	Pharmacology

A. Personal Statement

It is my honor to serve as an advisor on the K76 Beeson award for Jennifer Vincenzo, PhD, MPH, PT on her project to implement the Stopping Elderly Accidents, Deaths & Injuries (STEADI) iniative for falls prevention for all older adults attending outpatient rehabilitiation. I served as a co-mentor for Dr. Vincenzo's KL2 at University of Arkansas for Medical Sciences (UAMS) and am beyond pleased with her innovation, progress, and productivity. The K76 will provide the final training and mentorship she needs to become an independent implementation scientist.

I am board-certified in internal medicine (IM), cardiology, and geriatrics. I completed my MD and PhD from the University of Illinois. My PhD thesis (in Pharmacology) was focused on the neuroscience of single neuronal cell activity of the thalamus during conditioned appetitive behavior. I completed an IM residency and a cardiology fellowship at the Johns Hopkins Hospital, Baltimore, MD. Also, I completed a staff fellowship in gerontology at the National Institute on Aging (NIA). I then joined the faculty at Harvard Medical School (HMS) and Beth Israel Deaconess Medical Center (BIDMC) in Boston, MA, and later served as Director, Division on Aging at HMS and Chief, Gerontology Division at BIDMC. In 2002, I was recruited to the UAMS, and I currently serve as Professor and Chair for the Department of Geriatrics and am the Executive Director of the Institute on Aging (IOA) at UAMS. I had the honor of serving as Chair for the Opening Sessions of the Gordon Conference and Biology of Aging and as chair of many grant review committees and study sections for the NIA, National Cancer Institute (NCI), National Institute of General Medical Sciences, and National Heart, Lung, and Blood Institute. I also served as Chair of the Board of Scientific Counselors and am a member of the National Advisory Council on Aging of the NIA. I have served as the PI, Co-PI, or Co-I on a number of NIH grants and a mentor to many. I have received several awards for my mentorship throughout my career. I am well-qualified to advise in this research, which could be a potential game changer for older adults and falls prevention, an issue I frequently see in my clinical practice. During my academic career, I have dedicated myself to collaborating with others on aging research and research specific to cardiovascular aging, unraveling the mechanisms, and finding new treatments. We observed that seniors are more vulnerable than younger adults to ischemic and/or hypoxic insults, that older adults sustain more inflammation and damage, and that age-related diastolic dysfunction (heart failure with preserved ejection fraction, or HFPEF) is more common in women than men, but can be partly reversed by exercise. To date, few medications have protected older patients from HFPEF, especially those with low physical function. We noted that the omega-3 fatty acid (FA) reduced endoplasmic/sarcoplasmic reticulum (ER/SR) inflammation and protected cells from stress and that older hearts have impaired mitochondrial function, including *increased* ATP *de*pletion and *decreased* ATP *re*pletion, as well as reduced FA metabolism. My research background in neuroscience, gerontology, and geriatrics, including being PI and Co-I of clinical trials and serving on Data and Safety

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Monitoring Board committees of several randomized controlled trials, my established relationship with Dr. Vincenzo and the Aging institute at UAMS, together with my clinical practices in primary care, cardiology, and geriatric medicine, have prepared me well to mentor and advise Dr.Vincenzo in this innovative project to promote the uptake of STEADI for falls prevention in outpatient rehabilitation. This study fits well with the mission of the NIA. I am honored to collaborate with Dr. Vincenzo on this exciting study.

Ongoing and recently completed projects from the past 3 years that I would like to highlight include:

3R01MD013852-02S1
McElfish (PI), Role: Co-investigator
07/01/2021-06/30/2022
Title: Evaluation of the cognitive function and socioeconomic, biomedical, and genetic risk factors of Alzheimer's disease and related dementias (ADRD) in older Marshallese residents of Northwest Arkansas

NIH UL1 TR003107 National Center for Advancing Translational Science.
James (PI), Role: Co-investigator
07/01/2019-08/30/2022
The Clinical and Translational Science Award (CTSA) at the UAMS Translational Research Institute (TRI), seeks to support high quality translational and clinical research. Dr. Wei is the primary mentor and expert advisor for one of the KL2 awardees

E0778001 Office of Women's Health, US Food and Drug Administration
Yu (PI), Role: Co-investigator
07/01/2021-06/30/2022
Title: Verification of Novel Predictive Biomarkers of Doxorubicin-induced Cardiotoxicity in Breast Cancer

1UA24CA215109 (U24) NIH/NCI
Prior (PI), Role: Co-investigator
09/22/2017-07/31/2022
Title: TCIA Sustainment and Scalability - Platforms for Quantitative Imaging Informatics in Precision Medicine

Centers for Disease Control and Prevention
Adams (PI), Role: site PI
07/01/2018 – 06/30/2023
State Public Health Approaches to Address Arthritis

Department of Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA)
Lane (PI), Role: site PI
09/30/2018-08/30/2022
State Opioid Response

H79TI081700 Arkansas Department of Human Services (PTE SAMHSA)
Lane (PI), Role: site PI
06/01/2019-09/29/20
State Opioid Response Grant Supplement

NIH Small Business Innovation Research/Small Business Technology Transfer Phase II
Azhar (site PI), Role: Co-investigator
07/01/2017-06/30/2019
Nutritional Therapy in Elderly with Heart Failure

P30 AG028718 NIH/NIA
Wei (PI)
09/01/2011-08/31/2018
Title: Arkansas Claude Pepper Older Americans Independence Center at UAMS

Key Publications

1. **Wei JY**. Age and the cardiovascular system. *N Engl J Med* 1992; 327:1735-1739. PMID: 1304738 DOI: 10.1056/NEJM199212103272408. PMID: 1304738
2. Forman DE, Manning WJ, Hauser R, Gervino EV, Evans WJ, **Wei JY**. Enhanced left ventricular diastolic filling associated with long-term endurance training. *J Gerontol* 1992; 47:M56-58. PMID: 1538067

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3. Samuel RS, Hausdorff J, **Wei JY**. Congestive heart failure with preserved systolic function: is it a woman's disease? *Women's Health Issues* 1999; 9:219-222. PMID: 10405594
4. Azhar G, Raza S, Pangle A, Coleman K, Dawson A, Schrader A, Wolfe R, **Wei JY**. Potential beneficial effects of dietary protein supplementation and exercise on functional capacity in a pilot study of individuals with heart failure with preserved ejection fraction. *Geron Geriat Med* 2021 (in press). PMCID: PMC7758656

B. Positions, Scientific Appointments, and Honors

Positions

2009-	Executive Director, Donald W. Reynolds Institute on Aging, UAMS, Little Rock, AR
2009-	Chair, Reynolds Department of Geriatrics, College of Medicine, UAMS, Little Rock, AR
2002-2015	Staff Physician (part-time), Geriatric Research Education and Clinical Center, Central Arkansas Veterans Healthcare System, South Central VA Health Care Network (VISN 16), Little Rock, AR
2002-2009	Professor and Executive Vice Chair, Donald W. Reynolds Department of Geriatrics, UAMS
1996-2002	Senior Physician, Department of Medicine, Beth Israel Deaconess Medical Center (BIDMC), Boston, MA
1991-1999	Chief, Gerontology Division, Department of Medicine, BIDMC
1991-1999	Director, Division on Aging, Harvard Medical School (HMS), Boston, MA
1990-1999	Director, Claude Pepper Older Americans Independence Center, HMS, Boston, MA
1988-1999	Program Director, Physician-Scientist Award Program in Aging, HMS
1987-2002	Associate Professor of Medicine, HMS
1982-1999	Associate Physician, Brigham and Women's Hospital, Boston, MA
1980-2002	Director, Gerontology Research Laboratory, Beth Israel Hospital, Boston, MA
1980-1987	Assistant Professor of Medicine, HMS, Boston, MA
1980-2002	Attending Physician, Gerontology & Cardiology, BIDMC

Appointments

2019	Member, Academic Consortium for Integrative Medicine and Health, New Buffalo, MI
2014-2017	Secretary-Treasurer, Biological Sciences Section, The Gerontological Society of America (GSA), Washington, DC
2007-2008	President, Society of Geriatric Cardiology, Bethesda, MD
2003-2007	Member, Oversight Committee, Arkansas Breast Cancer Research Program, UAMS
2003-2004	Member, Executive Committee, Biological Sciences Section, GSA, Washington, DC
2001-2011	Chairman, Advisory Board, National Health Research Institutes, Taipei, Taiwan, Rep of China
2001-.	Associate Editor, Geriatrics and Gerontology International
1998-2002	Member, National Advisory Council on Aging
1996-1998	President, Association of Directors of Geriatric Academic Programs
1994-1996	Associate Editor, DNAging (Mutation Research)
1994	Chairman, Opening Session, Gordon Conference on the Biology of Aging, Oxnard, CA
1993-1997	Chairman, Board of Scientific Counselors, NIA
1993-1999	Member, Editorial Board, Journal of American Geriatrics Society
1992-1997	Member, Board of Scientific Counselors, NIA
1990, 2001	Diplomate, American Board of Internal Medicine, Geriatric Medicine
1989-1995	Member, Editorial Board, Journal of Gerontology: Medical Sciences and Biological Sciences
1983-1989	Fellow, Council on Basic Science, American Heart Association
1980-	Fellow, American College of Cardiology

Honors

2017	Distinguished Faculty Scholar of the Year Award, College of Medicine, UAMS
2016	Mentor Award, Collage of Medicine Graduate School, UAMS
2012	Fellow, The Gerontological Society of America, Biological Sciences Section, Washington, DC
2008,'11'14	Red Sash Awards for Excellence in Teaching, College of Medicine, UAMS
2005	Outstanding Woman Faculty of the Year Award, College of Medicine, UAMS
2000	Daniel D. Federman Outstanding Clinical Educator Award, HMS
1998	Willie Birmingham Medal, Irish Gerontological Society
1988-1993	Research Career Development Award
1982-1990	VA Central Office Merit Review Award

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1982-1986 New Investigator Award, National Heart, Lung and Blood Institute

Contributions to Science

1. *Influence of age on cardiovascular and metabolic responses to nutrient intake.* We observed that more elderly persons sustained a blood pressure drop after ingesting a meal and that it was due to age-associated altered hemodynamic and autonomic responses to the nutrients. We found that carnitine palmitoyl transferase-1 activity was reduced in the old vs young adult heart and it could be restored with carnitine supplementation. We noted that repletion of ATP content after depletion due to hypoxic stress was impaired in the aged heart. It is plausible that increased protein could improve and restore function.
   a) Lipsitz LA, Nyquist RP, **Wei JY**, Rowe JW. Postprandial reduction in blood pressure in the elderly. *N Engl J Med* 1983;309:81-83. PMID: 6855870
   b) Odiet JA, Boerrigter METI, **Wei JY**. Carnitine palmitoyl transferase-I in the aging heart. *Mech Age Dev* 1995;79:127-36. doi: 10.1016/0047-6374(94)01552-w. PMID: 7616763.
   c) Bak MI, **Wei JY**, Ingwall JS. Interaction of hypoxia and aging in the heart: analysis of high-energy phosphate content. *J Mol Cell Card* 1998; 30:661-672. PMID: 9515041 DOI: 10.1006/jmcc.1997.0633
   d) Coker R, Schutzler S, Deutz N, Miller S, **Wei JY** and Wolfe R. Nutritional Formulation Comprised of Essential Amino Acids, Protein and Phytosterols Reduces Risk Factors for Metabolic Disease in Overweight Individuals with Mild Hyperlipidemia. *J of Endoc, Diab & Obes* 2015, 3: 1069-76. PMCID: PMC4696774
2. *Vulnerability of aged brain and heart to hypoxia, hypertension, and stress*. I co-invented a gait monitoring device (piezo-electric crystals in shoe insoles) that assessed stride variance and predicted falls, congestive heart failure decompensation and neurodegeneration in seniors. We noted that hypoxia caused more injury to the brain than the heart and greater damage in old vs young adult (YA). We noted that positive self-priming of seniors improved their gait speed, cognitive function (verbal and math), and cardiovascular health (blood pressure and heart rate). We noted that hypertension disrupted the blood-brain barrier, increased neuro-inflammation and cognitive decline; this effect was exacerbated by insulin-like growth factor-1 (IGF-1) deficiency, which is more common in seniors. The results support the premise that it is possible to maintain and improve cardiac and physical function through good cardiovascular and nutritional maintenance.
   a) Hausdorff JM, Levy BR, **Wei JY**. The power of ageism on physical function of older persons: Reversibility of age-related gait changes. *J Am Geriatr Soc* 1999; 47:1346-1349. PMID: 10573445
   b) Azhar G, Liu L, Zhang X, **Wei JY**. Influence of age on hypoxia/reoxygenation-induced DNA fragmentation & Bcl-2, Bax & Fas in rat heart & brain. *Mech Ageing Dev* 1999; 112(1):5-25. PMID:10656180.
   c) Zhang XM, Azhar G, and **Wei JY**. The Expression of MicroRNA and microRNA Clusters in the Aging Heart *PLoS One* 2012; 7(4):e34688. PMCID: PMC3329493
   d) Tarantini S, Tucsek Z, Valcarcel-Ares N, Toth P, Gautam T, Giles C, Ballabh P, **Wei JY**, Wren J, Ashpole N, Sonntag W, Ungvari Z, Csiszar A. Circulating IGF-1 deficiency exacerbates HTN-induced microvascular rarefaction in the hippocampus and retrosplenial cortex: implications for cerebromicro-vascular and brain aging. *J Am Aging Assoc'n* 2016; 2: 273-289. PMCID: PMC5061685.
3. *Ethnic diversity research; vulnerability to psychological stress.* We have recruited older persons of diverse ethnicities and socioeconomic strata for research studies and found that multiple barriers exist in the community that impede research participation by minority seniors. We noted that positive self-priming of seniors improved physical function (gait speed), cognitive function (verbal and math), self- efficacy, as well as cardiovascular health (blood pressure and heart rate) and also reduced perceived stress in seniors.
   a) Ryall ALH, Abdulah DR, Rios DA, Hausdorff JM, **Wei JY**. Recruitment and retention of ethnically diverse elderly research subjects. In: L Curry, J Jackson, eds. *Science of Inclusion: Recruiting & retaining racial & ethnic elders in health research*. Allen Press; 2003: 46-55.
   b) Levy BR, Ryall AL, Pilver CE, Sherida PL, **Wei JY**, Hausdorf JM. Influence of African American elders age stereotypes on CV response to stress. *Anxiety, Stress and Coping* 2008; 85-93. PMID: 18027125.
   c) Azhar G, Pangle AK, **Wei JY.** Heart Failure, metabolic risk factors and dementia in south-central United States. *J Global Diabetes & Clinical Metabolism* 2017 Feb 20, 2(1): 012.
   d) Zhang XM, Azhar g, **Wei JY**. SIRT2 gene has a classic SRE element, is a downstream target of serum response factor and is likely activated during serum stimulation. *PLOS One* 2017:12(12): e0190011. doi: 10.1371/journal.pone.0190011. eCollection 2017. PMCID: PMC5739444.

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4. *Assessment of cardiac performance; diastolic function in seniors.* I co-invented tools to improve the assessment of cardiac function, enhancing 2-D echo images through the use of motion detection and creation of the "filling rate integral" to characterize diastolic function independently of heart rate and chamber volume. We noted that protein supplementation could improve function in low-functioning mature adults.
   a) George M, Azhar G, Pangle A, Dawson A, Coker R, Coleman K, Schrader A, **Wei JY.** Feasibility of Conducting a 6-Months Long Home-based Exercise Program with Protein Supplementation in Elderly Community-dwelling Individuals with Heart Failure. *Physiother & Rehab* 2017, 2:2. PMCID: PMC5720169
   b) Smeets, E; Schutzler, S; **Wei, J**; Azhar, G; Wolfe, R. Do anabolic nutritional supplements stimulate human growth hormone secretion in elderly women with heart failure? *Physiological Reports* 2017; DOI: 14814/phy2.13366, 2017. PMCID: PMC5555892
   c) Kim, I.; Park, S.; Smeets, ETHC.; Schutzler, S.; Azhar, G.; **Wei, J.Y**.; Ferrando, A.A.; Wolfe, R.R. Consumption of a Specially-Formulated Mixture of Essential Amino Acids Promotes Gain in Whole-Body Protein to a Greater Extent than a Complete Meal Replacement in Older Women with Heart Failure. *Nutrients* 2019, *11*, 1360. PMCID: PMC6627910
   d) Azhar G, **Wei JY**, Schutzler SE, Coker K, Gibson RV, Kirby NF, Ferrando AA, Wolfe RR. Daily consumption of a specially formulated essential amino acid-based dietary supplement improves physical performance in low physical functioning older adults. *J Geron* 2021:76(7):1184-1191. PMCID: PMC8202157
5. *Influence of advanced age on cardiovascular function; cellular stress and inflammation.* We noted that older hearts take longer to relax (achieve diastolic ventricular filling), partly due to impaired calcium handling, and exercise conditioning reversed the prolonged ventricular filling and protected old hearts against hypoxia. We found that contrary to long-held beliefs, more oxygen and ATP are needed for the heart to **relax** than to contract. We noted that the age-related *increased* ATP *de*pletion and *decreased* ATP *re*pletion during stress contributed to the higher vulnerability of old vs YAs to sustain greater damage. We noted that the old heart had reduced protein and mRNA synthesis, larger infarct size, and earlier post-infarction cell death, due to altered gene expression. Finding that the transcription factor, serum response factor (SRF), was mildly increased in old vs YA hearts; we created cardiac-specific, transgenic (Tg) mouse models of functional cardiac aging in which healthy YA mice displayed diastolic dysfunction that resembled the mild HFPEF of normal elderly humans and rodents. The Tg mice with "an old heart in a YA body" developed functional decline earlier (in middle age), similar to that observed in normal senescent rodents and in elderly humans. Thus, cardiovascular damage resulted in inflammation and functional impairment. We observed that the omega-3 FA reduced inflammation, raised adiponectin levels, and protected the cells from ER/SR toxic stress. We noted that the exposure of cultured vascular endothelial cells to high or low glucose resulted in accelerated endothelial cell senescence, protein kinase B and the mammalian target of rapamycin (AKT-mTOR) dysregulation and impaired nitric oxide regulation (with elevated inducible nitric oxide synthase to endothelial nitric oxide synthase ratios), which was partly reversed by metformin.
   a) Rogers SC, Zhang XM, Azhar G, Luo S, **Wei JY**. Exposure to High or Low Glucose Levels Accelerates Endothelial Cell Senescence and Induces Dysregulation of Nitric Oxide Synthase. *J of Geront* 2013; Dec; 68(12):1469-81. doi: 10.1093/gerona/glt033. PMCID: PMC3814242
   b) Zhang XM, Azhar G, Williams ED, Rogers SC, and **Wei JY**. Does p49/STRAP, a SRF-binding protein (SRFBP1), Modulate Cardiac Mitochondrial Function in Aging? *Exp Geron* 82 (2016): 150-159. PMCID: PMC4969173.
   c) Williams E, Rogers, SC, Zhang XM, Azhar, G, **Wei JY**. p49/STRAP, a Serum Response Factor Binding Protein (SRFBP1), is involved in the regulation of cytoskeletal F-actin proteins during glucose deprivation. *J Nutr H A* 2017; 21(10):1142-1150. doi: 10.1007/s12603-017-0925-0. PMID: 29188873
   d) Zhang X, Ameer FS, Azhar G, **Wei JY**. Alternative Splicing Increases Sirtuin Gene Family Diversity and Modulates Their Subcellular Localization and Function. *Int J Mol Sci* 2021 Jan 6;22(2):473. doi: 10.3390/ijms22020473. PMID: 33418837; PMCID: PMC7824890.

Partial List of Published Work:
http://www.ncbi.nlm.nih.gov/sites/myncbi/jeanne.wei.1/bibliography/41164662/public/?sort=date&direction=ascending

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RESEARCH & RELATED BUDGET - SECTION C, D, & E, Budget Period 1

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2022 **End Date*:** 06-30-2023 **Budget Period: 1**

C. Equipment Description	
List items and dollar amount for each item exceeding $5,000	
Equipment Item	**Funds Requested ($)***
Total funds requested for all equipment listed in the attached file	**0.00**
Total Equipment	**0.00**

Additional Equipment: File Name:

D. Travel	**Funds Requested ($)***
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	7,028.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**7,028.00**

E. Participant/Trainee Support Costs		**Funds Requested ($)***
1. Tuition/Fees/Health Insurance		
2. Stipends		
3. Travel		
4. Subsistence		
5. Other:		
Number of Participants/Trainees	**Total Participant Trainee Support Costs**	

RESEARCH & RELATED Budget {C-E} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTIONS F-K, Budget Period 1

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2022 **End Date*:** 06-30-2023 **Budget Period: 1**

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	1,670.00
2. Publication Costs	5,000.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8 . Other	9,147.00
Total Other Direct Costs	**15,817.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**168,236.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1 . MTDC	8	168,236.00	13,459.00
		Total Indirect Costs	**13,459.00**

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)	DHHS/Division of Cost Allocation, POC Name: Arif Karim, POC Phone #: 214-767-3261

I. Total Direct and Indirect Costs	Funds Requested ($)*
Total Direct and Indirect Institutional Costs (G + H)	**181,695.00**

J. Fee	Funds Requested ($)*
	0.00

K. Total Costs and Fee	Funds Requested ($)*
	181,695.00

L. Budget Justification*	File Name: Budget_justification_resubmission_10_22_21_Fin.pdf (Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTION C, D, & E, Budget Period 2

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2023 **End Date*:** 06-30-2024 **Budget Period: 2**

C. Equipment Description	
List items and dollar amount for each item exceeding $5,000	
Equipment Item	**Funds Requested ($)***
Total funds requested for all equipment listed in the attached file	**0.00**
Total Equipment	**0.00**

Additional Equipment: File Name:

D. Travel	**Funds Requested ($)***
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	12,280.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**12,280.00**

E. Participant/Trainee Support Costs		**Funds Requested ($)***
1. Tuition/Fees/Health Insurance		
2. Stipends		
3. Travel		
4. Subsistence		
5. Other:		
Number of Participants/Trainees	**Total Participant Trainee Support Costs**	

RESEARCH & RELATED Budget {C-E} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTIONS F-K, Budget Period 2

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2023 **End Date*:** 06-30-2024 **Budget Period: 2**

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	1,370.00
2. Publication Costs	5,000.00
3. Consultant Services	9,600.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8 . Other	14,725.00
Total Other Direct Costs	**30,695.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**201,221.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1 . MTDC	8	201,221.00	16,098.00
		Total Indirect Costs	**16,098.00**

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)	DHHS/Division of Cost Allocation POC Name: Arif Karim POC Phone #: (214) 767-3261

I. Total Direct and Indirect Costs	Funds Requested ($)*
Total Direct and Indirect Institutional Costs (G + H)	**217,319.00**

J. Fee	Funds Requested ($)*
	0.00

K. Total Costs and Fee	Funds Requested ($)*
	217,319.00

L. Budget Justification*	File Name: Budget_justification_resubmission_10_22_21_Fin.pdf (Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTION C, D, & E, Budget Period 3

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2024 **End Date*:** 06-30-2025 **Budget Period: 3**

C. Equipment Description	
List items and dollar amount for each item exceeding $5,000	
Equipment Item	**Funds Requested ($)***
Total funds requested for all equipment listed in the attached file	**0.00**
Total Equipment	**0.00**

Additional Equipment: File Name:

D. Travel	**Funds Requested ($)***
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	7,028.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**7,028.00**

E. Participant/Trainee Support Costs		**Funds Requested ($)***
1. Tuition/Fees/Health Insurance		
2. Stipends		
3. Travel		
4. Subsistence		
5. Other:		
Number of Participants/Trainees	**Total Participant Trainee Support Costs**	

RESEARCH & RELATED Budget {C-E} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTIONS F-K, Budget Period 3

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2024 **End Date*:** 06-30-2025 **Budget Period: 3**

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	1,370.00
2. Publication Costs	0.00
3. Consultant Services	14,021.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8 . Other	4,290.00
Total Other Direct Costs	**19,681.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**224,993.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1 . MTDC	8	224,993.00	17,999.00
		Total Indirect Costs	**17,999.00**

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)	DHHS/Division of Cost Allocation POC Name: Arif Karim POC Phone #: (214) 767-3261

I. Total Direct and Indirect Costs	Funds Requested ($)*
Total Direct and Indirect Institutional Costs (G + H)	**242,992.00**

J. Fee	Funds Requested ($)*
	0.00

K. Total Costs and Fee	Funds Requested ($)*
	242,992.00

L. Budget Justification*	File Name: Budget_justification_resubmission_10_22_21_Fin.pdf (Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTION C, D, & E, Budget Period 4

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2025 **End Date*:** 06-30-2026 **Budget Period: 4**

C. Equipment Description	
List items and dollar amount for each item exceeding $5,000	
Equipment Item	**Funds Requested ($)***
Total funds requested for all equipment listed in the attached file	**0.00**
Total Equipment	**0.00**

Additional Equipment: File Name:

D. Travel	**Funds Requested ($)***
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	7,028.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**7,028.00**

E. Participant/Trainee Support Costs		**Funds Requested ($)***
1. Tuition/Fees/Health Insurance		
2. Stipends		
3. Travel		
4. Subsistence		
5. Other:		
Number of Participants/Trainees	**Total Participant Trainee Support Costs**	

RESEARCH & RELATED Budget {C-E} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTIONS F-K, Budget Period 4

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2025 **End Date*:** 06-30-2026 **Budget Period: 4**

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	1,370.00
2. Publication Costs	5,000.00
3. Consultant Services	9,600.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8 . Other	3,320.00
Total Other Direct Costs	**19,290.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**224,602.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1 . MTDC	8	224,602.00	17,968.00
		Total Indirect Costs	**17,968.00**

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)	DHHS/Division of Cost Allocation POC Name: Arif Karim POC Phone #: (214) 767-3261

I. Total Direct and Indirect Costs	Funds Requested ($)*
Total Direct and Indirect Institutional Costs (G + H)	**242,570.00**

J. Fee	Funds Requested ($)*
	0.00

K. Total Costs and Fee	Funds Requested ($)*
	242,570.00

L. Budget Justification*	File Name: Budget_justification_resubmission_10_22_21_Fin.pdf (Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTION C, D, & E, Budget Period 5

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2026 **End Date*:** 06-30-2027 **Budget Period: 5**

C. Equipment Description	
List items and dollar amount for each item exceeding $5,000	
Equipment Item	**Funds Requested ($)***
Total funds requested for all equipment listed in the attached file	**0.00**
Total Equipment	**0.00**

Additional Equipment: File Name:

D. Travel	**Funds Requested ($)***
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	7,028.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**7,028.00**

E. Participant/Trainee Support Costs		**Funds Requested ($)***
1. Tuition/Fees/Health Insurance		
2. Stipends		
3. Travel		
4. Subsistence		
5. Other:		
Number of Participants/Trainees	**Total Participant Trainee Support Costs**	

RESEARCH & RELATED Budget {C-E} (Funds Requested)

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RESEARCH & RELATED BUDGET - SECTIONS F-K, Budget Period 5

ORGANIZATIONAL DUNS*: 122452563

Budget Type*: ● Project ❍ Subaward/Consortium

Organization: University of Arkansas for Medical Sciences

Start Date*: 07-01-2026 **End Date*:** 06-30-2027 **Budget Period: 5**

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	1,370.00
2. Publication Costs	5,000.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
Total Other Direct Costs	**6,370.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**170,021.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1 . MTDC	8	170,021.00	13,602.00
		Total Indirect Costs	**13,602.00**

Cognizant Federal Agency (Agency Name, POC Name, and POC Phone Number)	DHHS/Division of Cost Allocation POC Name: Arif Karim POC Phone #: (214) 767-3261

I. Total Direct and Indirect Costs	Funds Requested ($)*
Total Direct and Indirect Institutional Costs (G + H)	**183,623.00**

J. Fee	Funds Requested ($)*
	0.00

K. Total Costs and Fee	Funds Requested ($)*
	183,623.00

L. Budget Justification*	File Name: Budget_justification_resubmission_10_22_21_Fin.pdf (Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

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Budget Justification, United States Veterans Administration Contributions, UAMS Contributions, New England Geriatric Research Education and Clinical Center, NIH Contributions, University of Colorado, Anshutz Contributions, and the University of Michigan Contributions

Personnel

This project brings together a multi-disciplinary team of highly experienced researchers and clinicians, whose roles and budget justifications are described as follows in the applicable sections.

Personnel			
Investigator	**Role**	**Location**	**Expertise**
Jennifer L. Vincenzo, PhD, MPH, PT	Primary investigator	University of Arkansas for Medical Sciences (UAMS)	Geriatric physical therapy, rehabilitation, falls prevention
Geoffrey Curran, PhD*	Primary mentor	UAMS	Implementation and dissemination science, evidence-based quality improvement leadership in implementation science
Jonathan F. Bean, MD, MPH*	Mentor	Harvard & Boston University, New England Geriatric Research Education and Clinical Center	Geriatric rehabilitation, mobility disability, clinical trials, aging leadership
Jennifer S. Brach, PhD, PT*	Mentor	University of Pittsburgh, Pepper Center	Physical therapy, geriatric rehabilitation, implementation of clinical programs, mixed methods
Nancy Latham, PhD, PT*	Advisor	Boston University	Falls prevention, geriatric rehabilitation, implementing falls prevention in clinical practice
Jeanne Wei, MD, PhD*	Advisor	UAMS	Geriatric research, leadership
Kevin Sexton, MD	Co-Investigator	UAMS	Clinical informatics
James Selig, PhD	Co-Investigator	UAMS	Biostatistics in implementation science
Jamie Caulley, PT, DPT	OSC/ Consultant	Providence Health	Implementing STEADI in outpatient rehab in a large health system

*Note - All mentors and advisors are not receiving salary support.

Key Personnel

Jennifer L. Vincenzo, PhD, MPH, PT, *Principal Investigator.* I am a board-certified clinical specialist in geriatric physical therapy with a Master's in Public Health and a PhD in Exercise Science. I am an Associate Professor in the College of Health Professions, Department of Physical Therapy, and an Adjunct Clinical Associate Professor in the College of Medicine, Division of Geriatrics at UAMS. My training and experience in quantitative and qualitative research, statistics, physical therapy, geriatrics, and public health provide a strong foundation for enhancing my knowledge and skills in IS, mixed-methods research, and leadership through the proposed career development plan and aims. I have served as PI on a Geriatric Workforce Enhancement Award where I investigated community-based falls prevention, and my current KL2 award, where I am investigating older adults' perceptions and needs to support engagement in falls prevention. I have served as Co-I on numerous studies (funded and unfunded) relating to mobility and/or falls among older adults. I will assume the overall scientific and administrative responsibility for this project. I will oversee all components of the study and chair weekly meetings with the research group. I will meet with the various subsets of the research team regularly to oversee specific study-related tasks. I will meet with my primary mentor (Curran)

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weekly to discuss continuous improvement of the study and address any barriers to the study or my training. I will meet with co-mentors (Bean, Brach) and my advisor (Latham) monthly or more if needed as delineated by their involvement in both the career development and research plan. I will convene my advisory board quarterly to review and address my progress with the research and career development. I will lead the analyses, interpretation of findings, and dissemination of results. I will work with my Co-Investigators as delineated in the descriptions below to complete this research. I will spend 75%, 9 calendar months, effort during the five years of this project to complete my proposed career development objectives, research aims, and submit (and resubmit) and RO1.

Kevin Sexton, MD, *Physician Informaticist.* Dr. Sexton is the Associate Chief Clinical Informatics Officer for Innovation, Research, and Entrepreneurship. He has significant experience with the electronic medical record (EMR) including EMR management to support data collection, data access, visualization, and how to impact change in clinician behavior within the EMR. He leads the teams that would support changes to the electronic medical record system, Epic, for Dr. Vincenzo's proposed research. He will provide his expertise and assistance during years 2 - 4 for EMR revisions and deployment in aim 2 based on stakeholder-recommendations and data extraction needs. He will assist with data extraction and any necessary revisions to the EMR in aim 3. He will provide 5% effort, 0.6 calendar months, for the research component in years 2-4. The 5% required for EMR/Epic revisions are part of standard clinical operations.

James Selig, Ph.D, *Biostatistician.* Dr. James Selig is an Associate Professor of Biostatistics in the College of Public Health at UAMS. Dr. Selig teaches statistics and statistical programming courses at UAMS. He conducts research on the application of statistical methods in implementation science and the analysis of longitudinal data and applications of multilevel models. Dr. Selig will provide statistical support to Dr. Vincenzo in Years 1-5. He will collaborate with Dr. Vincenzo to analyze data in all aims. He will also consult in preparation of an appropriately designed and powered external funding application. He will dedicate 5% effort, 0.06 calendar months, in years 1-4, and 10%, 1.2 calendar months, in year 5 for his contributions.

Jamie Caulley, PT, DPT. *Other Significant Contributor.* Jamie Caulley is the Clinical Advancement Lead in Balance Rehabilitation and Senior Health Clinical Liaison at Providence Health and Services in Oregon. In this role, she implemented the STEADI in 34 clinics in a large health system in 2017 and continues to support the implementation. She will serve as a consultant with her expertise implementing the STEADI in rehab. In this role on her project, she will help develop and present implementation strategies, such as EHR revisions and training tools, to the stakeholder panel in Aim 2 (year 2). In years 3-4 of Aim 3, she will assist with with the pre-implementation phase of training, educating, and providing logistics for STEADI implementation in outpatient rehab at UAMS, conduct a site visit during the pre-implementation and training phase in order to achieve this goal, and assist inn identifying and addressing challenges with implementation to improve adoption and fidelity. She will commit to 8 hrs./month of consulting years 2-4 to assist Dr. Vincenzo in accomplishing these tasks.

Other personnel

Research Associate. *To be named.* A research associate who has experience in both qualitative and quantitative data collection and management will be hired trained to assist with all data collection, interviews, stakeholder panels, data analysis, project management, grant coordination, and assistance with dissemination. Given the vast amount of research conducted at UAMS, we anticipate having a large number of highly qualified candidates to choose from for this position. They will dedicate 50% effort, 6 calendar months, in all years of the grant.

Cody Rainey, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

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Mary Latham, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Michael Bennet, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Gayle Quattlebaum, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Kara Jackson, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Ashley Goggans, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Darrell Gray, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Nicholas Hargartt, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Amanda Williams, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Sean Stone, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-

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implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Heather Vaughn, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Jennifer Steinaur, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Jackie Mclean, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Scott Van Camp, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Samantha Eaton, is a practicing clinician at UAMS and will participate in education, training, and meetings associated with developing, implementing, and revising the implementation strategies to support FP as a SOC with aims 2 and 3. Training effort and meetings are expected to be the highest during development and pre-implementation and decrease over the implementation phase; therefore, effort is revised from years 2-4 accordingly. They will dedicate 4% effort, 0.48 calendar months, in year 2, 3.5% effort, 0.42 calendar months, in year 3 and 3% effort, 0.36 calendar months, in year 4.

Travel

Travel for Data Collection and Implementation Support – The RA or I will travel in Arkansas to visit clinical sites, interview stakeholders, collect study data, and provide implementation support. Two clinical sites are in Northwest Arkansas, where the PI and RA are located. Three other clinical sites are near one another in Little Rock, Arkansas. We will travel to Little Rock 4 times per year to achieve the goals in Year 1, Year 3, and Year 4 and year 5 for a total of $4,270.72

Year 1 = $1,604
Mileage from Fayetteville AR to Little Rock AR round trip = 445 miles
Mileage reimbursement = $0.42/mile = $187
Loding = $96/night
Meals = $59/day (2 days per stay)
Per trip = $401 x 4 trips = $1,604

Year 3 = $1,604
Mileage from Fayetteville AR to Little Rock AR round trip = 445 miles
Mileage reimbursement = $0.42/mile = $187
Loding = $96/night

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Meals = $59/day (2 days per stay)
Per trip = $401 x 4 trips = $1,604

Year 4 = $1,604
Mileage from Fayetteville AR to Little Rock AR round trip = 445 miles
Mileage reimbursement = $0.42/mile = $187
Loding = $96/night
Meals = $59/day (2 days per stay)
Per trip = $401 x 4 trips = $1,604

Year 5 = $1,604
Mileage from Fayetteville AR to Little Rock AR round trip = 445 miles
Mileage reimbursement = $0.42/mile = $187
Loding = $96/night
Meals = $59/day (2 days per stay)
Per trip = $401 x 4 trips = $1,604

PI travel to research and training meetings
I will attend two annual research/training meetings for career development and research dissemination in implementation science and geriatric research. I will attend and submit abstracts to the NIH Annual Conference on the Science of Dissemination and Implementation in Health and one geriatric- or rehab-focused meeting per year, (in addition to the annual Beeson meeting). These meetings will vary by year and will be chosen from annual meetings of the Gerontological Society of America, the American Gerontological Society, and the American Congress of Rehabilitation Medicine.

Total costs (annual) for scientific meetings: $2,080 * 2 meetings = $4,164
Total costs years 1-5 = $4,160 * 5 years = $20,800
Itemized travel costs:
o Hotel: $200/night * 3 nights = $600
o Meals: $70/day * 4 days = $280
o Transportation: $50/day * 4 days = $200
o Airfare: $500/ticket = $502
o Meeting registration: $500
o Total costs/meeting: $2,080

PI travel to annual Beeson meeting Total costs (annual): $1,260
Total costs years 1-5 = $1,260 * 5 years = $6,300
Itemized travel costs:

- Hotel: $200/night * 2 nights = $400
- Meals: $70/day * 3 days = $210
- Transportation: $50/day * 3 days = $150
- Airfare: $500/ticket = $500
  Total costs/meeting: $1,260

PI travel to Tideswell Leaders in Aging Program meetings (2 meetings during year 2): Total $6,860
Program Fee = $3,800
Itemized travel costs:

- Hotel: $200/night * 3 nights = $600 x 2 meetings = $1,200
- Meals: $70/day * 4 days = $280 x 2 meetings = $560
- Transportation: $50/day * 3 days = $150 x 2 meetings = $300
- Airfare: $500/ticket = $500 x 2 meetings = $1,000

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Total costs = $3,060

Training requiring tuition and training fees

Along with the trainings I receive at the conferences listed above, I will complete the following trainings to achieve my career development objectives:

Year 1 – Total $6,747

1. Implementation Research in Clinical Practice Settings, UAMS (HPMT 6319) = $460 per credit hour x 3 hours = $1,380+ fees ($992) = $2,372
2. Advanced Topics in Implementation Science, UAMS (HPMT 6329) $460 per credit hour x 3 hours = $1,380 + fees ($992) = $2,372
3. Implementation Facilitation Training – VA of Central Arkansas- $2,000

Year 2 Total = $3,925

1. Web-Based Certificate in Mixed Methods Research, online – University of Michigan – $1,125
2. Leaders in Aging Program – Program fee (one year): $3,800

Year 3 Total = $150

1. MAXQDA Mixed Methods Workshop – online, $150

Year 4 – none

No trainings in year 4 require costs.

Year 5 – none

No trainings in year 5 require costs.

Additional Contributed Training

Below is a list of additional training that will be completed and not charged to the grant.

Provided by UAMS

UAMS Center for Implementation Research activities – I will attend monthly seminars and journal clubs to support my training in IS. Topics include seminars on IS, consults with investigators on projects, and review of the literature.

UAMS Research Fundamentals and Team Science Seminars – Translational Research Institute – I will attend the monthly seminars, which are focused on core concepts related to scientific career development, grant writing and management, leadership, and team science.

UAMS Geriatrics Grand Rounds – Donald Reynolds Institute on Aging - I will advance my knowledge in geriatrics by attending bimonthly geriatrics grand rounds at UAMS. Expert speakers provide education on topics such as frailty and function and addressing health care disparities in geriatrics.

Provided by the United States Veterans Administration (VA)

Leading Healthcare Improvement: Leadership Training for Applying Improvement Strategies- I will complete this free, interactive, online training available through the VA in year 2 of the award. The training integrates the strength of evidence-based quality improvement and leadership skills for change management to successfully implement best practices efficiently.
https://www.queri.research.va.gov/training_hubs/healthcare_improvement.cfm

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Provided by the New England Geriatric Research Education and Clinical Center (GRECC)

GRECC Geriatric Seminars on Implementation Science –I will attend alternating weekly virtual seminars on implementation, dissemination, and evaluation; function and frailty at mentor Bean's institution to support my enrichment in geriatrics and IS.

Provided by University of Colorado, Anshutz

Researcher Management and Leadership Training – I will complete this 20-hour course for early career researchers and mentors to advance my management skills and research leadership.

Provided by the University of Michigan

Qualitative and Mixed Methods Learning Lab (QMMLL) – Starting in year 1, I will remotely attend this learning-based group seminar that meets twice per month from September-June each year. QMMLL is designed for researchers interested in conducting mixed methods research. It offers expert panel review and peer feedback, and advocacy for the use of mixed methods within our research community. http://www.mixedmethods.org/qmmll.html

Research supplies

I estimate research supplies will cost $1,920 annually = Total years 1-5 = $9,600

Transcription software to assist with quick transcription of interviews and EBQI panels,
$120/yr = Total years 1-5 = $600

MAXQDA qualitative/mixed methods software license to manage data, $600 initial license year 1. Upgrade software license year 2 - 5 for $300 each year.
Total years 1-5 = $1,800

Posters for 2 annual research/training meetings and 1 poster for annual Beeson meeting: $150 x 3 meetings per year = $450 * 5 years = $2,250

Other supplies including paper, printing, binders, and files for study management, training, and education for each year of the award are estimated at $500/yr * 5 years = $2,500

Meals for trainings and meetings - Year 3 and 4 = $2,760
Meals will be provided for lunch meetings/trainings for clinicians (16), administrative staff (5), and management (2). During year 3 of the award, we expect to have at least 4 intensive training meetings in the preimplementation phase. Once the first 6-month implementation phase starts, we will have consecutive meetings the first two months of implementation, followed by a meeting every other month to get feedback and address any issues that arise. Therefore, we will have 8 meetings in year 3.
We expect to have 23 participants (16 clinicians, 5 administrative staff, 2 managers). At $10 a meal per person = $230 per meal for each training x 8 trainings = 1,840.

In year 4 of the award, during the second 6-month implementation phase, we will meet the first 2 months of implementation and then have meetings every other month for a total of 4 meetings in year 4. At $230/meeting = $920.

Publication Fees = $20,000
I will allocate $2,500 per publication for publication fees. We estimate 2 publications per year. However, we do not have enough funds to allocate towards publication fees in year 3, so we will submit to journals that do not have publication fees. At $5,000 per year in years 1, 2, 4, 5 total fees will be $20,000.

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Other Costs

Participant Incentives – Total Years 1-5 = $17,900
Participant incentives are allocated for years 1-5 of the grant as follows:

Year 1 – Total $2,400
We will conduct surveys and interviews with 48 stakeholders x $50/interview = $2,400

Year 2 – Total $10,800
We will conduct 6 EBQI stakeholder panels with 12 stakeholders x $150/panel = $10,800

Year 3 – Total $2,300
After 6 months of implementation, we will conduct surveys and interviews with 10 stakeholders to gain a better understanding of the implementation data and the barriers to implementation. Participants will receive $50 renumeration (10 x $50 = $500). We will reconvene the EBQI panel to refine the implementation strategies (12 x $150 = $1,800). Total = $2,300

Year 4- Total $2,400
After refining the implementation strategies, and an additional 6-months of implementation (phase 2), we will collect outcomes data and conduct interviews with stakeholders to inform our results - 48 interviews and surveys x $50/interview = $2,400.

Year 5- none

Consultants
Total years 1-5 = $33,221

Year 1 $0

Year 2 = $9,600
Dr. Jamie Caulley will use her clinical expertise to implement STEADI in outpatient rehab to assist Dr. Vincenzo in developing and presenting implementation strategies, including EHR revisions. She will provide 8 hrs/ month remotely x 12 months at $100/hr = $9,600

Year 3 = $14,021
Dr. Jamie Caulley will use her clinical expertise in developing resources and providing training to implement the STEADI in outpatient rehab. She will also help develop new strategies and resources as needed after the 6 month implementation phase evaluations. She will assist with this remotely 8 hrs/month at $100/hr x 12 months = $9,600. Jamie will also do a site visit for 1 week during the pre-implementation phase to assist Dr. Vincenzo with staff training, EHR implementation and testing, and clinic set-up for implementation of the STEADI. She will receive $2,500 for the site visit, as well as reimbursement for travel, lodging, and per diem.
Itemized travel costs: $1,921

- Hotel: $96/night * 6 nights = $576
- Meals: $55/day * 7 days = $385
- Transportation: $60/day * 6 days = $360
- Airfare: $600/ticket = $600

Year 4 = $9,600
Dr. Jamie Caulley will use her clinical expertise to implement STEADI in outpatient rehab to assist Dr. Vincenzo in refining implementation strategies after the first implementation phase in order to improve adoption and fidelity of STEADI in rehab. She will provide 8 hrs/ month remotely x 12 months at $100/hr = $9,600

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Year 5 = $0
None

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RESEARCH & RELATED BUDGET - Cumulative Budget

	Totals ($)	
Section A, Senior/Key Person		609,052.00
Section B, Other Personnel		247,776.00
Total Number Other Personnel	35	
Total Salary, Wages and Fringe Benefits (A+B)		856,828.00
Section C, Equipment		0.00
Section D, Travel		40,392.00
1. Domestic	40,392.00	
2. Foreign	0.00	
Section E, Participant/Trainee Support Costs		0.00
1. Tuition/Fees/Health Insurance	0.00	
2. Stipends	0.00	
3. Travel	0.00	
4. Subsistence	0.00	
5. Other	0.00	
6. Number of Participants/Trainees	0	
Section F, Other Direct Costs		91,853.00
1. Materials and Supplies	7,150.00	
2. Publication Costs	20,000.00	
3. Consultant Services	33,221.00	
4. ADP/Computer Services	0.00	
5. Subawards/Consortium/Contractual Costs	0.00	
6. Equipment or Facility Rental/User Fees	0.00	
7. Alterations and Renovations	0.00	
8. Other 1	31,482.00	
9. Other 2	0.00	
10. Other 3	0.00	
Section G, Direct Costs (A thru F)		989,073.00
Section H, Indirect Costs		79,126.00
Section I, Total Direct and Indirect Costs (G + H)		1,068,199.00
Section J, Fee		0.00
Section K, Total Costs and Fee (I + J)		1,068,199.00

PHS 398 Cover Page Supplement

OMB Number: 0925-0001

Expiration Date: 09/30/2024

1. Vertebrate Animals Section

Are vertebrate animals euthanized? ❍ Yes ❍ No

If "Yes" to euthanasia

Is the method consistent with American Veterinary Medical Association (AVMA) guidelines?

❍ Yes ❍ No

If "No" to AVMA guidelines, describe method and provide scientific justification

2. *Program Income Section

*Is program income anticipated during the periods for which the grant support is requested?

❍ Yes ● No

If you checked "yes" above (indicating that program income is anticipated), then use the format below to reflect the amount and source(s). Otherwise, leave this section blank.

*Budget Period	*Anticipated Amount ($)	*Source(s)

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3. Human Embryonic Stem Cells Section

*Does the proposed project involve human embryonic stem cells? ❍ Yes ● No

If the proposed project involves human embryonic stem cells, list below the registration number of the specific cell line(s) from the following list: http://grants.nih.gov/stem_cells/registry/current.htm. Or, if a specific stem cell line cannot be referenced at this time, check the box indicating that one from the registry will be used:

Specific stem cell line cannot be referenced at this time. One from the registry will be used.

Cell Line(s) (Example: 0004):

4. Human Fetal Tissue Section

*Does the proposed project involve human fetal tissue obtained from elective abortions? ❍ Yes ● No

If "yes" then provide the HFT Compliance Assurance

If "yes" then provide the HFT Sample IRB Consent Form

5. Inventions and Patents Section (Renewal applications)

*Inventions and Patents: ❍ Yes ● No

If the answer is "Yes" then please answer the following:

*Previously Reported: ❍ Yes ❍ No

6. Change of Investigator/Change of Institution Section

❑ Change of Project Director/Principal Investigator

Name of former Project Director/Principal Investigator

Prefix:

*First Name:

Middle Name:

*Last Name:

Suffix:

❑ Change of Grantee Institution

*Name of former institution:

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PHS 398 Career Development Award Supplemental Form

OMB Number: 0925-0001
Expiration Date: 09/30/2024

Introduction	
1. Introduction to Application (for Resubmission and Revision applications)	Introduction_to_application_final.pdf
Candidate Section	
2. Candidate Information and Goals for Career Development	Vincenzo_career_development_plan_final.pdf
Research Plan Section	
3. Specific Aims	Vincenzo_specific_aims_final.pdf
4. Research Strategy*	Vincenzo_research_strategy_final10_22.pdf
5. Progress Report Publication List (for Renewal applications)	
6. Training in the Responsible Conduct of Research	Training_in_the_Responsible_Conduct_of_Researc.pdf
Other Candidate Information Section	
7. Candidate's Plan to Provide Mentoring	
Mentor, Co-Mentor, Consultant, Collaborators Section	
8. Plans and Statements of Mentor and Co-Mentor(s)	Plans_from_mentors_Oct_20.pdf
9. Letters of Support from Collaborators, Contributors, and Consultants	LOS_CCC.pdf
Environment and Institutional Commitment to Candidate Section	
10. Description of Institutional Environment	Institutional_Environment_FINAL.pdf
11. Institutional Commitment to Candidate's Research Career Development	KL76_Vincenzo__Institutional_Support.pdf
12. Description of Candidate's Contribution to Program Goals	
Other Research Plan Section	
13. Vertebrate Animals	
14. Select Agent Research	
15. Consortium/Contractual Arrangements	
16. Resource Sharing	Resource_Sharing_Plan_final.pdf
17. Authentication of Key Biological and/or Chemical Resources	
Appendix	
18. Appendix	Appendix.pdf

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PHS 398 Career Development Award Supplemental Form

Citizenship*:

19. U.S. Citizen or Non-Citizen National?* ● Yes ○ No

If no, select most appropriate Non-U.S. Citizen option

- ❑ With a Permanent U.S. Resident Visa
- ❑ With a Temporary U.S. Visa
- ❑ Not Residing in the U.S.

If you are a non-U.S. citizen with a temporary visa applying for an award that requires permanent residency status, and expect to be granted a permanent resident visa by the start date of the award, check here: ❑

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INTRODUCTION TO THE APPLICATION

I would like to thank the reviewers for their thoughtful comments and am grateful for the opportunity to resubmit this application. I believe the current proposal is strengthened and addresses the reviewers' concerns. We are responding to what we consider the main critiques in each section (e.g., concerns from multiple reviewers). I have summarized critiques in italics and underlined text below.

Candidate: *Lack of experience as a PI*- I have adjusted my biosketch to clearly indicate my experience as a PI: I was PI for 2 funded grants (Jr. Geriatric Faculty Development Grant (2016-2017) and KL2 (2019-2022) and 4 unfunded studies, including 2 with national task forces.

Career Development Plan: *Courses not at the home institution*- The implementation science courses and trainings are at the University of Arkansas for Medical Sciences (UAMS) and taught by the primary mentor, Geoff Curran, PhD. Unfortunately, the training needed in other areas is not available at my university, so I will complete training through well-known avenues, including both live and remote training, and I will travel to in-person seminars and workshops.

More information on formal training in biostatistics, epidemiology, longitudinal data analysis- I completed 8 statistics courses in quantitative research, including experimental design, applied multivariate statistics, and advanced multiple regression during my MPH, PhD, and graduate certificate in research and statistics.

Overlapping elements of career development training- I removed the overlapping training elements.

Passive/lack of training specific to aging research- I added the Tideswell Emerging Leaders in Aging Program.

Research Plan: *Insufficient evidence that fall prevention is appropriate in outpatient rehab and will be embraced by older adults*- The American Physical Therapy Association's clinical guidance statement asserts that physical therapists (PTs) should screen *all* older adults in rehab for falls and provide assessments and interventions within their scope of practice for those at-risk. PTs are qualified providers of fall prevention under the Medicare Merit-based Incentive Payment System. My recently published preliminary study shows that older adults are amenable to receive falls prevention in outpatient rehab even when attending for other reasons. Further, preliminary data from a study I am currently conducting indicates STEADI in outpatient rehab is feasible and appropriate, resulting in >20,000 older adults being screened annually in a large health system.

Recommendations to use STEADI as the fall prevention intervention- We were not clear in the prior application that we were proposing to implement STEADI in outpatient rehab. We now clearly name STEADI as the intervention which we are implementing.

Justification for the number of stakeholders and sample sizes in Aims 1 and 2- For Aim 1, across the 5 participating clinics, we are sampling from stakeholder groups who would be involved in the implementation (2 [all] managers, 16 [all] PTs and assistants, 5 referring physicians, 10 patients, and 10 caregivers. We aim to recruit 5 to 10 representatives from each stakeholder group research to achieve data saturation. Regarding Aim 2, we will follow published norms regarding stakeholder representation during the EBQI intervention development process, recruiting at least 2 participants from each stakeholder group.

The research plan lacks a comparison group, depth in study design, statistical methods including sample size and power calculations, and analytic approach to qualitative research- This is not a clinical trial, but rather a pilot study of implementation strategies to support the implementation of an evidence-based intervention (STEADI) as a standard of care in outpatient rehab. Therefore, our primary outcomes are in line with other implementation studies and implementation outcomes, which are at the available clinic (n=5) and provider levels (n=16), including the adoption of STEADI – screenings, assessments, interventions; fidelity to STEADI; and feasibility, acceptability, and appropriateness of STEADI. However, with over 1,200 older adults seen annually across the 5 clinics, we will have a sizable sample to explore clinical outcomes of implementing STEADI in rehab (pre-post rehab fall risk with the timed up and go and 30-second chair stand tests). These data will inform a subsequent R01 implementation trial submission powered on the primary implementation outcomes and testing clinical effectiveness. Regarding the qualitative analysis, we have included more details in the research strategy.

Considerations for recruiting people with dementia in Aim 1- PTs will only recommend patients without dementia to participate in Aim 1, as they may not be able to understand the survey or interview questions. However, we will recruit caregivers of people with dementia to gain insight into their perceptions.

Mentors: *Mentors' biosketches not in the application*- Mentors' biosketches are included in the resubmission.

Lack of publications with mentors- The PI now has 3 publications with Jennifer Brach, PhD, PT (mentor), and 1 publication and 1 manuscript under review with Dr. Curran (mentor) and Jeanne Wei, MD, PhD (advisor).

Lack of local expertise in rehabilitation research- There are no local experts in rehabilitation research at UAMS; however, my established relationship with Dr. Brach shows that I am successful with distance mentoring.

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CANDIDATE'S INFORMATION AND GOALS FOR CAREER DEVELOPMENT

Candidate's Background

Early career and clinical background. I am a first-generation college student from a low-income, rural background. Although my upbringing was challenging, I learned to adapt and be resourceful and persistent in meeting my goals and advancing my career. I earned my undergraduate degree in physical therapy as a Division I scholar-athlete through discipline and time management skills. My commitment to falls prevention (FP) started early in my career. As a young physical therapist (PT) working at Yale-New Haven Hospital, I treated countless older adults who required rehabilitation from injuries sustained after a fall. The impact that falling had on older adults' quality of life and independence was disconcerting because many falls are preventable, which prompted my interest in public health and pursuing an MPH while working full-time. Subsequently, I served as a program coordinator at Yale, implementing an evidence-based program to prevent delirium and falls among hospitalized older adults. My interest in FP and research grew throughout my 21-year clinical career. I attained board certification in geriatric PT, dementia management, health education, obtained my MPH, PhD, a graduate certificate in research and statistics, and conducted research in FP.

PhD training. In 2011, I pursued my PhD full-time in Exercise Science/Kinesiology, with a focus on aging, at the University of Arkansas, Fayetteville, while also teaching full-time in a PT Assistant Program and, with the support of my husband, parenting two toddlers. **Along with my PhD, I attained a Graduate Certificate in Educational Statistics and Research Methods.** During my MPH, PhD, and graduate certificate, I completed biostatistics and epidemiology courses and a total of 8 statistics courses in quantitative research, including experimental design, applied multivariate statistics, and advanced multiple regression. As a PhD student learning how to conduct research, I collaborated in team science investigating functional mobility differences among physically active and inactive older adults. With experience, I returned to FP and published several studies on assessments and interventions to predict and prevent falls among older adults. **During my PhD training, I received 4 research-related awards:** Outstanding Doctoral Student in Exercise Science, Adopt-a-Doc Award (2 consecutive years, American Physical Therapy Association-Geriatrics [APTA-Geri]), and the Emerging Scholars Poster Award (Gerontological Society of America). I also secured funding for my dissertation. These accomplishments exemplify my early commitment to research.

Post PhD. In 2015, upon completion of my PhD, I accepted a tenure-track position as an Assistant Professor in the new Doctor of Physical Therapy Program at the University of Arkansas for Medical Science (UAMS). As a new PhD and junior faculty member with minimal protected time, I established my own line of research in FP, developed the neurologic curriculum, chaired the admissions committee, and participated in many other teaching and national leadership activities. I was PI for **2 funded grants** (Jr. Geriatric Faculty Development Grant [2016-2017] and KL2 [2019-2022] from UAMS), Co-I on 3 funded studies, and served as PI on 4 unfunded studies, including 2 with national task forces. **During this time, I produced 26 peer-reviewed publications (7 first author, 4 second author), 5 manuscripts under review, and 47 peer-reviewed conference or poster presentations**, some with the Centers for Disease Control and Prevention (CDC) and National Council on Aging (NCOA).

KL2. In 2019**, *I was the first faculty member in the UAMS College of Health Professions to receive a KL2 award and the only KL2 scholar to receive a partial, 3rd year of funding.*** Through the KL2, I received mentorship, training, and experience in grantsmanship and qualitative research. I conducted qualitative research investigating older adults' perceptions of an FP plan of care for self-management and their perceived strategies to improve engagement in FP. My research resulted in one first-author manuscript, two first-author manuscripts under review, and one second-author manuscript in press. **The 3-year KL2 award is enabling me to bridge the gap in training and mentorship in research that I would have obtained through a post-doctoral fellowship, which I did not have the opportunity to complete due to accepting a tenure-track faculty position immediately after my PhD.** I gained foundational knowledge and proficiency in quantitative and qualitative research through my PhD and KL2 coursework and studies. I independently and collaboratively conducted and published funded and unfunded studies involving small-scale clinical trials, longitudinal surveys, and cross-sectional studies. My MPH provides me with a strong background in implementing and evaluating health programs, albeit not from a research perspective. My experience and research to date have led me to realize the large gap in the literature addressing the adoption of FP at the clinic, provider, and patient levels in outpatient rehab. This K76 award will enable me to address these gaps by providing mentorship, training, and research to become an independent investigator and leader in FP implementation.

Accomplishments in Aging, Research, and Leadership (2015-2021). I received recognition in aging and FP on national, state, and local levels and have spoken nationally on topics regarding geriatrics, balance, FP, physical activity, and health promotion at over 34 invited speaking engagements.

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National. I received the President's Award from APTA-Geri. I serve as co-lead researcher on the APTA-Geri/NCOA Task Force with co-mentor Jennifer Brach, PhD, PT. We conducted a national survey identifying PTs' knowledge and practices in FP and community referrals (manuscripts in preparation). I serve as a co-lead researcher for the National Council on Falls Risk Awareness and Prevention. We are in Phase 2 of a modified Delphi study to develop a feet/footwear screening tool for falls risk factors. I am the nominated Chair of the APTA-Geri Balance and Falls Special Interest Group, collaborating with the CDC and NCOA on FP, and I lead task forces to produce and disseminate information. I served as an expert for FP to the Northwest Corridor Trauma Advisory Council. I have presented multiple symposiums with the CDC and NCOA. I serve as an expert on webinars and social media for the NCOA for FP Awareness Week.

State and Local. I received the Distinguished Service Award from APTA-Arkansas. I am chair of the Governor's Advisory Council on Aging in Arkansas. I serve as the Arkansas State Advocate for Geriatrics for APTA-Geri. I developed a state-wide FP education program implemented for more than 450 older Arkansans. I am a member of the Arkansas FP Coalition. I received the Excellence in Scholarship Award from the UAMS College of Health Professions and a Geriatric Junior Faculty Development Award from UAMS. I served as a consultant in developing the Program of All-Inclusive Care for the Elderly in Northwest Arkansas. I serve on the Veterans Administration of the Ozarks subcommittee for research safety.

Career Goals and Objectives.

My short-term goal is to apply this career development award toward using my prior experience and my training in this award to implement STEADI (Stopping Elderly Accidents, Deaths, and Injuries)[1] as a standard of care for falls prevention in outpatient rehabilitation.

My long-term goal is to gain the knowledge, skills, and experience necessary to become an independent investigator in the design, implementation, and sustainability of effective FP. I will accomplish this goal with the supported mentorship, training, and research outlined in this K76 award application. I have clinical expertise in geriatric PT and FP, fundamental experience in research, and the mentor support and networks in place to conduct independent and impactful implementation research in FP with the support of the Beeson award. To achieve my goals and objectives, I will obtain additional skills in **implementation science (IS), mixed methods research (MMR),** and **leadership** and expand my content-specific knowledge in **geriatric research**.

My proposed training plan to address these gaps aligns with Rubio and colleagues' Logic Model for Training in Translational Research.[2] **It includes didactic education, mentored research, cross-disciplinary collaborations, and structured, experiential learning.** To ensure success in advancing toward my career goals, I have assembled a strong team of interdisciplinary mentors and advisors (Table 1).

Table 1. Role and expertise of mentors and advisors

	Curran	Brach	Bean	Latham	Wei
Role	Primary mentor	Co-mentor	Co-mentor	Advisor	Advisor
Implementation Science	Lead	Co-lead	Co-lead	Advisor	Advisor
Mixed Methods Research	Co-lead	Lead		Advisor	Advisor
Leadership	Co-lead	Co-lead	Lead	Advisor	Advisor
Geriatric Research		Co-lead	Lead	Advisor	Advisor
Meeting Frequency	Weekly	Monthly	Monthly	Monthly	Monthly
Full mentor/advisor meeting quarterly by Zoom					

Geoffrey Curran, PhD (Primary mentor), is the Director for the Center for Implementation Research (CIR) at UAMS, a Professor in the College of Pharmacy and Medicine, and a Research Health Scientist with the VA. He serves as a mentor on my KL2 and in qualitative methods on patient engagement in FP. He has been continually funded by NIH, the Department of Defense, VA, and research foundations for > 20 years. He is an internationally recognized expert in IS in research design, methods, and facilitation as an effective implementation strategy. He has published seminal papers establishing effectiveness-implementation hybrid research designs and developmental approaches to designing implementation strategies.[3,4] He previously served on an expert panel at NIH on IS research designs and recently (December 2020) was a keynote speaker for a workshop on IS for NIH Program Officers.

Jennifer Brach, PhD, PT (Co-mentor), is a Professor at the University of Pittsburgh (Pitt) School of Health and Rehabilitation Sciences. She is a PT and epidemiologist with over 20 years of experience in patient-oriented research in aging and disability prevention and has authored more than 100 publications. She is Co-Director of Pitt's Pepper Center Clinical Populations and Outcomes Core and oversees the community and long-term care research registry of older adults. She served as a PI or co-PI on multiple NIH and Patient-Centered Outcomes Research Institute grants involving older adults. She has experience conducting and publishing MMR and recently completed a certificate in IS. She has a strong commitment towards the mentorship of trainees within geriatric rehabilitative research, has been awarded a Midcareer Investigator Award (K24) from NIH, and was the first PT to be a Beeson Scholar. Dr. Brach and I have collaborated on projects involving FP for the last 2 years, resulting in 2 presentations and 4 published manuscripts.

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Jonathan Bean, MD, MPH (Co-mentor), is the Director of the New England Geriatric Research Education and Clinical Center (GRECC) and a Professor at Harvard and Boston Universities. He is an internationally recognized expert in geriatric rehabilitation with extensive experience conducting NIH-funded clinical trials in rehabilitation and measuring disablement outcomes. He also conducted a PT-led clinical demonstration project for older adults with mobility limitations in outpatient rehab, which will enable him to provide valuable mentorship for this project. He has a strong commitment to the mentorship of trainees within geriatric rehabilitative research and has been awarded a Midcareer Investigator Award (K24) from NIH. He mentored over 25 trainees from diverse backgrounds in geriatric rehabilitation research resulting in over 60 publications. Dr. Bean will serve as a mentor in leadership and geriatric research.
Nancy Latham, PhD, PT (Advisor), is the Study Director of The STRIDE Study (Strategies to Reduce Injuries and Develop Confidence in Elders) and an Assistant Professor at Boston University School of Public Health. She served as PI or Co-PI of NIH-funded clinical trials studying exercise and technological interventions to improve function and reduce falls in older adults. She will serve as an advisor in MMR and IS of FP.
Jeanne Wei, MD, PhD (Advisor), is the Executive Director of the UAMS Institute on Aging and the Chair of the Department of Geriatrics, where she is also a professor. Dr. Wei is internationally recognized for her contributions to aging research and was my primary KL2 award mentor. She has received continuous NIH funding for more than 30 years, served on NIH peer review study sections, and was chair of the NIA Board of Scientific Counselors. She has published more than 200 manuscripts and served on multiple editorial boards. She will serve as an advisor in geriatrics and aging research at UAMS (refer to all Letters of Support).

This training plan was developed in collaboration with my mentors and advisors. It supports my proposed research and my long- and short-term career development goals. The plan's four objectives build on my existing knowledge and contain activities to leverage resources to enhance my knowledge, experience, and network of collaborators. The training and mentored research will position me to compete for R01 funding and launch an independent research career to advance the implementation of FP.

Candidate's Plan for Career Development/Training Activities During Award Period.

OBJECTIVE 1. Obtain training in IS to translate research into feasible, acceptable, and impactful programs. IS is the scientific study of how to best support the uptake of evidence-based practices (EBP), with multi-level (e.g., clinic-, provider- and patient-level) stakeholder perspectives to improve the quality and impact of health services.[5-7] I need training and mentorship in IS in order to complete my goals and aims.

Training. In the fall and spring of the first year of the award, I will complete 2 courses in IS at UAMS taught by my mentor, Dr. Curran: *Implementation Research in Clinical Practice Settings (HPMT 6319)* and *Advanced Topics in IS (HPMT 6329)*. Course objectives include learning and applying IS theoretical frameworks, empirical evidence on strategies for improving implementation, assessing implementation processes, and IS research design. In year 1, I will also attend a 2-day *Implementation Facilitation workshop* offered by JoAnn Kirchner, MD, a UAMS CIR faculty member and nationally recognized expert in implementation facilitation. Facilitation is the role and process of enabling implementation and a key strategy of the IS framework for my research approach. I will attend all *CIR journal clubs and seminars,* which feature a variety of experts versed in IS. I will also attend CIR monthly meetings, which provide IS research consultations to investigators.

Experiential Learning/Apprenticeship. I recently completed training in Evidence-Based Quality Improvement (EBQI); however, I have not conducted this process. EBQI is the IS approach used in Aim 2 whereby researchers assist a stakeholder panel to systematically develop evidence-based implementation strategies to support EBP.[8] To learn more about EBQI and contribute to the literature, in year 1 of the award, I will collaborate with Curran and other investigators in CIR to submit a manuscript on EBQI in IS. In year 2 of the award, I will receive experiential learning from my mentor, Dr. Curran. We will co-lead all EBQI sessions in Aim 2. In years 4 through 5 of the award, under Dr. Curran's mentorship, I will provide consultation for investigators conducting IS projects and advance towards mentoring others in IS through the CIR.

Conferences (training and research). I will submit abstracts to and attend the the *Annual Conference on the Science of Dissemination and Implementation in Health* co-hosted by NIH and AcademyHealth. This conference offers opportunities to present IS research, learn from leading experts, and build collaborations.

OBJECTIVE 2. Obtain skills in MMR to integrate qualitative and quantitative data in IS. MMR is universally used in IS for both developmental studies, which build and pilot test strategies to improve EBP (as in my proposed study), and summative evaluations of implementation strategies, especially explanatory designs where qualitative methods are used to help explain quantitative findings.[9] I need training and mentorship in MMR in order to complete my aims and become an independent investigator in IS.

Training. Starting in year 1, I will attend bi-monthly, remote *Qualitative and Mixed Methods Learning Labs through the University of Michigan,* a learning-based group seminar designed for researchers interested in

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conducting mixed methods research. I will also gain training in MMR in the first year of the award in the *Advanced Topics in IS (HPMT 6329)* course, which has two modules on MMR in IS. In year 2 of the award, I will complete the web-based, asynchronous and live, *University of Michigan, Certificate in MMR*. The objectives of this month-long program are to critique theoretical foundations of research, form qualitative and quantitative research questions, create study designs, and integrate datasets for analysis and results. In year 3 of the award, I will take the online, interactive, full-day course on *Mixed Methods Analysis with MAXQDA*. MAXQDA is the software I use to manage and conduct qualitative research. I will gain skills to use MAXQDA to conduct an MMR analysis and integrate qualitative and quantitative data for Aims 1 and 3.

Experiential Learning with Mentorship. Experiential learning will occur while I am conducting Aims 1 and 3. Dr. Curran has conducted numerous studies in MMR and will serve as the lead mentor in this area. Dr. Brach has also conducted studies using MMR and will serve as co-lead in this area. Dr. Latham, an experienced researcher who has used MMR applied to FP, will serve as an advisor.

OBJECTIVE 3: Advance research leadership skills. In order to become an independent investigator, I would benefit from advanced leadership training.

Training. In year 2 of the program, I will complete the 6-month-long, interactive, online training through the *VA, Leading Healthcare Improvement: Leadership Training for Applying Improvement Strategies*. The training integrates the strength of evidence-based quality improvement and leadership skills for change management to successfully implement EBP. This training will assist with the completion of Aim 2. In year 3, I will take the 20-hour *Researcher Management and Leadership Training through the University of Colorado, Anshutz.* The curriculum teaches skills to implement funded projects and enhance research career success. Course content includes leadership, finance and administration, management, growing and managing teams, and mentorship.

Experiential Learning with Mentorship. In years 3 through 5, I will apprentice with all mentors during their research team meetings to learn how to manage a research team through their modeling.

OBJECTIVE 4: Expand knowledge in geriatric research. In order to be a leader in aging research, I need to expand my knowledge in geriatric research.

Training. In year 1 of the award, I will apply to the Tideswell Emerging Leaders in Aging Program which augments and leverages existing leadership skills for clinical, research, policy, and educational initiatives in aging. If I do not get accepted, I will continue to apply to the program each year. In all years of the award, I will attend the *GRECC Geriatric Seminars on Implementation Science,* alternating weekly virtual seminars on implementation, dissemination, and evaluation; function and frailty at mentor Bean's institution.

Conferences. I will attend one geriatric- or rehab-focused meeting per year, chosen with my mentor, Dr. Bean, from annual meetings of the Gerontological Society of America or the American Gerontological Society.

Teaching and Administrative Responsibilities. ***(Statement of Time Commitment)***: During the K76 award period, 75% of my time will be spent on career development (Table 2) and research activities, and 25% will be spent performing teaching and administrative activities (see Letter of Institutional Commitment).

Table 2. TIMELINE OF TRAINING ACTIVITIES AND ALIGNMENT WITH SPECIFIC AIMS

CAREER DEVELOPMENT OBJECTIVES	AIMS	YEARS				
1: IMPLEMENTATION SCIENCE		**1**	**2**	**3**	**4**	**5**
IS coursework at UAMS (HPMT 6319, HPMT 6329)	**1,2,3**	■				
Implementation Facilitation Workshop (VA, Little Rock)	**1,2,3**	■				
CIR monthly meetings/consultations/seminars/journal clubs (UAMS)	**1,2,3**	■	■	■	■	■
Apprenticeship with Curran and UAMS CIR (UAMS)	**1,2,3**		■	■	■	■
NIH Conference - Science of Dissemination and Implementation in Health	**1,2,3**	■	■	■	■	■
2: MIXED METHODS RESEARCH		**1**	**2**	**3**	**4**	**5**
Certificate in Mixed Methods Research (U of Michigan)- 1 month	**1,3**		■			
MAXQDA Software Mixed Methods Workshop	**1,3**			■		
Qualitative and Mixed Methods Learning Lab, bimonthly (U of Michigan)	**1,3**	■	■	■	■	■
3. ADVANCE LEADERSHIP SKILLS		**1**	**2**	**3**	**4**	**5**
Researcher Management and Leadership Certificate (U of Colorado)	**1,2,3**			■		
Leading Healthcare Improvement Leadership (VA)			■			
Experiential learning - attend co-mentors' research team meetings	**1,2,3**			■	■	■
4. EXPAND KNOWLEDGE IN GERIATRIC RESEARCH						
Tideswell Emerging Leaders in Aging Program	**1,2,3**		■	■	■	■
Geriatrics research seminars on IS, evaluation, function, frailty (GRECC)		■	■	■	■	■
Geriatrics conference (e.g., Gerontological Society of America)	**1,2,3**	■	■	■	■	■

CIR, Center for Implementation Research; GRECC, Geriatric Research Education and Clinical Center; IS, Implementation Science; UAMS, the University of Arkansas for Medical Sciences; VA, Veteran's Administration

SPECIFIC AIMS

Falls among adults over the age of 65 years are a leading cause of morbidity, mortality, and high health care costs in the US.[10] Many falls are preventable with a multifactorial falls prevention (FP) approach, which includes screening, assessment, and targeted interventions to ameliorate risks.[11-13] In addition to factors such as proper footwear and home safety, exercise interventions provided by a physical therapist (PT) are effective in decreasing falls.[11,14] Medicare and clinical practice guidelines indicate that PTs should be conducting FP within their scope of practice for *all* older adults;[15] however, research shows that PTs are not adhering to guidelines. Only 13% of Medicare beneficiaries at high risk for falls reported that falls were addressed during outpatient rehabilitation (rehab),[16] and claims data revealed that only 18% of older adults who suffered an upper extremity fracture (most likely due to a fall) had a falls risk assessment.[17] Research is needed to understand the gap in the adoption of FP in rehab and to develop strategies to support adoption.

Pragmatic trials of FP in outpatient settings have been focused in primary care using the CDC-developed STEADI (Stopping Elderly Accidents, Deaths, and Injuries), but implementation barriers, including challenges with workflow, follow-up, and management of numerous medical conditions, limit uptake and sustainability.[18-23] By contrast, PTs are well-positioned to implement FP as a standard of care in rehab using STEADI considering that 1) PTs are qualified to provide FP within their scope of practice, 2) PTs are afforded more one-on-one time and frequent follow-up than primary care providers, 3) older adults at high risk for falls are 3-times more likely to receive rehab, and 4) 1 in 5 older adults attends rehab annually.[24] Implementation Science (IS), focusing on how to best support the uptake of evidence-based practices to improve the quality and impact of health services,[5-7] provides a means to address the gap in the adoption of FP in rehab using implementation strategies developed with stakeholder input to support adoption of STEADI in rehab.

My long-term goal is to establish an independent career in IS focused on improving adoption of FP to decrease falls and injuries among older adults. My research demonstrates that PTs can effectively conduct STEADI in community-based events,[25] resulting in 57% of older adults engaging in FP behaviors.[26] I also found that older adults are amenable to receiving FP in rehab even if they are attending for another reason.[27] My preliminary research supporting this application found PTs have supportive beliefs for implementing FP with all older adults in rehab but lack confidence in their abilities. I am also currently conducting a retrospective outcomes evaluation of a health system that implemented the STEADI in rehab, screening over 20,000 older adults annually. Taken together, these findings support the feasibility and promise of this project.

This Beeson award will allow me to learn and apply principles of IS (e.g., formative evaluation, contextual analysis of implementation needs, stakeholder-driven implementation strategy development) to support the adoption of STEADI in rehab, leading to data for a fully-powered R01 hybrid effectiveness-implementation type 3 cluster randomized control trial.[3] I have unique preparation to undertake this work, beginning with extensive experience as a clinical specialist in geriatric PT. Through my MPH, PhD, graduate certificate in statistics and research methods, and KL2 award, I have established a record of accomplishment in research, leadership and FP. To expand my skills in IS, mixed methods research (MMR, commonly used in IS),[9] leadership, and geriatric research, I have an established mentoring team, a focused research project, and a targeted career development plan to complete the following aims:

Aim 1. Identify clinic-, provider-, and patient-level barriers to and facilitators of implementing STEADI in rehab. Guided by the *Consolidated Framework for Implementation Research (CFIR)*,[28] we will use a concurrent MMR design using data from surveys and interviews with stakeholders (n=48) associated with 5 outpatient rehab clinics to identify barriers and facilitators associated with the feasibility, acceptability, and appropriateness of implementing STEADI in rehab.

Aim 2. Develop implementation strategies to support the adoption of STEADI in rehab. Based on results from Aim 1, we will use a scientifically driven evidence-based quality improvement process to engage stakeholders to develop implementation strategies (clinic-, provider-, and patient-level) consistent with the CFIR framework and matched to identified barriers and facilitators to support implementing STEADI in rehab.

Aim 3. Pilot test the impact of implementation strategies for STEADI in rehab on implementation outcomes (clinic- provider-level) and exploratory clinical outcomes. We will use an explanatory MMR design to identify whether the implementation support strategies are feasible, acceptable, appropriate, and result in the adoption and fidelity of STEADI, and explore clinical outcomes of older adults' fall risk.

By completing the work afforded by this award, I will (1) obtain training and proficiency in IS, MMR, leadership, and geriatric research; (2) develop and pilot test implementation strategies to support the adoption and fidelity of STEADI in rehab; and (3) submit a fully powered R01 hybrid effectiveness-implementation type 3 cluster randomized control trial to test the implementation and clinical effectiveness outcomes of implementation strategies to support STEADI implementation in rehab.

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RESEARCH STRATEGY

Significance

Falls are the leading cause of emergency department visits and injuries among adults aged 65 years and older, resulting in significant morbidity and mortality.[29,30] Approximately 1 in 4 older adults falls annually, and mortality rates from falls continue to rise.[31] Falls constitute $50 billion of direct medical costs and 60% of all nonfatal injuries among community-dwelling older adults.[10] Many falls are preventable with evidence-based falls prevention (FP), which includes screening, assessment, and targeted interventions to decrease falls risk.[11,12,19,32-35] Implementation of even a single intervention, such as exercise provided by a Physical Therapist (PT),[14,36,37] may prevent as many as 14,000 falls and save up to $135 million annually.[38]

The American and British Geriatrics Societies recommend that all healthcare providers screen all older adults annually for falls risk and assess and intervene for those at risk.[39] The CDC developed the Stopping Elderly Accidents, Deaths, and Injuries (STEADI) toolkit to promote uptake of FP by physicians in primary care.[40] The toolkit has numerous online training modules and resources to support providers and older adults in FP.[1] Implementation studies of STEADI have been conducted in primary care; however, clinic-and provider-level implementation barriers, including management of numerous comorbidities, reduced one-on-one time with patients, and lack of follow up limit uptake and sustainability.[18,20,41-43] Because of these barriers, the CDC calls for research of STEADI to develop implementation best practices across different settings.[11]

PTs are trained and qualified to provide FP,[15] **and have more one-on-one time and frequent follow-up than primary care providers, positioning PTs to incorporate STEADI for FP of all older adults attending outpatient rehabilitation (rehab).** The American Physical Therapy Association's (APTA) clinical guidance statement asserts that PTs should screen all older adults for falls and provide assessments and interventions within their scope of practice for older adults at risk of falls. PTs are also qualified providers of FP under the Medicare Merit-based Incentive Payment System to provide falls screening, assessment, and FP plans for their older patients that are at risk of falls.[44] Table 1 delineates STEADI components of FP that are within PTs' scope of practice or that require referral.[1,15]

Table 1. Components of STEADI Fall Prevention within PT Scope of Practice or Requiring Referral

Component of Fall Prevention	PT Scope of Practice
Screening	
Questions/questionnaires	Yes
Assessment	
Evaluate gait, strength, and balance	Yes
Identify medications that ↑ fall risk	Yes
Ask about home hazards	Yes
Measure orthostatic blood pressure	Yes
Check visual acuity	Yes
Assess feet/footwear	Yes
Assess vitamin D intake	Refer
Identify comorbidities	Yes
Interventions	
Gait, balance, strength training	Yes
Medication management	Refer
Home hazard modification	Yes
Orthostatic hypotension treatment	Refer
Visual impairment treatment	Refer
Feet/footwear modification	Yes
Vitamin D supplementation	Refer
Comorbidity management	Refer

Two studies using different Medicare data highlight that PTs are not consistently conducting FP for all older adults attending rehab. Gell et al. found that PTs addressed falls for only 35% of older adults at high risk of falls; [16] and Mcdonough et al. reported that only 18.5% of older adults who suffered an upper extremity fracture (most likely due to a fall) received FP.[17] Considering that older adults at high risk of falls are 3-times more likely to receive rehab,[16] and 1 in 5 older adults attends rehab yearly,[24] integrating FP in rehab may result in a decline in falls among older adults.

My Preliminary Studies and Data Supporting the Promise of Implementing STEADI

Studies 1 and 2: PTs are qualified and capable of using STEADI for FP in ambulatory settings. Study 1. We conducted a quantitative, cross-sectional cohort study of community-dwelling and retirement-facility seniors (n=77) from two regions of the US who attended PT-led community-based fall screening events (using STEADI). We found that STEADI was feasible for PTs use in community screenings, and that 48.5% of older adults reported 6-month adherence to FP after the one-time event.[25] Study 2. This mixed-methods study identified older adults' (n=44) adherence and barriers to FP after PT-led FP screenings using the STEADI in a community-based setting. Participants also received individualized counseling on FP. After 6 months, 57% followed recommendations.[45]

Studies 3 and 4: PTs can use STEADI in community and clinical FP, but there is a gap in PTs' knowledge and use of STEADI for FP. In Studies 3 and 4, I led the APTA Geriatrics and National Council on Aging Task Force to survey 444 PTs in the US to identify PTs' practice of falls screenings in the community and clinic and knowledge and use of STEADI. Forty percent of PTs reported conducting community falls screenings, and 28% used STEADI.[46] Fifty-one percent of PTs were familiar to very familiar with STEADI, but only 26% use it in clinic practice (Vincenzo et al., 2021, unpublished data).

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Study 5: Older adults are amenable to receiving FP in rehab. My qualitative investigation of 27 older adults found that they are amenable to receiving FP in rehab, even if attending for other reasons, but require resources, support, and healthcare provider follow-up to support their engagement in FP.[27]

Study 6: Implementing STEADI in rehab is feasible; however, the implementation support strategies to assist with adoption and feasibility are unknown. I am currently conducting a retrospective outcomes evaluation study using data from a large health system that implemented STEADI in 34 outpatient rehab clinics starting in 2017. My preliminary results indicate STEADI can be implemented in outpatient rehab, considering that over 20,000 older adults have been screened for falls annually since implementation and considering that insurance has covered all services (LOS, Caulley). However, the implementation support strategies needed to best support the adoption and fidelity of STEADI in rehab are unknown.

Study 7: PTs require support to implement STEADI and FP in rehab. My preliminary data of a sample of PTs (n=12) at the University of Arkansas for Medical Sciences (UAMS) indicates they feel FP is important but lack the confidence to implement it. PTs suggested education, standardized tools, and Electronic Health Records (EHR) revisions would facilitate implementation of FP.

Implementation Science

Implementation Science (IS) provides a means to address the gap in the adoption of FP by PTs by implementing STEADI in rehab. IS is the scientific study of how to best support the uptake of evidence-based practices (EBP), with consideration of multi-level (e.g., clinic-, provider- and patient-level) stakeholder perspectives to improve the quality and impact of health services.[5-7] IS uses formative evaluation, contextual analysis of implementation needs, stakeholder-driven implementation strategy development, and implementation frameworks to improve the adoption of EBPs. Table 2 defines common IS terms.[3]

Table 2. Implementation Science Terms

Term	Definition
Formative evaluation	Assessment conducted prior to and/or concurrent with implementation which provides data for immediate use to improve the implementation process
Fidelity	Degree to which an evidence-based practice (EBP) is implemented as intended
Adoption	Uptake of EBP by clinics and/or providers
Implementation Strategies	Tools/activities to facilitate the adoption of and fidelity to EBP
Feasibility	Extent to which implementation can be completed given available resources
Acceptability	Degree to which the implementation is agreeable to stakeholders
Appropriateness	Perceived fit and compatibility of the intervention in clinical practice

Few studies conducted on FP or STEADI used an IS approach to support implementation or measure implementation outcomes, such as program adoption and fidelity, which influence clinical outcomes. Eckstrom et al. used implementation strategies (e.g., education and EHR revisions) which improved STEADI adoption and fidelity in primary care;[47] and Johnston et al. found that adoption impacted clinical outcomes. Older adults with a provider-documented FP intervention were 0.6 times less likely to have a fall-related hospitalization.[19] Clemson and colleagues are currently conducting a type 2 hybrid effectiveness-implementation trial (measuring both effectiveness and implementation outcomes) in Australia to improve general and allied health practitioners' (including PTs) adoption of FP in primary care.[48] Preliminary data suggest that provider education improves FP adoption.[49]

To our knowledge, no studies have investigated STEADI in rehab or used IS to facilitate the adoption of FP in rehab. Results of implementation studies on STEADI conducted in primary care are not directly transferrable to outpatient rehab. The care settings are distinct and governed by different rules and regulations. In my K76-supported research, I will employ an IS approach to identify the barriers and facilitators to implementing STEADI for FP in rehab. I will then develop and test the impact of implementation strategies on implementation outcomes (primary) and explore clinical outcomes (secondary). My research will result in feasible and acceptable implementation strategies to support the adoption of STEADI for FP in rehab.

Completing the proposed specific aims will position me to advance as a leader in FP and submit an R01 to conduct a hybrid effectiveness-implementation type 3 cluster randomized control trial (RCT) comparing the impact of the implementation strategies developed through this K76 award to a standard implementation approach involving education and technical supports, in which I will measure both implementation outcomes and clinical effectiveness outcomes. My Beeson project addresses the National Institute on Aging's initiative to train emerging clinical leaders in aging to impact practice and health outcomes of older adults. Longer-term, this line of research has the potential to significantly impact the incidence and costs of falls among older adults by increasing the number of older adults who receive FP. The literature, my research to date on FP and STEADI, and the paucity of research to improve FP in rehab support the importance of my K76 aims.

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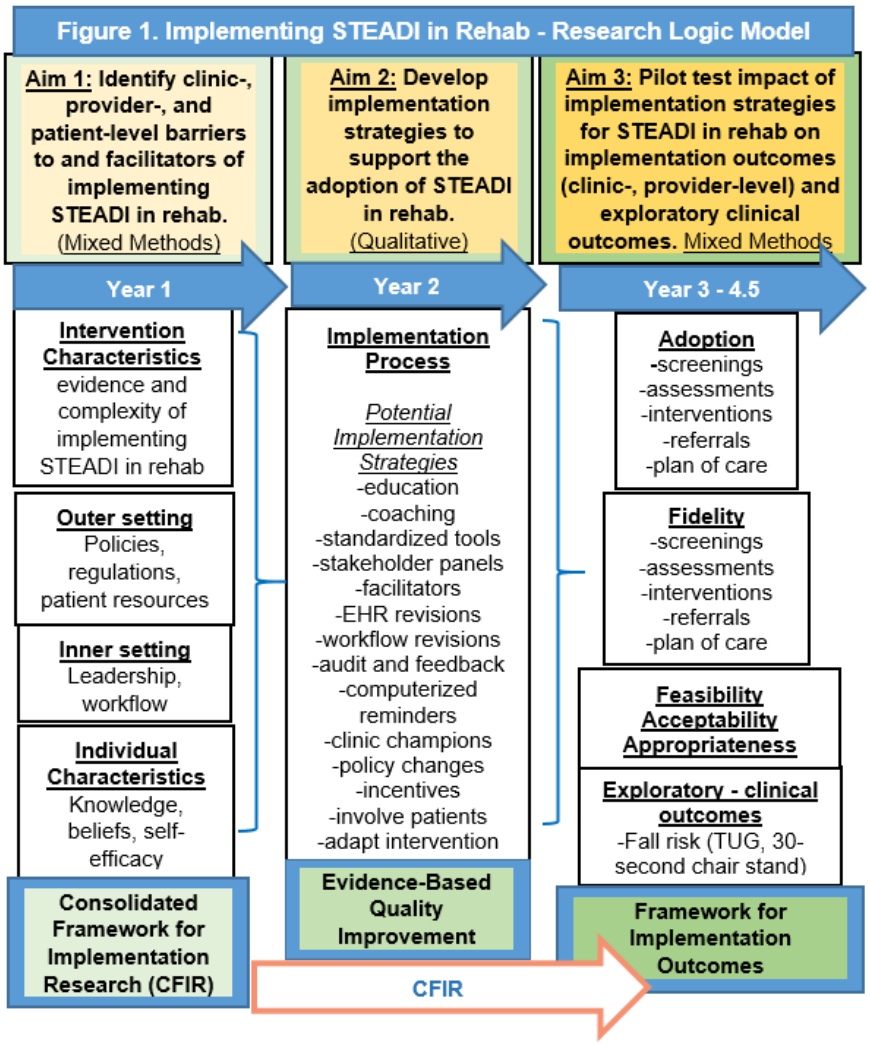
Innovation

This research has several innovations. (1) We will be the first to test the effects of implementation strategies on implementation outcomes of STEADI in outpatient rehab, shifting the approach to utilizing the STEADI for FP solely in primary to care to utilizing it in rehab to reach more older adults. According to Medicare and APTA clinical guidelines, PTs should implement FP within their scope of practice for all older adults,[15] yet research indicates PTs are not adhering to these guidelines.[17,50] To our knowledge, studies improving the adoption of STEADI for FP have only been conducted in primary care. Improving FP adoption in rehab may be more feasible than primary care because PTs are afforded more time and visits with older adults attending rehab, enabling PTs to also address patient-specific barriers to adopting and adhering to FP (e.g., accountability and support). (2) We will be the first to engage stakeholders using an IS approach to develop and test the effects of implementation strategies on the adoption of STEADI for FP. Proctor and colleagues, leaders in the field of IS, call for moving beyond studies investigating barriers to implementation to those of building and testing strategies for implementation.[51] Our research answers this call using contextual analysis with multi-level (clinic-, provider- and patient-level) stakeholder perspectives to drive the development of implementation strategies and pilot test them on implementation- and exploratory patient-level outcomes.[5-7]

Approach

Overall Strategy and Rationale

The purpose of this study is to develop and pilot test implementation strategies to improve clinics' and providers' adoption and fidelity of STEADI for FP for all older adults attending outpatient rehab regardless of the reason for their referral for care. We will use the Consolidated Framework for Implementation Research (CFIR), which facilitates the implementation of health services research findings into practice.[28,52] CFIR is used as a guide to identify and select strategies to mitigate barriers and capitalize on facilitators. Figure 1 (Aim 1) delineates the 5 CFIR constructs and their operationalization for this research. CFIR has been used as a framework in nursing research to identify factors that influence the adoption of FP (not STEADI) in inpatient oncology[53] and in hospital settings.[54,55] In this implementation study, we will use CFIR as the framework to incorporate rich contextual analysis and stakeholder input to identify barriers and facilitators to adoption of STEADI in rehab (Aim 1), develop strategies for successful implementation based on barriers/facilitators identified (Aim 2), and pilot test the impact of the implementation strategies on implementation outcomes (Aim 3) (adoption, fidelity, feasibility, acceptability, appropriateness)[56] and on secondary clinical outcomes. The study design and reporting follows Smith and colleagues' *Implementation Research Logic Model*[57] (Figure 1) and the *Standards for Reporting Implementation Studies/StarRI* checklist.[58] The green boxes describe the IS frameworks per aim. Refer to the study timeline attachment for more specific details regarding the aim timeline and products.



***Specific Aim 1* (Year 1). Identify clinic-, provider-, and patient-level barriers to and facilitators of implementing STEADI in rehab.**

Design. We will use a convergent mixed-methods research (MMR) approach to complete this aim.[59] We will use validated surveys in IS to collect quantitative data (Appendix) to identify stakeholders' baseline

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perception of the *Feasibility, Acceptability,* and *Appropriateness*[60] of implementing STEADI in rehab. Semi-structured interviews using a CFIR-based guide and questions regarding *Feasibility, Acceptability,* and *Appropriateness* will enable us to understand the barriers and facilitators to implementing STEADI (qualitative data) to inform Aim 2. My team will assist in the planning and execution of this aim in the following areas: Geoff Curran, PhD — IS, MMR, formative evaluation/CFIR; Jonathan Bean, MD, MPH — clinical rehab studies/geriatrician; Jennifer Brach, PhD, PT — MMR/PT; Nancy Latham, PhD, PT— clinical implementation of STEADI; Jamie Caulley, DPT — implementing STEADI in outpatient rehab; and Jeanne Wei, MD, PhD — processes specific to UAMS clinics. Dr. Curran will provide on-site mentoring.

Clinical Sites. We will conduct this study in 5 outpatient therapy clinics at UAMS. We selected these sites because 1) the clinics are affiliated with UAMS where the PI has an appointment, 2) The PI has an established relationship with clinic leadership, 3) leadership and clinicians agreed to participate (LOS, preliminary data), and 4) The diverse range of clinics (5), clinicians (16), and older adults seen annually in the clinics (170-500 per clinic, ~1,200 total) allows us to explore the feasibility of implementing STEADI in rehab.

Methods. We will recruit, survey, and interview stakeholders (n=48) directly involved in unique roles in implementation. We aim to interview all of the clinic-level stakeholders at the 5 clinics (2 managers, 5 administrative assistants, and 16 PTs or PT assistants). Clinic leadership and staff will identify external stakeholders for recruitment (e.g., referring physicians, older adults, and caregivers). We aim to conduct interviews with 2 patients and 2 caregivers who have experienced rehab at each clinic (total 10 patients, 10 caregivers) and 1 outside referring physician per clinic. A sample size of 5 to 10 per homogenous group is necessary to gain data saturation in individual interviews.[59,61]. We will pilot test and modify interview guides using CFIR constructs and additional questions about *Feasibility, Acceptability,* and *Appropriateness,* and barriers and facilitators to implementation of STEADI. After undergoing informed consent, stakeholders will complete surveys in REDCap on perceived *Feasibility, Acceptability,* and *Appropriateness* of implementing STEADI in rehab (quantitative data, Appendix)[60] and participate in 30- to 60-minute semi-structured interviews (qualitative data).[8] We attempt to conduct interviews in person but may conduct them by Zoom if necessary. Interviews will be recorded, and notes will be taken for audit trails. Participants will receive a $50 remuneration.

Analyses. *Quantitative*: We will calculate survey means, standard deviations, and 95% confidence intervals for perceived *Feasibility, Acceptability,* and *Appropriateness* for stakeholder groups and all stakeholders combined. Survey questions are based on a Likert scale ranging from 1 to 5, where answers below 3 indicate a lack of *Feasibility, Acceptability,* and *Appropriateness* of implementing STEADI.[60] These data will enable us to compare changes in these implementation outcomes in Aim 3 (e.g., compare PTs' pre-implementation acceptability of STEADI to the post-implementation acceptability). *Qualitative*: Audio-recorded interviews will be transferred to a secured server, transcribed verbatim with software, and analyzed. A trained research assistant (RA) and I will conduct a focused analysis of factors relevant to implementation with a CFIR codebook, and codes for *Feasibility, Acceptability,* and *Appropriateness*, using a rapid-content analysis technique used by Curran et al.[8] and based on methods described by Sobo et al.[62] This approach compiles summary information from each transcript to quickly capture a priori themes related to CFIR constructs while maintaining rigor in the analysis (Appendix). Health researchers use content analysis to interpret interview data into categories that represent overarching themes.[63] With guidance from Dr. Curran, a trained RA and I will code each transcript using the templates and meet to compare results and resolve discrepancies. Two coders are used to enhance rigor in analysis.[62] We will create a results summary matrix to compile all coding from individual interview templates into one document for presentation during the Evidence-Based Quality Improvement process in Aim 2. We will then conduct in-depth inductive and deductive coding for a detailed analysis. We will code all transcripts individually and conduct reliability analysis across the coders. We will compare transcript codings to ensure constructs are appropriately applied. If there are discrepancies in coding, we will discuss with the mentoring/advisor team to provide clarification and establish consensus. An interrater reliability (Kappa) of 0.8 will be required before independent coding is allowed. Collaboration will be ongoing to refine codes. Once coding is complete, we will compile all data segments for the predetermined/deductive codes and inductive codes and integrate quantitative and qualitative data.[59] We will use themes and quotes from interviews to explain participants' ratings of the *Feasibility, Acceptability,* and *Appropriateness* of implementing STEADI. Mentors and advisors will assist with this aim based on their relevant expertise.

Expected Results and Benchmarks for Success. I will apply the skills I gained through my KL2 training in qualitative research along with the K76 training and mentorship in MMR and IS to successfully complete this aim and develop a foundational understanding of the barriers, and facilitators to implementing STEADI in rehab that we will address in Aim 2. I will disseminate this information at gerontology and IS conferences and in

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manuscripts, with topics such as study protocols and clinical stakeholders, patients, and caregivers' perceived *Feasibility, Acceptability,* and *Appropriateness*, barriers, and facilitators of implementing STEADI in rehab.

Anticipated Challenges and Proposed Solutions. With the training and demanding nature of qualitative interviews and analyses, they will be the sole research activities in Year 1. I do not expect challenges recruiting clinician stakeholders at UAMS with incentives, management support, and participation in the preliminary survey; however, if I have difficulties, I will recruit from other local clinics in our region.

Specific Aim 2 (Year 2). Develop implementation strategies to support the adoption of STEADI in rehab.

Design. Based on results from Aim 1, we will use a scientifically driven evidence-based quality improvement (EBQI) process to engage stakeholders to develop implementation strategies (clinic-, provider-, and patient-level) consistent with the CFIR framework and matched to identified barriers and facilitators to support implementing STEADI in rehab. EBQI is a process that supports a researcher-clinician partnership to facilitate the adoption of evidence-based practices (EBPs), which includes directly working with stakeholders to inform the development of the implementation strategies.[8,64] A trained RA, Dr. Curran, and I (with input from Drs. Bean, Brach, Latham, and Caulley), will present the evidence on effectiveness and implementation of STEADI in primary care to the panel, define barriers and facilitators to implementation gathered in Aim 1, and suggest evidence-based implementation strategies to address barriers to implementation. Through an iterative process, stakeholders will choose and adapt strategies to support STEADI in rehab.

Methods. A trained RA, Dr. Curran, and I will use the data in aim 1 and the process of EBQI with stakeholders to (1) rate barriers and facilitators to implementation based on their importance and feasibility, (2) select the most important and feasible barriers to address, (3) match barriers and facilitators to implementing STEADI in rehab with potential implementation strategies, (4) tailor implementation strategies for the current study context (rehab), and (5) finalize implementation strategies to support implementing STEADI in rehab. In 2020, I completed a training program in EBQI through the VA QUERI Implementation Strategy Learning Network. Dr. Curran has extensive experience conducting EBQI[8,65,66] and will co-lead all sessions. In accordance with other studies using EBQI, we will recruit an EBQI panel of 12 stakeholders, which will include at least one representative from each stakeholder group interviewed in Aim 1.[65,67] The panel will meet for 6, 2-hour sessions over 9 months. We will offer a $150 incentive per session and provide flexible scheduling to ensure participation and retention of stakeholders. Sessions will take place by Zoom and will be recorded for reference and audit. Refer to Table 3 for details of each session. Stakeholders will also identify target *Adoption* and *Fidelity* rates of primary outcome measures/components of STEADI, which, to our knowledge, are not in the existing literature (see Table 5 below in Aim 3). After completion of EBQI sessions, we will have tailored implementation strategies to implement STEADI for our pilot test in Aim 3.

Table 3. Evidence-Based Quality Improvement Stakeholder Panel Sessions, Goals, and Activities

EBQI session	EBQI panel goal	Activities to achieve goal
Session 1	Reach consensus on barriers and facilitators from Aim 1 to drive implementation strategy selection	-Ranking of importance and feasibility of barriers and facilitators -Concept mapping
Session 2	Reach consensus on initial implementation support strategies	-Provide panel with literature-supported implementation strategies
Sessions 3&4	Choose design specifications for implementation strategies	-Facilitate panel discussion
Session 5	Provide revisions to implementation strategies	-Provide developed implementation strategies and facilitate panel discussion
Session 6	Approve implementation strategies	-Review and vote on strategies

Implementation Strategies. As noted above, we will summarize the literature in EBQI session 2. We will present findings from an important study of implementation strategies — *Expert Recommendations for Implementing Change (ERIC),* which refined strategy terminology, generated a "dictionary" to encourage consistent language and descriptions, and provided supporting evidence for the distinct implementation strategies.[68] The study resulted in a list of 73 strategies characterized into 9 purposive categories or types of strategies (sample in Appendix). We will then present the barriers and facilitators to STEADI implementation from Aim 1, matched to potential implementation strategies based on priorities defined by the CFIR framework,[69] existing evidence, and expertise provided by mentors, advisors, and consultants. Because no studies have been conducted implementing STEADI in rehab, we will refer to research on strategies that improve healthcare across multiple settings,[70] FP,[19,71] or PT practice.[72,73] We understand that a limitation of the proposed study is that, at this time, we cannot present the final list of strategies we will test; however, within the activities we propose here, we will follow an EBQI process to develop feasible implementation strategies that match specific contexts. The process will provide us with a mutually agreed upon, literature-supported, and feasible set of strategies to be tested. Refer to Table 4 for potential implementation strategies and targets.

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Table 4. Potential Implementation Strategies to Support STEADI Integration in Rehab			
CFIR construct	**Potential implementation strategies**	**Example**	**Target**
Intervention Characteristics- *Complexity*	Develop a formal implementation blueprint	EBQI panel of stakeholders decides on strategies to optimize implementation of STEADI in clinics	MDs, management, admins, clinicians, patients, caregivers
Outer setting- *Leadership*	Policies - Mandate change	Clinic leadership is mandating STEADI implementation in all clinics	Management, admins, clinicians
Inner setting- *Workflow*	Adapt and tailer - Change records (EHR) systems	Revise EHR; reminders, practice advisories, digital measures	Clinicians and admins
Inner setting- *Goals and feedback*	Audit and feedback	Stakeholders set goals - receive audit and feedback on regular time intervals	Management, clinicians, admin
Individual characteristics- *Knowledge*	Train and educate stakeholders	Provide stakeholders with education (meetings & print) regarding the use of STEADI and FP	Clinicians, admins, patients, caregivers
Individual characteristics- *Personal attributes*	Engage consumers	Develop strategies with patients and caregivers to improve uptake and adherence	Patients, caregivers

Analyses. We will compile descriptive statistics from the concept mapping exercise (EBQI session 1) to report in study abstracts/manuscripts. After each EBQI meeting, a trained RA, Dr. Curran, and I will complete an EBQI summary template (developed by Curran et al.) to assimilate the input from the panel, document discussions, consensus, decisions, and translate it into actionable plans and for dissemination.

Expected Results and Benchmarks for Success. I will use my expertise in STEADI and FP, my recent training in EBQI, and mentorship from Dr. Curran (with expert input from team) to complete this aim, which will result in the development of tailored implementation strategies to integrate STEADI in rehab. We will disseminate this data in abstracts and manuscripts about (1) stakeholders' perception of feasibility and barriers to implementing STEADI in rehab, (2) stakeholder-developed implementation strategies to support the adoption of STEADI in rehab, and (3) adoption and fidelity targets for implementing STEADI in rehab.

Potential Problems and Alternative Strategies. We will provide flexible scheduling and incentives to support stakeholder retention. If an EBQI-panel stakeholder is no longer able to participate, we will recruit a stakeholder with a similar role to take their place and train them on the EBQI process and progress to date.

Specific Aim 3 (Years 3-5). Pilot test the impact of implementation strategies for STEADI in rehab on implementation outcomes (clinic- provider-level) and exploratory clinical outcomes.

Design. This is the first time that IS will be used to support the adoption of STEADI in rehab; therefore, we will conduct a pilot implementation study using a sequential, explanatory mixed-methods approach to assess and refine the implementation strategies developed in Aim 2 to maximize our ability to test well-specified, feasible, implementation strategies in a future R01 hybrid effectiveness-implementation type 3 cluster RCT.[6] All mentors and advisors will provide expertise in this aim.

Methods. Pre-implementation phase: 3 months. We will spend the first 3 months of this aim training clinic sites and stakeholders (e.g., PTs, administrators) in STEADI and FP, deploying the EHR strategies, and implementing other strategies developed in aim 2 to prepare to launch the pilot phase. Our consultant, Jamie Caulley, DPT, will conduct a site visit to assist with training based on her experience implementing STEADI in 34 rehab clinics in a large health system since 2017 and training clinicians on STEADI and FP. A trained RA and I will maintain a tracking log to record detailed descriptions of deployed strategies (Appendix)[7] to enable replication and dissemination. Implementation Phase. We will deploy the implementation strategies to support the *Adoption* and *Fidelity* of STEADI in two subsequent 6-month implementation phases. This two-phase design will allow us to measure, evaluate, and refine the implementation strategies to support *Adoption, Fidelity*, and *Exploratory Clinical Outcomes* from the first 6-months to the subsequent 6-months. A trained RA and I will collaborate with Co-Is Kevin Sexton, MD (*informaticist*), and James Selig, PhD (*biostatistician*), to extract and analyze the *Adoption, Fidelity, and Exploratory Clinical Outcomes* data derived from EHR data (Table 5). We will use surveys and semi-structured interviews to assess the implementation process (*Feasibility, Acceptability,* and *Appropriateness*), including barriers and facilitators to implementation, to gain a deeper understanding of the *Adoption* and *Fidelity* results. Specifically, after the first 6-months, a trained RA and I will use a *Fidelity* checklist[74] for auditing a random selection of 10 charts at each clinic (n=50 charts). We will also conduct *Feasibility, Acceptability,* and *Appropriateness* surveys and semi-structured interviews with a sample of key stakeholders (n=10) to understand better the implementation data and the barriers to implementation following methods described in Aim 1. Participants will receive a $50 remuneration. The RA and I (with guidance from all mentors and advisors) will then reconvene the EBQI panel and refine the implementation strategies, followed by a second 6-month implementation phase in which we will deploy the

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revised implementation strategies. At the end of the 12-month implementation pilot trial, we will measure implementation outcomes (*Adoption, Fidelity*) and conduct surveys (*Feasibility, Acceptability,* and *Appropriateness*) and semi-structured interviews with the same groups of stakeholders (n=48) following our methods described in Aim 1 to inform the results of our study.

Adoption. Adoption is defined as the uptake of an EBP,[56] which, in our study, refers to the components of STEADI that are involved in screening, assessment, and intervention and within a PTs' scope of practice.[15] We aim to meet predetermined Adoption targets derived from the literature using STEADI in primary care or implementing an EBP in rehab (see Table 5). Items without a predetermined target (TBD) will have a target identified by the EBQI panel in aim 2. We will measure *Adoption* at the clinic- and provider-levels using EHR data. *Adoption* outcomes will be also compared from 6-months to 12-months.

Table 5. Adoption Outcomes for Implementation

Components of STEADI	Adoption (clinic- and provider-level)	Target
Screening	# with response to screening questions or Fall Risk Questionnaire compared to # eligible	>65%[47]
Gait/balance assessment	# with a documented timed up and go (TUG) test[1] compared to # screened positive.	>50%[75]
Strength assessment	# with documented 30-second chair stand test[1] compared to # screened positive.	>50%[75]
Other falls risk assessment	# with documented falls risk assessments of other factors (e.g., footwear, home safety, vision, orthostatic hypotension)[1] compared to # screened positive	>65%[47]
Gait, balance, strength interventions	# with documented gait, balance, and/or strength intervention compared to # at-risk on those assessments.	>61%[19]
Other interventions in PT scope of practice	# who received one or more FP interventions for home safety or feet/footwear issues compared to # identified as at risk in those areas	75%[47]
Referrals to other healthcare providers	# referred to another healthcare provider compared to # with risk factors (e.g., vision, orthostatic hypotension, medication) requiring referral.	TBD
Plan of care	# with FP documented in plan of care compared to # who referred for intervention(s).	TBD

Timed up and go, TUG; To be determined by stakeholders, TBD

Fidelity. Fidelity is defined as the degree to which an intervention is implemented as described in the original protocol.[76,77] We define the *Fidelity* of each component of STEADI according to the CDC[78] and the clinical guidance statement for PTs to manage FP for older adults as follows.[15] Screening — correctly identify an older adult as screening positive for falls risk based on answering yes to falling in the past year, unsteadiness, or worry about falls, *or* FRQ score ≥4.[1] Gait/balance assessments — correctly identify an older adult as at risk of falls if timed up and go (TUG) is >12 seconds, or the older adult has decreased balance during the TUG.[1] Strength assessment — correctly identify an older adult as at risk of falls if the 30s chair stand test (30CS) is lower than age-sex matched normative values.[1,79] Other falls risk assessment — correctly identify other risk factors for falls (e.g., medication, orthostatic hypotension, home safety, footwear).[15] Interventions for gait, balance, strength — correctly provides individualized exercises to address deficits (e.g., balance exercises involve decreasing the base of support, progressively less upper extremity support, and progressively challenging movements),[14,80] Other interventions within PT scope of practice — provides appropriate interventions for feet/footwear issues and/or home safety (e.g., home safety brochure).[15] Referrals to other healthcare providers — refers to appropriate provider(s) to address risk factors outside of PT scope of practice (e.g., health-related risks, MD).[15] Plan of care — correctly includes FP and plan to ameliorate identified risk(s) (e.g., an older adult with identified balance deficits should have balance training to decrease fall risk including in the plan of care). A trained RA and I will use a fidelity checklist to audit a random selection of 10 charts from the EHR at each clinic at 6-months and 12-months post-implementation (n=50 charts). We will conduct fidelity checks on the same charts until we consistently attain 0.8 interrater reliability on the results of the audits using a *Fidelity* checklist.[74] We will obtain an overall *Fidelity* score (fidelity of all 8 items) and subscores for each item at both the clinic- and provider-levels.

Exploring Clinical Outcomes. Implementation outcomes are primary for this project, but we will also explore baseline and discharge *Clinical Outcomes* of STEADI (TUG, 30CS). We will extract data from the EHR from older adults with a documented FP intervention.

Feasibility, Acceptability, and Appropriateness. As described using the methods above and in Aim 1, we will use surveys to measure the *Feasibility, Acceptability,* and *Appropriateness* of implementing STEADI with a sample of stakeholders 6-months post-implementation (n=10) and all stakeholders 12-months post-implementation (n=48). In addition, we will use semi-structured interviews to assess the implementation process (*Feasibility, Acceptability,* and *Appropriateness*), including barriers and facilitators to implementation, to gain a deeper understanding of the adoption and fidelity results following methods in Aim 1.

Analyses.

Adoption. We will analyze rates of *Adoption* as described in detail above at the clinic- and provider-levels. We will compare *Adoption* rates to *a priori* target rates (table 5). We will estimate the proportion and associated

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95% confidence interval. We will also compare *Adoption* rates at 6-months and 12-months post-implementation. We will use repeated measures t-tests to examine the change in these scores.

Fidelity. We will measure *Fidelity* according to the details above at the clinic- and provider-levels. We will estimate the proportion and associated 95% confidence interval 6-months and 12-months post-implementation. We will use repeated measures t-tests to examine the change in these scores.

Feasibility, Acceptability, and Appropriateness. We will calculate means, standard deviations, and 95% confidence intervals for *Feasibility, Acceptability, and Appropriateness* for stakeholder groups and all stakeholders combined. Mean scores >3/5 indicate *Feasibility, Acceptability,* and/or *Appropriateness*. We will compare scores on surveys completed in Aim 1 to surveys completed in Aim 3 using repeated measures t-tests to examine changes in scores.

Exploring Clinical Outcomes. We will estimate means and standard deviations for TUG and 30CS pre- and post-therapy. We will compare baseline scores to cut points for falls risk. A TUG time >12sor decreased balance while performing the TUG is indicative of increased falls risk.[1,81] Performing lower than age- sex-matched normative values on a 30CS is indicative of falls risk.[1] We will use repeated measures t-tests to examine the change in these scores.

Integration of Quantitative and Qualitative Data. We will use an explanatory, sequential mixed methods design, to understand the potential impactors to implementation.[59] We will analyze semi-structured interviews as described in Aim 1. Drs. Curran and Brach will guide this approach with their relevant expertise. Co-I Dr. Selig will assist with quantitative analyses. We will integrate the data using joint displays.[59] For example, to understand the feasibility of implementing STEADI in rehab, we will construct a table that links clinics with high and low scores of *Feasibility* and/or *Adoption* to interview data.[82]

Sample Sizes and Statistical Power. PASS 2020 was used for appropriate effect size calculations.[83] Sample size for adoption outcomes is limited to the number of clinics (5) and providers (16) in this study and like other studies of STEADI in primary care, not designed for power for implementation outcomes.[19,21,47] We are not proposing hypothesis tests for *Adoption* outcomes but will compare percentages to criteria in Table 5 and compare differences in these measures 6-months and 12-months post-implementation. The sample size for *Fidelity* will be N=50 chart reviews. The sample size for *Exploratory Clinical Outcomes* (TUG, 30CS) will be based on the number who are eligible and who screen positive and receive an assessment and intervention. Based on literature regarding rehab services utilization data and fall risk, we conservatively expect 40% of the 1200 eligible patients will screen positive[16], and according to our target rate, at least 50% of those will be given assessments[47] for N=(1200x.4x.5)=240. Based on a repeated measures t-test with 2-sided α=.05 assuming a correlation between pre- and post-assessments of *r*=.5, this sample size (N=240) would yield 80% power to detect standardized mean differences as small as d=.22. For context, other community-based falls prevention intervention studies using within-subject designs with pre- post-intervention measures of TUG have found d=.68[84] and d=.48.[85] Sample size for measures of *Feasibility*, *Acceptability*, and *Appropriateness* will be N=48. Based on a repeated measures t-test with 2-sided α=.05 assuming a correlation between pre- and post-assessments of *r*=.5, this sample size (N=48) would yield 80% power to detect standardized mean differences as small as d=.5, or a difference of half a standard deviation.

Expected Results and Benchmarks for Success: I will use my expertise in STEADI and FP, my teams' expertise, and K76 training in IS and MMR to complete this aim. I will submit manuscripts and presentations related to the effects of implementation strategies on (1) adoption and fidelity of STEADI screening, assessment, and interventions, (2) clinical outcomes of STEADI in rehab, (3) feasibility, acceptability, and appropriateness of STEADI in rehab, and (4) lessons learned from implementing STEADI in rehab. These data will lay the foundation for a fully powered R01 hybrid effectiveness-implementation type 3 cluster RCT comparing the effects of implementation strategies to a standard implementation approach involving education and technical supports on implementation and clinical outcomes. Curran et al. developed hybrid designs to provide systematic approaches to blending effectiveness and implementation trials.[3]

Potential Problems and Alternative Strategies: Involving stakeholders prior to and during the implementation process assists with buy-in and adoption. Leadership is supporting this as a quality improvement (and research) project; therefore, we expect full support. We included clinician effort and meals to account for training and meetings to support the research. In the likely event that stakeholders actively involved in the implementation phase leaves (turnover), we will train the new stakeholder(s) using the implementation strategies to support STEADI in rehab. Although meeting implementation targets may be challenging, our iterative formative process should produce feasible and effective implementation strategies as we prepare for the fully powered RCT.

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Training in the Responsible Conduct of Research

As part of the KL2 award from the UAMS CTSA, I completed 8 approved training hours in the Responsible Conduct of Research (RCR) through a Scientific Communications (SC) course. This course is offered through a collaboration between The UAMS Office of Research Compliance and the College of Medicine Graduate School and is designed to meet the federal requirements for RCR. Sessions in this course were live face-to-face or via zoom and one hour in length. The courses I completed in 2019-2020 included:

Mentor-Trainee Relationships	Ethics: Diversity in the Workplace and Social Responsibility	Ethics: Responsible Conduct of Research	Ethics: Research Involving Humans
Ethics: Peer Review and Conflict of Interest	Ethics: Research Involving Animals	Small Talk, Networking, and Collaboration	Plagerism

I have also completed and maintained training in HIPPA compliance at UAMS and in the responsible conduct of human research through the Collaborative Institutional Training Initiative (CITI). My mentors, collaborators, and I will maintain up-to-date human subjects training certification throughout this award. I will take refresher courses in these topics as needed to ensure I have covered 8 hours of approved RCR training at least once every 4 years.

I will also attend regular training opportunities offered by the UAMS Translational Research Institute (TRI), including the Research Fundamentals Seminars. The monthly seminars cover core concepts related to three categories: scientific career development, grant writing and management, and leadership; which include content in the responsible conduct of research. Further, I will include ethical issues as a recurring agenda topic for mentor meetings. The mentors on this application have extensive experience with identifying and addressing ethical issues in research in clinical settings. They will monitor my adherence to appropriate ethical standards and protection of human subjects as part of ongoing evaluation of my work.

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Jennifer Brach, PT, PhD, FAPTA
Professor and Associate Dean

University of Pittsburgh | School of Health and Rehabilitation Sciences

Re: Jennifer Vincenzo, PT, MPH, PhD September 20, 2021

Beeson Review Committee:

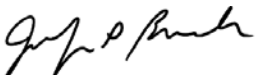
It is my pleasure to write this letter of support for Dr. Jennifer Vincenzo for the Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) entitled “Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation.” I am a trained physical therapist, an epidemiologist, and an expert in mobility in older adults with extensive experience in several large clinical trials of walking interventions in older adults and over 100 publications. I was the first non-physician to receive the prestigious Paul Beeson Career Development Award in Aging from the National Institute on Aging to examine the epidemiology, assessment, and management of gait variability in older adults (K23 AG026766). I mentored numerous PhD, MD, clinical doctorate students, and post-doctoral fellows. I have completed a certificate in implementation science and am committed to mentoring trainees under my Midcareer Investigator Award (K24). With my expertise in implementing programs in physical therapy and the community to promote mobility in older adults, I will be able to provide Dr. Vincenzo with the support necessary for this award.

I will serve as Dr. Vincenzo’s co-mentor for this award, supporting her career development in implementation science in physical therapy. Dr. Vincenzo’s goal is to implement the STEADI for falls prevention in rehab among older adults. The K76 research she is proposing to conduct is high impact and has potential to advance knowledge in sustainable falls prevention. Her expertise in physical therapy, geriatrics, falls prevention, and public health provides her with a solid foundation to build and further develop her skills in mixed methods, implementation science, geriatrics, and leadership. Dr. Vincenzo and I met 3 years ago when we were appointed the National Council on Aging and Academy of Geriatric Physical Therapy task force. I am impressed by her expertise, ability to co-lead research for the task force, and ingenuity. We have collaborated on 6 peer-reviewed manuscripts, and we continue to collaborate on research. I recognize her potential as a clinical researcher and am committed to fostering her continued growth as an independent investigator.

Dr. Vincenzo has a strong publication record, and her continued productivity is outstanding, with over 25 publications in multiple streams of geriatric, physical therapy, and health promotion journals. She presented her research at numerous state and national scientific meetings with experts from the Centers for Disease Control and National Council on Aging. Dr. Vincenzo successfully obtained funding from the Academy of Geriatric Physical Therapy in 2015 and 2014 (Adopt-A-Doc Award). She has a strong commitment from the University of Arkansas for Medical Science (UAMS), being the first physical therapist and faculty member in the College of Health Professions to receive a KL2 Scholar Award (2019) to broaden her research skills in qualitative research, falls prevention, and grantsmanship and the first KL2 scholar ever at UAMS to receive an additional 3rd year of funding, demonstrating her institution’s development support.

As Dr. Vincenzo’s co-mentor, I will work with her to plan, direct, monitor, and execute the training and research program, leading to her becoming an independent investigator in falls prevention implementation. I will meet with her monthly or more frequently if needed. She is poised to develop into a successful independent researcher who will provide impactful research towards improving the lives of older adults. I her for the Paul B. Beeson Emerging Leaders Career Development Award with the **highest enthusiasm**.

Sincerely,



Jennifer S. Brach, PT, PhD, FAPTA Professor

Department of Physical Therapy
Associate Dean of Faculty Affairs and Development,
School of Health and Rehabilitation Sciences

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Center for Implementation Research
Sponsored by the UAMS College of Pharmacy and College of Medicine
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Little Rock, AR 72205-7199
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University of Arkansas for Medical Sciences

Geoffrey M. Curran, Ph.D.
Professor and Director

September 15, 2021
Re: Jennifer L. Vincenzo, PT, MPH, PhD
NIA, Beeson Selection Committee

Dear Beeson Selection Committee,

It is with great pleasure that I support Dr. Jennifer Vincenzo, PT, MPH, PhD, in her pursuit of a Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) with the proposed resubmission*, "Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation."* The overall career development and research that Dr. Vincenzo has proposed combine an impressive team of mentors and a high-quality implementation research design to ensure her development as an independently funded investigator. I am an accomplished investigator in dissemination and implementation science. In my role as Professor at the University of Arkansas for Medical Sciences (UAMS), dually appointed to the departments of Pharmacy Practice and Psychiatry, I have spearheaded efforts to support and expand local expertise in implementation science. I am the founder and Director of UAMS's Center of Implementation Research, of which Dr. Vincenzo has been a member since she was awarded the KL2 award in 2019 at UAMS. As Dr. Vincenzo's primary mentor on this award, I am delighted to discuss the talents she possesses that will assist her in becoming an independently funded investigator, as well as the expertise I bring as a mentor.

Dr. Vincenzo has the ideal training and record of performance for this award. Her research includes geriatrics and falls prevention for community-dwelling older adults. She has been recognized as an outstanding scholar through awards nationally and at UAMS. UAMS has already invested in her success through a 2-year UAMS KL2 Scholar Award entitled "Development of a Falls Prevention Self-Management Plan to Improve Older Adults' Adherence to Community-Based Falls Risk Screenings," which she is successfully completing and disseminating in multiple ways. I serve as a co-mentor on her KL2 award, from which she developed skills in qualitative research and grant writing to provide a foundation for her ultimate goal to be an independent investigator in implementation science. As a mentee, Dr. Vincenzo was eager, proactive, and assiduous in her use of time, resources, and reaching her goals. Dr. Vincenzo demonstrates diligence in the advocacy for falls prevention, having served at many state and national levels to implement fall prevention programming while concurrently serving as an assistant (more recently associate) professor as well as creating and chairing the neurology curriculum and admissions for the Doctor of Physical Therapy program at UAMS. She has an established record of publication in peer-reviewed manuscripts in geriatric, health promotion, and physical therapy journals. The proposed training and research activities will provide her the skills and experience needed to be a successful, independent investigator in the implementation of best practices in older adult falls prevention and a leader and mentor to others in implementation science. Few investigators will have the comprehensive expertise in implementation science, falls prevention, and community engagement to address the issue of increasing incidence in older adult falls that Dr. Vincenzo will have upon completion of this award. The field will benefit from her expertise and commitment in these areas. In addition, Dr. Vincenzo's research design involves an impressive plan that builds on her existing training and experiences and provides the opportunity to build her skills in the targeted career development areas.

My expertise in implementation science will allow me to provide mentorship to Dr. Vincenzo. I have extensive expertise in implementation science with a particular emphasis on designing and testing implementation strategies to support the adoption and sustainability of evidence-based practices. I have focused additional work on 1) formative evaluation methods to assist in developing and revising implementation strategies based on data derived from local contexts and 2) "hybrid effectiveness- implementation" designs that combine elements of clinical/preventive effectiveness and implementation research to speed the translation of evidence-based practices. These formative evaluation methods and hybrid designs are being applied in this K76 proposal. I recently served on the NIH Dissemination and Implementation (DI) Research Design and Methods

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Geoffrey M. Curran, Ph.D.
Professor and Director

Working group. I was a keynote speaker for a multi-day workshop on DI research for all NIH program officers in December 2020. As PI or Co-I, I am currently funded by NIH, AHRQ, VA, and private foundations to develop and test implementation strategies in a variety of healthcare settings. I have previously been PI on NIDA, NIMH, and VA-funded implementation research in mental health and primary care settings. I served on the Expert Committee for the recent Expert Recommendations for Implementing Change study, which refined and defined a published compilation of implementation strategies and terms. Since its inception, I have served on the Editorial Board of Implementation Science, the flagship journal in the field. My expertise and leadership provide avenues for networking and collaborations for my mentees.

In addition to my scientific contributions, I have a strong history of mentoring. I have served as Director of a VA postdoctoral fellowship program and as Co-Director of an NIMH T32. I have mentored numerous postdoctoral fellows and junior faculty members, most of whom now hold academic positions with the Center for Implementation Research with extramural funding. I am also on the Steering Committee of the NIDA T32 at UAMS and train faculty on a T32 program at the University of Pennsylvania, providing didactics and mentoring. Dr. Vincenzo has worked diligently on building a foundation in qualitative research to enable her to transition to learning and applying implementation science principles with older adult falls prevention. Dr. Vincenzo and I have an established working relationship, and I look forward to continuing our work together. I am confident that she has the intelligence and drive necessary to become an expert investigator and make major contributions to the field.

I am fully committed to mentoring Dr. Vincenzo for this award. As her primary mentor, I will be responsible for directing the organization of training and research, collaborating with her mentoring committee, and providing specialized mentoring in the area of Implementation Science. I will contribute to feedback on performance and progress, help to identify emerging research and training opportunities, clarify goals and expectations, and provide a forum for candid conversations. I will take supportive and corrective action to address any barriers to Dr. Vincenzo's success. I expect to dedicate 5% of my time to mentoring Dr. Vincenzo and agree with her mentoring and career development plan.

Name	***Role***	***Expertise***	***Commitment***
Geoffrey Curran, PhD	Primary Mentor	Implementation Science Mixed Methods Research Leadership	1. Weekly Meetings 2. Coordinate mentoring and advisory team 3. Lead semi-annual evaluation
Jennifer S. Brach, PhD, PT	Co-Mentor	Implementation Science in Physical Therapy, Mixed Methods Research	1. Monthly teleconferences 2. Lead career development in mixed methods research 3. Participate in quarterly meetings & evaluations
Jonathan F. Bean, MD, MPH	Co-Mentor	Geriatric Research in Rehab Leadership in Aging Implementing Programs with Older Adults	1. Monthly teleconferences 2. Lead career development in leadership in aging 3. Participate in quarterly meetings & evaluations
Nancy Latham, PT, PhD	Advisor	Implementing Falls Prevention in Clinical Practice Geriatric Research	1. Monthly teleconferences 2. Advise on implementing falls prevention in clinical practice 3. Participate in quarterly meetings & evaluations
Jeanne Wei, MD, PhD	Advisor	Geriatric research Geriatric research at UAMS	1. Monthly teleconferences 2. Advise on geriatric research at UAMS 3. Participate in quarterly meetings & evaluations

I have confidence that Dr. Vincenzo's proposal will provide the further and final development necessary to achieve her long-term career goals. Dr. Vincenzo's enthusiasm and excellent qualifications ideally position her to achieve success in making significant contributions to the field of geriatrics through implementation science.

Sincerely,

Geoffrey M. Curran

Geoffrey Curran, PhD
Director, Center for Implementation Research, Professor, Departments of Pharmacy Practice and Psychiatry

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U.S. Department of Veterans Affairs
Veterans Health Administration
Geriatric Research, Education, and Clinical Centers

HARVARD MEDICAL SCHOOL

DEPARTMENT OF VETERANS AFFAIRS
VA Boston Healthcare System
New England Geriatric Research, Education, and Clinical Center

National Institutes of Health

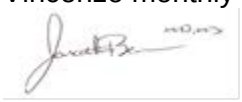
September 29, 2021

Dear Beeson Selection Committee,

I am writing to offer my full support to serve as a co-mentor for Dr. Jennifer Vincenzo's proposed Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) entitled *"Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation."* I am the Director of the New England Geriatric Research Education and Clinical Center, a Professor in the Department of PM&R at Harvard Medical School, and the staff physiatrist at VA Boston Healthcare System. I have an extensive record of authored publications in the prevention of mobility problems and falls for aging adults. My role as research mentor in the fields of Aging and Rehabilitation has been supported by a K24 award (K24HD070966 and K24 AG069176-06); I mentored over 25 trainees in patient-oriented research addressing important questions concerning geriatric rehabilitative care, resulting in over 60 publications and national awards. I am committed to serving as a mentor for Dr. Vincenzo's application and view her as an exemplary candidate for this award to support her career as a leader in geriatrics research.

Dr. Vincenzo has demonstrated success and leadership in geriatrics and research. She demonstrates a passion for the health and well-being of older adults accompanied by a combination of diligence, strong leadership skills, and perseverance to become an independent investigator. She serves as the research co-lead on the APTA-Geriatrics/National Council on Aging Task Force. She has produced two manuscripts related to falls prevention and health promotion among aging adults over the past 2 years while maintaining progress in her independent research. Dr. Vincenzo has proven she has the potential to become an independent clinical investigator by being awarded a 2-year KL2 Scholar Award through UAMS. She regularly speaks at national conferences, presenting with experts from the Centers for Disease Control and Prevention and the National Council on Aging. She serves as the Chair of the Balance and Falls Special Interest Group of the American Physical Therapy Association (APTA) – Geriatrics and the organization's State Advocate for Arkansas.

Through her research and understanding of the literature, Dr. Vincenzo has identified gaps in fall prevention that are innovative and have the potential to be impactful. Falls among older adults remain a critically important issue addressed by our field. This work requires input from academically trained physical therapists, who have extensive clinical training in the evaluation and management of fall prevention. This is a great opportunity for the Beeson program to advance geriatric rehabilitative care. Dr. Vincenzo proposes to employ an implementation science approach to facilitate the adoption of multifactorial falls prevention for all older adults attending outpatient rehabilitation. Along with this research, she proposes a strong career development plan to allow her to build on her strengths in clinical physical therapy, health promotion, and quantitative research and gain new skills in mixed methods research, implementation science, and advanced research leadership. I have reviewed and agree with her plans for career development, publications, and independent research through the K76. I will serve as a primary mentor in aging leadership by mentoring Dr. Vincenzo on how to manage large research teams. I will serve as a co-mentor on the career development plan for training in implementation science specific to implementing programs in outpatient rehab. I have experience implementing a physical therapy-led program to improve mobility disabilities in older adults in an outpatient setting. I will meet with Dr. Vincenzo monthly or more often if needed to assist her in meeting her objectives and aims.



Jonathan F. Bean, MD
Director, New England GRECC, VA Boston Healthcare System
Professor, Department of Physical Medicine and Rehabilitation, Harvard Medical School

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09/27/2021

NIH Research Career Development Program
c/o K76 Career Development Award Committee

Dear Beeson Selection Committee,

I am pleased to serve as an advisor for Dr. Jennifer Vincenzo's application for the NIH's Paul B. Beeson Emerging Leaders Career Development Award (K76) and her proposal *Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation.* Dr. Vincenzo is an excellent candidate for the award based on her qualifications as a geriatric physical therapy clinician with a Master's in Public Health and a PhD. She has demonstrated productivity, innovation, and potential as an impactful, independent investigator. Her detailed career development, training, and research proposal will be instrumental in progressing her career as an independent clinical researcher and addressing the unmet issue of falls among older adults.

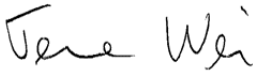
I served as a primary mentor for Dr. Vincenzo for her *KL2 Scholar Award* from the University of Arkansas for Medical Sciences (UAMS) Translation Research Institute, and I am enthused about her continued work in falls prevention among older adults, a national public health problem. Dr. Vincenzo excelled in the KL2 program, and that work led to our collaboration on one publication and two additional manuscripts under review. I feel confident that with support from this K76 award, Dr. Vincenzo will acquire the unique clinical and research qualifications that will enable her to be successful as an independent researcher.

The research faculty at the Department of Geriatrics recognized her potential and in 2016 awarded her with a *Geriatric Fellowship/Junior Faculty Development Award* through the Geriatric Workforce Enhancement Program (GWEP) and the Donald W. Reynolds Institute on Aging (RIOA). This 1-year award provides modest salary support for career development of professionals who want to specialize in academic and clinical geriatrics. This award resulted in 2 publications and 4 peer-reviewed conference presentations. As Chair of the Reynolds Department of Geriatrics and Executive Director of the RIOA, I work closely with the directors of the geriatric fellowship and the GWEP who have rated Dr. Vincenzo's performance as outstanding in research, presentations, collegial interaction, teaching, and collaboration. Because of her distinguished reputation, colleagues and the RIOA have sought Dr. Vincenzo's expertise for developing a statewide falls prevention program. Dr. Vincenzo has excellent leadership skills, as demonstrated by her appointed roles with the American Physical Therapy Association, the National Council on Aging, and the Governor's Advisory Council on Aging in Arkansas. She also served as co-lead in developing and implementing a pilot program, the Center for Integrative Medicine, at UAMS, which is now being led and fully developed into an institute in Northwest Arkansas by Deepak Chopra and Alice Walton.

Dr. Vincenzo has shown tremendous productivity in her early research career, with 25 peer-reviewed primary- and co-authored publications and 50 peer-reviewed conference presentations since 2013 when she was in her PhD program. Falls prevention is a crucial aspect addressed by our field that relies heavily on the input of physical therapists. Considering geriatricians must manage multimorbidities and have limited time to manage falls, this effort can be implemented by an expert physical therapy research clinician like Dr. Vincenzo, who has the necessary expertise and an innovative solution to address this public health issue.

I will serve as an advisor on this application providing my expertise in geriatrics and my resources associated with the UAMS Institute on Aging. I will meet with Dr. Vincenzo monthly or more if needed and meet with the full team quarterly. I am confident that Dr. Vincenzo's qualifications, experience, and proposed research and development plan will ensure her success in the K76 award and in the future. I highly recommend her without reservation for the Paul B. Beeson Emerging Leaders Career Development Award.

Please feel free to contact me with any other questions/concerns.



Jeanne Wei M.D., PhD

Jackson T. Stephens Professor of Geriatrics
Chair of the Reynolds Department of Geriatrics in the UAMS College of Medicine
Executive Director of UAMS' Donald W. Reynolds Institute on Aging
University of Arkansas for Medical Sciences
4301 West Markham Street, Little Rock, AR 72205

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BRIGHAM AND WOMEN'S HOSPITAL
HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Research Program: Men's Health, Aging and Metabolism
221 Longwood Ave, BLI-5th Floor
Boston, MA 02115
Tel: 617-525-9150
Fax: 617-525-9148

September 24, 2021

Dear Committee Members,

I am writing to express my full support for Dr. Jennifer Vincenzo's application for the Paul B. Beeson Emerging Leaders Career Development (K76) entitled, "Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation. "Dr. Vincenzo's previous background and experience make her an outstanding candidate to undertake this important work and have helped to establish her as a leader in this field. It goes without saying that falls and fall-related injuries continue to be a major public health problem in this country, resulting in long-term disability or death for many older people each year. Innovative approaches to address this issue are needed, as the number of deaths from falls continues to grow.

I am highly enthusiastic about Dr. Vincenzo's innovative project to explore having outpatient physical therapists deliver STEADI (Stopping Elderly Accidents, Deaths & Injuries), a multifactorial fall prevention intervention, and would like to support her work in this area by being an Advisor on this project. I bring my training in clinical epidemiology and aging research and my professional experience as a physical therapist to this research project. I have served as Principal Investigator (PI) and in other senior roles on multiple projects funded by federal and private sources that have focused on interventions to reduce falls and fall-related injuries and improve function in community-dwelling older adults. I am the Study Director of the STRIDE fall injury prevention trial, which was a cluster-randomized pragmatic trial funded by PCORI and NIA that recently had its primary findings published in the New England Journal of Medicine. I believe that many of the resources and lessons learned about the multifactorial intervention used in STRIDE will be useful to her work, and I am very willing to help share these with Dr. Vincenzo. My expertise in fall prevention programming aligns with Dr. Vincenzo's objectives within this project and provides me the ability to serve as an advisor to ensure her success in her proposed research.

If Dr. Vincenzo's application is selected for funding, I agree to serve as a member of her Advisory Board, and I look forward to the opportunity to work with her and the rest of her research team. I will meet with her monthly or more often if needed to assist her in meeting her career development objectives and research aims.

Sincerely,

Nancy Latham PhD PT
Clinical Research Director, Research Program in Men's Health: Aging and Metabolism
Brigham and Women's Hospital

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UAMS | University of Arkansas for Medical Sciences

10-1-2021

Dear Beeson Selection Committee,

As the Administrative Directors of the University of Arkansas for Medical Sciences Northwest Campus and Little Rock Therapy Campus Services, we oversee outpatient therapy clinics, physical therapists, and physical therapists' assistants. The staff and therapists in the 5 clinics we manage are dedicated to working with Dr. Vincenzo to improve care for older adults who present to outpatient physical therapy rehabilitation. Dr. Vincenzo's project to implement STEADI (Stopping Elderly Accidents, Deaths & Injuries) in outpatient rehab is innovative and crucial to address the gap in the adoption of evidence-based falls prevention in rehab. We are pleased to extend our resources and time for her to conduct this project to implement STEADI for multifactorial fall prevention for all older adults who attend outpatient rehab, which aligns with clinical practice guidelines and the Medicare Merit-Based Incentive Payment System.

We have met with Dr. Vincenzo on numerous occasions to discuss the logistics of her proposal, including the time required of clinic staff for education and training to implement the project. We are also aware that this will require revisions to the electronic health system to facilitate the implementation of multifactorial falls prevention and allow for data collection.

We will ensure we have the necessary time and support available for Dr. Vincenzo to develop and implement multifactorial falls prevention in our outpatient therapy clinics. We anticipate that our services will be much appreciated and valued by physicians and patients alike.

Sincerely,

Nathan Jowers, PT, MS
Rehab Program Manager, UAMS Outpatient Therapy
Northwest Campus
jnjowers@uams.edu

Chris Oholendt, MHSA, OTR/L
Rehab Program Manager, UAMS Outpatient Therapy
Little Rock Campus
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Kevin W. Sexton, MD
Associate Professor: Department of Surgery, Department of Biomedical Informatics, Department of Health Policy and Management, Department of Pharmacy Practice, Division of Pharmaceutical Evaluation and Policy (PEP)
Associate Chief Clinical Informatics Officer for
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kevin.sexton@uams.edu

October 1, 2021

National Institute on Aging
Re: Jennifer Vincenzo, PhD, MPH, PT

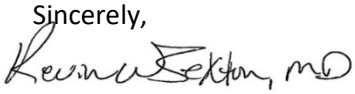
Dear Beeson Selection Committee,

I am writing to offer my full support to provide services for Dr. Jennifer Vincenzo's proposed Paul B. Beeson Emerging Leaders Career Development Award (K76) implementing the STEADI (Stopping Elderly Accidents, Deaths, and Injuries) for falls prevention in outpatient rehabilitation. As Associate Chief Clinical Informatics Officer for Innovation, Research, and Entrepreneurship at the University of Arkansas for Medical Sciences (UAMS), I have significant experience with the electronic health record (EHR) system, including data access, visualization, and how to impact change in clinician behavior within the EHR. Specifically, I lead the teams that would support changes to the EHR, Epic, for Dr. Vincenzo's proposed research. The proposed revisions to the EHR to support the implementation of falls prevention in outpatient rehab and the data extraction from the EHR are feasible, and in line with other studies that Clinical Informatics has supported at UAMS. I am certain that I will be able to provide the services for Dr. Vincenzo's project's success.

UAMS Health utilizes the electronic medical record system Epic, which currently houses over 250 million patient records. UAMS Health has over 200,000 inpatient and outpatient visits annually. Providing this service, the UAMS Information Technology and Clinical Informatics teams support the following Epic Modules that include inpatient, ambulatory, rehabilitation, and hospital information management. The clinical informatics team consists of 4 physician informaticists with at least 50% FTE dedicated to clinical informatics duties, 2 full-time administrators, 6 full-time nurse informaticists, and 20 physicians that have completed advanced Epic training to allow them to program the electronic medical record. Information technology has over 40 FTEs, including application analysts and project managers dedicated to electronic medical record maintenance, improvements, and projects. My team and I will provide expertise and assistance during years 2 - 4 for: EHR revisions with consideration for data extraction and clinical utilization in aim 2 and, data extraction and any necessary revisions to the EHR in aim 3. I will provide 10% effort, 1.2 calendar months, in years 2-4, 5% grant-supported effort, 0.06 calendar months, and 5% matched effort (0.06 mo.) from clinical operations.

Additionally, I will offer all the resources at my disposal to make Dr. Vincenzo's project successful. As an entrepreneur, using the web application framework Ruby on Rails, I helped create the technology for Credence Health, Inc, which was sold to ACS (a Xerox Company) and is now being marketed as Midas + Live™. As a consultant with Kinsa, Inc, I helped create an iOS application based on Swift that generated a geospatial array of febrile illness from users. The application was integrated with Apple HealthKit and is marketed as Fluency. These experiences would not have been successful without detail to user adoption, which will be instrumental to the success of Aim 3 of the proposal.
I will also provide an open-door policy into my lab for Dr. Vincenzo and her personnel to come and learn about my previous work, current clinical monitoring devices, and anything else they may need. My research focuses on the adoption of remote patient monitoring devices, which may be useful in Dr. Vincenzo's future projects as she advances as an independent investigator in falls prevention.

Sincerely,



Kevin W. Sexton, MD

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PROVIDENCE
Health & Services

September 27, 2021

Dear Dr. Vincenzo,

I am writing to offer my full support to serve as a consultant for your proposed Paul B. Beeson Emerging Leaders Career Development Award (K76) resubmission, *"Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation."* I am a physical therapist with 20 years of clinical experience and current roles as the Clinical Advancement Program (CAP) Lead and Senior Health Clinical Liaison for Providence-Oregon. I have extensive experience both in implementing the Center for Disease Control's (CDC) Stopping Elderly Accidents Deaths and Injuries (STEADI) initiative in the outpatient rehab and primary care settings, as well as in clinical balance and falls management, both of which will aid you for this award as you navigate the implementation of the STEADI as a standard of care for University of Arkansas for Medical Sciences (UAMS) rehabilitation clinics.

In my role at Providence Health, I have been in charge of implementing the STEADI in 34 outpatient rehab clinics starting in December 2017. My experience implementing the STEADI in outpatient rehab included defining each staff member's role in STEADI from support staff to clinicians in Physical Therapy, Occupational Therapy and Speech-Language pathology. It included defining the appropriate time interval for rehab screening, taking into account screenings by partner Providence primary care clinics. My role also included translating the CDC's STEADI initiative, initially designed for a primary care teams, into clinically appropriate rehab assessments, interventions and referrals for our multi-disciplinary clinics. These services are within the scope of practice of rehab clinicians and have 100% been covered by medical insurances, including Medicare. Additionally, I helped develop our electronic health record (EHR) STEADI tool and connected it to our primary care STEADI flowsheet. This STEADI screening flowsheet is the only connect flowsheet between rehab and primary care clinics for Providence Oregon. As part of the STEADI implementation I provided training and support for all staff for use of the screening and assessment tools. I developed patient education handouts, based on STEADI, that were are informative, concise and printer friendly for clinic use. I built a rehab and primary care internal website to house both clinical and patient resources. Additionally, I have continued to evaluate, maintain, and revise our rehab resources and trainings based on clinical needs. Providence rehab has screened an average 20,000 older adults annually for falls since the implementation of the STEADI initiative.

I also contributed to research on practice pattern changes with training and use of STEADI in primary care and in implementing a plan of care pathway post emergency room visit for older adults post fall. I have enjoyed working with you on our retrospective analysis of the STEADI implementation at Providence and look forward to the impact this important work will have on our profession. Your current K76 project addresses a gap of identifying barriers, facilitators, and appropriate strategies to support implementation of the STEADI in outpatient rehab, which we did not address when we implemented the STEADI in Providence. Completion of your project will lead to valuable information to support other clinics to implement the STEADI in rehab.

My expertise delineated above provides me the ability to serve as a consultant for your research in these manners. I will help you to develop and present implementation strategies (such as EHR revisions and training tools) to the stakeholder panel in Aim 2 (year 2). In Aim 3 (year 3-4), I will assist with the pre-implementation and implementation, and revisions of implementation strategies to support the STEADI in rehab, such as developing and contributing to training, education and logistics. I will conduct a site visit during the pre-implementation and training phase in order to achieve this goal. I expect to provide 8 hrs/month over years 2-4 to assist you in accomplishing these tasks. My consulting fees will be $100/hr ($9,600 annually, years 2-4). Additionally, I expect reimbursement for travel, lodging, and per diem ($1,921) as well as an additional $2,500 for the week-long site visit during pre-implementation (year 3). I look forward to working with you on this important project.

Jamie M. Caulley

Jamie M. Caulley, DPT
Jamie.Caulley@providence.org
Clinical Advancement Lead in Balance Rehabilitation
Senior Health Clinical Liaison, Providence Health, Oregon

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UAMS
Translational Research Institute

October 8, 2021

Review Committee
Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76)

Dear Review Committee,

As the principal investigator of the University of Arkansas for Medical Sciences (UAMS) Clinical and Translational Sciences Award, I am pleased to write a letter of support for Dr. Jennifer Vincenzo's K76 application titled "*Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation.*"

Dr. Vincenzo's dedication to addressing gaps in research and practice related to falls prevention in ambulatory rehab care among older adults makes her an ideal candidate for the Paul B. Beeson Emerging Leaders Career Development Award in Aging. Upon entering the KL2 program, she had a strong set of research and analytic skills and a solid knowledge base in geriatrics, the impact of falls, and the effect of the interplay of these factors on independence and quality of life. She has made remarkable progress building her knowledge and skills in grantsmanship and qualitative research in order to advance her skills in mixed methods research and implementation science and progress towards becoming an independent investigator. Her strong track record of productivity influenced our decision to award her a third year of funding as a KL2 scholar, the first scholar that we have supported in this manner.

Dr. Vincenzo's continued commitment to the Translational Research Institute (TRI) and her colleagues at UAMS have been integral to her success. Her primary mentor, Geoff Curran, PhD, the Director of the UAMS Center for Implementation Research, and a national leader in implementation science methodology, will be key to her success. Jeane Wei, MD, PhD, a mentor on her KL2 and Advisor on her K76, has substantial expertise in geriatrics research and is the Executive Director of the Reynolds Institute on Aging. Kevin Sexton, MD, the Associate Chief Medical Informatics Officer and a Co-investigator on this application will assist Dr. Vincenzo with informatics and revisions to the electronic health record to support this project.

Dr. Vincenzo has been uniquely prepared to undertake this work, including extensive experience as a clinical specialist in geriatric physical therapy. Through her graduate and KL2-supported training, she established a record of accomplishment in falls prevention leadership and research, and her proven track record has encouraged new KL2 scholars to seek her mentorship.

The resources and services of the UAMS TRI will continue to be available to her, including training programs, mentorship, equipment, and individualized feedback sessions for forthcoming grant applications. I look forward to continuing to work with Dr. Vincenzo in her promising career.

With the additional training and research experience proposed in this K76 application, I am confident she will achieve research independence with the advanced skills needed to conduct research in the challenging area of falls prevention in older adults, and more broadly, in the field of aging, geriatrics, and implementation research.

Sincerely,

Laura P. James, MD
Director, Translational Research Institute
Associate Vice Chancellor for Clinical and Translational Research
Professor, Department of Pediatrics, University of Arkansas for Medical Sciences
Division of Clinical Pharmacology and Toxicology, Department of Emergency Medicine
Arkansas Children's Hospital
Little Rock, Arkansas

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DESCRIPTION OF INSTITUTIONAL ENVIRONMENT

The University of Arkansas for Medical Sciences (UAMS) is the state's only institution of professional and graduate education devoted solely to the health and biological sciences. UAMS, with its 5 Colleges, 6 Institutes, and 6 research centers, provides a rich context for the conduct of this research. UAMS researchers are currently working with the American Heart/Stroke Association, Centers for Disease Control, Department of Defense, Environmental Protection Agency, Food, and Drug Administration, National Institutes of Health, and National Science Foundation, along with other national/international agencies and foundations to better the health of Arkansans. UAMS has a successful history of research funding, ranking in the top 20% of all US colleges and universities. It is the top-funded university in Arkansas, with more than $125 million in annual research funding. UAMS has a strong history of supporting junior faculty, specifically through the Translational Research Institute (TRI) resources. The support of multiple areas within UAMS will enable me to become an independent investigator and leader in falls prevention among aging adults.

The NIH CTSA program and a significant UAMS commitment enabled the creation of the **Translational Research Institute (TRI)** in 2009. TRI has a mission of supporting translational research in all health-related professions. As the first TRI/KL2 scholar from *both* the Department of Physical Therapy and College of Health Professions, I have taken advantage of many TRI resources, including protocol development, biostatistics consultation, equipment leasing/borrowing, workshops in grant writing, individualized professional development, and budget monitoring. Upon completing my KL2, I will be a permanent member of the "K-club" and continue to have access to all TRI resources. In addition, TRI supports a Biomedical Informatics Core that can provide support in managing the data collection and database for my proposed project. The Biomedical Informatics Core has 6 full-time faculty, a post-doctoral fellow, 3 FTE of administrative staff, and 3 information technology (IT) staff. They work closely with UAMS Information Technology (IT) and share IT staff oversight working on joint initiatives. I will work with faculty member, James Selig (LOS) for statistical management and have the continued support of TRI in the award (LOS John Arthur, TRI).

In addition to the TRI, several aspects of the UAMS environment will be critical to my success. First, the **Center for Implementation Research (CIR),** directed by mentor Geoffrey Curran, PhD, will provide a setting to enhance my skills and build collaborative relationships. CIR investigators have over 15 years of experience leading implementation research efforts, including adaptive and hybrid effectiveness-implementation designs in many large NIH- and VA-funded research studies (LOS Geoff Curran).

UAMS Clinical Informatics uses Epic's flagship electronic medical record system, which currently houses over 250 million patient records. The UAMS Information Technology and Clinical Informatics teams support Epic Modules that enable inpatient, ambulatory, rehabilitation, and hospital information management. The UAMS Clinical Informatics team consists of 4 physician informaticists with at least 50% FTE dedicated to clinical informatics duties, 2 full-time administrators, 6 full-time nurse informaticists, and 20 physicians that have completed advanced Epic training to allow them to program the electronic medical record. Information technology has over 40 FTEs, including application analysts and project managers dedicated to electronic medical record projects. I will work with Kevin Sexton, MD, the Associate Chief Clinical Informatics Officer Director, to revise the medical record for implementation and data collection for the proposed research (LOS).

UAMS Donald W. Reynolds Institute on Aging and Department of Geriatrics. The Reynolds Institute on Aging (RIOA) and the Department of Geriatrics have multiple connections and collaborations for clinical care and research. Chaired and directed by advisor Jeanne Wei, MD, PhD, the department and RIOA has resources for the conduct of research in gerontology and geriatrics, including two program projects that study various biomedical aspects of aging, the Memory Research Center and the Center for Translational Research on Aging and Longevity, and the Nutrition, Metabolism, and Exercise Laboratory. There are also many research projects in applied geriatrics, health outcomes, and health care delivery. A Hartford Center of Geriatric Nursing Excellence (one of only eight such centers in the nation) also supports investigators and trainees.

The **Department of Physical Therapy** in the College of Health Professions supports my research and career development. I have had office and research space, administrative support, and 75% protected time throughout my KL2. This arrangement will continue if I am awarded the K76 (see LOS from John Jefferson).

Five **UAMS outpatient therapy clinics** will serve as study sites for this project. In 2019, the 20 physical therapy staff members collectively treated over 1,200 adults over the age of 65. I have established relationships with the clinics and staff and letters of support from management for this project (LOS from Nathan Jowers and Chris Oholendt).

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John Jefferson, PT, PhD

Chair & Professor

jrjefferson@uams.edu

September 30, 2021

Review Committee
Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76)

Re: Jennifer L. Vincenzo, PT, MPH, PhD

Dear Review Committee:

This is a letter of recommendation and enthusiastic institutional support for Dr. Jennifer Vincenzo's application for the 2021 Paul B. Beeson Emerging Leaders Career Development Award in Aging (K76) supported by the National Institute on Aging. Jennifer joined our faculty as a tenure-track Assistant Professor in Fall 2015, shortly after completing her PhD. In just over 6 years at the University of Arkansas for Medical Sciences (UAMS), she has demonstrated her ability to become an impactful and successful independent investigator.

Dr. Vincenzo joined us as one of 4 founding core faculty in a new program. Upon joining UAMS, Dr. Vincenzo single-handedly developed the neurological, acute care, and integumentary components of our program, personally developing 11 new courses. She was also instrumental in the development of our holistic admissions procedures and has served as chair of our Admissions Committee since our inception. Except for the past 2 years – with her KL2 grant – less than 35% of her FTE workload has been allotted for scholarship. Despite being a new faculty member with a heavy teaching and administrative load, she has been a PI or co-Investigator on 6 funded grants, including a $40,000 Junior Faculty Development Award and the first-ever KL2 scholar award to a College of Health Professions faculty member. She has also submitted 12 other grant applications that were unfunded in the past 5 years. She has averaged 3 publications and 5.6 peer-reviewed presentations each year, with minimal research time release prior to attaining funding.

Since she received the KL2 award, Dr. Vincenzo's publications and presentations have increased. In the first KL2 year, she submitted 3 first author and 6 coauthored peer-reviewed manuscripts and had 13 peer-reviewed (5 first-author) presentations or abstracts accepted. In the second KL2 year she submitted 4 first author and 9 coauthored manuscripts, had 10 peer-reviewed (3 first-author) presentations/abstracts accepted, and submitted a K76 and another national grant. On top of these accomplishments, she also takes time to mentor junior faculty/students interested in research.

She has been an invited speaker over 40 times in her young career, is appointed to State and National leadership positions, and has received numerous accolades, most recently the UAMS College of Health Professions Excellence in Scholarship Award. Dr. Vincenzo is a wise investment for this K76 award, which will provide the support and mentorship to further advance her career as an independent investigator. I fully support significantly reducing Jennifer's teaching and administrative load to ensure she can commit at least 75% effort to the program. The K76 award will allow her time and support to receive the training, development, and mentorship to conduct high-quality research that can lead to more substantive and long-term funding. Equally important will be the development of future collaborators. She is a strong candidate for this award, and she has my full commitment to protecting her time and the support of my department with software, equipment, and research assistant personnel to succeed in this opportunity.

I thank you for considering her application.

Regards,

John Jefferson, PT, PhD, OCS, COMT,
Chair and Professor, UAMS Dept of Physical Therapy

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PHS Human Subjects and Clinical Trials Information

OMB Number: 0925-0001

Expiration Date: 02/28/2023

Use of Human Specimens and/or Data

Does any of the proposed research in the application involve human specimens and/or data *	❍ Yes ● No
Provide an explanation for any use of human specimens and/or data not considered to be human subjects research.	
Are Human Subjects Involved	● Yes ❍ No
Is the Project Exempt from Federal regulations?	● Yes ❍ No
Exemption Number	❑ 1 ☑ 2 ❑ 3 ☑ 4 ❑ 5 ❑ 6 ❑ 7 ❑ 8
Other Requested Information	

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Human Subject Studies

Study#	Study Title	Clinical Trial?
1	Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation	No

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Section 1 - Basic Information (Study 1)

OMB Number: 0925-0001

Expiration Date: 02/28/2023

1.1. Study Title *

Developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation

1.2. Is this study exempt from Federal Regulations * ● Yes ○ No

1.3. Exemption Number ☐ 1 ☑ 2 ☐ 3 ☑ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8

1.4. Clinical Trial Questionnaire *

1.4.a. Does the study involve human participants?	● Yes	○ No
1.4.b. Are the participants prospectively assigned to an intervention?	○ Yes	● No
1.4.c. Is the study designed to evaluate the effect of the intervention on the participants?	● Yes	○ No
1.4.d. Is the effect that will be evaluated a health-related biomedical or behavioral outcome?	● Yes	○ No

1.5. Provide the ClinicalTrials.gov Identifier (e.g. NCT87654321) for this trial, if applicable

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Section 2 - Study Population Characteristics (Study 1)

2.1. Conditions or Focus of Study

- Accidental falls
- prevention
- older adults > 65 years
- Implementation science

2.2. Eligibility Criteria

There are 2 human subjects groups in this study.
1. Stakeholders (subjects involved in implementation of falls prevention in outpatient rehab; physical therapists, physical therapist assistants, clinic management, clinic administrative assistants, referring physicians, patients, and caregivers.
2. All patients >65 years, attending outpatient physical therapy in 5 clinics

2.3. Age Limits	Min Age: 18 Years	Max Age: N/A (No limit)
2.3.a. Inclusion of Individuals Across the Lifespan	Inclusion_of_Individuals_across_the_Lifespan.pdf	
2.4. Inclusion of Women and Minorities	Inclusion_of_Women_and_Minorities.pdf	
2.5. Recruitment and Retention Plan	Recruitment_and_retention_plan.pdf	
2.6. Recruitment Status	Not yet recruiting	
2.7. Study Timeline	Vincenzo_K76_Study_Timeline.pdf	
2.8. Enrollment of First Participant	07/01/2022	Anticipated

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Inclusion of Individuals across the Lifespan

Subjects younger than 18 years of age will be excluded as this study focuses on implementation of falls prevention in the rehabilitation of older adults. Stakeholders involved are all adults over the age of 18 years and patients receiving the standard of care are over the age of 65 years. Falls in children have different etiologies than falls among older adults, and falls prevention of older adults follows specific clinical guidelines.

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Inclusion of Women and Minorities

In accordance with NIH guidelines, every effort will be made to obtain a mix of study participants in terms of gender, racial/ethnic representation. Since this not a clinical trial, rather an implementation study, and the gender, race and ethnicity of involved stakeholders is unknown, rather they are a stakeholder due to their position and involvement in falls prevention implementation in rehab, we will not oversample for gender, race, or ethnicity. 2) Regarding patients, since this not a clinical trial and all patients will be receiving the intervention, which is a standard of care, we are not able to sample for gender, race, or ethnicity. We will describe the study sample and sex will be considered an explanatory variable in the clinical outcomes.

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Recruitment and Retention Plan

Recruitment of stakeholders for interviews, surveys, and panels. Briefly, this K76 study is a pilot implementation study. In aims 1-3 we conduct surveys, interviews, and an evidence-based quality improvement panel with a sample of stakeholders involved in falls prevention in outpatient rehabilitation. We will recruit a sample of stakeholders directly involved in unique roles in implementation. We will recruit, survey, and interview stakeholders (n=48) directly involved in unique roles in implementation. We aim to interview ***all*** of the clinic-level stakeholders at the 5 clinics (all managers (2), all administrative assistants (5), all PTs and PT assistants (16). Clinic leadership and staff will identify external stakeholders for recruitment (e.g. referring physicians, older adults, and caregivers). We aim to conduct interviews with 2 patients and 2 caregivers who have experienced rehab at each clinic site (total 10 patients, 10 caregivers), and 1 outside referring physician per site (n=5). A sample size of 5-10 per homogenous group is necessary to gain data saturation in individual interviews.[51,53]. We selected the 5 clinical sites for 4 reasons: 1) the clinics are affiliated with UAMS where I have an appointment, 2) I have an established relationship with clinic leadership, 3) leadership and clinicians were educated on the proposed study and agreed to participate (LOS, preliminary data), and 4) the large number of older adults seen annually (1,200; range 170-500 per clinic) allows us to adequately test implementation. I do not expect to have challenges recruiting clinician stakeholders with incentives and since 12/16 clinicians completed the preliminary survey informing this application; however, if I have difficulties, I will recruit from local clinical sites with which the UAMS Doctor of Physical Therapy program has contracts.

Recruitment of external stakeholders for interviews, surveys, and panels. Clinic leadership and staff will identify 1-2 representative external stakeholders for recruitment (e.g. referring physicians, older adults, and caregivers), of which there are hundreds of stakeholders available to recruit from in each of these categories.

Recruitment of patients (STEADI falls prevention as a standard of care). In regards to implementation of falls prevention, patient recruitment for clinical outcomes is not indicated since all patients will be receiving falls prevention as a standard of care according to clinical guidelines, and we will review medical records post episode of care to determine implementation outcomes.

Recruitment of clinicians for implementation of STEADI for falls prevention as a standard of care. Since falls prevention is an evidence-based practice and will be administered according to clinical guidelines within physical therapy scope of practice, management is supporting this as a quality improvement (and research) project; and therefore, we expect full and vocal support from leadership. We have included clinician effort to account for education, training, and meetings to support pre-implementation and all implementation phases.

Retention. All stakeholders will be reimbursed for their time (for surveys, interviews, and/or stakeholder panels). Stakeholders are involved throughout the entire 5 years of the grant; therefore, continued involvement and engagement should assist with retention. In the event that stakeholders actively involved in any aim leave, we will recruit and train the new stakeholder(s) in their place. For example, if a physical therapist leaves and a new one is hired, they will be trained to implement the STEADI as the rest of the providers are doing. If a stakeholder on the EBQI panel (Aim 2 and 3) chooses to leave the panel, a stakeholder in the same role will be trained to take their place.

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Study Timeline

	Year 1				Year 2				Year 3				Year 4				Year 5			
Activities by Quarter	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Infrastructure to begin research																				
Solidify research personnel & project management	x																			
Aim 1. Identify clinic-, provider-, and patient-level barriers to and facilitators of implementing FP in rehab.																				
Develop and pilot test interview guides	x																			
Recruit, interview stakeholders, rapid coding	x	x	x	x																
Manuscript(s) prep/submit (3)	x			x	x															
Aim 2. Develop implementation strategies to support the adoption of FP in rehab.																				
Integrate Aim 1 results for EBQI sessions				x																
Use EBQI to develop/select implementation strategies					x	x	x													
Analyze & integrate data from each session and after all EBQI					x	x	x	x												
Manuscript(s) prep/submit (3)								x	x											
Aim 3. Pilot test the impact of implementation support strategies on implementation outcomes (clinic-provider-, and patient-level) and clinical effectiveness outcomes.																				
Pre-implementation phase									x											
Phase I - Implement FP using implementation strategies										x	x									
Phase I- data collection, interviews, and analyses 6-months post-implementation												x								
EBQI session to revise/refine implementation strategies												x								
Phase II - Implement FP using revised strategies													x	x						
Phase II- data collection, interviews, and analyses 6-months post-implementation															x	x				
Manuscript prep/submit (4)											x		x				x		x	
Grant Milestone																				
Develop and submit R01												x	x	x	x					
Resubmit R01																	x	x	x	

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2.9. Inclusion Enrollment Reports

IER ID#	Enrollment Location Type	Enrollment Location
Study 1, IER 1	Domestic	
Study 1, IER 2	Domestic	University of Arkansas for Medical Sciences

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Inclusion Enrollment Report 1

1. Inclusion Enrollment Report Title* : Inclusion enrollment of stakeholders involved in developing and testing implementation strategies to support the STEADI for falls risk management in outpatient rehabilitation

2. Using an Existing Dataset or Resource* : ❍ Yes ● No

3. Enrollment Location Type* : ● Domestic ❍ Foreign

4. Enrollment Country(ies): USA: UNITED STATES

5. Enrollment Location(s):

6. Comments: This enrollment report refers to stakeholders involved in implementing STEADI for falls prevention as a standard of care in outpatient rehabilitation. Stakeholders (n=48) are clinicians, clinic management/leadership, and clinic administrators associated with the clinics, physicians who refer to the clinics, and patients and caregivers who are local to the clinic. This purposive, representative sample of stakeholders is estimated by Arkansas' racial/ethnic population.

Planned

Racial Categories	Ethnic Categories				Total
	Not Hispanic or Latino		Hispanic or Latino		
	Female	Male	Female	Male	
American Indian/ Alaska Native	0	0	0	0	0
Asian	1	1	0	0	2
Native Hawaiian or Other Pacific Islander	0	0	0	0	0
Black or African American	4	2	0	0	6
White	22	10	2	2	36
More than One Race	1	1	1	1	4
Total	28	14	3	3	48

Cumulative (Actual)

Racial Categories	Ethnic Categories									Total
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	0	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0
Black or African American	0	0	0	0	0	0	0	0	0	0
White	0	0	0	0	0	0	0	0	0	0
More than One Race	0	0	0	0	0	0	0	0	0	0
Unknown or Not Reported	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

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Inclusion Enrollment Report 2

1. Inclusion Enrollment Report Title* : Adults over the age of 65 years attending outpatient rehabilitation

2. Using an Existing Dataset or Resource* : ❍ Yes ● No

3. Enrollment Location Type* : ● Domestic ❍ Foreign

4. Enrollment Country(ies): USA: UNITED STATES

5. Enrollment Location(s): University of Arkansas for Medical Sciences

6. Comments: This report refers to adults over the age of 65 years attending outpatient rehabilitation who will receive falls prevention per usual care. There is no recruitment as this is standard of care. We estimate this report according to Arkansas' racial/ethnic population.

Planned

Racial Categories	Ethnic Categories				Total
	Not Hispanic or Latino		Hispanic or Latino		
	Female	Male	Female	Male	
American Indian/ Alaska Native	0	0	0	0	0
Asian	3	2	0	0	5
Native Hawaiian or Other Pacific Islander	8	7	0	0	15
Black or African American	37	36	4	3	80
White	172	172	20	19	383
More than One Race	5	4	4	4	17
Total	225	221	28	26	500

Cumulative (Actual)

Racial Categories	Ethnic Categories									Total
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			
	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	Female	Male	Unknown/ Not Reported	
American Indian/ Alaska Native	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	0	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0
Black or African American	0	0	0	0	0	0	0	0	0	0
White	0	0	0	0	0	0	0	0	0	0
More than One Race	0	0	0	0	0	0	0	0	0	0
Unknown or Not Reported	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

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Section 3 - Protection and Monitoring Plans (Study 1)

3.1. Protection of Human Subjects	Protection_of_Human_Subjects.pdf
3.2. Is this a multi-site study that will use the same protocol to conduct non-exempt human subjects research at more than one domestic site?	❍ Yes ● No ❍ N/A
If yes, describe the single IRB plan	
3.3. Data and Safety Monitoring Plan	Data_and_Safety_Monitoring_Plan.pdf
3.4. Will a Data and Safety Monitoring Board be appointed for this study?	❍ Yes ● No
3.5. Overall structure of the study team	Overall_Structure_of_the_Study_Team.pdf

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Protection of Human Subjects

Risk to Human Subjects.

Human Subjects Involvement, Characteristics, and Design.

In Aim 1, 48 stakeholders will complete surveys and one-on-one, open-ended interviews. The stakeholders will be selected based on their involvement in implementing falls prevention in outpatient rehabilitation. We will invite stakeholders to voluntarily participate by email or phone. We will provide information about the study by phone, in person, or by Zoom. Stakeholders who choose to participate will undergo informed consent, will complete surveys regarding their perceptions of the feasibility, acceptability, and appropriateness of conducting fall prevention as a standard of care in rehabilitation, and will participate in one-on-one interviews to provide input on the barriers and facilitators to implementation. Interviews will be audio recorded to allow for an audit trail and transcription. All survey results and interviews will be paired with a neutral identification number. Only the researchers will have access to the recordings and results.

In Aim 2, we will engage 12 key community stakeholders to serve on our Evidence-Based Quality Improvement (EBQI) panel (8 sessions) and provide input on the development of implementation strategies to improve fall prevention as a standard of care in outpatient rehabilitation. We will recruit these stakeholders from the sample of stakeholders in Aim 1. After all participants consent, we will review a summary of the results from aim 1 and existing scientific data to solicit stakeholder input on how best to support implementing fall prevention as a standard of care in rehab. EBQI sessions will be audio recorded to allow for review of content covered in each session and to allow for rapid coding. These data will be collected anonymously. Panel members may also be asked to complete survey instruments to provide quantitative input on proposed strategies. The identify of EBQI members will not be included in reports of manuscripts. Each panel member will receive $125 for each panel session.

In Aim 3, the 5 clinics participating in implementation will receive training and education in the pre-implementation phase and support during the implementation phase. Since this is a quality improvement project for the clinic, all providers and support staff will participate, just as they would for a quality improvement project that was not also a research study. Clinicians time and effort are included in this aim to account for training, education, and implementation support required during regular clinical hours. After the first implementation phase (6 months) we will extract and analyze data from the medical records of adults over the age of 65 years who attended and were discharged from rehabilitation during the implementation phase. No patient-identifying information will be gathered. We will describe the patient sample (e.g. age, diagnosis, medical history, reason for referral) and measure adoption, fidelity, and clinical effectiveness outcomes. Adoption and clinical effectiveness will be measured from all clinical data available during the implementation. for clinical effectiveness. Fidelity will be measured by auditing a random selection of 10 charts at each clinic (n=50 charts). Fidelity and adoption will be measured at both the provider and clinic levels. Feedback on adoption and fidelity will be provided to clinics and providers to improve upon implementation, as is standard with quality improvement efforts and implementation studies. After the first 6-months of implementation, we will interview 10 stakeholders to identify barriers to implementation and convene the EBQI panel to review the results and refine the implementation strategies following the methods in aim 2. This will be followed by a second, 6th month implementation phase, after which we will again collect study data from the medical records as described. In addition, we will conduct surveys and interviews with a sample of 48 stakeholders as described in aim 1.

Sources of Materials.

Surveys and Interviews. Surveys and open-ended interviews in aims 1 and 3 will be used to collect data on the feasibility, acceptability, appropriateness, barriers and facilitators to implementing fall prevention as a standard of care in outpatient rehabilitation. Interviews will be based on constructs in the Consolidated Framework for Implementation Research (CFIR). Surveys will be deployed and conducted in REDCap. Interviews will be conducted in person, or by zoom and recorded and transcribed. Data will be entered into statistical software for analyses; SPSS for survey data, and MAXQDA for interview and survey data. All data will be paired with a

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neutral identification number. A key file linking ID numbers with participant names will only be kept during the study timeframe in order to link participants across time. This information will only be accessible to the PI, research assistant, and direct study team. Names will be removed from all files after follow-up data collection.

EBQI Panel Sessions. Materials in Aim 2 (and one session in aim 3) will be obtained from the audio recordings of EBQI sessions, notes of the research team taken during EBQI meetings, and survey instruments collected from the EBQI panel. No identifying information will be kept with these data.

Medical Record Data. Aim 3 will involve extraction and analyses of data from medical records of adults over the age of 65 years who attended and were discharged from rehabilitation during the implementation phase. No patient-identifying information will be gathered. Data will be gathered to describe the patient sample (e.g. age, diagnosis, medical history, reason for referral) and measure adoption, fidelity, and clinical effectiveness outcomes. Adoption and fidelity will be linked to providers and clinics during the study time to compare changes in these areas across the trial. All data will be paired with a neutral identification number. A key file linking ID numbers with participant names will only be kept during the study timeframe in order to link participants across time. This information will only be accessible to the PI, research assistant, and direct study team. Names will be removed from all files after follow-up data collection.

Potential Risks.

All aims involve working with stakeholders through both quantitative and qualitative data collection methods. The risks for stakeholders are primarily loss of confidentiality and discomfort from answering questions. However, since it is not a sensitive topic, open-ended interviews and surveys regarding the feasibility, acceptability, appropriateness, and barriers and facilitators to implementing falls prevention in rehab are unlikely to cause discomfort. All interviews and data will be kept confidential and de-identified. We will store a separate document that ties the participants subject ID to their name on a password protected computer in our on-site research offices. Data extracted from the medical record will not include patient identifying information. If these documents are breached or stolen, participant risk would be minimal because this document does not contain personal information.

Adequacy of Protection Against Risks.

Recruitment and Informed Consent. All stakeholders participating in surveys, interviews, or EBQI panels will be consented into the study by trained data collectors with human subjects research certification. Consent will take place at the interview site or remotely, depending on the participants' preference. All participants will be provided with their own copy of the consent describing the nature of the study, the extent of their commitment, their rights as a participant, and the anticipated benefits or risks. The data collectors will read the consent with the participatns, allowing time to answer questions and address concerns.

Protections Against Risks. Stakeholders who feel uncomfortable with any survey or interview questions may choose not to answer and withdraw their participation at any time. Since it is not a sensitive topic, open-ended interviews and surveys regarding the feasibility, acceptability, appropriateness, and barriers and facilitators to implementing falls prevention in rehab are unlikely to cause discomfort. Regarding confidentiality, all survey responses and interviews will be kept confidential. The audio and transcription files will be deidentified and stored electronically on a secured server. Physical copies of interview templates and notes will be stored in locked filing cabinets in the PI's office. All data will be paired with a neutral identification number. A key file linking ID numbers with participant names will only be kept during the study timeframe in order to link participants across time. This information will only be accessible to the PI, research assistant, and direct study team. Names will be removed from all files after follow-up data collection.

Vulnerable Subjects.

There will be no vulnerable subjects in this study.

Pregnant Women, Fetuses, and Neonates or Children.

Not applicable.

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Prisoners.

Not applicable.

Potential Benefits of the Proposed Research to Participants and Others.

Benefits to participants. There is no direct benefit to participants for this study. There may be some indirect benefits to participants who are interested and invested in falls prevention as they may gain knowledge through the research process.

Benefits to others. There is a large benefit to others outside of the research study. Development and evaluation of implementation strategies to support the adoption of falls prevention as a standard of care in outpatient rehab will provide critical knowledge to address a gap in physical therapy practice and in the prevention of falls among older adults. This study will provide implementation strategies that can contribute to the implementation of falls prevention as a standard of care in other outpatient rehabilitation clinics.

Importance of the Knowledge to be Gained.

The proposed research will provide new and important knowledge of how to best improve implementation and fidelity of fall prevention as a standard of care in outpatient rehab. Ultimately, improvements in fall prevention have the ability to decrease the public health problem of falls and injuries among older adults. Given the increasing levels of morbidity, mortality, and medical costs from falls, determined appropriate and effective strategies to implement falls prevention in rehab will increase the number of older adults that receive prevention and potentially the number of older adults who suffer falls.

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Data and Safety Monitoring Plan

Data safety and quality monitoring are priorities for any research project at UAMS. All research staff will be trained on protection of participants' rights and confidentiality. All participant data will be monitored throughout this plan, in addition to any potential breaches of confidentiality. The proposed study will adhere to the following general rules of data safety: (1) all study staff will sign a written commitment to maintain confidentiality, which includes not discussing confidential information with anyone outside of the study team; (2) all identifying information (contact information) will be kept separate from data gathered from participants and kept in locked cabinets in the PI's office or in password-protected files in password-protected servers; (3) non-study personnel will at no time be permitted to view identifying study information; (4) all electronic data containing identifiers (e.g., record management systems, audio files) will be maintained with password protection; (5) all participants will be consented and will be provided a copy of the consent script with instructions about how to contact a study official and the IRB responsible for research oversight, with any questions or concerns; (6) strict adherence to a participant's right to withdraw or refuse to answer questions will be maintained.

For surveys, UAMS REDCap software will be used. The software system meets all data confidentiality requirements. Only study staff will have access to the RECap surveys. An electronic interview system (digital recorder without tapes) will be used. Qualitative coding templates will not contain the names of participants. Participants will be informed that they have the right to refuse audio recording, and in such cases, the interviewer will take notes. For recorded interviews, the interviewer will transport the password-protected digital recorder in a locked box to UAMS and upload each recording to the password-protected server. Audio files will be uploaded to a secure, password protected server for transcription and will not contain identifying information. Audio files will be maintained on the protected server until transcription is complete and transcripts are checked for accuracy, at which time they will be destroyed. The research staff will develop neurtral IDs for participants, and the electronic data and transcripts will only have these IDs and interview data associated with them. A separate key with participants' names and IDs will be kept by the PI in a locked cabinet and only available to the RA and direct study staff (the team members conducting the surveys, interviews, and follow-ups). Regarding medical records data extraction, all data collected will not have identifying information. For de-identified data, Co-I's Selig (biostatistics) will only have access to de-identified survey, adoption, and fidelity data to conduct quantitative statistics. De-identified data will be analyzed on quantitative (SPSS or SAS) and mixed methods (MAXQDA) software on a secure server. Data and findings will also be kept in a study folder on a secure server.

Responsibility for Data Safety Monitoring Plan

Dr. Vincenzo (PI) is responsible for monitoring the safety and efficacy of all aspects of this study, ensuring that the plan is fully executed, and that the study is in compliance with the reporting requirements of University of Arkansas for Medical Sciences and the National Institutes of Health. She will closely monitor all data, recruitment, and study retention.

Monitoring Frequency.

A formal, independent Data and Safety Monitoring Board will not be used for this study, although the PI and the hired RA will be responsible for reviewing he Data Safety and Monitoring Plan approved by the UAMS IRB biannually.

Data Analysis Plan.

The data analysis plan for the K76 award align with completing the specific aims of the study. Mentors, Curran (on-site), and Brach (off-site) will assist Dr. Vincenzo to analyze the mixed methods data (aims 1 and 3). Dr. Curran will assist Dr. Vincenzo to analyze the EBQI data (aim 2). Co-I Selig will assist Dr. Vincenzo to analyze the quantitative data (adoption, fidelity, clinical outcomes) in aim 3.

Quality Assurance Plan.

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All study staff will have received extensive training on the proper collection of data for the study and will be monitored by the PI for their adherence with data collection procedures. Data collected in REDCap use a double-entry immediate verification process to ensure correctness of the data entry. Data will be checked for errors and ‘cleaned’ as needed prior to analysis. Accepted data imputation methods will be used, if needed, for missing responses, incomplete data, or correction of data entry errors. Interviews will be audio recorded, uploaded to a secure server, and transcribed by software. The RA will listen to and read the transcriptions to edit any errors prior to analysis.

Reporting Process.

Serious adverse events, although not expected, will be reported within 24 hours to the IRB by the PI. We will, upon further consultation from the IRB, report to other entities as needed.

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Overall Structure of the Study Team

Principal Investigator. Jennifer Vincenzo, PhD, MPH, PT – University of Arkansas for Medical Sciences

Primary Mentor. Geoffrey Curran, PhD - University of Arkansas for Medical Sciences

Co-Mentor. Jonathan Bean, MD, MPH – New England Geriatric Research Education and Clinical Center Harvard University, Boston University

Co-Mentor. Jennifer Brach, PhD, PT – University of Pittsburgh

Advisor. Jeanne Wei, MD, PhD – University of Arkansas for Medical Sciences

Advisor. Nancy Latham, PhD, PT – Boston University

Co-Investigator. Kevin Sexton, MD - University of Arkansas for Medical Sciences

Co-Investigator. James Selig, PhD - University of Arkansas for Medical Sciences

Consultant. Jamie Caulley, PT, DPT – Providence Health

Research Associate. To be named - University of Arkansas for Medical Sciences

Mentors and advisors outside of University of Arkansas for Medical Sciences (UAMS) will not be involved in data collection. As outlined in the research strategy, mentors and Co-Investigators at UAMS will be involved in data collection and/or analysis.

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Section 4 - Protocol Synopsis (Study 1)

4.1. Study Design

4.1.a. Detailed Description

4.1.b. Primary Purpose

4.1.c. Interventions

Type	Name	Description

4.1.d. Study Phase

Is this an NIH-defined Phase III Clinical Trial? ❍ Yes ❍ No

4.1.e. Intervention Model

4.1.f. Masking ❍ Yes ❍ No

❑ Participant ❑ Care Provider ❑ Investigator ❑ Outcomes Assessor

4.1.g. Allocation

4.2. Outcome Measures

Type	Name	Time Frame	Brief Description

4.3. Statistical Design and Power

4.4. Subject Participation Duration

4.5. Will the study use an FDA-regulated intervention? ❍ Yes ❍ No

4.5.a. If yes, describe the availability of Investigational Product (IP) and Investigational New Drug (IND)/ Investigational Device Exemption (IDE) status

4.6. Is this an applicable clinical trial under FDAAA? ❍ Yes ❍ No

4.7. Dissemination Plan

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Delayed Onset Studies

Delayed Onset Study#	Study Title	Anticipated Clinical Trial?	Justification
The form does not have any delayed onset studies			

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Resource Sharing Plan

Data Sharing Plan.
In compliance with NIH's requirement for data sharing, final research data for this project will be made available while safeguarding the privacy of participants and protecting all confidential and proprietary data. We recognize that the public dissemination of our scientific results facilitates the creation of collaborative efforts and expedites the translation of research results into knowledge that will improve falls prevention among older adults. As studies are completed, findings generated as a result of funding from this K76 award will be published in peer-reviewed journals. Publication in peer-reviewed journals will serve as the primary mechanism for data dissemination. All peer-reviewed manuscripts that arise from this proposal will be submitted to the digital archive PubMed Central. Data will be shared with the scientific community through presentations at national meetings. These meetings may include the American Congress of Rehabilitative Medicine, the Gerontological Society of America's Annual Meeting, and the Annual Conference on the Science of Dissemination and Implementation.

Sharing Model Organisms.
Not Applicable.

NIH Genomic Data Sharing (GDS) Policy.
Not Applicable.

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