2021 Annual Meeting of the National Institute on Aging Roybal Centers for Translational Research in Aging

October 25-26, 2021

Virtual Meeting

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This meeting summary was prepared by Rose Li and Associates, Inc., under contract to NIA. The views expressed in this document reflect both individual and collective opinions of the meeting participants and not necessarily those of NIA. Review of earlier versions of this meeting summary by the following individuals is gratefully acknowledged: Bethany Stokes, Dana Carluccio, Nancy Tuvesson

# Executive Summary

On October 25-26, 2021, the National Institute on Aging (NIA) convened the annual conference for the Roybal Centers for Translational Research in Aging. The Roybal Program uses the National Institutes of Health (NIH) Stage Model to translate and integrate basic behavioral and social science research findings into interventions aimed at innovatively improving both the lives of older adults and the capacity of institutions to adapt to societal aging. The Roybal Program currently consists of 15 centers across nine states and 23 primary investigators.

The goal of the 2021 Annual Roybal Conference is to convene representatives of the 15 Roybal Centers, NIA, and other stakeholders to discuss strategies to enhance inter-P30 collaborations. The overarching goals of Roybal Program research are to (1) promote the development of principle-driven behavioral interventions, (2) foster the integration of basic science within the intervention development process, (3) support the full range of activities necessary to conduct Stage 0 through V research studies to enable successful transitions from research to implementation, (4) accelerate the development of innovative ideas that result in successful intervention development awards, (5) facilitate collaborations among academic researchers and industry, (6) draw new researchers to translational research in order to develop principle-driven interventions that promote healthy aging, and (7) provide a context for assembling multidisciplinary teams to solve practical problems.

During the meeting, meeting participants recommended that the Roybal Program develop two special issue publications: one summarizing each P30 Roybal Center, as well as describing themed challenges and best practices to overcoming challenges in late-stage studies, and another focused on best practices for transitioning through the stages of the NIH Stage Model, as well as methods to improve intervention implementation. Meeting participants also recommended that the Roybal Coordinating Center not release a Request for Proposals (RFP) and instead fund other efforts that will facilitate inter-P30 collaboration, including providing P30 Roybal Centers access to regular implementation expertise, supporting special issue publication through program managers and other staff, and creating a document that summarizes each of the P30 Roybal Center’s principles and programs. Meeting participants also emphasized the need for enhanced engagement between the Roybal Program and payer organizations.

### NIA Welcome to the Roybal Centers for Translational Research in Aging

Drs. Lisbeth Nielson and Lisa Onken, NIA

The NIA Roybal Program provides unique benefits to its investigators, including mentorship; centralized research resources, such as connections to the NIH Stage Model; collaborations; and a flexible framework that enables projects to seamlessly move through development stages. Collaborations within the Roybal Program have occurred among Roybal Centers, Roybal Centers and other NIA-funded projects, and Roybal Centers and health care systems, community partners, private-sector partners, and academic institutions. Each collaboration has enhanced the reach of and the real-world evidence for interventions under development. In addition to the number of facilitated collaborations, the success of the Roybal Program is measured by the number of peer-reviewed publications developed by P30 Roybal Centers, number and diversity of early-stage pilot investigator awards, and number of follow-on funding applications submitted. Since the start of the COVID-19 pandemic, the Roybal Program has supported various studies to evaluate technology-based and virtual interventions and has funded supplemental grants focused on COVID-19 research.

### Special Issue Brainstorm Discussion and Writing Teams Development

Facilitator: Dr. Alex Rothman, University of Minnesota

#### Overview

The NIA Roybal Program aims to develop two special journal issues that focus on themes prioritized and voted on by meeting participants. Dr. Rothman emphasized that the most impactful special issues (1) draw individuals’ attention to a new topic, (2) facilitate comparisons between the various articles, (3) enable engagement with a unique community, and (4) provide a product that as a whole is greater than the sum of its parts. Once meeting participants select themes for the special issues, they will be invited to participate on writing teams to draft individual articles for the special issues and to identify target journals.

Meeting participants also highlighted examples of past special issues related to the field of behavioral medicine, including one for *Translational Behavioral Medicine* on behavior change interventions in different patient populations and one for the *Journal of Personality and Social Psychology* on ecological momentary assessment best practices.

#### Special Issue Themes and Vote

Meeting participants suggested potential themes for the two special issues, and then submitted votes for their highest-priority themes. The themes and votes are presented in the table below.

|  |  |  |
| --- | --- | --- |
|  | **Theme Description** | **Votes** |
| **Theme 1** | A special issue in which each P30 Roybal Center completes a template describing the underpinning theory of its research program, pilots funded and their stages (including forthcoming stages), and whether mechanisms of action underlying the tested interventions were successful, and in which other articles discuss commonalities across these theories, principles, and gaps. | 5 |
| **Theme 2** | A special issue focused on themed challenges and best practices. This issue would include articles on programs that overcame challenges in late-stage studies. | 6 |
| **Theme 3** | A special issue illustrating early-stage studies, including lessons learned, methodological commonalities, and training needed to facilitate successful early-stage studies. | 4 |
| **Theme 4** | A special issue focused on translating from one stage to another and the methods leveraged to make those transitions. This issue would include best interdisciplinary approaches, best practices, and how those methods advance science in the research field of aging. | 3 |
| **Theme 5** | A special issue dedicated to ethical issues and research oversight. | 1 |
| **Theme 6** | A special issue illustrating methods used to develop NIH Stage model interventions, with a focus on methodological advancements, challenges, and examples from various disciplines. | 2 |
| **Theme 7** | A special issue focused on digital methods and other emerging technology to be used in future behavioral interventions. | 2 |
| **Theme 8** | A special issue focused on engaging with stakeholders early in the research process and examples of successful engagement between stakeholders and P30 Roybal Centers. | 2 |

#### Theme Prioritization, Target Journals, and Next Steps

Meeting participants recommended developing a special issue that combines Themes 1 and 2 and identified three possible target journals: *Journal of Gerontology*, *Translational Behavioral Medicine*, and *Innovation on Aging*. Meeting participants also recommended combining Themes 4 and 7 for the second special issue and identified the *Journal of Multidimensional Research & Review* for this submission. Meeting participants also discussed Theme 3; they noted that it may be too broad, but agreed that this theme would be helpful to early-stage investigator*s*.

Meeting participants completed the following polls to assign individuals to next steps (votes received are shown in parentheses):

* **Would you be willing to serve as an editor of a special issue?**
1. No (12 votes)
2. Yes (5 votes)
* **Please select from the prioritized special issue options below to sign up for a writing team:**
1. Digital/technology focus for the future of behavioral interventions and methods for making stage transitions (i.e., Themes 4 and 7) (11 votes)
2. Broader themed challenges and successful mechanisms of action (i.e., Themes 1 and 2) (9 votes)

### RFP Design Lab for Inter-P30 Pilots

Facilitators: Drs. Catherine Alfano and Felicia Hill-Briggs, Northwell Health

The goal of the RFP Design Lab is to discuss the upcoming Roybal Center RFP and receive P30 principal investigator (PI) input to finalize the RFP announcement and application. The current RFP requirements state that applicants (1) must propose a pilot study relevant to the Roybal Network mission to translate and integrate basic behavioral and social science research findings into interventions that improve the lives of older adults while strengthening the capacity of institutions to adapt to societal aging, (2) must have sponsorship from two or more P30 sties, and (3) must submit a complete application that includes the pilot PI’s resume, a project budget, and written endorsement from sponsoring P30 PIs.

The Roybal Program aims to finalize and issue the RFP application soon. Applications will be due to the Roybal Coordinating Center (RoybalNIACenters@northwell.edu) by February 1, 2022. A Review Committee (members of which are to be determined) will assess the applications, and applicants will be notified of their application status during March 2022. The Roybal Program will issue awards by May 1, 2022.

#### Discussion

Meeting participants emphasized that the proposed award budget may be too low to entice researchers to apply, particularly because the awards cannot be applied to indirect costs. Meeting participants suggested an alternative strategy under which the Roybal Coordinating Center would not release an RFP but instead would enhance inter-P30 collaboration by funding other activities, such as a grants workshop, a special issue submission retreat, webinar/workshop development, P30 lecture series, a multi-center planning grant, travel grants to convene P30 investigators in-person to discuss RFP applications, and access to an implementation consultant.

Meeting participants acknowledged that P30 Roybal Centers would be more likely to collaborate if they were more aware of projects ongoing at other sites. Thus, they recommended that the Roybal Coordinating Center could help facilitate connections by summarizing where Centers have overlapping objectives or support interventions with similar underlying mechanisms, as well as by identifying gaps and challenges of one Roybal Center’s project that could be mitigated through the strengths of another; the Roybal Coordinating Center could compile this information and share it with P30 Roybal Centers in the form of a shared, living document that is updated over time.

#### Polls

Meeting participants completed the following polls to establish RFP parameters (votes received are shown in parentheses):

* **Who is eligible to apply for the RFP?**
1. P30 PIs (2 votes)
2. Existing pilot PIs (1 vote)
3. Both existing pilot and P30 PIs (17 votes)
4. Anyone (9 votes)
* **If an applicant receives an award, can that applicant apply for another award during the following year?**
1. Yes (24 votes)
2. No (5 vote)
* **The Roybal Program will release two 1-year competitions. During Year 1, how many awards should be offered?**
1. One grant for $30,000 (12 votes)
2. Two grants for $15,000 each (8 votes)
3. Three grants for $10,000 each (2 votes)
* **Who should be invited to serve on the RFP Review Committee?**
1. NIA Research Centers Collaborative Network (RCCN) (10 votes)
2. Roybal Coordinating Center (10 votes)
3. P30 PIs that do not apply for the RFP grant (6 votes)
4. Lottery (0 votes)
* **Of the following efforts that could help facilitate inter-P30 Roybal Center collaborations, which are highest priority?**
1. Writer retreat to develop a special issue publication (4 votes)
2. Travel awards for pilot PIs to facilitate in-person conversations (1 votes)
3. Multi-center planning grant development (8 votes)
4. Consultation with implementation scientist to determine future directions (6 votes)
5. Creation of Roybal Coordinating Center document to highlight P30 Roybal Center overlap (3 votes)
6. Other (1 vote)

### Showcase of Inter-P30 Successful Pilot: A Mega-Study on Nudging Flu Vaccination

Dr. Katherine Milkman, University of Pennsylvania

Dr. Milkman and her collaborators sought to evaluate strategies that increase flu vaccination rates by enhancing the conversion of intentions into actions. They worked with 26 behavioral scientists to identify 19 intervention conditions that were incorporated into the design of a mega-study, which was completed through a collaboration between the Penn Roybal Center on Behavioral Economics and Health and the National Bureau of Economic Research (NBER) Roybal Center for Behavior Change in Health. The eligible participant population included patients with a routine primary care appointment at Penn Medicine or Geisinger Health during the 2020-2021 flu season. The study enrolled 47,306 participants (55 percent from Penn Medicine and 45 percent from Geisinger Health); this population had an average age of 51 years and was racially diverse (e.g., 70 percent white, 19 percent Black, 2 percent Asian, and 4 percent Hispanic). Each participant was randomly assigned to 1 of 20 experimental conditions (19 treatment interventions and 1 control condition), each of which typically involved a text message intervention “nudging” participants to receive a flu vaccination. The desired outcome of the study was receipt of a flu shot during an appointment or within 3 days before it.

Results of the mega-study indicate that 32 percent of the treatment conditions outperformed the control condition. Using data collected from 2,214 prolific raters (i.e., participants compensated for performing the survey), attribute analyses were performed across five subjective dimensions (i.e., positive, negative, reminder, casual, and surprising) and 12 objective attributes (including word count, reading level, and hours before appointment). These analyses revealed two principal components: (1) incongruence, which was a negative predictor of success and (2) language focused on reserved reminders, which was a positive predictor of success. The most successful interventions were framed as reminders that were congruent with the type of communications expected from health care providers. The single most effective intervention, with a resultant vaccination rate of 46.6 percent, involved sending texts to participants stating that a “vaccine is reserved for you.” Overall, this mega-study indicated that behavioral science interventions, including those that use only two reminder messages, can help nudge vaccine adoption during primary care visits. This project benefited from the collaboration between two Roybal Centers in terms of an enhanced budget, increased patient population, and increased efficiency. Dr. Milkman and colleagues have since replicated this mega-study leveraging collaborations with Walmart pharmacies.

### New Directions for Roybal Coordinating Center Funding

Facilitators: Drs. Felicia Hill-Briggs and Karina Davison, Northwell Health

Based on the conversations and discussions during Day 1 of this 2021 Annual Meeting, the Roybal Coordinating Center decided not to release an RFP and instead to enhance inter-P30 collaborations by funding three major activities, shown below:

* Facilitating consultations between P30 Roybal Centers and implementation specialists to help smooth transitions between project stages
* Creating an internal document that details information about each P30 Roybal Center (including unique features, principles, interventions, and mechanisms of action underlying interventions)
* Supporting program management, copyediting, writing, and other administrative activities related to the development of special issue manuscripts.

#### Implementation Scientist Support

Dr. Hill-Briggs asked participants to nominate implementation experts to support inter-P30 collaboration. Dr. Hughes (University of Illinois, Chicago) and Dr. Laura Gitlin (Drexel University) were nominated by meeting participants.

Meeting participants noted that the original applications of all P30 Roybal Center listed implementation specialists, who could support the Roybal program more broadly. Thus, participants recommended that the Roybal Coordinating Center review those applications to identify implementation specialists who are already in contact with each P30 Roybal Center. They added that the NIA RCCN likely has a list of available implementation experts who could be leveraged for this effort. In addition, the Pepper Coordinating Center Implementation Working Group and Core could be used to support P30 investigators. Meeting participants also recommended contacting the NIA Imbedded Pragmatic Alzheimer’s disease (AD) and AD-Related Dementias (AD/ADRD) Clinical Trials (IMPACT) Collaboratory to identify whether additional implementation expertise related to late-stage pragmatic trials could be leveraged.

Meeting participants completed the following poll regarding interest in implementation scientist support (votes received are shown in parentheses):

* **How many hours would your site require annually with an implementation specialist?**
1. 0-3 hours (9 votes)
2. 4-10 hours (4 votes)
3. 11-20 hours (3 votes)

#### Coordinating Center Collaboration Document

The Roybal Coordinating Center will create a form for each P30 site to complete. This form will enable the collection of information related to a P30 Roybal Center’s ongoing projects, interventions, principles, strengths, and gaps. Information collected will be shared on the Roybal Coordinating Center’s website and will be used to develop a stand-alone publication summarizing the efforts of the P30 Roybal Centers.

#### Special Issue Staffing Support

To support drafting of special issue publications, the Roybal Coordinating Center will provide funding for the following activities: program management, copyediting, citation incorporation, journal submission, and press release development.

### Prioritized Special Issue Topics

Facilitator: Dr. Karina Davison, Northwell Health

#### Special Issue 1: Broader Themed Challenges and Successful Mechanisms of Action

The first special issue will focus on each P30 Roybal Center’s broader themed challenges and successful mechanisms of action underlying tested interventions. This special issue will consist of articles from each P30 Roybal Center that describe the theories used within their research programs, ongoing pilot projects (as well as descriptions of project stages), hypothesized mechanisms of action and principles underlying interventions, and knowledge gaps that must be addressed. In addition, this special issue will include two to three articles that synthesize best practices and lessons learned for each project stage of the NIH Stage model, as well as several articles focused on late-stage programs, including successful later-stage studies of interventions and ways to address later-stage challenges.

Meeting participants discussed specific aspects of the special issue, summarized below:

|  |  |
| --- | --- |
| **Volunteer Editors** | * Drs. Jason Doctor, Susan Hughes, and Kathi Heffner
 |
| **Possible Special Issue Titles and Key Words** | * “Lessons Learned,” “Best Practices of Roybal Centers,” “Stage Model”
 |
| **Possible Number of Articles** | * 15 P30 Roybal Center articles, 4 commentaries, and 1 editor overview and introduction article
* Some P30 Roybal Centers may co-write one article
 |
| **Possible Article Titles and Key Words** | * To be determined by individual P30 Roybal Centers offline and shared on the Google Documents template
 |
| **Possible Journals**  | * *Behavioral Medicine*
* *Translational Behavioral Medicine*
 |
| **Target Audience** | * Investigators of all experience levels
* Investigators focused on behavioral interventions within any research field, not aging-specific research
* Readers of *Gerontological Society of America*
 |

#### Special Issue 2: Digital/Technology Focus for the Future of Behavioral Interventions and Methods for Making Stage Transitions

The second special issue will focus on digital/technological methods for future behavioral interventions, including new methods to disseminate interventions, overcome implementation barriers, and enhance collaboration. This set of articles will also discuss best practices and interdisciplinary approaches for advancing through the NIH Stage Model’s various stages.

Meeting participants discussed aspects of the special issue, summarized below:

|  |  |
| --- | --- |
| **Volunteer Editors** | * Drs. Jeffrey Kaye, Ian Kronish, and Elaine Wethington
 |
| **Possible Article Topics** | * How technological methods can improve intervention implementation, not a review of the technology itself
* Recruitment strategies for older adults
* Impact of technological methods on inclusivity and equity
* Negative impact of technology on the health of older adults
* Comparisons of virtual versions of interventions to in-person versions
* Integrating technology into interventions
 |
| **Target Audience** | * General aging research community
 |

The volunteer editors for this special issue will refine the prioritized topics and share them with P30 PIs to solicit potential authors.

#### Next Steps

The Roybal Coordinating Center will soon coordinate writing teams for each special issue, help schedule meetings between the writing teams and editors, and share with each P30 Roybal Center PI a link to the Google Documents templates for both of the special issues.

### How to Improve Clinical Trials for Alzheimer’s Disease

Dr. Joseph Gaugler, University of Minnesota

Dr. Gaugler and colleagues sought to understand the evidence base for care interventions for people living with dementia (PLWD) and their caregivers and to assess the potential for broad dissemination and implementation of that evidence. They evaluated data from multiple databases, including Ovid Medline and the Cochrane Central Register of Controlled Trials, to identify 9,217 randomized controlled trials, nonrandomized controlled trials, and quasi-experimental observational studies that focused on nonpharmacological interventions targeting AD/ADRD and that were published through March 2020. Agency for Healthcare Research and Quality (AHRQ) Evidence Practice Center standards were applied to screen abstracts and extract study data, resulting in 627 eligible studies. Dr. Gaugler and colleagues categorized the eligible study articles using the NIH Stage Model, as well as the modified Pragmatic Explanatory Continuum Indicator-2 (PRECIS-2) tool. One hundred studies were designated the “analytical set” because of a high potential for biases that may have interfered with the study’s ability to achieve research objectives, and the remaining 537 studies were designated the “evidence map” because the resulting data did not undergo synthesis. Results of the literature review revealed that currently available evidence from Stage III or IV trials could not clearly identify which interventions correlated with consistent benefits. Most of the data analyzed for this project were published prior to 2015, and ongoing research post-2015 with stronger reporting requirements may help identify clearer answers.

Dr. Gauger presented the following recommendations to advance dementia care from a National Academies of Sciences, Engineering, and Medicine (NASEM) 2021 report: implement and evaluate outcomes for collaborative care models in multiple and varied real-world settings under appropriate conditions for monitoring, quality improvement, and information sharing; implement and evaluate outcomes for Resources for Enhancing Alzheimer’s Caregiver Health II (REACH II) and its adaptions in multiple and varied real-world settings; use strong, pragmatic, and informative methodologies; prioritize inclusive research; and assess real-world effectiveness. A second 2021 NASEM report detailed specific research needs within dementia care research, including improved screening and diagnostic methods, coordination of resources once patients are diagnosed, public education strategies to heighten awareness of impaired cognition and dementia, support for ethical and responsible decision-making, development and validation of outcome measures, and design and evaluation of nonpharmacologic interventions. Additional research needs include improved engagement with patients living with AD/ADRD and caregivers, alignment of measures with treatment and patient goals, and understanding of intervention benefits and mechanisms.

#### Discussion

Participants discussed key themes from Dr. Gaugler’s presentation, summarized below:

* One method to personalizing dementia care is to introduce a scoring mechanism that enables patients to assign weights to given treatment goals.
* Setting studies up for success requires the use of multi-phase optimization strategies, which enable interventionists to evaluate complex interventions with multiple principles in order to assess which principles are relevant.
* Stakeholder input is critical to aligning investigation measures with payer interests.
* Pharmacological and nonpharmacological studies are very different; most obviously, pharmacological interventions are easier to characterize quantitatively. The lack of pharmacological studies that also contain a nonpharmacological component may be a lost research opportunity.

### Project Officer Q&A with P30 Centers

Drs. Lisa Onken and Partha Bhattacharyya, NIA

During a previous inter-P30 PI meeting, meeting participants identified two topics for discussion: (1) how P30 Roybal Centers can receive reimbursement for scaling behavioral interventions and (2) enhanced mechanisms for translation across the stages and associated milestones.

#### Engagement with Payers

In response to (1), Dr. Onken emphasized that a major theme of the Roybal Program is introducing implementation strategies as early in a project as possible. These strategies must consider whether developed interventions are scalable and can be integrated into service delivery systems, such as Centers for Medicare & Medicaid Services (CMS). Dr. Bhattacharyya emphasized that PIs must evaluate expenses associated with their interventions throughout each stage of the NIH Stage Model pipeline, knowing that the ultimate goal is to have created a scalable intervention that can be delivered at a reasonable cost.

Participants agreed that a consultant from CMS Innovation could help assess scalability and provide a payer perspective to junior pilot investigators and P30 PIs. Dr. Hughes recommended contacting Dr. Tim McVey of the National Association of Area Agencies on Aging to solicit his expertise as a health care consultant. Dr. Bhattacharyya noted another option to place Roybal Program fellows at various federal organizations to help improve communication between Roybal Centers and payer organizations. Dr. Bhattacharyya added that NIA could help link electronic health records to CMS claims information at no cost to Roybal Centers if the sample size of the specific P30 Roybal Center study is large.

Dr. Hepburn emphasized that payer organizations, such as CMS, are only interested in integrating interventions once they have demonstrated significant benefit to PLWD and caregivers, and small studies are unlikely to provide that demonstration. Thus, linkages to later-stage study facilitators, such as the IMPACT Collaboratory, are critical to help further demonstrate the efficacy of interventions to payer organizations.

Dr. Bettger added that organizations other than payers should be engaged by the Roybal Program to ensure that late-stage interventions can be integrated into state-wide health care systems or receive state-level funding. For example, the National Council on Aging will provide funding to support implementation if interventions have met specific criteria; however, many interventions do not meet these criteria simply because they have not registered the necessary information on required databases. Participants agreed that the Roybal Program should facilitate a workshop to demonstrate to P30 Roybal Centers how to adequately meet database registration requirements. The Centers for Disease Control and Prevention can also help certify and register behavioral interventions for specific conditions.

Another topic that has arisen in previous Roybal Program meetings is key outcomes and metrics. Meeting participants expressed interest in identifying metrics of community impact of a given intervention, as well as of policy impact and translation overall.

# Appendix 1: List of Roybal Centers for Translational Research in Aging

**Cornell Roybal Center—Translational Research Institute on Pain in Later Life at Weill Medical College of Cornell University**

Primary Investigators: Drs. Manney Carrington Reid, Karl Pillemer, and Elaine Wethington

The goal of the Cornell Roybal Center—Translational Research Institute on Pain in Later Life is to develop effective behavioral interventions to address the problem of later-life pain in order to increase the health and wellbeing of older adults with adversely affected pain.

**Columbia Roybal Center for Fearless Behavior Change at Columbia University Health Sciences**

Primary Investigators: Drs. Ian Kronish and Donald Edmondson

The goal of the Columbia Roybal Center for Fearless Behavior Change is to develop and test novel interventions for improving medication adherence and physical activity in distressed survivors of acute medical events.

**Duke Roybal Center at Duke University**

*Primary Investigators: Drs. Janet Pyru Bettger and Francis Keefe*

The goals of the Duke Roybal Center are (1) to provide a research infrastructure with a novel experimental learning and team approach to enhance behavioral intervention development and implementation skills and (2) to stimulate, facilitate, and accelerate the science of behavioral interventions to optimize mobility and promote independent living for older adults.

**Roybal Center for Personalized Trials: Physical Activity Promotion to Foster Healthy Aging at** **Feinstein Institutes for Medical Research**

*Primary Investigator: Dr. Karina Davidson*

The goal of the Roybal Center for Personalized Trials: Physical Activity Promotion to Foster Healthy Aging is to generate intervention development research and in turn launch several independent programs of research to improve physical activity and thus contribute to successful aging.

**Boston Roybal Center for Active Lifestyle Interventions at Brandeis University**

*Primary Investigator: Dr. Margie Lachman*

The goal of the Boston Roybal Center for Active Lifestyle Interventions is to develop and test behavior change strategies to promote healthy aging, especially among sedentary adults and others at high risk for poor health outcomes.

**Penn Roybal Center on Behavioral Economics and Health at University of Pennsylvania**

*Primary Investigator: Dr. Kevin Volpp*

The goal of the Penn Roybal Center on Behavioral Economics and Health is to conduct impactful research with the potential to significantly improve health in multiple therapeutic foci, such as behavioral economics, physical activity promotion, leveraging technology to promote healthy aging, and increasing sustainability and persistence of behavior change.

**NBER Roybal Center for Behavioral Change in Health at National Bureau of Economic Research**

*Primary Investigators: Drs. Joseph Doyle and David Laibson*

The goal of the NBER Roybal Center for Behavioral Change in Health is to translate research from basic science programs into applications that address real-world problems in order to improve population health directly, broadly, and cost-effectively.

**MIT Roybal Center for Translational Research to Improve Healthcare for the Aging at Massachusetts Institute of Technology**

*Primary Investigator: Dr. Amy Finkelstein*

The goal of the MIT Roybal Center for Translational Research to Improve Healthcare for the Aging is to develop and evaluate translational behavioral interventions to improve health and healthcare delivery for older people.

**The Palliative and Advanced Illness Research Center at University of Pennsylvania**

*Primary Investigator: Dr. Scott Halpern*

The goal of the Palliative and Advanced Illness Research Center is to develop, test, and implement novel interventions that bridge the dramatic gap between the supply of and need for palliative care services among PLWD in long-term services and support facilities, as well as family caregivers.

**The Roybal Center for Therapeutic Optimization using Behavioral Science at Brigham and Women’s Hospital**

*Primary Investigator: Dr. Niteesh Choudhry*

The goal of the Roybal Center for Therapeutic Optimization using Behavioral Science is to develop principle-driven interventions to enhance the evidence-based use of prescription medications.

**The Emory Roybal Center for Caregiving Mastery at Emory University**

*Primary Investigators: Drs. Ken Hepburn and Molly Perkins*

The goal of the Emory Roybal Center for Caregiving Mastery is to provide support to investigators across the United States to conduct NIH Stage I to III intervention research that will enhance the context-specific role-mastery of informal caregivers of persons living with Alzheimer’s disease and similar disease.

**Midwest Roybal Center for Health Promotion and Translation at University of Illinois at Chicago**

*Primary Investigator: Dr. Susan Hughes*

The goal of the Midwest Roybal Center for Health Promotion and Translation is to design scalable interventions for older racial/ethnic minority adults and expand the focus of interventions to include cognitive health.

**Rochester Roybal Center for Social Ties and Aging Research at University of Rochester**

*Primary Investigators: Drs. Kathi Heffner and Kimberly Van Orden*

The goal of the Rochester Roybal Center for Social Ties and Aging Research is to advance development of novel, principle-guided behavioral interventions that ensure vitality and wellbeing for healthy aging in middle-aged to older caregivers of a family member with AD or ADRD.

**ORCASTRAIT Oregon Roybal Center for Care Support Translational Research Advantaged by Integrating Technology at Oregon Health & Science University**

*Primary Investigator: Dr. Jeffrey Kaye*

The goal of the ORCASTRAIT Oregon Roybal Center for Care Support Translational Research Advantaged by Integrating Technology is to develop effective care support interventions facilitated by wise use of technologies that optimize health and quality of life for PWD and their caregivers.

**Roybal Center for Behavioral Interventions in Aging at University of Southern California**

*Primary Investigators: Drs. Dana Goldman and Jason Doctor*

The goal of the Roybal Center for Behavioral Interventions in Aging is to encourage safe and effective medical decisions through behavioral economic interventions.