

Reducing Dementia Risk with the BrainSpan Program:

A Public Health Practice Vignette

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Abstract

Approximately a third of Delawareans age 65 and older have dementia or mild cognitive impairment. Although a cure remains elusive, there is reason for optimism: disease-modifying treatments are now available, and as many as 45% of dementia cases may be preventable through sustained attention to modifiable risk factors across the lifespan. Most modifiable risk factors are addressed through behavior change, such as nutrition and physical activity, or depend on health behaviors, such as medication adherence or hearing aid use. Large U.S. and international trials of multidomain interventions show that older adults can improve cognitive test scores when they adhere to intervention components. To succeed in real-world settings, however, brain health lifestyle interventions must address patients' capabilities, opportunities, and motivation for behavior change, including through person-centered goals. BrainSpan is a six-session program that educates midlife and older adults about brain health and helps them build motivation and resources to improve brain health behaviors. Since 2023, ten cohorts totaling 158 participants have completed BrainSpan in and around Delaware. This vignette describes BrainSpan's implementation and potential next steps.

Introduction

In 2020 (the most recent estimate), approximately 22,300 Delawareans were living with clinical Alzheimer's dementia, representing 11.3% of adults over age 65.¹ Additionally, approximately 22% of adults age 65 and older have mild cognitive impairment (MCI), a risk factor for or prodrome of dementia.² The burden of dementia extends well beyond those diagnosed: in 2025, roughly 37,000 family caregivers provided an estimated 67 million hours of unpaid care, and Medicaid costs reached \$354 million.¹ As the population ages in Delaware and globally, the number of people living with ADRD is projected to rise substantially over the coming decades, primarily among adults aged 85 and older - people who are currently middle-aged.

At the same time, there is greater reason for optimism than there was a decade ago. Although a cure for ADRD remains elusive, the FDA has approved the first new Alzheimer's disease treatments in more than a decade.³ In addition, prevention and early intervention are increasingly recognized as effective strategies: as many as 45% of dementia cases may be preventable through sustained attention to modifiable risk factors across the lifespan, such as hearing loss and social

isolation.⁴ A central challenge is how to address these risk factors at scale in real-world settings, making this a core objective of the Alzheimer's Association's 10-year strategic plan through 2035.⁵

Thanks to the generosity of the Howard W. Swank, Alma K. Swank, and Richard Kemper Swank Foundation, the Delaware Center for Cognitive Aging Research⁶ and Swank Memory Center at ChristianaCare have created new programs to improve the brain health of Delawareans. From 2017–2022, their program Memory Ambassadors provided education and cognitive screening to approximately 812 Delawareans, along with feedback participants could share with their primary care providers (PCPs). The program also trained dozens of graduate student clinicians to conduct cognitive and hearing screenings.^{7–9}

Building on the success of Memory Ambassadors and lessons learned, and with continued support from the Swank Foundation, a program called BrainSpan™: Education, Support, and Empowerment for Brain Health in Aging (formerly called Brain-WISE) was developed. A single-arm pilot trial of BrainSpan has been published elsewhere.¹⁰ This public health practice vignette complements that report by describing the program's implementation and potential next steps in Delaware.

Purpose

The US Study to Protect Brain Health Through Lifestyle Intervention to Reduce Risk (US POINTER) trial^{11,12} along with its predecessors^{13,14} has shown that multi-domain lifestyle interventions (i.e., those targeting multiple risk factors, such as physical inactivity and poor nutrition) can improve cognitive test scores in older adults. US POINTER is part of a broader network of studies in more than 25 countries examining the potential of multidomain interventions to support brain health.¹³ As these interventions move from efficacy trials, which test whether they can work under controlled conditions, to effectiveness studies and broader dissemination and implementation, participant engagement and institutional adoption will become increasingly important. Some multidomain interventions have had low adherence to certain components, perhaps because participants are often expected to follow all components regardless of their individual risk and protective profiles. The availability and required expertise of interventionists may also constrain scalability.

Most modifiable dementia risk factors involve health and lifestyle behaviors, including physical activity, nutrition, sleep, hearing aid use, and adherence to medications for chronic conditions. According to the Capability, Opportunity, and Motivation Model of Behavior Change (COM-B),¹⁵ improving brain health through behavior change would require not only knowledge of what to do, but also the motivation and resources to act. Yet many multidomain interventions to date have underemphasized motivation, skill-building, behavior maintenance, and person-centered rather than generic brain health goals.^{16,17}

The BrainSpan program was designed to address the capabilities, opportunities, and motivation needed to initiate behavior change, while also being feasible for group delivery by multiple types of practitioners in real-world settings. This includes speech-language pathologists, a large and underutilized workforce in clinical practices focused on brain health.^{8,18}

Intervention

As described in the pilot trial report,¹⁰ BrainSpan comprises six sessions, each including approximately 30 minutes of psychoeducation through recorded video prepared by Dr. Cohen and 30 minutes of individual or small-group activities and discussion. Health recommendations are from authoritative bodies with BrainSpan-specific input from content experts. Sessions are designed to increase knowledge about cognitive aging, ADRD, modifiable risk factors, and lifestyle behaviors that support brain health; foster motivation and social support to address personal risk factors; facilitate access to resources (e.g., community exercise programs, cognitive behavioral therapy for insomnia [CBTi]); and help participants establish brain health habits (i.e., procedural memories) that may persist despite declines in declarative memory or other cognitive skills (Table 1). Participants sit in small groups of three to five, ideally with a team member serving as a table leader to support the primary interventionist. Interventionists are trained in Motivational Interviewing principles.¹⁹ Participants receive a workbook, access to a resource website, and invitations to complete individual cognitive and hearing screenings. In each session, participants develop person-centered goals related to the content. At the end of the program, they reflect on these goals, prioritize them, and make plans to pursue them.

Table 1. BrainSpan Content

Session 1	Introduces the concept of normal versus abnormal cognitive decline; MCI and dementia due to ADRD; modifiable and non-modifiable risk factors; chronic condition management; and ways to discuss brain health with a primary care provider
Session 2	Physical activity, including recommendations from the National Institute on Aging and a recent global consensus on optimal exercise for older adults 20
Session 3	Nutrition, with emphasis on the MIND Diet. 21 Typically, a dietician joins for Q&A.
Session 4	Hearing health (e.g., over-the-counter versus clinician-fitted hearing aids), and social and cognitive stimulation (e.g., cognitive training programs, enriching everyday activities, senior center programming)
Session 5	proactive use of cognitive aids and strategies to preserve independence
Session 6	Sleep and mental well-being, including sleep hygiene, signs of and treatment for sleep apnea, CBTi, gratitude journaling, mindfulness, how and when to seek mental health treatment.

Population

Efficacy trials of multidomain interventions often use relatively narrow inclusion criteria to maximize experimental control and the likelihood of detecting effects among participants most likely to improve on cognitive tests. BrainSpan was able to use broader inclusion criteria because it is designed to improve participants' capability, opportunity, and motivation for brain health, rather than cognitive test scores alone. In addition, many health behaviors that support brain health are beneficial across levels of functioning. Therefore, any adult who was independent (i.e., without dementia and living in the community) was eligible, including people with subjective cognitive decline and mild cognitive impairment.

One advantage of BrainSpan is its flexibility: participants can tailor the type and intensity of behavior change to their needs, abilities, and goals. Participants are strongly encouraged to discuss intended changes with their Primary Care Provider (PCP). At present, the program is only available in English, although there is interest in translating it into other languages.

Place and Time

BrainSpan groups have been held in and around northern Delaware since July, 2023. To date, two cohorts have been hosted at a continuing care retirement community, one at a house of worship, two at a senior center, one at a Jewish Community Center, and four at the University of Delaware's Newark campus. The campus-based cohorts included separate sessions for participants recruited from a YMCA, a faith community, and referrals from the Swank Memory Care Center.

Implementation

BrainSpan has enrolled 158 participants across 10 groups, with group sizes ranging from 15 to 32. The primary interventionist(s) have included different combinations of authors MLC, a neuropsychologist; KVB, a Speech Language Pathologist (SLP); and MJM, an SLP. Supporting interventionists, who served as table leaders, have been primarily graduate student clinicians, along with several University of Delaware undergraduate students. Graduate student clinicians whose scope of practice includes cognitive or hearing screenings or motivational interviewing received clinical hours towards their degree or licensure.

Evaluation and Adverse Effects

Cohen et al.¹⁰ reported a single-arm pilot trial with 143 participants. The program showed high attendance and strong acceptability; for example, 96% of participants agreed or strongly agreed that BrainSpan was worthwhile. Brain health knowledge, assessed using the Dementia Awareness Scale,²² increased significantly with a large effect size. Motivation, assessed using the Motivation to Change Lifestyle and Health Behaviours for Dementia Risk Reduction Scale²³ increased with a moderate effect size. No participant experienced any adverse effects, and there were no unintended consequences of the program.

Qualitative data from participants were not formally captured; however, a few anecdotes indicate the program's community impact. Following two sessions at a retirement community, BrainSpan participants banded together to petition their caterer to offer more MIND diet-friendly foods at the evening buffet and label them as such. In the same community, there was reportedly a run on berries (which are emphasized in the MIND diet) at the neighborhood grocery store. Following a group at a senior center, one of the participants offered to pick up two of the other participants and introduce them to her activity group, illustrating the program's emphasis on local solutions to improving lifestyle behaviors. Similarly, following a recent group of participants referred by the Swank Clinic, participants self-initiated contact information exchanges to stay in touch and form a walking group.

Sustainability

The establishment of BrainSpan was primarily supported by a pilot grant from the Howard W. Swank, Alma K. Swank, and Richard Kemper Swank Foundation. We are actively pursuing

additional funding to support BrainSpan’s effectiveness and implementation and continue offering the program in Delaware and beyond. Additionally, we are interested in partnering with healthcare systems to evaluate BrainSpan’s financial viability within broader healthcare offerings and to identify ways to make the program budget-neutral.

The challenge of sustaining services like BrainSpan extends beyond the program itself and beyond Delaware. International efforts are underway to study and advocate for the economic value and potential cost savings of dementia risk reduction, with the goal of enabling clinicians to bill insurance for prevention services.^{24,25}

Discussion and Public Health Significance

Approximately a third of Delawareans age 65 and older have mild cognitive impairment or dementia.² At least 45% of cases of dementia may be preventable by addressing modifiable risk factors,⁴ and 71.4% of Delawareans have at least one such risk factor.¹ Given that many areas of Delaware are under-resourced in primary care and mental health services, relatively low-cost behavioral interventions such as BrainSpan are well-positioned to deliver a strong return on investment in Delaware and beyond.

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