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# Identifying and Supporting Nonpharmacological Dementia Interventions Ready for Pragmatic Trials: Results From an Expert Workshop

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In October 2017, the National Institute on Aging (NIA) convened the National Research Summit on Care, Services and Supports for Persons with Dementia and their Caregivers. The summit was a national 2-day research conference to discuss accelerating improvements in care for people with Alzheimer's disease and related dementias (ADRD) and their caregivers.[1] Improving ADRD care is a national priority.[2] Over 5 million Americans currently live with ADRD; the lifetime cost of caring for a person with ADRD is $321,780,[3] and on a population level annual costs exceed $226 billion.[4] Numerous non-pharmacologic interventions have demonstrated efficacy in improving outcomes in persons with ADRD and their caregivers in multiple care settings. However, many of these interventions have not been widely adopted, and observational studies continue to find that care for people with ADRD and their families remains suboptimal.[5–10] Pragmatic trials have the potential to accelerate the translation of evidence-based, nonpharmacologic, ADRD interventions into clinical practice. The National Institutes of Health (NIH) has invested in a pragmatic trial infrastructure via the NIH Common Fund Collaboratory, but the Collaboratory has not focused on trials of ADRD interventions implemented in the various care settings in which people with ADRD are served.

As a follow-up to the National Research Summit, we chaired a workshop at NIA in December 2017 to discuss a national framework for supporting pragmatic trials of nonpharmacologic dementia interventions.[11] Workshop participants included researchers conducting dementia-related pragmatic trials, health care leaders with experience translating interventions into clinical practice, and senior NIA staff (see Acknowledgments). Our goals were to identify (1) criteria for determining the characteristics of nonpharmacologic dementia interventions that make them ready for pragmatic randomized, controlled trials (PCTs) and (2) the infrastructure necessary to actualize such a research program.

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## Pragmatic Trials for Nonpharmacologic Dementia Interventions

PCTs involve testing interventions in the real-world context of health care delivery systems and payment models.[12] Although PCTs are relatively recent in health services research, NIH has been funding such trials to learn about their unique operational and methodological features.[13] The current NIH Common Fund Collaboratory aims to strengthen the national capacity to implement PCTs in partnership with health care providers, in part by leveraging the varied experiences of studies on a wide array of topics. The Collaboratory's acquired knowledge is informing our collective understanding of the attributes of interventions ideally suited for PCTs, but funded studies do not specifically include nonpharmacologic dementia interventions.

PCTs may be especially advantageous for low-risk, nonpharmacologic dementia interventions, which are often complex, can involve multiple delivery mechanisms, and may require extensive training of formal and/or informal caregivers. The design of a pragmatic trial mimics real-world implementation challenges. In PCTs, researchers can randomize units or facilities to implement an intervention, thereby intervening with all eligible people, whereas other units or facilities can serve as control sites. Robust administrative and clinical data can inform audit and feedback and can be used for evaluation. And the use of novel methods, such as stepped wedge designs, can allow for rapid feedback to inform iterative revisions to the intervention's content or implementation, as is done in quality improvement programs, helping to ensure that the final intervention reflects a setting's unique needs and is likely to be replicable.

Although the above approaches may help to accelerate research and dissemination, there are challenges unique to conducting PCTs with people with ADRD, many of whom do not have decisional capacity. Interventions focused on the person with ADRD not only need to give careful consideration to ethical concerns and unintended consequences but may also need to include family caregivers as dyads or target them with supportive interventions. At the same time, researchers should engage persons with ADRD directly, wherever possible, to ensure that their perspectives are incorporated when creating and testing interventions.

The workshop arose from NIA's interest in obtaining expert input on the application of pragmatic methods to nonpharmacologic dementia interventions. After reviewing the landscape for dementia interventions in different community-based and institutional settings, to provide context, meeting chairs facilitated discussion of the meeting's 2 objectives: identifying criteria for nonpharmacologic dementia interventions ready for PCTs and the related research infrastructure needs.

## Criteria to Assess Readiness

Participants discussed the benefits and challenges of PCTs for nonpharmacologic dementia interventions, and developed 9 criteria for determining the extent to which such interventions are ready to be implemented as pragmatic trials (Table 1). The criteria relate both to conducting the research and to maximizing the likelihood of adoption by service delivery organizations if the research were to demonstrate effectiveness of the intervention in

a real-world setting. For example, researchers and health care providers alike need a minimal level of efficacy data, indicating that the intervention improves outcomes of interest and sufficiently detailed implementation protocols to be able to replicate it. At the same time, for an intervention to be broadly adopted, if effective, health care partners also need to feel that it addresses their priorities, can be adapted to their unique environments, and is possible to implement with existing resources and within current reimbursement models.

## Research Infrastructure Needs

Workshop participants discussed the infrastructure necessary for researchers to undertake pragmatic trials of nonpharmacologic dementia interventions. They envisioned a coordinating center similar to that of the NIH Common Fund Collaboratory.[13] Using that model, participants recommended that an ADRD coordinating center include working groups, or "cores," focused on building investigator capacity, supporting pragmatic trial design, and maintaining the resource and knowledge base (Table 2).

Because there are considerations unique to dementia research and to pragmatic trials in the settings that care for people with ADRD, a coordinating center focused on this topic could provide specialized knowledge and support to those seeking to test nonpharmacologic dementia interventions in pragmatic trials. For example, regulatory issues around securing written or verbal consent from people with ADRD can be complicated and become even more so for interventions being tested in a cluster-randomized PCT. Additionally, although administrative data can facilitate PCTs, databases lack important ADRD-specific measures. Workshop participants noted that clinical stages of dementia are poorly defined and documented in many administrative databases, making it difficult to use existing data to accurately characterize disease stage and identify participants, which is an important issue to developing an appropriate study design and outcome measurement strategy. A coordinating center responsible for sharing best practices and advice regarding common challenges would have great value to researchers.

## Summary

The NIA is poised to leverage lessons learned from other NIH-funded pragmatic trial efforts and to translate them into dementia-specific research. The timing is opportune for undertaking PCTs for nonpharmacologic dementia interventions, in part because of the current national focus on ADRD research, the momentum of recent meetings to delineate the research agenda, and numerous interventions that have generated positive findings in efficacy trials. Participants in this NIA workshop enthusiastically endorsed the importance of pragmatic research to ensure that such interventions are effective under real-world conditions. The criteria identified can help researchers determine the extent to which dementia interventions are ready for PCTs. At the same time, recommendations for infrastructure can inform policy regarding how to build capacity for such RCTs, while sharing knowledge regarding methods, data, and evaluation.

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## References

1. Office of the Assistant Secretary for Planning and Evaluation. [Accessed February 5, 2018] National Research Summit on Care, Services and Supports for Persons With Dementia and Their Caregivers: Goal [Online]. Available at:https://aspe.hhs.gov/national-research-summit-care-services-and-supports-persons-dementia-and-their-caregivers-goal
2. National Institute on Aging. [Accessed February 5, 2018] Alzheimer's Disease and Related Dementias research implementation milestone database [Online]. Available at: https://www.nia.nih.gov/research/milestones
3. Jutkowitz E, Kane RL, Gaugler JE, et al. Societal and family lifetime cost of dementia: Implications for policy. J Am Geriatr Soc. 2017; 65:2169–2175. [PubMed: 28815557]
4. Alzheimer's Association. 2015 Alzheimer's disease facts and figures. Alzheimers Dement. 2015; 11:332–384. [PubMed: 25984581]
5. Ahronheim JC, Morrison RS, Baskin SA, et al. Treatment of the dying in the acute care hospital. Advanced dementia and metastatic cancer. Arch Intern Med. 1996; 156:2094–2100. [PubMed: 8862102]
6. Mitchell SL, Kiely DK, Hamel MB. Dying with advanced dementia in the nursing home. Arch Intern Med. 2004; 164:321–326. [PubMed: 14769629]
7. Mitchell SL, Teno JM, Kiely DK, et al. The clinical course of advanced dementia. N Engl J Med. 2009; 361:1529–1538. [PubMed: 19828530]
8. Mitchell SL, Black BS, Ersek M, et al. Advanced dementia: State of the art and priorities for the next decade. Ann Intern Med. 2012; 156(1 pt 1):45–51. [PubMed: 22213494]
9. Teno JM, Gozalo P, Khandelwal N, et al. Association of increasing use of mechanical ventilation among nursing home residents with advanced dementia and intensive care unit beds. JAMA Intern Med. 2016; 176:1809–1816. [PubMed: 27723891]

10. Mitchell SL, Mor V, Gozalo PL, et al. Tube feeding in US nursing home residents with advanced dementia, 2000–2014. JAMA. 2016; 316:769–770. [PubMed: 27533163]
11. [Accessed February 5, 2018] State of the science for pragmatic trials of non-drug interventions to improve outcomes among persons with dementia and their caregivers [Online]. Available at:https://aspe.hhs.gov/pdf-report/state-science-pragmatic-trials-non-drugnon-pharmacological-interventions-improve-outcomes-among-persons-dementia-and-their-caregivers
12. Patsopoulos NA. A pragmatic view on pragmatic trials. Dialogues Clin Neurosci. 2011; 13:217–224. [PubMed: 21842619]
13. National Institutes of Health (NIH) Common Fund. [Accessed February 5, 2018] NIH health care systems research collaboratory [Online]. Available at:https://commonfund.nih.gov/hcscollaboratory

**Table 1**

Criteria to Determine Which Dementia Interventions Are Ready for PCTs

| Criterion | Rationale |
|---|---|
| 1. Intervention protocol | The intervention must have a well-articulated protocol in order to be replicated. |
| 2. Evidence | There must be some evidence demonstrating the efficacy that the intervention and/or its components improves the clinical outcomes of interest. |
| 3. Risk | The intervention should be low risk. Adverse events and unintended consequences need to be carefully considered in this vulnerable population. |
| 4. Feasibility | It should be possible to implement the intervention under real-world conditions within health care systems. |
| 5. Measurement | The intervention's impact should be measurable using existing data or with minimal burden by health care partners. |
| 6. Cost | An intervention should be cost-neutral or cost-effective for health care partners and/or incentivized by insurers. |
| 7. Acceptability | Health care partners should believe that the potential impact of the intervention is important and that it can be adopted. |
| 8. Alignment | The intervention should address priorities for health care partners and other stakeholders. |
| 9. Impact | The intervention's outcomes should inform clinical decision making and policy. |

PCT, pragmatic randomized, controlled trial.

## Table 2

Research Infrastructure Support Functions for Conducting PCTs of Dementia Interventions

| Core | Example of Role |
|---|---|
| 1. Stakeholder engagement | People with ADRD, their caregivers, advocacy organizations, policy makers, professional societies, and others seeking to shape the research and advise on studies' implementation and policy implications. |
| 2. Health care system collaborations | Groups of health care provider sites, such as facilities, offices, and agencies, willing to test interventions by integrating them into standard operating procedures. |
| 3. Training and education | Methodological training for novice and experienced researchers regarding conducting nonpharmacologic dementia intervention PCTs, to expand expertise and capacity. |
| 4. Biostatistics and study design | Advice on unique aspects of pragmatic RCT design, including estimating power, balancing random assignment, and implementing intent to treat designs. |
| 5. Participant recruitment | Knowledge regarding specialized issues recruiting people with ADRD and their caregivers, and engaging health care provider sites to participate in the research. |
| 6. Measurement | Use of data to identify people with ADRD and their disease stages. Special issues inherent to measuring outcomes in this population range from using proxy responses to using administrative data and observational protocols. |
| 7. Pilot study design | Assistance with translating "efficacious" interventions into intervention protocols that can and will be adopted by health care systems serving those with dementia. |
| 8. Data linkage, management | Expertise regarding data linkage and management, taking advantage of the fact that almost all people with ADRD are Medicare beneficiaries whose administrative data can be linked to many other data, both clinical and administrative. |
| 9. Ethical and regulatory issues | Guidance regarding consent procedures for persons with ADRD where low-risk interventions use cluster random assignment. Advice on adherence to regulatory requirements in settings typically care for people with ADRD but lack independent institutional review boards. |
| 10. Evidence synthesis and systematic review | Assessments of the state of the science regarding dementia interventions across settings, to identify interventions or intervention components that may be appropriate for testing under the rubric of a PCT. |
| 11. Implementation and adoption dissemination | Advice maximizing and measuring adherence to the intervention implementation and to inform broad-scale diffusion. |

ADRD, Alzheimer's disease and related dementias; PCT, Pragmatic randomized, controlled trial; RCT, randomized, controlled trial.