



FEATURED JH AITC GRANT YEAR 1 AWARDEE: MENTIA

The behavioral and cognitive deficits experienced by people living with AD/ABDR are often poorly managed due to family burnout, low staff-to-client ratios, and a lack of dementia care skills, resulting in reduced well-being and spiraling social and medical costs. With no cure and only low-impact disease-modifying drugs, non-pharmacological treatments can support psychosocial needs. However, these are resource-rich and difficult to scale, and care staff and family supporters may be ill-equipped to implement them. Further, data needed to drive care and health cost efficiencies are hard to collect, largely anecdotal, and siloed. During our grant year, we created the first version of Mentia Companion™ to provide on-demand support through intelligent digital personas inside a virtual home environment. They connect and converse directly with the user and offer ADL support and person-centered activities. Our core technology, designed to aid persons with mid- to late-stage dementia, both verbal and non-verbal, uses proprietary multimodal emotion recognition. Our Version 1 hybrid AI process engages users while reducing care partner load. Version 2 will add large language model fine-tuning and personalization algorithms into our hybrid mix to more naturally follow the context and unique tone of conversations and interactions with each user. The greater the interaction between the user and Mentia Companion, the better our system guides patients to desired goals, monitors cognitive changes, and provides data for risk assessments, establishing Mentia Companion as an alternative for supporting age-related cognitive and physiological decline. Our ultimate goal is to create an acute health risk profiling system to alert clinicians in advance of acute health events due to the progression of the multiple chronic diseases of those living with dementia. In the end, we aim to reduce the overall economic costs of AD/ABDR and to help relieve the immense social burden of this condition.

GRANT YEAR 1 AWARDEE: CENTER FOR POPULATION HEALTH

The Center for Population Health IT at the Johns Hopkins Bloomberg School of Public Health is actively engaged in developing and validating prediction algorithms designed to identify patients with dementia who would likely benefit from a palliative care assessment. Leveraging state-of-the-art machine learning algorithms and extensive clinical data from electronic health records, the team aims to identify and categorize patients with Alzheimer's disease and related disorders, or ABDR, who could benefit from timely palliative care delivery. Additionally, they seek to assess the impact of such care on health care utilization and address racial disparities. Palliative care, or PC, represents an interdisciplinary approach aimed at enhancing the well-being of individuals grappling with serious illnesses throughout their illness trajectory, including end-of-life considerations. For those with ABDR, implementing PC proves especially complex due to the challenge of accurately gauging a patient's current status within ABDR disease progression. This project holds substantial significance as it addresses a pervasive challenge: the health care system's capability to identify patients who would derive the greatest benefit from PC. Current prediction models primarily focus on end-of-life care for severely affected dementia patients in institutional settings. By employing advanced AI analytics tools and harnessing the wealth of clinical information within electronic health records spanning several from an academic health care system spanning several years, the team aims to identify individuals with ABDR who would most benefit from PC. The resultant prediction algorithm could potentially be integrated into EHR systems either as a standalone care decision support tool or in conjunction with existing population health analytics applications.

MONTHLY WEBINARS

For December, the JH AITC hosted a 1-day workshop, **“Large Pre-Trained Models with a Focus on AD/ABDR and Healthy Aging,”** on Thursday, December 14 in Baltimore, MD.

The recording will be made available for viewing at <https://aitc.jhu.edu/monthly-webinars/> or you may scan the QR code below.



For January, **Dr. Peter Abadir** will present **“Decoding the Impact of Rogue Angiotensin System on Deteriorating Mitochondria: A Biological Pathway to Physical and Cognitive Decline in Aging.”**

Register for his talk by scanning the QR code below.

