**Establishing a National Goal for the Prevention of Alzheimer's Disease
and Related Dementias in the United States**

Summary

Efforts to advance Alzheimer's disease and related dementias (ADRD) risk reduction strategies and prevention research would be greatly bolstered by the visibility and accountability of a measurable, time-bound national goal. Given the Alzheimer's public health crisis facing the nation and what is known today about the promise of non-pharmacological interventions to reduce dementia risk, an intensified focus on early intervention and prevention strategies is needed. This is especially true for communities of color and women, who bear a disproportionate burden of ADRD. We propose for consideration by the Administration, Congress, and private sector stakeholders the adoption of a national, measurable, time-bound impact goal, for example, aiming for a 30 percent reduction in the prevalence of ADRD by 2030 to drive urgency, focus and resources. Achieving this goal would spare an estimated 2.5 million people the tragedy of ADRD over the next decade. We recommend a commensurate public-private initiative to develop and implement the necessary strategies and accountability measures to ensure this goal is achieved.

The U.S. Needs an Explicit Prevention Goal

The Burden Demands Action

Increased longevity is perhaps one of the greatest success stories of our modern public health system and it also creates one of our greatest challenges. Combined with the projected population increase in the number of people over age 65, the burden of Alzheimer's disease and related dementias in the U.S. will nearly double over the next 20 years absent prevention or treatment. Alzheimer's disease is already the most expensive disease in the U.S. with the total cumulative economic impact of managing dementia consequences estimated to reach $1.1 trillion by 2050.[1] This includes a four-fold increase both in government spending under Medicare and Medicaid and in out-of-pocket spending. Mitigating this pending crisis, and expanding *healthy* life expectancy (HALE), requires strategies to make our "brain-span" match our lifespan.

Furthermore, reducing the risk of dementia has the potential to reduce financial pressure on the healthcare system, mitigate the burden on public programs such as Medicare and Medicaid, and moderate the pain and burden on families living with symptoms that often last more than a decade. A focus on risk reduction also could improve quality of life for individuals of all ages and ensure that older adults thrive and remain independent into their later years.

The Science Points to Things We Can Do

Thankfully, rapidly advancing science points to the ability to reduce dementia risk and slow the rate of cognitive decline as we age. Scientific evidence is promising, and there is real hope to reduce the risk of

dementia and slow the progression towards cognitive impairment by making key lifestyle changes, such as consuming a healthy diet, participating in physical and cognitive activities, and maintaining overall good heart health by reducing blood pressure and managing blood lipids.[2] The results from a comprehensive randomized clinical trial, the FINGER study, indicate that rigorous lifestyle modifications, including diet, physical activity, cognitive training, social activities, and monitoring and management of metabolic vascular risk factors, can improve or maintain cognitive functioning in at-risk older adults.[3] The SPRINT MIND study found that people with hypertension who received intensive treatment to lower systolic blood pressure were less likely to develop memory problems that often progress to dementia than those who were receiving standard blood pressure treatment.[4] These and other studies underway provide hope that dementia prevention is within reach.

Since dementia appears to also be tightly connected to other chronic conditions, a national strategy to reduce dementia risk offers a unique opportunity to "connect the dots" across clinical, policy and public health efforts to reduce diabetes, hypertension, tobacco use, and depression, for example, particularly among communities of color. The Honolulu-Asia Aging Study was among the first to show that lifestyle factors could affect function in older age, finding that combating dementia would "require interventions that simultaneously target multiple different disease processes" (e.g., diabetes, hypertension) and that dementia could no longer be understood as a "singular, discrete, present, or absent condition."[5] Similar to the Intensive Cardiac Rehabilitation program developed by Dr. Dean Ornish which utilizes lifestyle changes to reverse heart disease (and which is now covered by Medicare and many insurance companies)[6], it may be possible to apply comprehensive lifestyle interventions to address multiple chronic conditions, including ADRD. Dr. Ornish is currently directing the first randomized controlled trial is currently underway to determine if the progression of early stage Alzheimer's disease may be reversed by a comprehensive lifestyle medicine program.[7]

Increased Focus is Needed

Identifying clear, measurable targets can be an effective way to propel change, just as our nation has done for other health challenges such as tobacco[8], heart disease[9] and kidney disease[10]. These goals can spur advancements in clinical practice, public health, research and health equity.

The National Action Plan for Alzheimer's Disease (NAPA) has indisputably driven increased funding and focus on research as well as important public health approaches by the Centers for Disease Control and Prevention (CDC). Now, the opportunity exists to refine focus on prevention and expand strategies that leverage risk-reduction. For example, the Brain Health Partnership[11] identified the need for a concerted national dementia prevention and detection strategy at the Centers for Medicare & Medicaid Services (CMS). Harnessing the financing power of Medicare and Medicaid is essential to incentivizing risk-reduction within the healthcare delivery system. The U.S. Department of Health and Human Services (HHS) has within its authorities at CMS immense opportunity to encourage providers and payers to proactively address brain health among non-symptomatic, healthy older adults and to strengthen early detection and interventions that delay disease progression. Likewise, CDC's Healthy

Brain Initiative offers a national framework for public health action, charting a course for state and local public health agencies and partners.[12] The Healthy Brain Road Map, currently underfunded, would likely be an essential component of any national strategy to reach a collective destination – reducing the number of people living with ADRD.

At the same time, health providers lack the information and resources they need to support brain health. Nine in ten primary care physicians say they want more guidance on nearly all aspects of the brief cognitive assessment process.[13] This knowledge gap adds to a common misperception among providers and the public that there is nothing that can be done.

For all these reasons, the burden of the disease on family and the system, the promising science, the interconnectedness with other chronic conditions, and the need for urgency and focus, it is time for a more rigorous approach. Our nation must broaden its efforts to incorporate prevention, behavioral health, and risk-reduction strategies across an individual's lifespan by integrating a focus on brain health into the culture and healthcare system. A clear prevention "north star" is necessary, one that is accountable to measurable milestones.

Approach: Goal, Objectives, Strategy

Toward that end, UsAgainstAlzheimer's (UsA2) solicited the input of expert advisors to develop a prevention goal that is measurable, actionable and consensus built. Collaborating with Anne Tumlinson Innovations, Jon Blum and an expert Advisor Group, including Dr. Rudolph Tanzi, Dr. Mark Hyman, Dr. Richard Carmona and Dr. Jeffrey Cummings, we examined parallel national goals from other disease areas, gained insight from clinical and public health experts about potential approaches and measurement tools, and conducted secondary research of existing methodologies and data used to track the burden of dementia and Alzheimer's in the population. The goal-development work was grounded in key principles:

- The goal should be <u>measurable</u> and <u>time bound</u>.
- Specific milestones – also time bound – should accompany the goal along with a tactical roadmap in order to track progress and refine approaches as needed.
- The focus should be on optimizing health and improving health outcomes.
- Achieving health equity for communities of color and women should be overt and purposeful.
- Cost-reduction is an important consideration, but person-focused outcomes should be the foremost driver, and patient voice is a critical component of any strategy.

Other efforts grounded in clear clinical goals have proven to have impact. For example, The Million Hearts[14] Campaign led by CDC and CMS set out to prevent 1 million heart attacks and strokes in the United States over the course of 5 years. Utilizing a set of care delivery incentives such as quality measures, Electronic Health Record (EHR) incentive programs, public health strategies and practice innovations, about 115,000 cardiovascular events were prevented during the first 2 years of the

initiative, and it is estimated that up to half a million heart events may have been prevented from 2012 through 2016.[15]
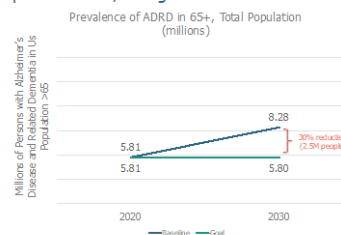
Informed by this work, we propose for consideration the adoption of a national measurable time-bound impact goal, for example, aiming for a 30 percent reduction in the prevalence of ADRD (2.5 million fewer people) by 2030, to drive urgency, focus and resources. This proposal is intended to serve as a basis for discussion and refinement, with the hope that broad consensus among stakeholders can be achieved in the coming months. It will be important to strike a balance between a goal that captures both imagination and possibility and that clearly communicates the impact on both systems and people. Advancing this effort will necessitate a thoughtful framing and a broader communications strategy to engage policymakers and the public.

Quantifying a Measurable Goal and Objectives

Like preceding goals, establishing a clear baseline against which to measure progress and identifying practice change incentives that aid in making progress are critical components.

The *prevalence* of Alzheimer's disease and other dementias (ADRD) refers to the proportion of people in a population who have ADRD at a given point in time and is influenced by both the rate at which new cases are occurring (*incidence*)

Prevalence of ADRD Baseline and Goal in Total Population 65+, Using Matthews et. al

and the average *duration* of the disease. Reducing the rate of new cases of dementia together with delaying the *age of onset* would reduce the proportion of people in the population with ADRD at a given time.

A 30 percent *prevalence* reduction over ten years translates to approximately 2.5 million fewer people living with ADRD by 2030 than is currently projected. Current estimates differ somewhat due to variations in study design, but approximately 5.8 million adults (approximately 10 percent of adults age 65 and older) are living with AD and it is expected to affect more than 8.4 million[16] by 2030 and 13.8 million[17] by 2050. In 2020, it is estimated there will be approximately 491,000 new cases of AD people age 65 or older, with the incidence estimate approximately 672,000 in 2030. The prevalence of Mild Cognitive Impairment (MCI) is estimated to be 15-20 percent of people over age 65.[18] Most, but not all, people with MCI progress to dementia. It is important to keep in mind that the actual *number* of people impacted by MCI, dementia and Alzheimer's will likely increase even if the *incidence* and *prevalence* rate declines due to population increases.

At the same time, multiple studies suggest that age-specific dementia risk may actually be declining. The current 8.8 percent dementia rate represents a 24 percent decline over since 2000. Rising levels of education and better control of cardiovascular risk factors are possible contributors, indicating that primary prevention of dementia through social and behavioral interventions is possible and valuable.[19]

Importantly, almost two-thirds of Americans with Alzheimer's are women. Data from the Framingham Heart Study found that the estimated lifetime risk for Alzheimer's dementia at age 45 was approximately one in five (20 percent) for women and one in 10 (10 percent) for men. The prevailing reason that has been stated for the higher prevalence of Alzheimer's and other dementias in women is that women live longer. However, there are a number of potential biological and social explanations including the distribution or effect of risk factors, genetics, and susceptibility to Alzheimer's pathology.

The prevalence of ADRD is highest among racial and ethnic minority groups. Today 13.8 percent of African Americans 65 and older are living with ADRD, followed by Hispanics (12.2 percent), and non-Hispanic whites (10.3 percent), American Indian and Alaska Natives (9.1 percent), and Asian and Pacific Islanders (8.4 percent).[20] The higher prevalence of Alzheimer's dementia in minority racial and ethnic groups compared with whites appears to be due to a higher incidence of dementia in these groups, whose increased risk has not been fully studied. It is also important to note that the US population of persons aged ≥65 years is expected to double from 46.5 million in 2014 to 83.7 million by 2060, but some groups will increase much faster than others. The percentage increase in total population by race and ethnicity by 2060 is estimated to be 75 percent for non-Hispanic whites, 172 percent for African Americans, 270 percent for Asian and Pacific Islanders, 274 percent for American Indian and Alaska Natives, and 391 percent for Hispanics. By 2030, nearly 40 percent of Americans living with Alzheimer's will be Latino or African American. These widening disparities means any effort to reduce prevalence necessitates a concerted focus on achieving health equity and evidence-based strategies to reduce risk in these highly impacted communities in tailored and culturally resonate ways.

Existing studies suggest a 30 percent or more reduction in prevalence in ADRD is possible by preventing or slowing the progression of mild cognitive impairment (MCI) and delaying onset of dementia through early detection and nonpharmacological and pharmacological interventions across the lifespan, particularly in midlife and at the earliest pre-dementia stages.

- A study led by Dr. Klodian Dhana of Rush University Medical Center reported that individuals who adhere to a healthy lifestyle have a 60 percent lower risk of Alzheimer's dementia compared with people who did not follow a healthy lifestyle. These lifestyle factors include exercising at least 150 minutes a week, engaging in cognitive activities such as reading newspapers, writing letters, playing puzzles games, consuming a healthy diet for the brain, and not smoking.[21]

- The Lancet Commission posits that more than a third of dementia cases are potentially preventable by addressing nine factors across the lifespan that account for 35 percent of the population dementia risk including education, treatment of hypertension, exercise, social engagement, smoking, hearing loss, depression, diabetes, and obesity.[22]

- The FINGER study indicated that lifestyle modifications, including dietary guidance, physical activity, cognitive training, social activities, and monitoring and management of metabolic vascular risk factors, can improve or maintain cognitive functioning in older adults.[23]

- The large-scale SPRINT MIND clinical trial showed that tight control of blood pressure in older adults reduced the risk of developing mild cognitive impairment and dementia by 19 percent.[24]

- Controlling blood pressure in middle age may also reduce the risk for dementia. In one study, pooled data from six large observational studies suggests that antihypertensive medicines may lower the risk for Alzheimer's disease and other forms of dementia.[25] In another, adults with hypertension during middle age and during late life were 49 percent more likely to develop dementia than those with normal blood pressure at both times, and having hypertension in middle age and then having low blood pressure in late life increased one's dementia risk by 62 percent. [26]

As a result of this emerging science, governments and advisory groups are increasingly aligned in the position that it is possible to reduce the risk of dementia. This includes The World Health Organization[27], Institute of Medicine[28], the Lancet Commission[29], the American Heart Association[30], and the Centers for Disease Control and Prevention[31].

For all of these reasons, setting a clear national goal that aims to reduce in prevalence by a specific percentage and address these gaps would be grounded in science and support.

Potential Subgoals/Alternative Goals to Measure Progress

The increased prevalence of ADRD in women and communities of color as well as weight of evidence that it is possible to delay the onset of dementia and Alzheimer's through risk reduction strategies point to a number of meaningful milestones against which progress could be measured over a ten-year period, including reducing incidence for women and communities of color, focusing on opportunities to push back the age of dementia onset via screening and lifestyle counseling during the pre-symptomatic or early MCI stages, doubling down on the investment in trials that test preventive interventions in clinical settings. Indeed, any one of these could be an ambitious goal in itself. For example,

- **Reduce the prevalence of dementia among communities of color and women by 40 percent by addressing health and access disparities.** Special attention must be made to ensuring equitable access to therapies, treatments, early intervention and risk reduction strategies among communities of color. This includes increasing the early detection of ADRD among highly impacted communities by improving provider readiness, eliminating stigma, providing culturally competent care and addressing barriers to assessments and research opportunities. Critical gaps in research exist for both women and minorities. Sex-based research and studies focusing on racial and ethnic minorities (an analysis of more than 300 peer-reviewed studies focused on non-pharmacological interventions for dementia found that just under 4 percent focused on racial and ethnic minorities)[32] should be a component of any strategy to achieve health equity.

- **Delay the onset of dementia by five years.** When providers detect and address the earliest manifestations of mild cognitive impairment or decline, they can prioritize managing interconnected diseases and direct patients to interventions that may slow progression. Depending on underlying disease, physicians can potentially help patients reverse mild cognitive impairment, or prevent or delay progression to dementia. A five-year delay would cut dementia prevalence in half. It would also reduce total health care payments 33 percent and out-of-pocket payments 44 percent in 2050 if achieve by 2025. For individuals age 70 and older, even a 1-year delay would reduce total health care payments 14 percent in 2050, a 3-year delay would reduce total health care payments 27 percent, and a 5-year delay would reduce healthcare payments 39 percent.[33]

- **Increase Screening Rates and Implement a Risk-Reduction Intervention.** This must include strategies to increase and improve early detection for cognitive decline, including MCI. It should connsider implementation of an ADRD prevention payment and care delivery model, new elements to Medicare Advantage's (MA) star-rating program to assess plans ability to screen, diagnose and treat MA enrollees with mild cognitive decline; expanding elements of existing and new payment codes; updates to the Quality Payment Program (QPP) to include measures and incentives to promote health brain lifestyle choices and encourage adequate and reliable cognitive impairment detection

Defining the Baseline: Measurement as First Order of Business

Accurate and frequent estimates of the prevalence and incidence of MCI and dementia are essential to measure progress against a quantifiable goal. Population prevalence estimates are also critical for public policy development, evaluating the impact of risk reduction interventions, understanding and addressing health disparities and preparing health and long-term care systems. In the absence of dementia tracking through a national screening program, the main sources for estimating dementia in the U.S. currently are nationally and regionally representative surveys and process of care data such as health-care claims and health records. The most commonly cited studies include Aging, Demographics, and Memory Study (ADAMS),[34] the Chicago Health and Aging project (CHAP), [35] and more recently, Matthews.[36]

It may also be possible in the not-so-far future to utilize biomarkers (which would help with identifying pre-clinical phases) and other technology-driven advances such as algorithms, retinal scans/eye movement and writing analysis.[37] Sampling techniques, different disease definitions, claims and coding inconsistencies and varying cognitive assessment tools all complicate current surveillance and interpretation of study results. Any effort to set a prevalence reduction goal should anticipate the need to establish a clear definition of biologically defined Alzheimer disease as compared clinically defined probable Alzheimer disease and consider the implications of intervening with disease-specific treatments to prevent symptom onset.[38] Clinical trials of pre-clinical stages of Alzheimer's disease may shed light on this question.

Efforts are underway to improve surveillance. The Harmonized Cognitive Assessment Protocol (HCAP), a sub-study within the ongoing Health and Retirement Study (HRS), is part of an ongoing international research collaboration funded by the National Institute on Aging (NIA) working to measure and understand dementia risk. It is expected that the HCAP 2020 follow-up study will provide extensive new data to better assess trajectories of cognitive decline among older U.S. adults, including the incidence of new cognitive impairment and dementia, helping us better understand trends in the incidence and prevalence of dementia in the U.S. and around the world.[39]

The Centers for Disease Control and Prevention (CDC) recently added a Cognitive Decline module to the National Behavioral Risk Factor Surveillance Survey (BRFSS) which measures subjective cognitive decline (SCD) and its associated effects on function and daily living. SCD is the self-reported experience of more frequent or worsening confusion or memory loss. There is growing evidence that self-rated cognitive difficulties may be a precursor to cognitive decline.[40] In addition, CDC is supporting cognitive testing using the Montreal Cognitive Assessment (MoCA) in the National Health and Nutrition Examination Survey (NHANES) data collection for both 2019-2020 and 2021-2022 data collection cycles. NHANES is unique in that it combines interviews and physical examinations. Because it also collects information such as SCD, blood pressure, diet, glucose measures, tobacco use and other risk factors for dementia, it will help us better understand the relationship between these factors and cognitive status.

In addition, a recent examination by Kevin Matthews et al[41], helped to fill a critical research gap by estimating the future burden of ADRD in the US population by age, sex, and race and ethnicity. Based on the observed prevalence of ADRD among 28.0 million Medicare FFS beneficiaries with ADRD diagnosed by a physician in a clinical setting and including related dementias in addition to AD, the estimates provide more detailed information about the demographic characteristics of the future population of patients with ADRD, which is important given the differences in prevalence among the subgroups coupled with the increasing diversity among persons aged 65+ years.[42]

Additional opportunities for improvement exist. Among them, the Medicare Current Beneficiary Survey (MCBS). CMS could enhance this existing data source to both improve prevalence estimates among the Medicare population and better understand the healthcare costs and utilization patterns among this population. Further, MCBS tracks enrollment in Medicare Advantage (private health plans offering Medicare benefits), which would enable us to better understand differences in these populations. Furthermore, Medicare already reimburses and recommends a cognitive assessment as part of its Annual Wellness Visit and has the opportunity to strengthen baseline data by requiring provider use of validated cognitive assessment screening tools.

Addressing attention to basic public health surveillance should be a first order of business and incorporated as a key component of efforts to implement a plan to reduce prevalence. Several areas of data collection and interpretation require strengthening: improvement of research methods used in data collection and interpretation; development of a consensus about valid coding of dementia for administrative databases; development of flexible approaches that take into account the variation in place and over time of health and social conditions that might lead to severe cognitive impairment;

national samples of adults younger than 65; more accurate racial, ethnic and gender epidemological data; and more accurate measurements of the prevalence of all stages, including the earliest stages, of cognitive decline and dementia. It also would be useful to better understand how incidence and duration are contributing to prevalence, ideally at each stage.

Next Steps: A National Conversation

UsAgainstAlzheimer's was a vocal advocate for NAPA and a strong proponent of a time-based goal for a cure for Alzheimer's. As the 2025 date identified in the national strategy approaches, achieving this aim has been more challenging than anyone could have imagined. While there are promising developments in drug therapies, it is clear that ending Alzheimer's will take determined efforts on multiple fronts. One of the most hopeful is the increasing cadence of research indicating that prevention holds promise and there are in fact things that people can do now to reduce their risk. Indeed, the research has greatly advanced even since 2013, when more than 105 scientists from 36 countries called upon governments of the G8 countries to make prevention of dementia one of their major health aims.[43]

We are committed to advancing prevention efforts in clinical practice, public health and research. Our hope is that over the coming months, we can have a national conversation and reach a broad consensus on a specific time-bound national prevention goal, established in statute or accountable executive action that drives public-private collaboration around measurable action steps to achieve a collective goal. We will not succeed alone. This is bigger than anyone organization, this will require all of US.

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