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Subcommittee on Health

The Alzheimer's Crisis: Examining Testing and Treatment Pipelines and Fiscal Implications

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Chairman Toomey and Ranking Member Stabenow, members of the Committee, I want to thank you for the opportunity speak today on the important topic of Alzheimer's disease and advances in medical diagnosis and treatment. Alzheimer's disease is one of the greatest medical challenges facing patients, families, the medical community, and society due to its immense personal and financial impact. We must stop this disease as outlined in the National Alzheimer's Project Act. Recent advancements in our understanding of the disease, our ability to detect, track, and diagnose the disease in research and the clinic, and drug development which can stop and reverse some of Alzheimer's disease pathologies hold promise to meet our shared goal of ending Alzheimer's disease. This is due in large part to the Senate's support of the NIH and long-term investments in research and training talented investigators.

We have come a long way in our understanding of the disease, our ability to detect, track, and diagnose Alzheimer's in research and the clinic, and development of drugs which can stop and reverse some of Alzheimer's disease pathologies. We have specific tests that can identify the two key pathologies of Alzheimer's, amyloid plaques and tau tangles, in brain scans, cerebrospinal fluid, and now in the blood. Treatments targeting amyloid plaques can remove these plaques to undetectable levels, something that wasn't possible just a few years ago. We are learning from clinical trials how to dose these medications more effectively and who are likely to benefit from them. Based on recent trials, we think patients early in the disease process when they have Alzheimer's disease pathology but don't yet show clinical symptoms, may benefit the most from a preventive approach to targeting the disease. The first generation of Alzheimer's prevention trials have been launched, and initial results show that we are getting closer to maximizing drug effects and approaching the goal of delaying and ultimately stopping the onset of Alzheimer's disease. A potential strategy to achieve this in the general population is using highly sensitive and accurate measures of the disease, for example blood tests, to first identify those who have Alzheimer's disease pathology and are at high risk of progressing to dementia. We would then treat these individuals with drugs to halt and reverse the Alzheimer's process in the brain before significant and irreversible brain damage occurs. The tools are now at hand to implement this strategy in large-scale prevention trials.

However, there are clear barriers to developments in the diagnostic, therapeutic, and research pipelines for Alzheimer's disease, and new federal strategies could enable breakthroughs in the disease's diagnosis and treatment, similar to what has been accomplished for diagnostics and vaccines for the Covid-19 pandemic. Summarized below are some of the ongoing challenges, and the associated opportunities that could greatly accelerate the discovery and validation of Alzheimer's disease treatments and preventions:

1) Barriers to therapeutic development
    a. Regulatory burden, risk-averse trial designs, and sometimes lack of urgency and not accounting for the costs of inaction lead to clinical trial delays and higher overall costs. Because Alzheimer's progresses over years until dependence on others for care and eventually death, Alzheimer's disease trials are long. Extensive international regulatory reporting requirements and approval delays cause major trials to cost several hundred million dollars and take 3 to 5 years to complete, while prevention trials are even longer (about 7 years). These trials are too expensive and too long, causing potential treatments to be 'left on the shelf' untested, and some drug developers to abandon Alzheimer's drug development programs. In order to implement large scale global trials, the field needs to move quickly and test more drugs in parallel, creating more 'shots on goal'.

b. If regulations could be made more facile and appropriate incentives made (for example, incentivizing and enabling faster trials similar to Covid-19 treatment development), then accelerated development would occur and lead to faster treatment development. This is an urgent issue – there is a tsunami of at-risk people (estimated at 5 million in the US) who could be spared Alzheimer's disease – if we can develop treatments and preventions in time.

c. How can this be helped? Policy makers and agencies can enable and support standards which: 1) account for the personal and financial cost of Alzheimer's disease in terms of the opportunity costs of delays into decision making (i.e. a balanced risk-benefit analysis accounting for time lost on deliberations); 2) enable science and medicine to advance at optimal speed, accounting for potential benefit while managing risk; and 3) encourage investment in the development of treatments and preventions for Alzheimer's disease.

2) Diagnostics

a. Highly accurate diagnostic measures of Alzheimer's disease amyloid plaques and tau tangles have been available for a number of years, and more recently, simple blood tests have been developed, but they are not used in clinics yet for several reasons, including lack of payer support. Symptomatic patients and their doctors have a need to know an accurate diagnosis. These tests can accurately identify who has Alzheimer's disease, and importantly, who does not have Alzheimer's disease. Because about 50% of Alzheimer's disease is not accurately diagnosed through a clinical assessment alone, testing for pathology would provide specific and accurate treatment to those with Alzheimer's, while informing the physician to investigate other causes if problems with memory and thinking are not due to Alzheimer's disease. Because some of the causes (e.g. depression, medication side effects, thyroid disorders, etc.) are treatable or reversible, it is important to have an accurate diagnosis. We must identify the disease in order to treat and manage it.

b. For research purposes, measurable indicators of Alzheimer's disease pathology (biomarkers), such as blood and cerebrospinal fluid amyloid and tau, offer immense promise. These biomarkers are being used to screen for the disease, track the effects of treatments on Alzheimer's disease biological processes, and are also being considered for surrogate biomarker development, which would greatly speed Alzheimer's disease trials.

c. When preventions are developed, screening biomarkers will be essential to identify those on the Alzheimer's path to appropriately treat those with high risk.