

## We all have Alzheimer's Disease: The Legacy of the 2018 National Institute on Aging's Research Framework Toward a Biological Definition of Alzheimer's Disease

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### Short Communication

In 2018, the National Institute on Aging and the Alzheimer's Association (NIA-AA) in publishing a new "Framework" has reverted back to the original definition of Alzheimer's disease [1]. A definition that relies solely on the presence of plaques and tangles as the signature of Alzheimer's disease, while overall neurological damage defines the severity of the disease. The clinical aspect of the disease-what we think of as Alzheimer's disease, by how it is expressed through loss of memory, changes in mental capacities and even mood and personality changes-is ignored. In contrast to an earlier definition [2] the disease is now defined solely by its biology.

The Framework's reliance on biology is however premature and flawed. In one study that looked at 2,332 brains of people that died from various causes, including children, only 10 brains showed a complete lack of plaques and tangles (less than half one percent) [3]. Everyone over the age of 24 years had plaques and tangles. By the Framework's criteria, all older adults will automatically be diagnosed with Alzheimer's disease. Even the authors admit that there are high false positives. "Up to 60% of CU [cognitive unimpaired/normal] individuals over age 80 years have AD [Alzheimer's disease] neuropathologic changes at autopsy or by biomarkers." (p.552) [1]. Fifty percent false positives does not form a solid foundation to develop a diagnostic tool based purely on biomarkers.

These are the same odds as a coin toss. Except that a diagnosis of Alzheimer's disease will definitely influence a judge's determination of your capacity and might result in a change in your legal status, managing your affairs, driving a car and piloting an airplane, entering into a contract, inheritance, and even custody [4]. Because of similar conflicts of interest, a French court in 2009 withdrew such guidelines for Alzheimer's disease as they contravened national law [5].

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