There is considerable interest in understanding aspects of cognitive performance that can discriminate cognitively healthy aging from the earliest stages of neurodegenerative disorders such as Alzheimer disease (AD). Recent evidence indicates that the pathological hallmarks of AD accumulate 10-15 years before the manifestation of clinical symptoms, which suggests that even studies of “healthy” older adults are likely to be contaminated by individuals in the preclinical stages of the disease. However, evidence for the relationship between biological markers of AD and concurrent cognitive function has been mixed. This talk will focus on changes in attentional control as a particularly sensitive cognitive marker of preclinical AD. Using data from a large scale, longitudinal study, age-related declines in attention are shown to be exaggerated when AD pathology is high, even in otherwise clinically healthy older adults. In cross-sectional data from a similar cohort, the contribution of attentional control to impairments in other domains, specifically semantic memory retrieval, is examined. Under conditions of high attentional demands, the influence of established AD biomarkers multiplicatively impairs categorization performance in a manner consistent with a hypothesized model of pathology accumulation. Implications for cognitive theory and applications to clinical drug trials are discussed.