ABSTRACT:
Cardiovascular disease (CVD) is the leading cause of death among older US adults. Over 75% of US adults ≥ 65 years of age have hypertension, a major risk factor for CVD. Randomized controlled trials have demonstrated that lowering blood pressure (BP) through antihypertensive medication reduces the risk for CVD by 20% to 40% among older adults with hypertension. Many older US adults have uncontrolled BP and may receive CVD risk reduction benefits from intensifying their antihypertensive medication. However, clinicians are often concerned that intensively lowering BP may increase the risk for a fall. Falls are the leading cause of injury-related hospitalization and death among older US adults with more than one in three US adults ≥ 65 years of age experience a fall each year. BP has traditionally been measured in the clinic setting and a major challenge that clinicians encounter in deciding to titrate antihypertensive medication is the inaccuracy of BP assessed in this setting. Home blood pressure monitoring (HBPM) is an inexpensive and highly feasible approach to measure BP outside of the clinic setting and has the potential to improve BP control and, therefore, reduce CVD risk. Whether HBPM can identify patients for whom antihypertensive medication can be intensified without increasing the risk for a fall is unknown. A newly NIH-funded (July 1, 2018 to June 30, 2022) prospective cohort study (AMBulatoRy blOod preSsure In older Adults [AMBROSIA]) will evaluate the association of BP, measured outside of the clinic setting using ambulatory blood pressure monitoring (ABPM), with falls risk among 1,057 adults aged ≥ 65 years, taking antihypertensive medication from the Kaiser Permanente Southern California (KPSC) health system. ABPM was chosen for the AMBROSIA as it is considered the gold-standard approach for assessing out-of-clinic BP. Compared to ABPM, HBPM is more widely available in the US and better tolerated by patients. The AMBROSIA study is not funded to perform HBPM. The overall goal of the proposed ancillary study to AMBROSIA is to determine whether BP on HBPM can identify older adults taking antihypertensive medication who are at increased risk for falls, and whether HBPM provides similar predictive value for falls when compared with ABPM. AMBROSIA will begin study visits in February 2019 and the proposed ancillary study (AMBROSIA-HOME) will add the conduct of HBPM for 7 days, with two BP measurements obtained in the morning and two BP measurements obtained in the evening on each day, following the conduct of ABPM for 950 participants. Conducting the AMBROSIA-HOME study will be cost-efficient as information on demographic and clinical characteristics, geriatric assessments, research-grade BP measurements, and 24-hour ABPM is already being collected at baseline with falls and serious fall injuries being assessed during a one-year follow-up period. The AMBROSIA-HOME study will provide valuable data on the role of HBPM to personalize care for older adults taking antihypertensive medication.

NARRATIVE:
Clinicians must balance the benefits of blood pressure lowering medication for preventing heart disease and stroke with the potential risk for falls with treatment. The proposed study will test whether blood pressure, self-measured by a person in their home, is associated with the risk for falling among older adults taking antihypertensive medication. The results of this study may provide healthcare providers information to better guide the use of blood pressure lowering medication.