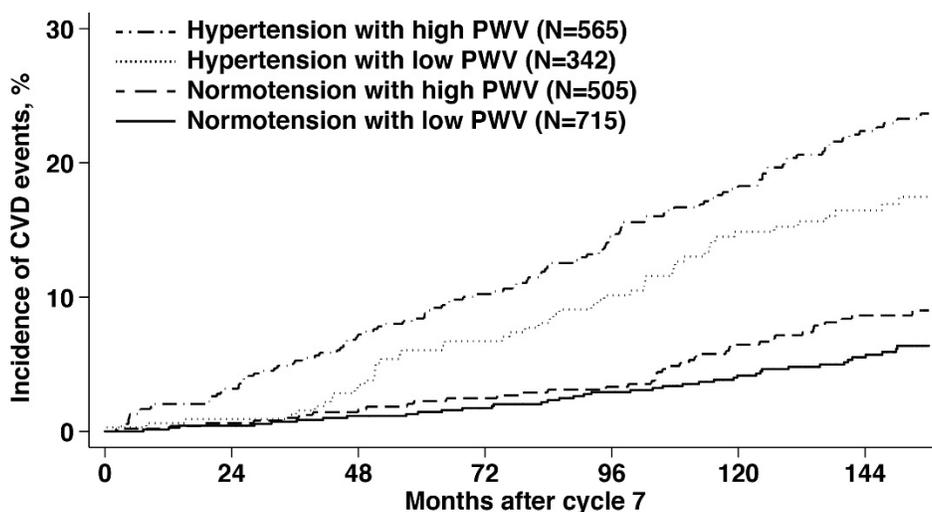


## Relative Contributions of Arterial Stiffness and Hypertension to CVD Risk: The Framingham Heart Study

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**Introduction:** The presence and implications of abnormal arterial stiffness, a potential independent predictor of outcomes, in community-dwelling treated hypertensives is unknown. Furthermore, limited data exist regarding the risk of cardiovascular disease (CVD) associated with arterial stiffness across the entire range of blood pressure. **Methods:** We measured carotid-femoral pulse wave velocity (PWV) and classical CVD risk factors in participants of The Framingham Offspring Cohort. The participants were divided into 4 groups according to hypertension (yes/no), and PWV status (high/low based on age- and sex-specific median values) and followed up for CVD events (CVD death, myocardial infarction, unstable angina, heart failure, and stroke). **Results:** We studied 2127 community-dwelling individuals (60 years, 57% women). 60% (233 of 390) of controlled and 90% (232 of 258) of uncontrolled treated hypertensives had high PWV. The multivariable-adjusted risk for CVD events ( $n=248$ , median follow-up 12.6 years; Figure) rose from normotension with low PWV (reference) to normotension with high PWV (hazard ratio [HR] 1.33, 95% confidence interval [95% CI] 0.86-2.05) and from hypertension with low PWV (HR 1.53, 95% CI 1.00-2.34) to hypertension with high PWV (HR 2.31, 95% CI 1.58-3.36).

**Conclusions:** A substantial proportion of treated hypertensives have high arterial stiffness, a finding that may explain some of the notable residual CVD risk associated in this group. High PWV is associated with a trend towards increasing CVD risk in both non-hypertensives and hypertensives supporting the use of arterial stiffness measurements in both populations.



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