BACKGROUND

- Visit-to-visit blood pressure variability (VVV) is a proposed risk predictor of CV events, but a more complete understanding of this association is desired.
- We analyzed >10 years of data from electronic health records of Intermountain Healthcare to investigate the potential relation between systolic blood pressure (SBP) VVV and all-cause mortality in a large real-world outpatient population.

METHODS

- This study was modeled after a post hoc analysis of VVV in the ALLHAT Trial, including assignment of VVV thresholds of <6.5, 6.5-14.4, and >14.4 mmHg.
- Patients (N=10,903) were included if they had at least 7 SBP measurements between January 1, 2007 and December 31, 2011.
- VVV was calculated as the standard deviation of those 7 SBPs.
- After the 7th SBP (baseline), patients were followed for >5 years to June, 2016, for all-cause mortality (3,013 [27.6%] died).
- Cox regression was used to adjust for demographics, mean SBP (VVV models only), and 20 comorbidities and 29 medications recorded at the 7th SBP measurement.

RESULTS

- Association Between Visit-to-Visit Variability of Systolic Blood Pressure and All-Cause Mortality

- Table 1. Baseline Characteristics of the Study Population.

- Table 2. Baseline Medications of the Study Population.

CONCLUSIONS

- SBP CoV (VVV divided by mean SBP), but not VVV alone, was associated with a higher risk of mortality after multivariable adjustment in a real-world patient population.
- Further analyses of the influence of common SBP medications on the association of VVV/CoV with mortality and optimal actual-practice thresholds of VVV are necessary.

FIGURE 1. Kaplan-Meier survival curves during up to 9 years of follow-up for: A) Visit-to-Visit Variability (VVV) Categories (based on the ALLHAT thresholds) and B) Coefficient of Variation (CoV) quartiles.

FIGURE 2. Forest plots of A) VVV categories (ALLHAT thresholds) and B) Coefficient of Variation (CoV) quartiles in univariable and multivariable Cox regression modeling.