Title TBD

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**Context**: Guidelines recommend using blood pressure (BP) and cardiovascular disease (CVD) risk to guide the decision to initiate antihypertensive medication. In the 2017 ACC/AHA BP guideline, adults with stage 1 hypertension and 10-year atherosclerotic CVD risk ≥ 10% were recommended to initiate antihypertensive medication. The AHA recently introduced equations for estimating 30-year risk of total CVD for adults 30 to 60 years of age. A high percentage of adults 30 to <60 years of age without hypertension have low (<10%) 10-year total CVD risk and high (≥30%) 30-year total CVD risk. It is unclear whether adults without hypertension with low 10-year predicted total CVD risk but high 30-year predicted total CVD risk should initiate antihypertensive medication. We hypothesize that the incidence of hypertension will be higher among black adults with high 30-year predicted total CVD risk and that there will be evidence of sub-clinical CVD among adults with high 30-year predicted total CVD risk when they develop hypertension. This may support the decision to initiate antihypertensive medication among adults with high 30-year predicted total CVD risk before they develop hypertension.

**Aims**: 1. Describe the distribution of adults without hypertension according to 10-year and 30-year total cardiovascular disease risk. Specifically, adults with (1) 10-year risk ≥ 10%, (2) 10-year risk < 10% with 30-year risk ≥ 30%, and (3) 10-year risk < 10% with 30-year risk < 30%.

a. Sub-aim: Describe the distribution of these groups by blood pressure categories.

1. Estimate the incidence of hypertension among adults in the three total CVD risk groups defined in Aim 1.
2. Estimate the incidence of cardiovascular disease in the three groups defined above.
   1. Estimate the incidence of CVD between visit 1 and visit 3.
   2. Among participants who did not develop CVD between visit 1 and visit 3, estimate the incidence of hypertension.
   3. Compare LVMI and LVH among people who developed and did not develop hypertension within the three risk groups.

**Question**: Do we need to consider LVMI and LVH at Visit 1? Should we just focus on this at a follow-up assessment? Options:

1. Use JHS only (JHS has Echo @ V1 and MRI @ V3)
2. Use JHS + REGARDS (JHS has ECG @ V1 and V3, REGARDS has ECG @ V1 and V2)
3. Use JHS + CARDIA (CARDIA has Echo @ Y25 and Y30)

Why not all three cohorts? We may not have enough time to prepare all three, but it’s worth discussing.

Table: Exclusions

| **Inclusion criteria** | **No. of participants** |
| --- | --- |
| JHS participants | 5,306 |
| Age 30 to < 60 years | 3,067 |
| Consented to CVD follow-up | 2,953 |
| No history of CVD | 2,943 |
| Have information on self-reported antihypertensive medication use and blood pressure | 2,882 |
| Have information on other variables in the PCEs and PREVENT equations | 2,566 |
| All variables in range for PREVENT equations | 2,451 |
| Without hypertension at baseline | 1,369 |

Table: Distribution of predicted risk for CVD at visit 1.

| **PREVENT CVD risk equation** | **Overall (n = 1,369)** | **Elevated blood pressure (n = 252)** | **Normal blood pressure (n = 680)** | **Stage 1 hypertension (n = 437)** |
| --- | --- | --- | --- | --- |
| 10-year total CVD risk | | | | |
| < 10% | 1,354 | 248 | 678 | 428 |
| ≥ 10% | 15 | 4 | 2 | 9 |
| 30-year total CVD risk | | | | |
| <10% | 519 | 70 | 359 | 90 |
| 10% to <15% | 313 | 60 | 152 | 101 |
| 15% to <20% | 232 | 57 | 80 | 95 |
| 20% to <25% | 173 | 35 | 64 | 74 |
| 25% to <30% | 72 | 16 | 14 | 42 |
| ≥30% | 60 | 14 | 11 | 35 |
| 30-year total CVD risk among those with 10- year total CVD risk <10% | | | | |
| <10% | 519 | 70 | 359 | 90 |
| 10% to <15% | 313 | 60 | 152 | 101 |
| 15% to <20% | 232 | 57 | 80 | 95 |
| 20% to <25% | 173 | 35 | 64 | 74 |
| 25% to <30% | 72 | 16 | 14 | 42 |
| ≥30% | 45 | 10 | 9 | 26 |