

BP Activate: A Blood Pressure Technology Pilot Using a Computerized Algorithm to Better Address Blood Pressure Management

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BACKGROUND

Despite many effective options for blood pressure management, control of blood pressure remains a challenge. We aim to show that providing patients with a summary of their blood pressure readings along with specific medication adjustment recommendations from a computerized algorithm, in the form of a “BP Activate Letter”, may help activate patients to talk with their provider about their BP or make BP medication changes.

METHODS

- Study population - patients with hypertension (defined as SBP >140 and/or DBP >90) seen at UCSF Mt. Zion Primary Care Clinic.
- Design - patients were randomized into three groups – 1) BP Activate Letter: a letter containing computer algorithm-led medication change recommendations and recommends discussing those changes with their provider 2) Control Letter: a letter only suggesting that the patient talk to their provider about their BP 3) No Letter: no letter sent
- Outcomes - primary outcome was achieving BP goal (<140/90) or having a medication change. Secondary outcomes included scheduling an appointment, completing an appointment, having a medication change and achieving BP goal.

RESULTS

- There was no significant difference found for patients in the BP Activate Letter group compared to the No Letter group on achieving BP goal or having a medication change (HR: 95% CI - 0.83: 0.62 to 1.10).
- Patients in the Control Letter group were significantly less likely to achieve BP goal or have a medication change compared to the No Letter group (0.72: 0.53 to 0.96).
- There were no significant interaction effects of any patient characteristics pre-randomization on our primary outcome.

DISCUSSION

Our results show a de-activating effect on our primary outcome in the Control Letter group. These results highlight that further investigation is needed to determine what factors can promote activating patients to engage with their providers.

Notifying patients about their high blood pressure and encouraging them to make a clinic visit may make them less likely to make BP medication changes or achieve a BP goal of <140/90.

Figure 1: Kaplan Meier Curves for Primary and Secondary Outcomes

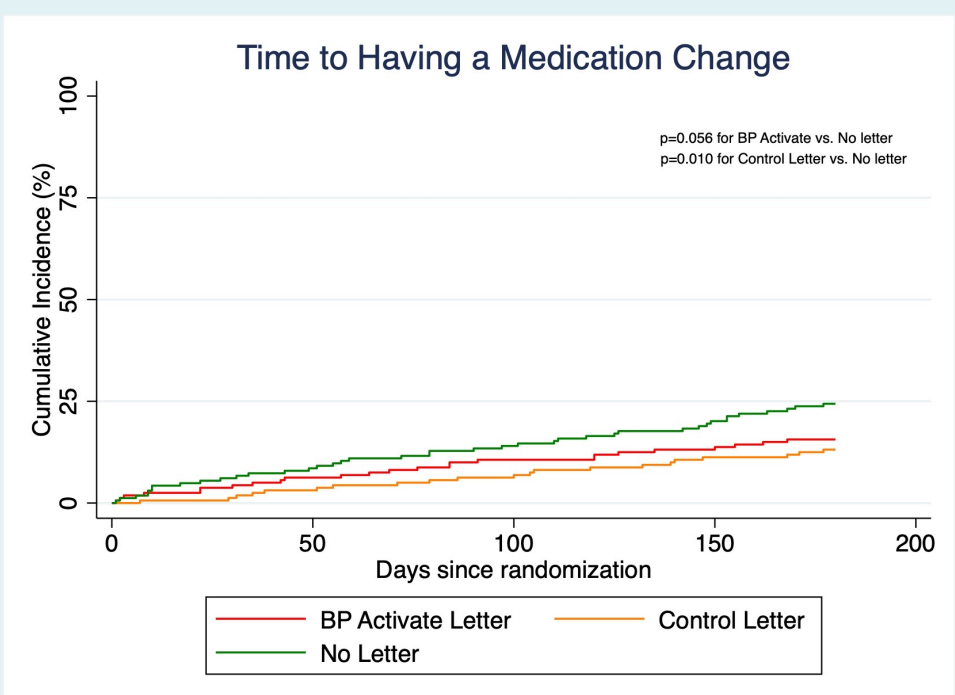
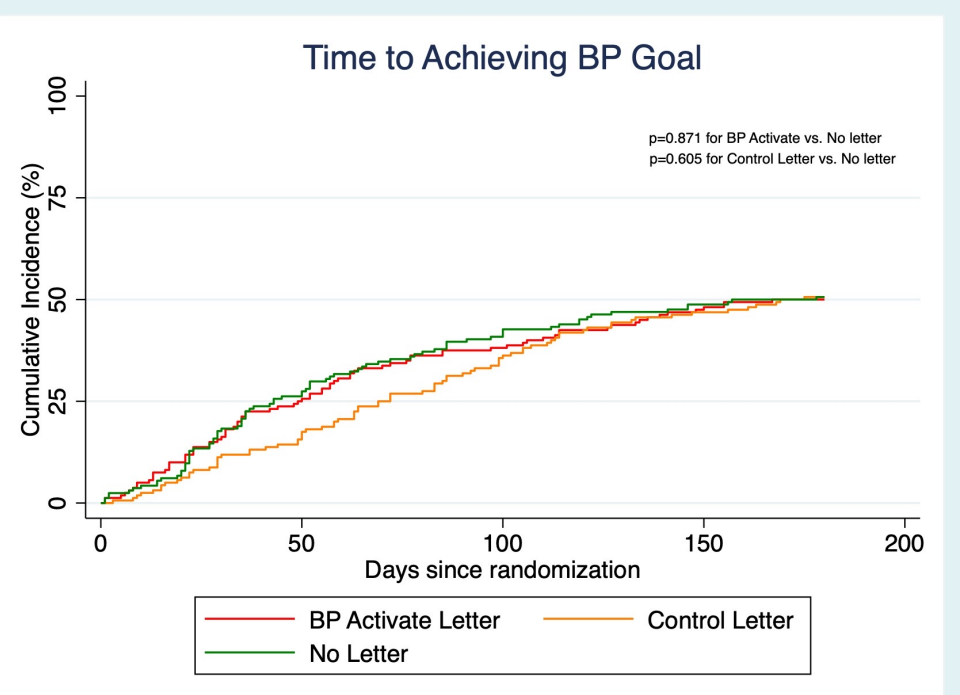
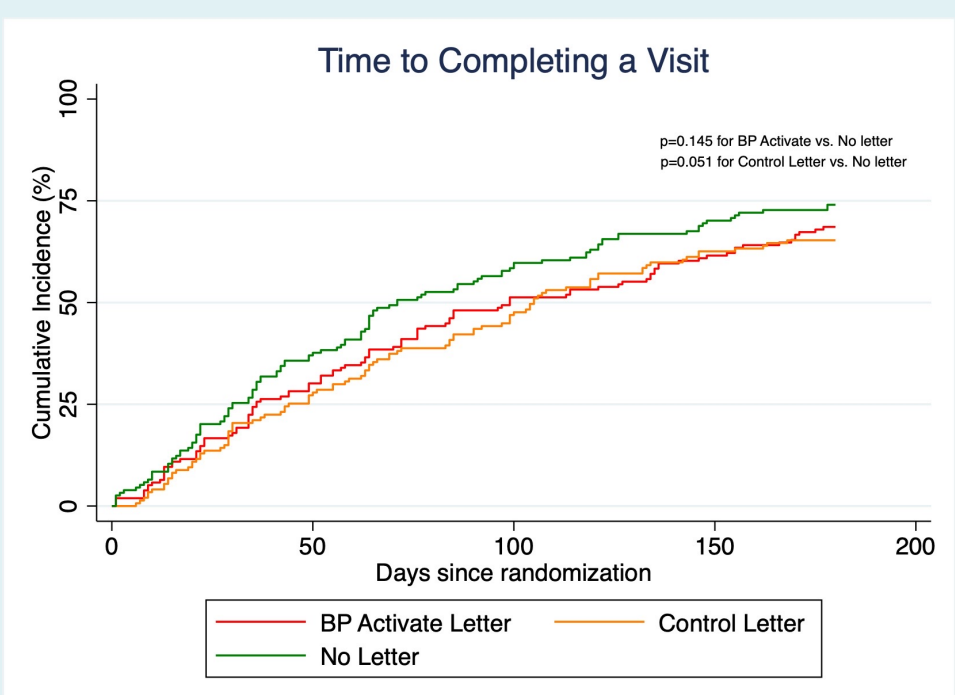
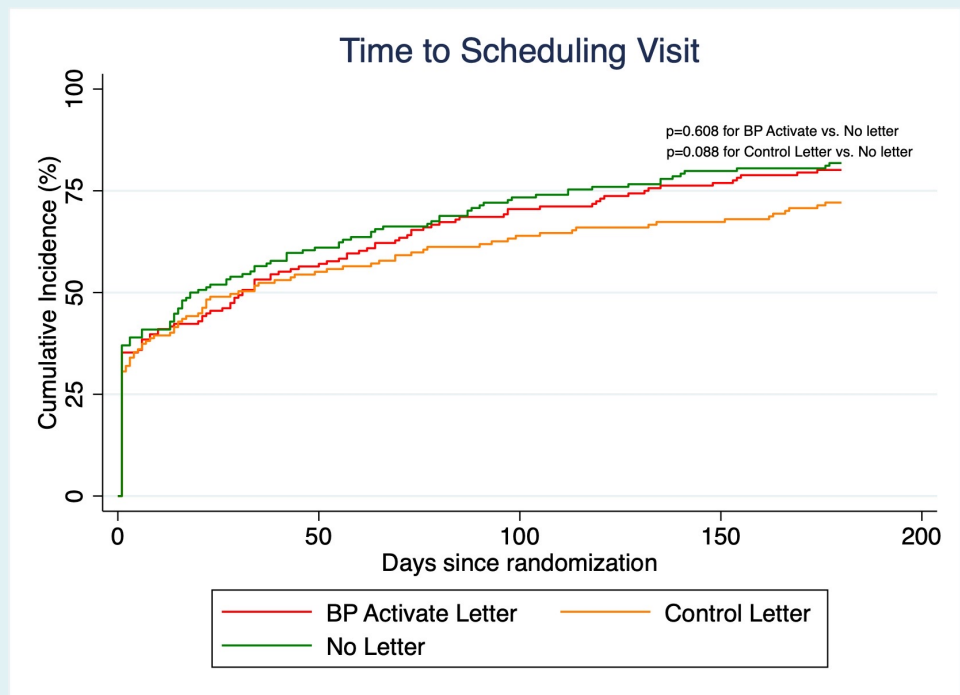
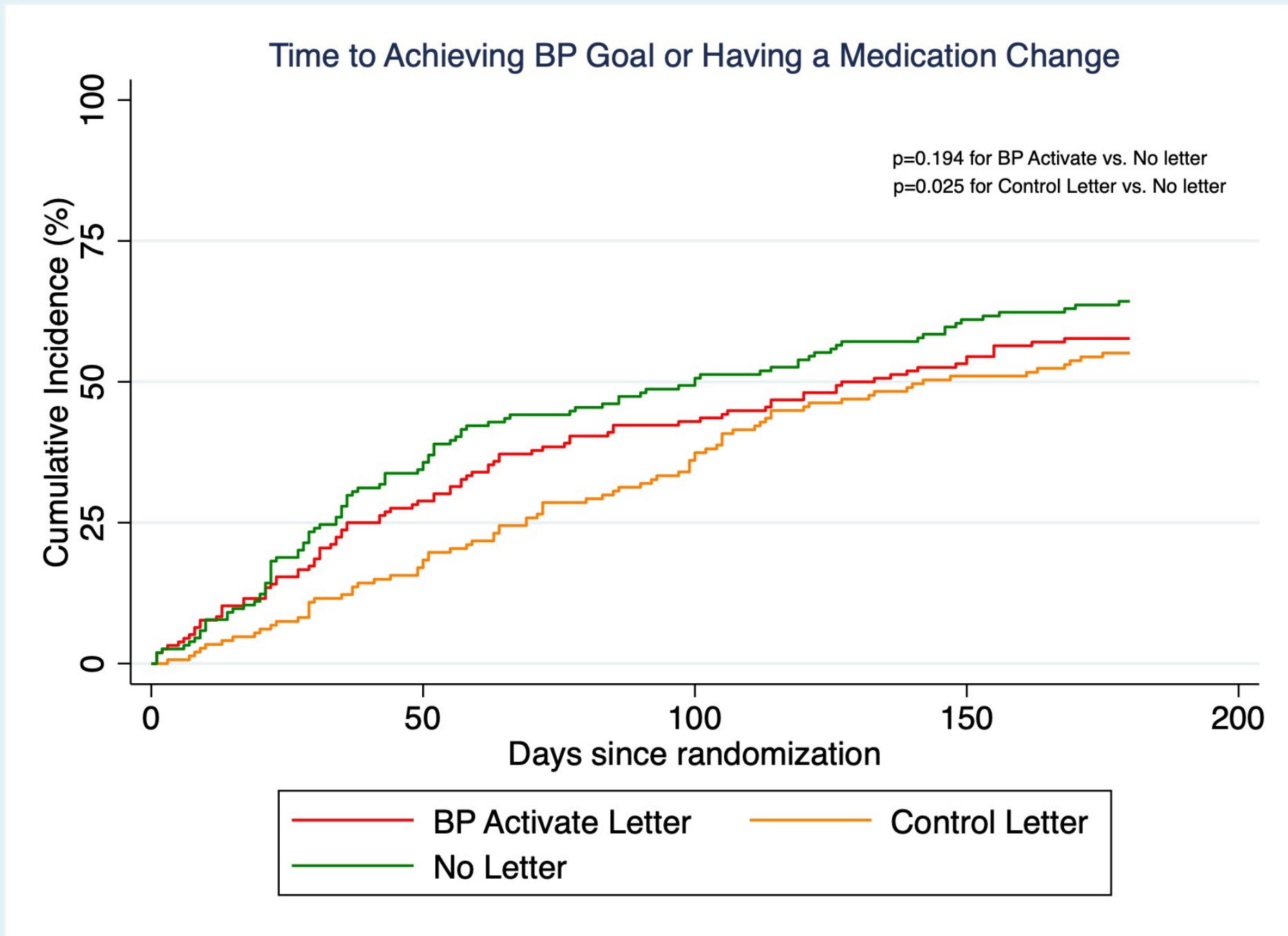
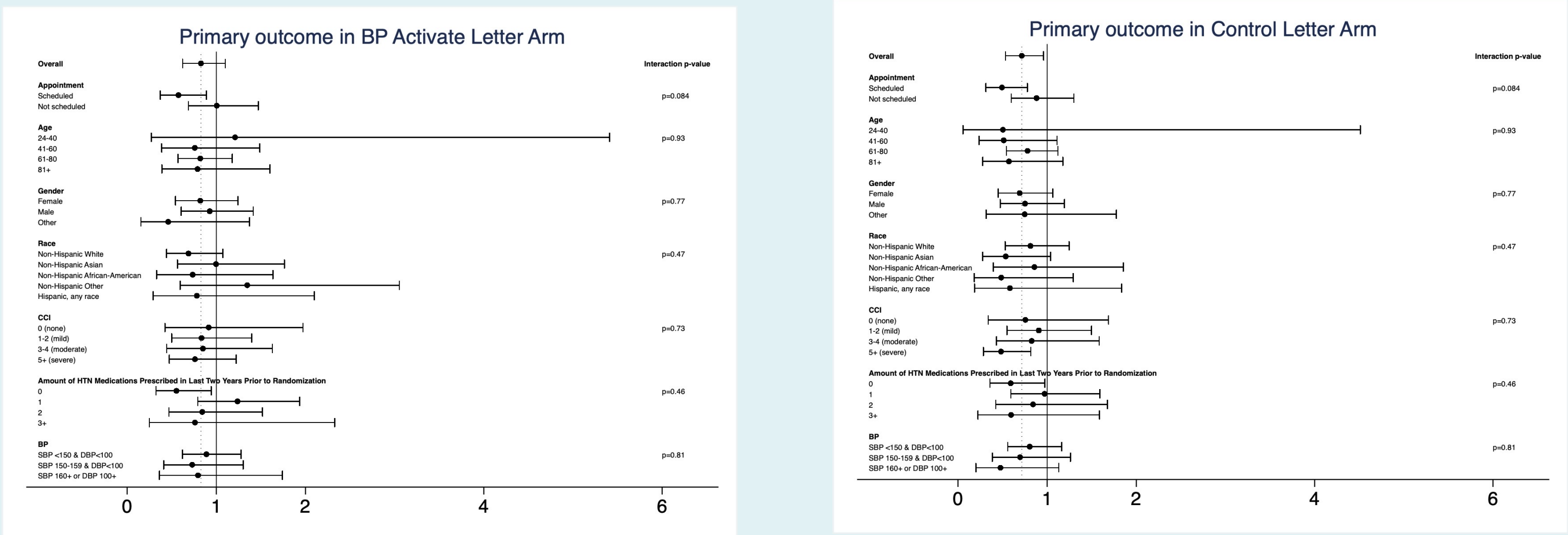


Figure 2: Subgroup Analysis for Primary Outcome



Sample Letters Sent to Patients

BP Activate with Report

[illegible]

Control



I am contacting you to check in on your blood pressure. I generally recommend that you keep your blood pressure below 140/90 mmHg in clinic, and below 130/90 mmHg in between BP readings. In clinic, you should have your blood pressure measurements taken every 3-6 months (I don't request average BP from reports). Controlling your blood pressure is the most important thing you can do to protect yourself from the risk of heart disease and stroke.

I'd discuss your blood pressure at our next appointment on:

I'm looking forward to discussing your blood pressure numbers with you soon to help keep your blood pressure under control.

Sincerely,

Director of General Internal Medicine

 UCSF