

Telephone-Based Patient Outreach to Improve Home Blood Pressure Monitoring in Chronic Hypertension

Study Protocol

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1. Abbreviations and Definitions

- **ACC/AHA:** American College of Cardiology / American Heart Association
- **DBP:** Diastolic Blood Pressure
- **EHR:** Electronic Health Record (Epic)
- **HBPM:** Home Blood Pressure Monitoring
- **ITT:** Intention-to-Treat
- **IPW:** Inverse Probability Weighting
- **SBP:** Systolic Blood Pressure
- **SQUIRE:** Standards for Quality Improvement Reporting Excellence

2. Introduction

Hypertension affects approximately 47.7% of U.S. adults, yet only 22.5% achieve guideline-recommended control. Home Blood Pressure Monitoring (HBPM) is an evidence-based cornerstone of management, endorsed by the 2017 ACC/AHA guidelines for its ability to detect "white coat" and "masked" hypertension.

Despite its benefits, systematic integration of HBPM into primary care remains inconsistent. At the AdventHealth Orlando residency clinic, no standardized workflow previously existed to educate patients on logging or to ensure those logs were documented in the EHR. This implementation gap contributes to therapeutic inertia—the failure to intensify therapy when readings remain above target. This study evaluates a telephone-based outreach intervention designed to bridge this gap through proactive patient education.

3. Study Objectives

The primary aim of this study is to evaluate the effectiveness of a structured telephone outreach intervention in increasing the proportion of patients with chronic hypertension who present to clinic visits with a completed home blood pressure log.

Target: A minimum 15% absolute improvement in documented log adherence compared to usual care.

Secondary Objectives: To evaluate changes in mean systolic and diastolic blood pressure from baseline to 90-day follow-up.

4. Study Methods

4.1 General Study Design and Plan

This is a pragmatic, single-center, randomized, open-label quality improvement (QI) implementation trial. The study utilizes existing clinic infrastructure to test a low-resource intervention that is readily scalable. The intervention is delivered by medical students under faculty supervision.

4.2 Inclusion-Exclusion Criteria and Study Population

Inclusion Criteria:

- Age > 18 years.
- Documented diagnosis of chronic uncontrolled hypertension.
- Three or more EHR blood pressure readings >130/80 mmHg.

Exclusion Criteria:

- None

4.3 Baseline Measures

- Chart Reviews were conducted to record baseline patient measures (See Supplement 1)

4.4 Randomization and Blinding

Eligible patients are randomized 1:1 to the intervention or usual care groups using a computer-generated random number sequence.

- **Intervention Group:** Receives a structured telephone call (see Supplement S2).
- **Control Group:** Receives usual care with no additional outreach.
Due to the pragmatic nature of the QI project, clinicians and study staff are not blinded to the treatment allocation.

4.5 Intervention Protocol

The intervention consists of a single standardized telephone call.

1. **Reach:** A maximum of two call attempts are made per patient.
2. **Education:** Staff provide brief education on the importance of HBPM.
3. **Action:** Patients are asked to keep a log for two weeks prior to their next visit.
4. **Fidelity:** No voicemails are left to ensure only "live" education is delivered.

5. Safety

The intervention is classified as minimal risk. It consists solely of an educational telephone call. Any changes to a patient's medication regimen resulting from the review of a home blood pressure log are conducted by the treating clinician (Resident or Attending Physician) according to standard of care.

6. References

1. Fryar CD, et al. Hypertension prevalence, awareness, treatment, and control: US 2021–2023. *NCHS Data Brief*. 2024.
2. Whelton PK, et al. 2017 ACC/AHA Guideline for High Blood Pressure. *J Am Coll Cardiol*. 2018.
3. Shimbo D, et al. Self-measured blood pressure monitoring at home: AHA/AMA joint statement. *Circulation*. 2020.
4. Ogrinc G, et al. SQUIRE 2.0 (Standards for QUality Improvement Reporting Excellence). *BMJ Qual Saf*. 2016.

7. Supplemental Materials

S1: Epic Search Criteria

To identify documented logs, the study team utilizes the following search string within the patient's medical record:

"bp log" OR "home BP" OR "Home blood pressure" OR "HBPM" OR "bplog" OR "log"
OR "home"

S2: Telephone Outreach Script

Staff: "Good morning, This is [Staff Name] calling from AdventHealth Winter Park Family Medicine. Can you confirm your name?"

Patient: "This is [Name]."

Staff: "Great! I'm calling because we are reaching out to all of our patients with high blood pressure. Do you keep a log of your blood pressure?"

IF "YES" — Staff: "Great! Please make sure to bring that log with you to your next appointment so the doctor can review it. It helps us make sure your medication is working correctly. Have a wonderful rest of your day!"

IF "NO" — Staff: "Would you be open to logging your blood pressure for two weeks prior to your next visit? It helps the doctor keep you as healthy as possible."

If patient says YES: "Great! Please remember to bring the log to your next appointment. Feel free to call if you have any questions. Have a wonderful day!"

If patient says NO: Staff: "I understand. Thank you for your time. We will see you at your next appointment. Have a wonderful day!"