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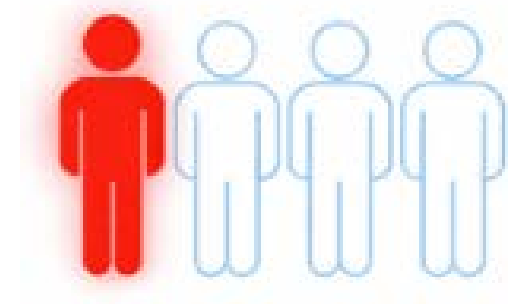
Enhancing Hypertension Management Through Standardized Home Blood Pressure Monitoring in a Primary Care Setting

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Background



1 in 4 U.S. adults has uncontrolled hypertension.

Out of 48.1% (119.9 million) U.S. adults with hypertension, **only 22.7% (27 million) have blood pressure (BP) control.**



Home blood pressure monitoring (HBPM) involves patients performing blood pressure checks at home with a portable monitor.

Problem statement/PICO

Problem statement: at a federally qualified health center (FQHC) in Southern California, an HBPM program exists but is underutilized due to lack of patient access to home BP monitors & standardization for HBPM referral.

- Site Needs Assessment:**
- **Low long-term sustainability:** borrowed BP monitors were infrequently returned & costly to replace
 - **Lack of standardized primary care provider (PCP) workflow:** no readily available resources to facilitate HBPM initiation

- Care Gaps:**
- Underutilization of **home BP monitor orders**
 - Lack of **nurse clinic referrals** for BP follow-up to expedite BP control & alleviate PCP workload

PICOT Question

For adult patients with hypertension in an outpatient setting (**P**) how does implementation of standardized home BP monitoring (**I**) verses current practice (**C**) affect patient BP and medication compliance (**O**) over an 8-week period (**T**).

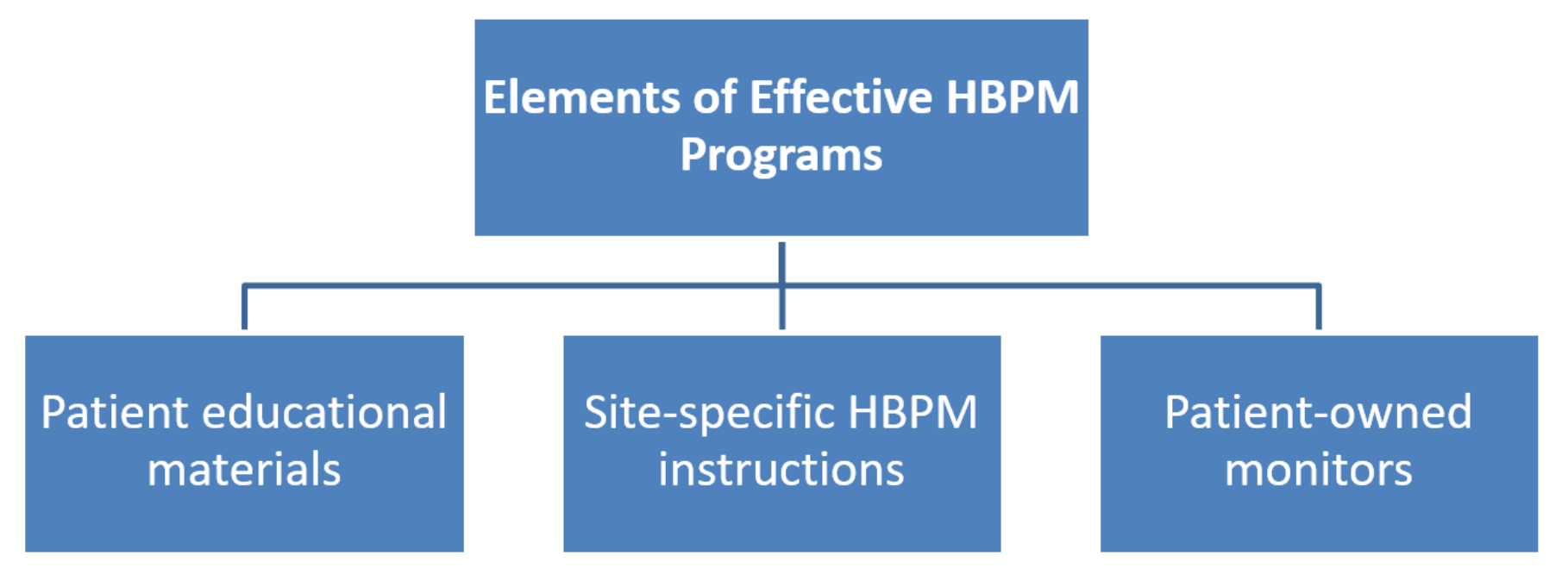
Literature Synthesis

Databases
CINAHL, PubMed



2025 American Heart Association (AHA)/ American College of Cardiology Guidelines
HBPM is a cost-effective solution to improve blood pressure control. It has been shown to **improve diagnostic accuracy** and **patient adherence** to treatment plans.

Synthesis of Literature Evidence



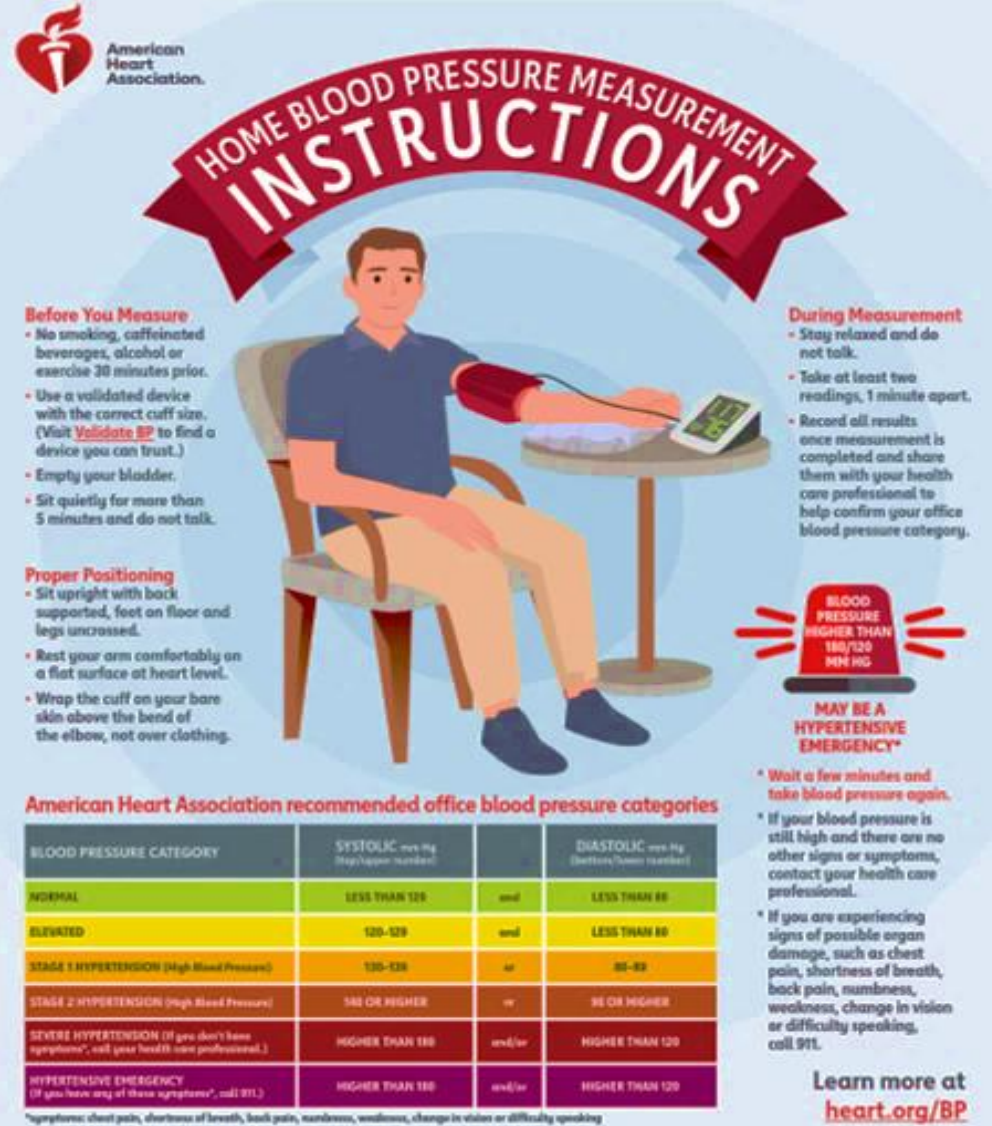
Methods

- Design**
- **Quality Improvement**, pre-post intervention design
- Project Setting**
- **Academic FQHC in Southern California** with a predominantly Hispanic/Latino patient population
- Participants**
- Adult patients with **new or chronic uncontrolled hypertension** (defined as BP>140/90) **without severe comorbidities** (i.e. End-stage renal disease, heart failure with reduced ejection fraction, etc.)
 - Referring providers: **2 primary care nurse practitioners (NPs)**
- Intervention**
- Duration: **8 weeks**
 - **Standardized BP monitor ordering process** (one Medi-Cal contracted pharmacy, patient eligibility, etc.)
 - **Standardized Epic SmartPhrase instructions for HBPM & follow-up** (HBPM technique, bring BP readings to appointment, etc.)
 - Provided **patient handout** from AHA
 - All patient materials available in **English & Spanish**

Materials

Start checking your blood pressure at home:

- Pick up your home monitor from: Aloha pharmacy, 618 S Main St, Santa Ana, California, 92701 - Phone: 714-676-2078
- Take readings **one hour after taking blood pressure medications** everyday
- Record all readings in your **BP Log**
- You will receive a call from the **RN clinic** for follow-up
- Bring your **monitor** and **BP Log** to your RN clinic appointment
- Use **proper technique** when taking BP (see QR code for demonstration video)



Results

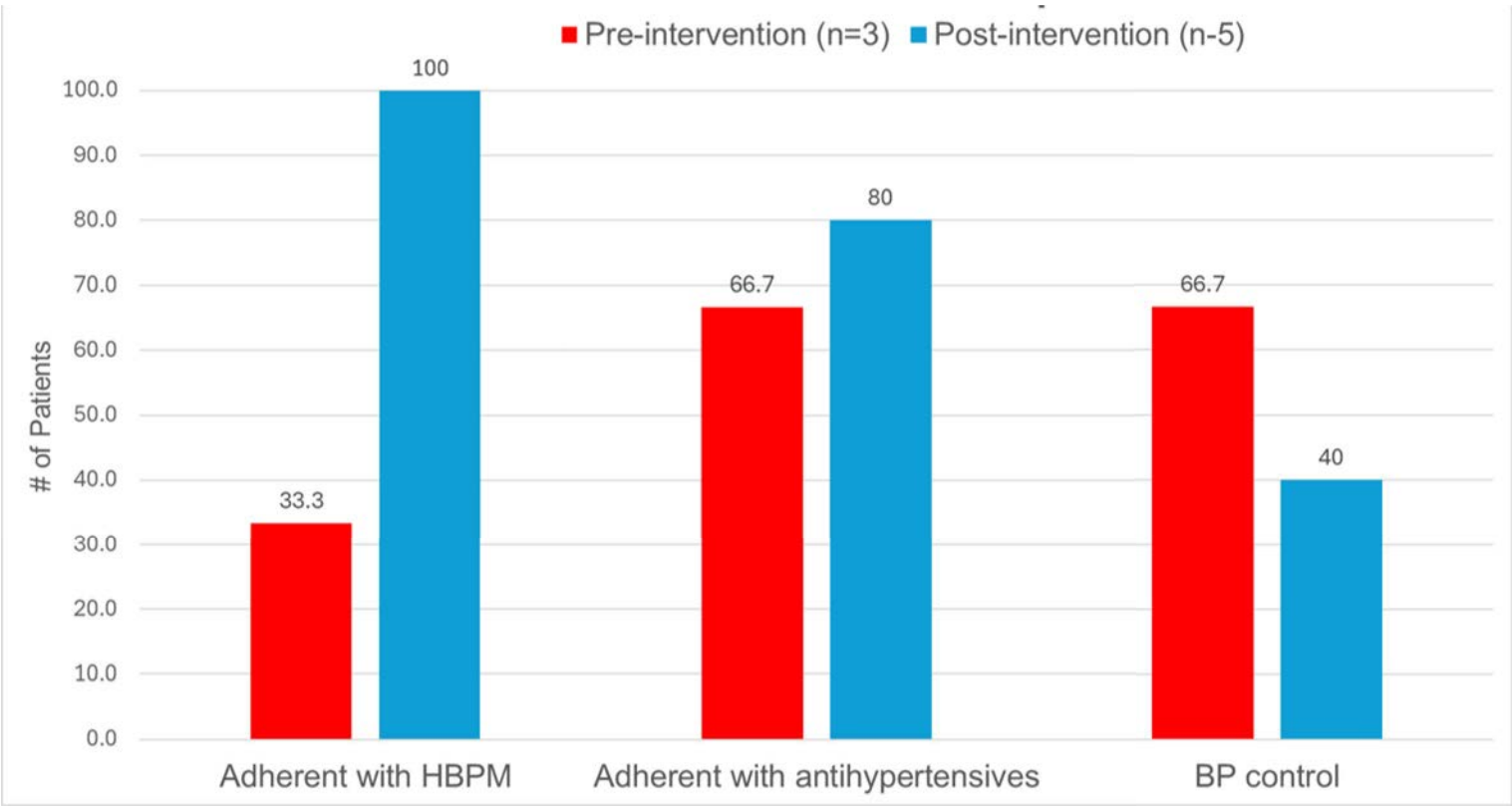
Demographics of Patient Participants

- PCPs made 6 referrals pre-implementation & 10 referrals post-implementation for HBPM.
- Attendance at nurse follow-up was 50% pre (3/6) & post (5/10), leading to subgroups 3 & 5 patients, respectively, who had complete data for comparison.
- Average Systolic BP (SBP) and age at nurse follow-up were higher in the post-implementation group compared to the pre-implementation group

	Pre-Implementation (n=3)	Post-implementation (n=5)
Age, mean ± SD	52.3 ± 1.5 years	61 ± 7.7 years
Female, n (%)	2 (66.7%)	4 (80%)
Male, n (%)	1 (33.3%)	1 (20%)
Race/ethnicity		
• Hispanic/Latino	2 (66.7%)	5 (100%)
• African American	1 (33.3%)	0 (0%)
• Asian	0 (0%)	0 (0%)
1 st SBP, mean ± SD	146.7±12.7	160.4 ± 19.8
1 st DBP, mean ± SD	93.7 ± 7.5	72.6 ± 17.9
2 nd SBP, mean ± SD	134 ± 10.2	139.2 ± 10.2
2 nd DBP, mean ± SD	80.7 ± 7.0	74.2 ± 15.9

Note: 1st BP refers to BP at PCP visit. 2nd BP refers to BP at nurse follow-up. DBP refers to Diastolic BP.

Results (cont.)



Primary Outcomes: BP Control & Adherence at Nurse Follow-up

- Patient self-reported **HBPM adherence**, increased from 33.3% (1/3) to 100% (5/5)
- Patient self-reported **antihypertensive adherence** increased from 66.7% (2/3) to 80% (4/5)
- **BP control rate** decreased from 66.7% (2/3) to 60% (3/5).
- **Average SBP reduction** from PCP referral to nurse follow-up **increased** from 12.7 mmHg to 21.2 mmHg, a 66.9% relative improvement (unpaired t-test, t=0.57, p=0.59)

Secondary Outcomes: PCP Workflow Measures

- Referrals increased by 66.7%(6 to 10)
- PCP self-reported use of handouts increased from 0% (0/6) to 100% (10/10)
- **BP monitor orders** (only for patients without BP monitors. Pre-intervention n=4 eligible patients; post-intervention n=5 eligible patients)
 - Increased from 0%(0 /4) to 100% (5/5)
 - 100%(5/5) included correct pharmacy & AVS SmartPhrase

Pre & Post PCP Survey

- 100%(2/2) reported **improved knowledge** of BP monitor ordering, **hypertension management**, and practice integration of referrals & same-day education

Conclusion

- Strengths:**
- **Increased patient access** to HBPM resources
 - **Affordable & sustainable** home BP monitor resource
 - **Positive provider experience**
 - **Promoted Centers for Medicare & Medicaid Services quality metrics** for FQHCs

- Limitations:**
- Patient eligibility limited by medical complexity (i.e. patients on hemodialysis, etc.)
 - External factors limited attendance at nurse follow-up
- Recommendations:**
- Offer provider training on a standardized process for ordering BP monitors
 - Utilize Epic SmartPhrases to standardize site-specific HBPM instructions for patients, facilitate provider workflow, & improve hypertension management

- Summary of Findings:**
- Consistent with existing literature, this project confirms that a **standardized PCP workflow for HBPM initiation improves patient access to BP monitors & adherence to antihypertensive medications**, strengthening its role in effective hypertension management.

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References