

# Improved Blood Pressure Control and Lessons Learned from Pilot Projects to Implement Home Self-monitoring of Blood Pressure

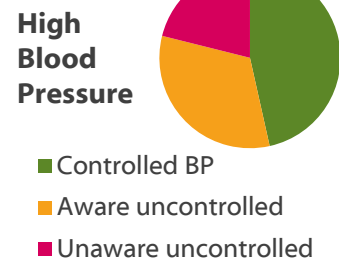
Emily Piercefield, MD, MPH<sup>1,2</sup>; Debra Hodges, PhD<sup>1</sup>; Melanie Rightmyer, DNP<sup>1</sup>; Sondra Reese, MPH<sup>1</sup>

1. Alabama Department of Public Health, Bureau of Health Promotion and Chronic Disease

2. CDC, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health

## BACKGROUND

- Approximately 30% of U.S. adults have high blood pressure (BP)\*
  - Half of people with high BP do not have BP well-controlled
    - Nearly 40% with uncontrolled BP are unaware BP is elevated
- Even modest elevation of BP increases risk of heart disease and stroke
- Two pilot projects on home self-monitoring of BP were initiated in Alabama to improve BP control among participants



## METHODS

- Adults in community-based coalitions (CC, n=39) or a rural county health department (HD, n=18)
  - Provided automated, upper arm home BP monitor with instruction in use
  - Reported BP readings to health mentors weekly over 2–7 months
  - Included participants with at least 6 recorded BP observations
- Absolute and % change in mean systolic BP (sBP) calculated from first 3 to last 3 recorded BPs
- HD participants queried to describe whether they continued to monitor BP after the pilot period and what factors they found affected BP readings



## Participant Characteristics

Characteristic	CC, N=39	HD, N=18
Female	58.3%	66.7%
Age (mean years)	61.6 (range 35–86)	52.8 (range 27–70)
African-American	62.5%	100%
Participation (mean days)	104.2 (range 33–222)	81.6 (range 51–124)

## LESSONS LEARNED

- Recommend BP monitor be validated, with adjustable cuff size, reading memory and long battery life
- Some participants may have privacy concerns about sharing BP readings
- Higher frequency of monitoring associated with greater improvements in BP control; possibly related to more real-time feedback with recent health behaviors to identify triggers
- Unmeasured benefit of weekly participant telephone contact and informal coaching by lay health mentors which anecdotally improved compliance and perceived benefit

## CONCLUSIONS

- Home BP monitoring significantly reduced mean sBP, particularly among participants with initial sBP  $\geq 140$  mm Hg
  - A majority of participants with initial mean sBP  $\geq 140$  reduced final mean sBP to  $< 140$  (47% CC, 86% HD)
- Participants were able to identify modifiable triggers of BP elevation and most continued home BP monitoring
- Higher frequency of BP checks and regular health mentoring may contribute to better BP control
- Lessons learned from the pilot projects are being implemented at other sites in ongoing efforts for improved BP control through home monitoring
- Self-monitoring of BP can improve BP control and potentially reduce risk of hypertension-related health complications



## RESULTS

### Change in Blood Pressure with Home Self-Monitoring, Alabama, 2013–2014

Blood pressure (mm Hg)	CC		HD	
	All N=39	Initial mean sBP $\geq 140$ N=17	All N=18	Initial mean sBP $\geq 140$ N=7
Number of BP observations	9.5	9.5	26.9	48.0
Initial mean sBP	137.8	152.3	135.8	146.9
Final mean sBP	131.7	140.7	129.1	129.9
Mean change in sBP	-6.1	-11.6	-6.7	-17.0
Mean % change in sBP	-3.9%	-7.3%	-4.6%	-11.7%
Paired 2-tailed T test p-value	0.001	0.001	0.023	0.001

## Post-Intervention Questionnaire

Characteristic	N=10/18=55.6%
Female	50%
Age (median years)	55.0 (range 27–70)
African-American	100%
Education (median years)	12 (range 12–16)

Question	Yes
Continued taking BP?	80%
Better understanding of what raises your BP?	100%
Shared info with doctor?	80%
Shared with family, friends, neighbors?	50%

### Factors listed as observed triggers for increased BP:

Alcohol, medication side effects, medication non adherence, anxiety, stress, and dietary factors including sodium intake, fried foods, and pork

\*MMWR, 2012; vol. 61(35); 703–708

