COMMUNITY HEALTH CARE ASSOCIATION of New York State

Strategies to Advance Patient Adherence in Hypertension Care

Hypertension Care & Management Webinar Series
Part Two
May 10th, 2022

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Division of Nephrology

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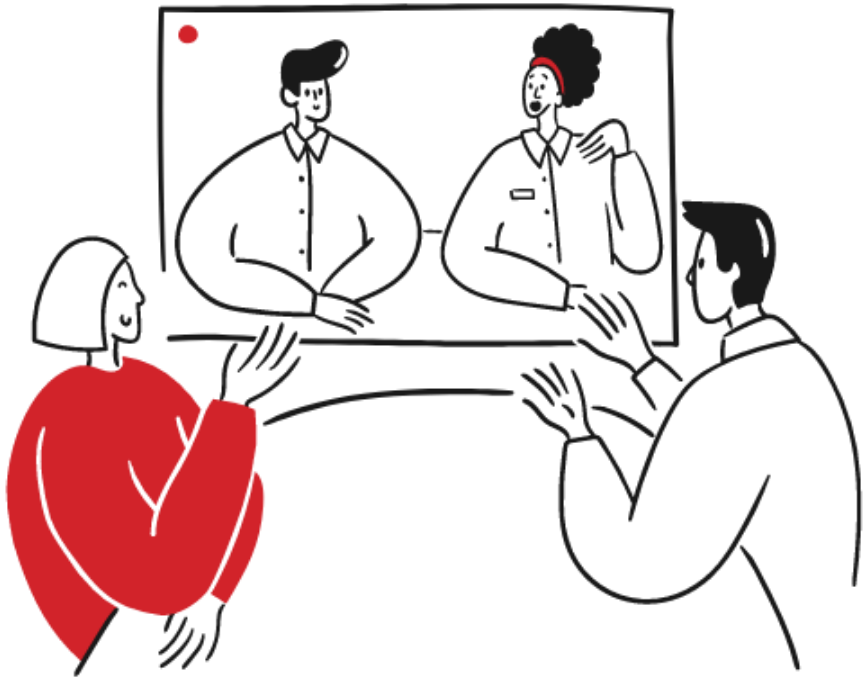
UR MEDICINE

Housekeeping

- Phones have been muted to prevent background noise.
- Use the chat box to type questions during the webinar.
- This webinar is being recorded and will soon be available to all participants.
- A webinar evaluation will be shared with participants at the end of the meeting. Please provide us with feedback! We need your input to continue to support events like these.



Hypertension Webinar Series

Strategies to Advance Patient Adherence in Hypertension Care

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MEDICINE *of* THE HIGHEST ORDER

UR MEDICINE

Hypertension is highly prevalent and a significant contributor to cardiovascular disease

Hypertension affects an estimated **46% of the US adult population**, about 116 million people

Treatment of hypertension **reduces the risk** of stroke, myocardial infarction, and heart failure by 15-64%

Rates of hypertension control are poor, ranging from 40-60%, with variability by sex and self-identified race/ethnicity

Learning Objectives

- Identify strategies to improve adherence to antihypertensive therapies at the patient, clinician, and health system levels
- Apply shared decision making strategies in hypertension management
- Explore multi-system interventions to improve hypertension care including self-monitored blood pressure, telehealth, and team-based care

ADHERENCE

Definitions

Compliance = submitting to a request, wish, or demand

versus

Adherence = remaining attached to a plan or regimen

Adherence *= the extent to which a person's behavior-taking medication, following a diet, and executing lifestyle changes, corresponds with agreed-upon recommendations with a healthcare provider*

Patient adherence to drug treatment can be classified into 3 major phases:

1) **Initiation of treatment**
2) **Implementation of treatment**
3) **Continuation of treatment**

Medication adherence is an important determinant of hypertension control

About **1 in 4** patients newly initiated on anti-hypertensives do not fill their initial prescriptions

About **35%** of patients labeled as having resistant hypertension are actually non-adherent

Only **1 in 5** patients has sufficient adherence during the first year of therapy to achieve benefits observed in clinical trials

Hyman DJ, Pavlik V. Medication adherence and resistant hypertension. J Human Hypertens. 2015;29:213-218.
Carey RM et al. Resistant hypertension: Detection, evaluation, and management. Hypertension. 2018;72:e53-90.

Failure to identify inadequate adherence contributes to overestimation of the prevalence of uncontrolled hypertension, overprescribing, increased medication adverse effects, risk of worsening adherence

AHA SCIENTIFIC STATEMENT

Medication Adherence and Blood Pressure Control: A Scientific Statement From the American Heart Association

Niteesh K. Choudhry, MD, PhD, Chair; Ian M. Kronish, MD, MPH, FAHA; Wanpen Vongpatanasin, MD; Keith C. Ferdinand, MD, FAHA; Valory N. Pavlik, PhD; Brent M. Egan, MD, FAHA; Antoinette Schoenthaler, EdD; Nancy Houston Miller, BSN; David J. Hyman, MD, MPH; on behalf of the American Heart Association Council on Hypertension; Council on Cardiovascular and Stroke Nursing; and Council on Clinical Cardiology

ABSTRACT: The widespread treatment of hypertension and resultant improvement in blood pressure have been major contributors to the dramatic age-specific decline in heart disease and stroke. Despite this progress, a persistent gap remains between stated public health targets and achieved blood pressure control rates. Many factors may be important contributors to the gap between population hypertension control goals and currently observed control levels. Among them is the extent to which patients adhere to prescribed treatment. The goal of this scientific statement is to summarize the current state of knowledge of the contribution of medication nonadherence to the national prevalence of poor blood pressure control, methods for measuring medication adherence and their associated challenges, risk factors for antihypertensive medication nonadherence, and strategies for improving adherence to antihypertensive medications at both the individual and health system levels.

Key Words: AHA Scientific Statements ■ hypertension ■ medication adherence

Tools to assess adherence

Indirect Methods

- Non-threatening approaches
  - *"How many times do you miss taking your BP medications in a week?"*
- Patient self-reporting medication adherence assessment tools
  - *Morisky Medication Adherence Scale*
  - *Hill-Bone Compliance Scale*
- Measurement of pharmacodynamic parameters
- Pharmacy prescription refill data

Table II. The 8-Item Medication Adherence Scale

Item	Corrected Item-to-total Correlation
1. Do you sometimes forget to take your high blood pressure pills?	.4639
2. Over the past 2 weeks, were there any days when you did not take your high blood pressure medicine?	.5108
3. Have you ever cut back or stopped taking your medication without telling your doctor because you felt worse when you took it?	.4277
4. When you travel or leave home, do you sometimes forget to bring along your medications?	.4095
5. Did you take your high blood pressure medicine yesterday?	.3038
6. When you feel like your blood pressure is under control, do you sometimes stop taking your medicine?	.5044
7. Taking medication everyday is a real inconvenience for some people. Do you ever feel hassled about sticking to your blood pressure treatment plan?	.4009
8. How often do you have difficulty remembering to take all your blood pressure medication?	.5896

α Reliability, .83.

Morisky DE. *J Clin Hypertens (Greenwich).* 2008;10:348-54.

Tools to assess adherence

Direct Methods

- Directly observed therapy
- Measurement of blood or urine drug or drug metabolites

Barriers to adherence

Patient

- Multiple comorbid conditions
- Visual, hearing, cognitive impairment
- Health literacy
- Inadequate knowledge of medications and disease
- Fear of dependence, stigma, adverse effects

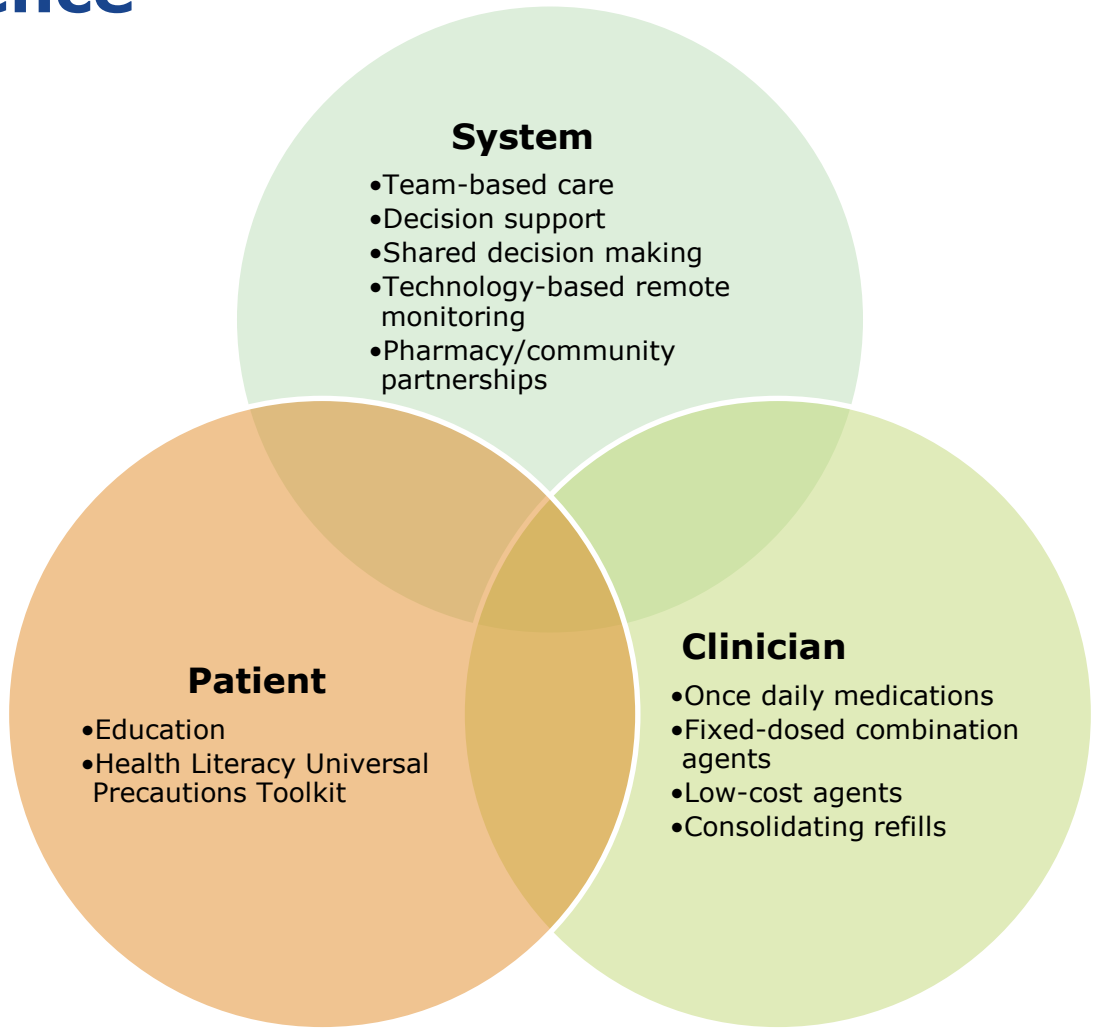
Clinician

- Prescription of complex drug regimens
- Ineffective communication
- Clinician inertia
- Provision of care by multiple providers

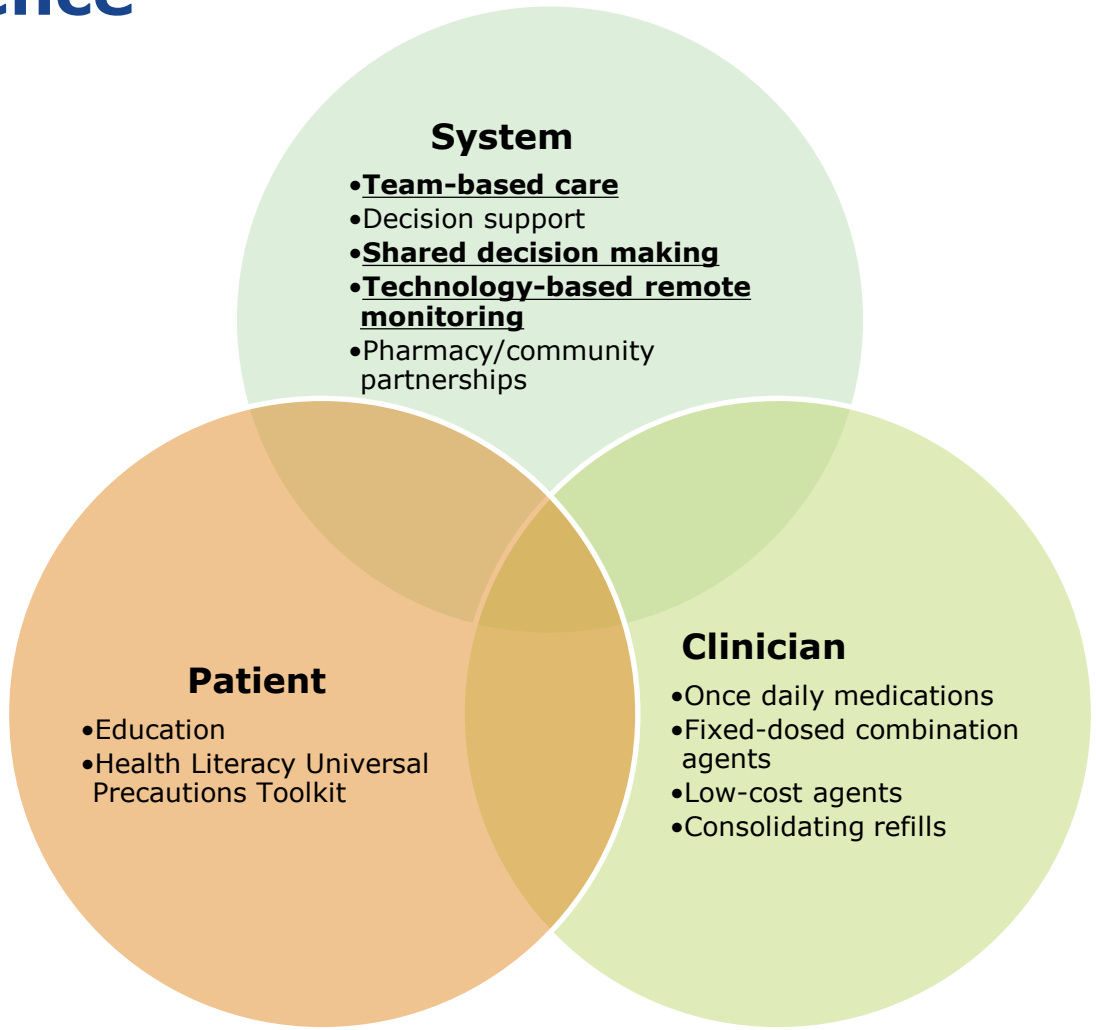
System

- Office visit time limitations
- Limited access to care
- Formulary changes/restrictions, high drug costs

Multisystem interventions to improve hypertension management including improved adherence



Multisystem interventions to improve hypertension management including improved adherence



SHARED DECISION MAKING

Shared decision making is a process in which clinicians and patients work together to make decisions and select tests, treatments, and care plans based on clinical evidence that balances risk and expected outcomes with patient preferences and values

Having an agreed-upon approach on how we are going to take care of a patient

HealthIT.gov

Shared decision making process

Evidence-based

Understandable

J Behav Med (2011) 34:244–253
DOI 10.1007/s10865-010-9304-6

Patient centered primary care is associated with patient hypertension medication adherence

Christianne L. Roumie · Robert Greevy · Kenneth A. Wallston · Tom A. Elasy · Lisa Kaltenbach · Kristen Kotter · Robert S. Dittus · Theodore Speroff

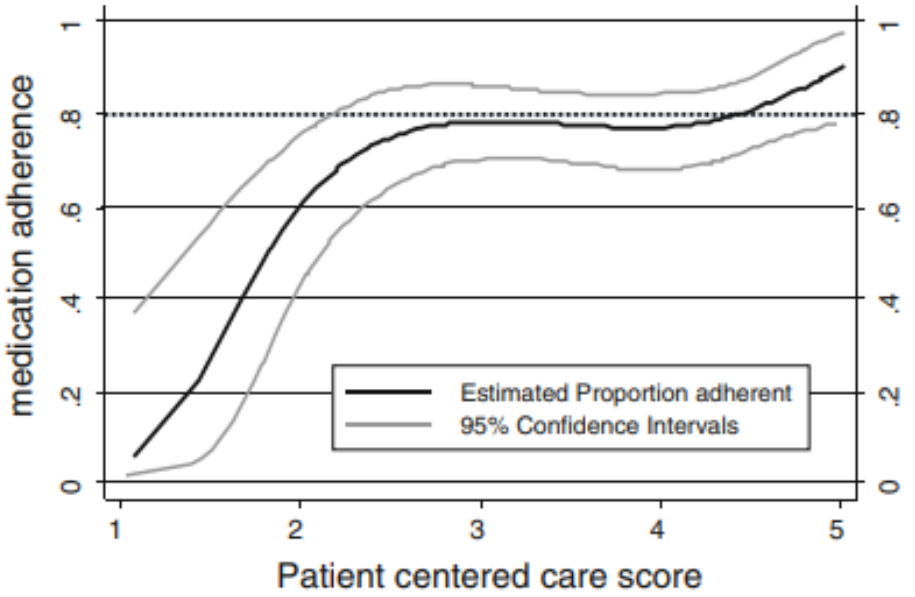


Fig. 2 PCAS Score versus the estimated proportion adherent (*black line*) and 95% confidence intervals (*gray lines*). *Dashed line* indicates 80% adherent to antihypertensive medications

Shared Decision Making in Practice

Many options exist for treating uncomplicated Stage 1 Hypertension

- Dietary sodium reduction, increased dietary potassium, physical activity, weight management, calcium channel blocker, thiazide-type diuretic, renin angiotensin system inhibitor

Adherence to treatment plans may be greater if those plans are concordant with patient preferences

There is little data to guide optimal SDM in hypertension treatment

Several Patients with Stage I Hypertension

45 year old woman. Does not like taking medications, but shares she has little time to make major lifestyle changes during the holiday season. Wants to avoid "water pills."

- *Sodium reduction, CCB or ACEi/ARB*

34 year old man. High levels of job-related stress. Routinely orders takeout food. Close family member recently died of an MI and he is ready to make changes. Worried about anti-hypertensives because they cause erectile dysfunction.

- *DASH diet, smartphone exercise app, medication*

62 year old woman. Primary caregiver for her mother with Alzheimer's. Drinks alcohol to cope with stress. Not concerned about her HTN because she feels "fine." Wonders about community programs.

- *Reduction in alcohol intake, behavioral health groups, medication*

Langford AT et al Partnerships to Improve Shared Decision Making for Patients with Hypertension Ethn Dis 2019

SELF-MONITORING OF BLOOD PRESSURE (SMBP)

SMBP is a cornerstone of hypertension management

SMBP is a **better predictor** of end-organ damage, CVD, and all-cause mortality compared to office BP

SMBP is required to assess for white-coat hypertension and masked hypertension

SMBP can **enhance patient empowerment** and perhaps improve adherence

Data is conflicting on the use of SMBP to improve BP control rates; the benefits of BP lowering are greatest when SMBP is combined with co-interventions

Methods – home devices*, measurement at a pharmacy or kiosk

Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control

A Randomized Controlled Trial

Web-based pharmacist-driven HTN care using SMBP improved hypertension control at 12 months

Group	Average BP	p value
Usual Care:	146.5/86 mmHg	
SMBP + Website:	144.2/84.9 mmHg	p=0.02
SMPB + Website+ Pharmacist:	139.1/82.7 mmHg	p<0.001

JAMA 2008

Circulation

AHA POLICY STATEMENT

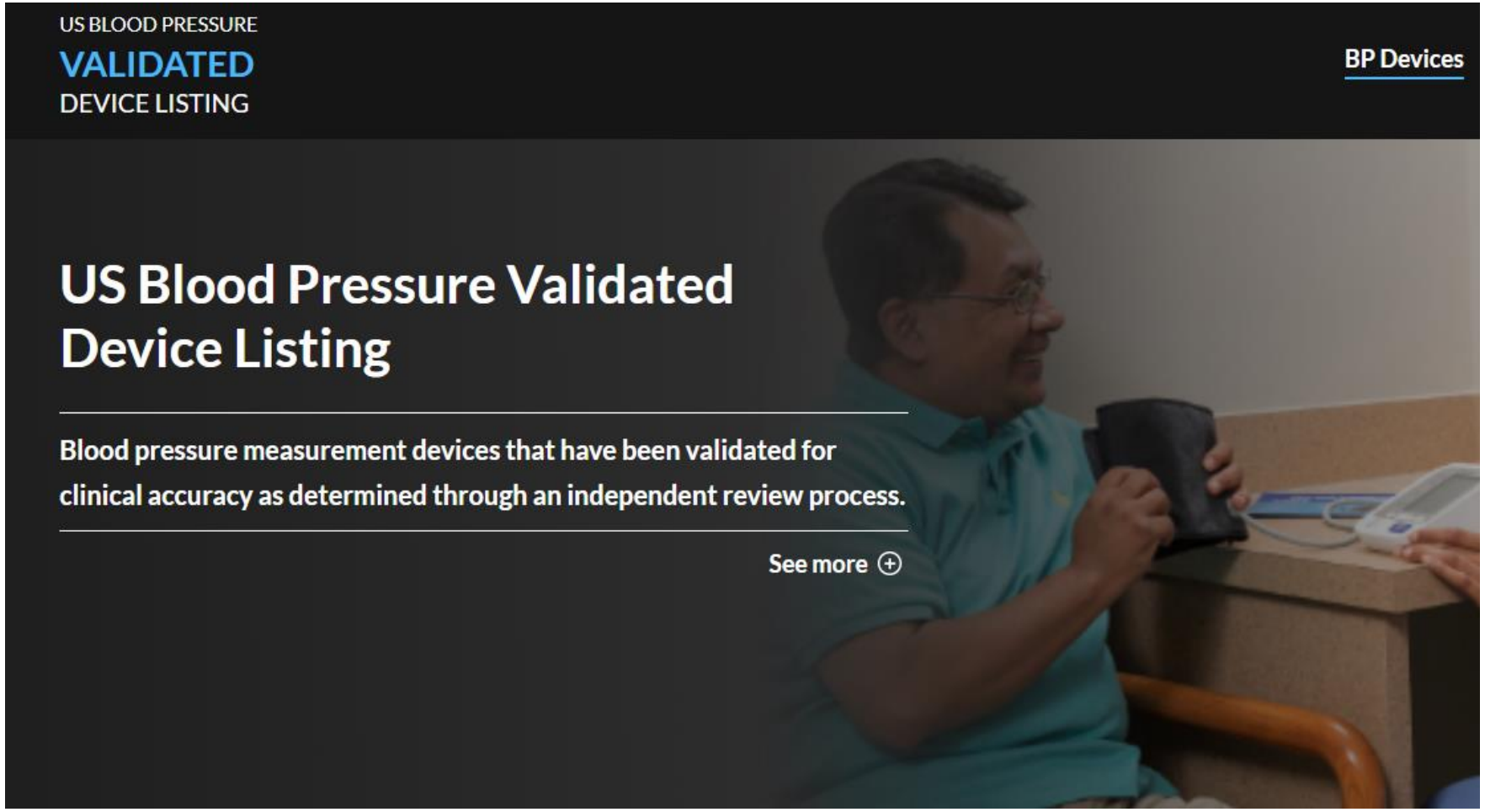
Self-Measured Blood Pressure Monitoring at Home

A Joint Policy Statement From the American Heart Association and American Medical Association

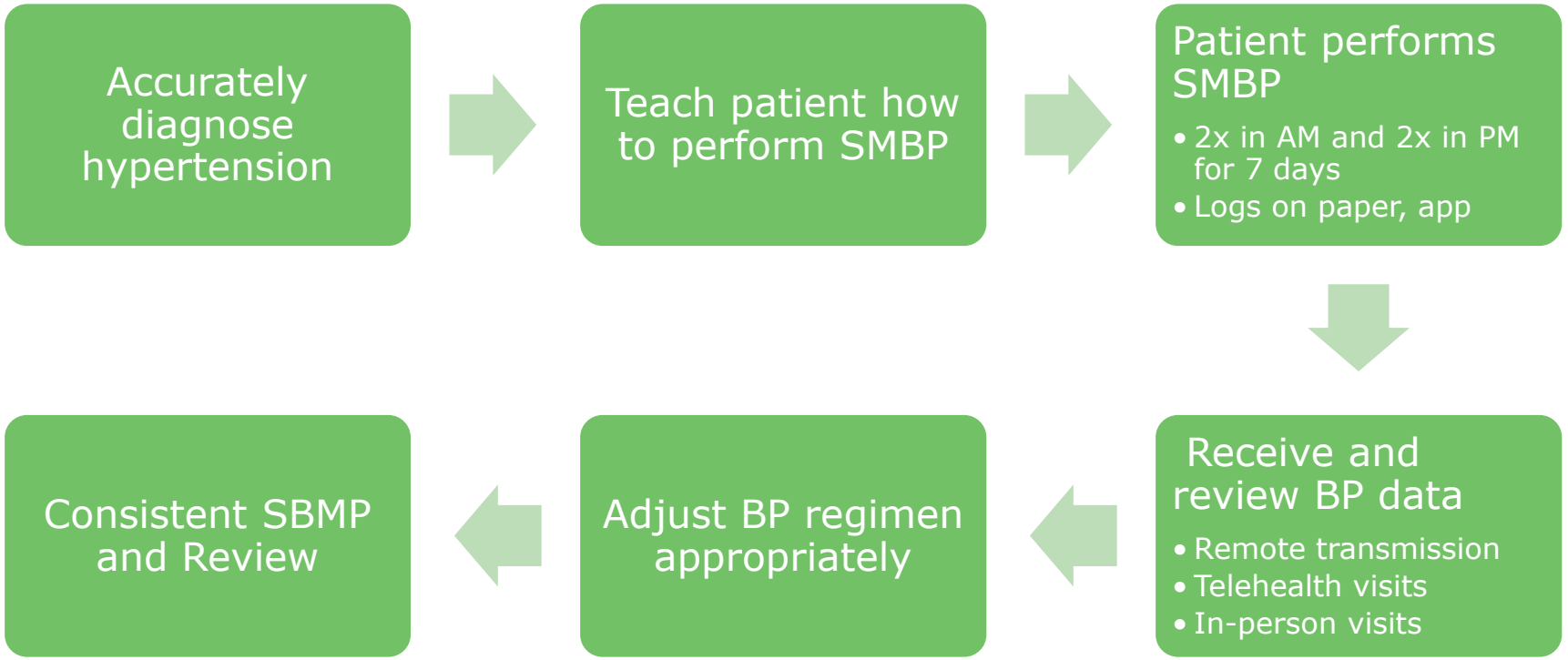
Circulation. 2020;142:e42–e63. DOI: 10.1161/CIR.0000000000000803

How do we best incorporate SMBP into a hypertension care program?

Validatebp.org



SMBP in Clinical Practice



Review

Effectiveness of Mobile App-Assisted Self-Care Interventions for Improving Patient Outcomes in Type 2 Diabetes and/or Hypertension: Systematic Review and Meta-Analysis of Randomized Controlled Trials

Kaifeng Liu, PhD; Zhenzhen Xie, MSc; Calvin Kalun Or, PhD

Department of Industrial and Manufacturing Systems Engineering, University of Hong Kong, Hong Kong, Hong Kong

Mobile app-assisted self-care interventions were associated with significant reductions in BP (absolute mean difference of **-2.32/-1.53 mmHg**)

- Smartphone app supporting BP self-monitoring
- Smartphone app for BP telemonitoring
- Smartphone app for reporting medication intake
- Tablet-based app
- Instant messaging

Contact Us | Data Platform | Newsletter Sign-Up | Register

TARGET:BP

American Heart Association. | AMA AMERICAN MEDICAL ASSOCIATION

BP Improvement | Self-Measured BP | Best Practices | Events | Tools & Downloads | Recognition | 🔍

Home / Patient-Measured BP

PATIENT-MEASURED BP

Self-measured blood pressure (SMBP) monitoring refers to the regular measurement of BP by a patient at their home or elsewhere outside the clinical setting. SMBP enables physicians to better diagnose and manage hypertension — and helps patients to take an active role in the process.

How it Works | Tools & Downloads

Self-measured blood pressure:
Seven-day recording log

TARGET:BP | American Heart Association. | AMA

Instructions: Complete the information below each time you take a measurement. It is best to take two measurements in the morning and two measurements in the evening for a week. If you miss any blood pressure measurements, leave that section blank and continue for the next time.

Content provided by AMA | MAPBP

Blood pressure arm: **Left** or **Right** (check one)

Day 1 (Date)	Day 2 (Date)	Day 3 (Date)	Day 4 (Date)	Day 5 (Date)	Day 6 (Date)	Day 7 (Date)
Morning ☀						
1 SYS / DIA						
PULSE						
2 SYS / DIA						
PULSE						
Notes						
Evening ☾						
1 SYS / DIA						
PULSE						
2 SYS / DIA						
PULSE						
Notes						

For office use

Patient name: _____

Patient ID: _____

PCP: _____

SMBP average: _____ SYS / _____ DAY

Report back results by:

- ☐ Appointment _____
- ☐ Phone _____
- ☐ Email _____
- ☐ Patient Portal _____
- ☐ Other _____

Important information

Please call your doctor's office if:

- **Your blood pressure is above _____ SYS or _____ DIA**
- **Your blood pressure is below _____ SYS or _____ DIA**
- **You have symptoms that concern you or have a question about your blood pressure.**

TEAM BASED CARE

Team-Based Care and Improved Blood Pressure Control

A Community Guide Systematic Review

Krista K. Proia, MPH, Anilkrishna B. Thota, MBBS, MPH, Gibril J. Njie, MPH, Ramona K.C. Finnie, DrPH, David P. Hopkins, MD, MPH, Qaiser Mukhtar, PhD, Nicolaas P. Pronk, PhD, MA, Donald Zeigler, PhD, Thomas E. Kottke, MD, Kimberly J. Rask, MD, PhD, Daniel T. Lackland, DrPH, Joy F. Brooks, MHA, Lynne T. Braun, PhD, CNP, FAHA, Tonya Cooksey, MS, RD, and the Community Preventive Services Task Force

Conclusions: Team-based care increased the proportion of people with controlled BP and reduced both systolic and diastolic BP, especially when pharmacists and nurses were part of the team. Findings are applicable to a range of U.S. settings and population groups. Implementation of this multidisciplinary approach will require health system–level organizational changes and could be an important element of the medical home.

(Am J Prev Med 2014;47(1):86–99)

A Community Health Worker–Led Intervention to Improve Blood Pressure Control in an Immigrant Community With Comorbid Diabetes: Data From Two Randomized, Controlled Trials Conducted in 2011–2019

Jeannette M. Beasley, PhD, MPH, Megha Shah, MD, MSc, Laura C. Wyatt, MPH, Jennifer Zanowiak, MA, Chau Trinh-Shevrin, DrPH, and Nadia S. Islam, PhD, MPhil, MA

AJPH June 2021, Vol 111, No. 6

- Analysis of two patient-centered lifestyle interventions utilizing CHWs among South Asians in New York City
- Participants with co-morbid uncontrolled hypertension and type 2 diabetes
- CHW intervention – group-based educational sessions AND coaching and goal-setting telephone follow-up
- Outcome – Hypertension control

Table 1 Community Health Worker (CHW) Intervention Curriculum

Session Topic	Session Overview	Tailored Cultural Components
Session 1: Blood Pressure and the Cardiovascular System	*Icebreaker/Introduction and Session Guidelines* 1.How the heart works & heart structure 2. What is blood pressure and hypertension (BP numbers) 3. How to check your blood pressure (demo and practice) 4. Risk factors of hypertension 5. Ways to manage blood pressure: healthy diet, physical activity, medicine (overview) 6. Signs of heart attack and stroke & Emergency Plan 7. Physical Activity Exercises (demo and practice)	• Highlight local health and social services resources, as well as risk factors for South Asians
Session 2: Healthy eating	1.Traditional South Asian diets (discussion) 2. Building a healthy plate (Using Plate Method) 3. How to choose heart healthy foods 4. Salt and sodium 5. How to understand a nutrition label 6. Alcohol 7. Tips for healthy eating while out, with little time, and on a budget 8. Setting healthy eating goals	• Food examples tailored for South Asian diets and dietary practices

Session 3: Physical Activity and Stress Management	1. Importance of physical activity 2. What is a healthy weight/BMI? 3. Calorie balance and the healthy way to lose weight 4. Ways to be active, build activity into your day, and stay motivated 5. Sample exercises and walking program 6. Setting physical activity goals 7. Effect of stress on the body 8. Emotions like anger, frustration, sadness, worry 9. Strategies to manage stress improve self-esteem	• Use of Asian BMI guidelines • Realistic exercise options in NYC communities • Discussions on major stressors and ways to reduce stresses in South Asian context
Session 4: CVD risk factors: cholesterol, blood sugar, & smoking	1. Facts about saturated fat, trans fat, and cholesterol 2. Understanding nutrition labels 3. Healthier cooking tips 4. Diabetes - What is it, types, and symptoms 5. Complications of diabetes & diabetes control 6. Hidden sugar in drinks activity 7. Effect of smoking and tobacco use on health	• Discussion of CVD risk factors, including smoking and tobacco use, is contextualized into South Asian context
Session 5: Health Communication, Healthcare access & sessions review	1. Communicating with doctors 2. Barriers to healthcare access 3. Preparing for a doctor visit 4. Accessing health care 5. Review of all sessions	• Discussion of barriers to healthcare for South Asian patients

TABLE 2— Changes in Blood Pressure and Proportion With Controlled Blood Pressure at Baseline and 6-Month Follow-Up for Treatment and Control Groups, Overall and Stratified by Study: IMPACT and DREAM Studies, New York City, 2011–2019

	Intervention Group (n = 159), Mean ±SD or No. (%)			Control Group (n = 133), Mean ±SD or No. (%)			Intervention Effect or OR	
	Baseline	6-Month	*P*	Baseline	6-Month	*P*	Unadjusted (95% CI)	Adjusted[a] (95% CI)
SBP (mmHg)								
Overall	135.9 ±18.2	130.2 ±14.8	< .001	137.3 ±17.8	137.3 ±18.6	.98	−6.0 (−10.2, −1.9)	−6.2 (−10.4, −2.1)
DREAM	134.3 ±18.3	126.2 ±16.7	< .001	135.7 ±15.6	129.1 ±15.2	.013	−2.3 (−8.6, 4.0)	−2.5 (−8.8, 3.8)
IMPACT	137.2 ±18.0	133.5 ±12.1	.017	138.7 ±19.5	144.6 ±18.4	.007	−9.4 (−14.5, −4.2)	−9.3 (−14.5, −4.2)
DBP (mmHg)								
Overall	82.7 ±11.3	78.5 ±9.0	< .001	81.3 ±11.6	81.3 ±13.3	.1	−4.0 (−6.3, −1.6)	−4.0 (−6.3, −1.7)
DREAM	80.5 ±11.0	76.1 ±10.1	< .001	76.9 ±10.9	74.4 ±12.4	.08	−1.1 (−4.6, 2.4)	−1.1 (−4.6, 2.4)
IMPACT	84.5 ±11.2	80.5 ±7.4	< .001	85.2 ±10.9	87.4 ±10.9	.06	−6.1 (−9.2, −3.1)	−6.1 (−9.1, −3.1)
BP < 140/90								
Overall	76 (47.8)	114 (71.7)	< .001	67 (50.4)	74 (55.6)	.2	1.4 (1.1, 1.8)	1.4 (1.1, 1.8)
DREAM	42 (58.3)	53 (73.6)	< .001	35 (56.5)	46 (74.2)	.07	1.3 (0.9, 2.0)	1.3 (0.8, 1.9)
IMPACT	34 (39.1)	61 (70.1)	< .001	32 (45.1)	28 (39.4)	> .99	1.5 (1.0, 2.2)	1.5 (1.0, 2.3)

Note. BP = blood pressure; CI = confidence interval; DBP = diastolic blood pressure; OR = odds ratio; SBP = systolic blood pressure.

[a]Adjusted for gender and age.

A Cluster-Randomized Trial of Blood-Pressure Reduction in Black Barbershops

Victor RG et al NEJM 2018

Table 2. Primary and Secondary Blood-Pressure Outcomes.*

Outcome	Intervention Group (N=132)	Control Group (N=171)	Intervention Effect	P Value†
Blood pressure				
Systolic blood pressure — mm Hg‡				
At baseline	152.8±10.3	154.6±12.0		
At 6 mo	125.8±11.0	145.4±15.2		
Change	−27.0±13.7	−9.3±16.0	−21.6 (−28.4 to −14.7)§	<0.001
Diastolic blood pressure — mm Hg				
At baseline	92.2±11.5	89.8±11.2		
At 6 mo	74.7±8.3	85.5±12.0		
Change	−17.5±11.0	−4.3±11.8	−14.9 (−19.6 to −10.3)§	<0.001
Hypertension control at 6 mo — no. (%)				
Blood pressure <140/90 mm Hg	118 (89.4)	55 (32.2)	3.4 (2.5 to 4.6)¶	<0.001
Blood pressure <135/85 mm Hg	109 (82.6)	32 (18.7)	5.5 (2.6 to 11.7)¶	<0.001
Blood pressure <130/80 mm Hg	84 (63.6)	20 (11.7)	5.7 (2.5 to 12.8)¶	<0.001

Improving Efficiency of the Barbershop Model of Hypertension Care for Black Men With Virtual Visits

Blyler CA et al JAHA 2021

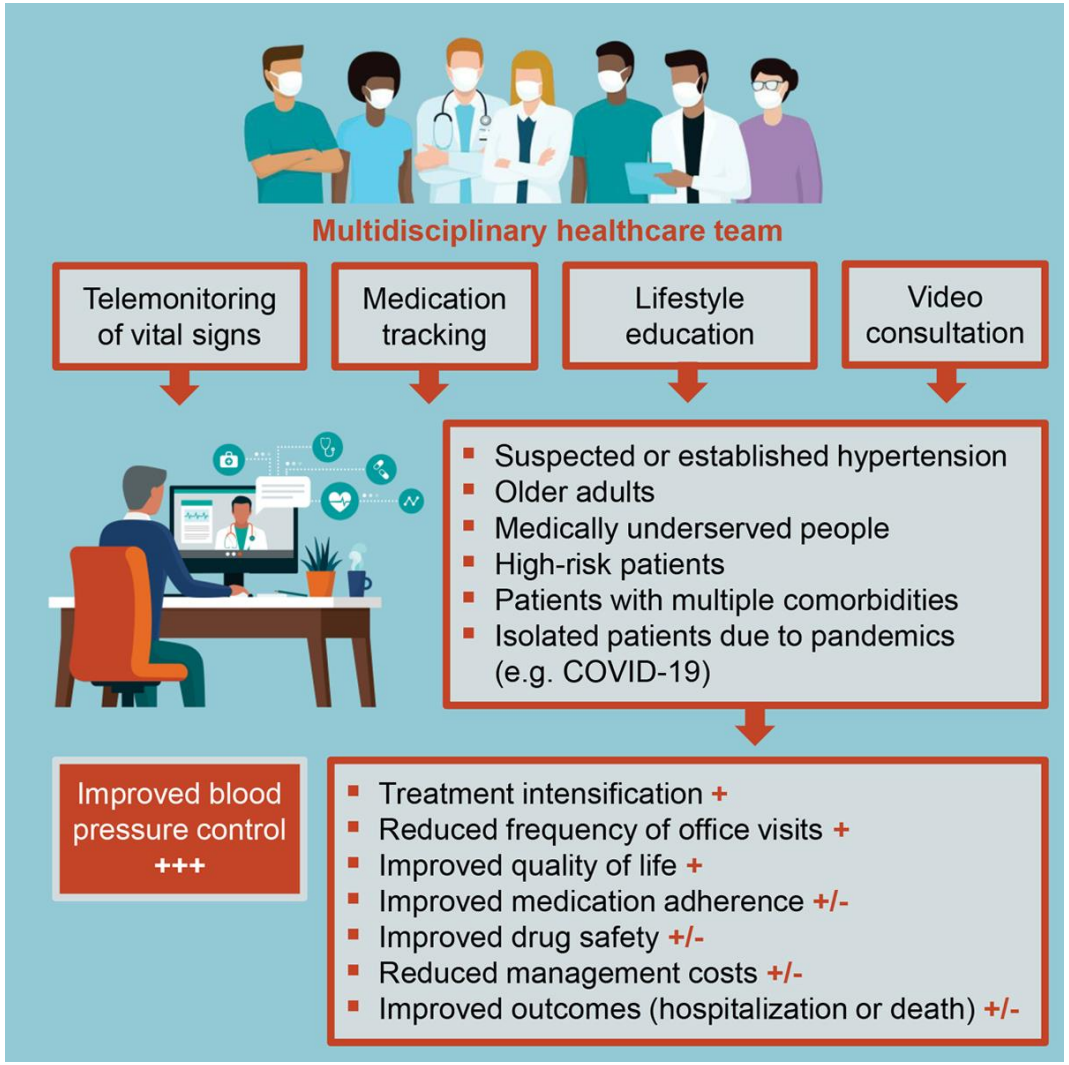
Los Angeles Barbershop Blood Pressure Study limited by time inefficiencies of pharmacists commuting between barbershops, barrier to larger scale implementation

Enrolled self-identified non-Hispanic Black males into a single-arm proof of concept study

Once BP control achieved (< 130/80), participants were transitioned to monthly virtual visits from the barbershops; 12 months follow-up

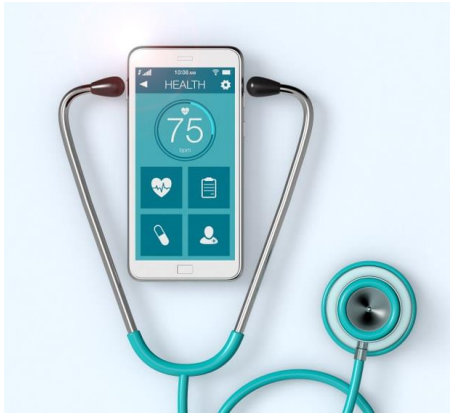
Blood Pressure Data‡	Virtual Visit-Assisted Program (n=9)§	LABBPS, Intervention Arm (n=139)
Systolic blood pressure, mean±SD, mm Hg		
Baseline	157.4±15	152.4±10.1
12 mo	126.4±5.2	123.8±8.8
Change	−28.7±13.4	−28.6±12.7
Diastolic blood pressure, mean±SD, mm Hg		
Baseline	85.2±11	91.9±11.3
12 mo	75.0±7.2	74.1±8.2
Change	−8.9±14.7	−17.8±11.9*
Hypertension control rate after 12 mo, n (%)		
Blood pressure <140/90 mm Hg	9 (100)	118 (94)
Blood pressure <135/85 mm Hg	9 (100)	110 (88)
Blood pressure <130/80 mm Hg	6 (67)	85 (68)

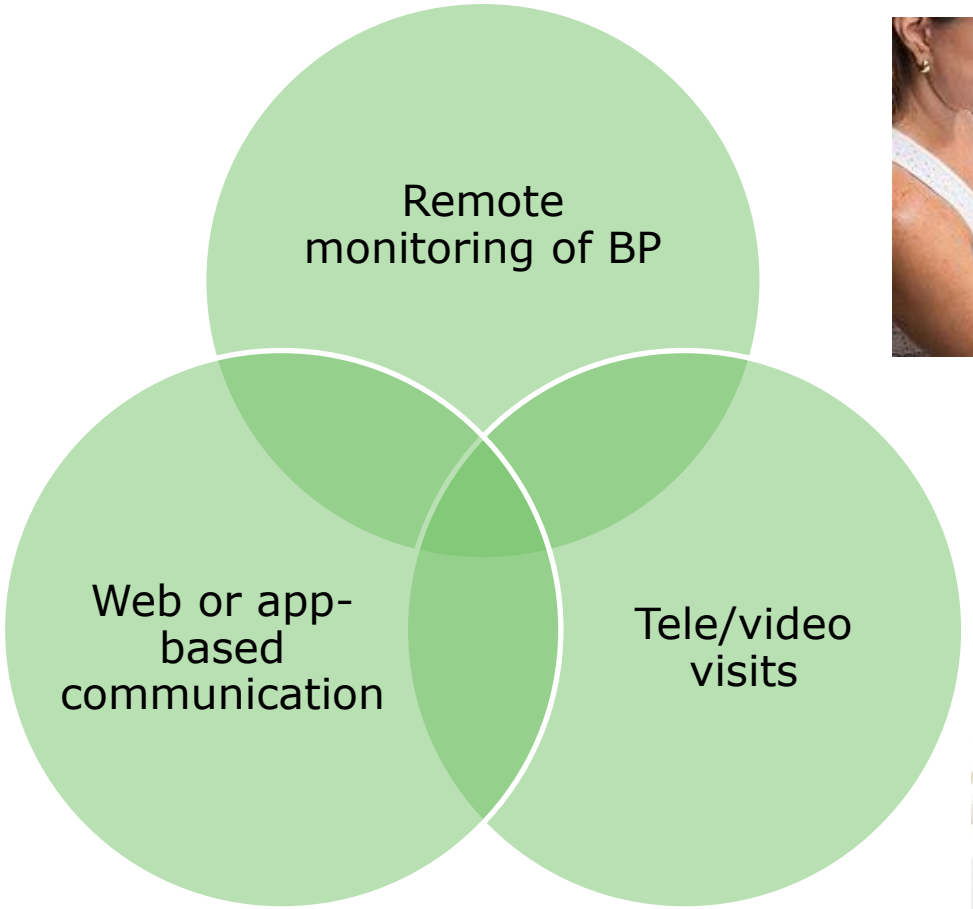
Telehealth for Hypertension

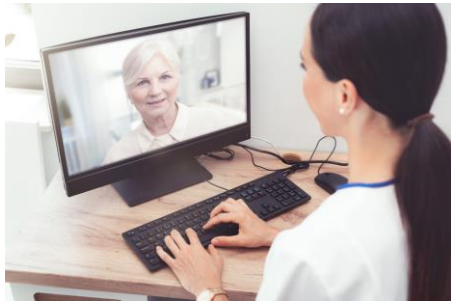


Omboni S et al Evidence and recommendations on the use of telemedicine for the management of arterial hypertension *Hypertension* 2020

Telehealth For Hypertension







Telehealth for Hypertension

Telehealth may be an ideal strategy for improving hypertension control

- Self-monitoring of BP does not require coming to the office
- Video based-visits enable you to visualize the patient's/person's environment – how and where they check BP, their medications are easily available for review
- Saves time off work and other responsibilities, money for travel to office visits
- Concerns re equity/access (despite advantages), reimbursements/payments

Summary

- Discussed the importance of identifying and improving adherence to antihypertensive treatment plans
- Described the concept of shared decision making and applied specific strategies in hypertension management
- Explored multi-system interventions to improve hypertension care including self-monitored blood pressure, telehealth, and team-based care

MEDICINE *of* THE HIGHEST ORDER

Questions?

Please fill out our survey!

Please find the survey link in the chat/ you will receive a survey in a follow up email/ go here for survey

Completing your survey helps us to provide relevant and helpful information. Thank you in advance!

Join us: Part 3 of the Hypertension Care & Management Webinar Series

Topic: Hypertension Care for Special Patient Populations – A Focused Discussion on Maternal Health, the Elderly Population, and Hypertension & Kidney Disease.

Friday, June 17, 1:00 - 2:15 pm (EST)

[Register here]

Resources

- www.validatebp.org
- www.TargetBp.org
- NACHC Million Hearts
  - SMBP Forum Registration
  - SMBP Implementation Toolkit
  - CHC Requirements for RPM & SMBP
  - Choosing a Home Blood Pressure Monitor At-A-Glance Comparison
- Million Hearts: Medication Adherence
- The Surgeon General's Call to Action to Control Hypertension

COMMUNITY HEALTH CARE ASSOCIATION of New York State

chcanys.org