Quality Improvement Reimagined in the Era of Digital Health

Controlling High Blood Pressure

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August 26, 2020
Objectives

• Describe the Target BP initiative and the MAP BP Program
• Describe MAP BP Metrics and dashboards
• Review barriers to SMBP and solutions
• Review recent changes to quality measures for controlling high blood pressure
The need to improve blood pressure control

### Population Group | Prevalence, 2013–2016, Age ≥20 y
--- | ---
Both sexes | 116,400,000 (46.0%)  
Males | 58,700,000 (49.0%)  
Females | 57,700,000 (42.8%)  
NH white males | 48.2%  
NH white females | 41.3%  
NH black males | 58.6%  
NH black females | 56.0%  
Hispanic males | 47.4%  
Hispanic females | 40.8%  
NH Asian males | 46.4%  
NH Asian females | 36.4%  
NH American Indian/Alaska Native | ...  

*Significant increasing trend for 1999–2018, p < 0.001.

NOTES: Hypertension estimates are age-adjusted by the direct method to the 2000 U.S. Census population using age groups 18–39, 40–59, and 60 and over.

Table of controlled hypertension are age-adjusted by the direct method using complex weights based on the subpopulation of persons with hypertension in the 2017–2018 National Health and Nutrition Examination Survey, using age groups 18–39, 40–59, and 60 and over. Access data table for Figure 5 at: https://www.ama-assn.org/system/files/documents/ama-assn/9295_table.pdf.


Figure 5. Age-adjusted trends in hypertension and controlled hypertension among adults aged 18 and over: United States, 1999–2018.

<table>
<thead>
<tr>
<th>Year</th>
<th>Hypertension</th>
<th>Controlled Hypertension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>31.6%</td>
<td>43.3%</td>
</tr>
<tr>
<td>2000</td>
<td>34.7%</td>
<td>43.3%</td>
</tr>
<tr>
<td>2001</td>
<td>39.4%</td>
<td>48.4%</td>
</tr>
<tr>
<td>2002</td>
<td>43.3%</td>
<td>51.8%</td>
</tr>
<tr>
<td>2003</td>
<td>53.1%</td>
<td>53.9%</td>
</tr>
<tr>
<td>2004</td>
<td>53.1%</td>
<td>53.9%</td>
</tr>
<tr>
<td>2005</td>
<td>48.3%</td>
<td>48.3%</td>
</tr>
<tr>
<td>2006</td>
<td>31.6%</td>
<td>43.3%</td>
</tr>
<tr>
<td>2007</td>
<td>34.7%</td>
<td>43.3%</td>
</tr>
<tr>
<td>2008</td>
<td>39.4%</td>
<td>48.4%</td>
</tr>
<tr>
<td>2009</td>
<td>43.3%</td>
<td>51.8%</td>
</tr>
<tr>
<td>2010</td>
<td>53.1%</td>
<td>53.9%</td>
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<tr>
<td>2011</td>
<td>53.9%</td>
<td>53.9%</td>
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<tr>
<td>2012</td>
<td>53.9%</td>
<td>53.9%</td>
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<tr>
<td>2013</td>
<td>48.3%</td>
<td>48.3%</td>
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<tr>
<td>2014</td>
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<td>43.3%</td>
</tr>
<tr>
<td>2016</td>
<td>39.4%</td>
<td>48.4%</td>
</tr>
</tbody>
</table>

Control is <140/90 mm Hg

Control is <130/80 mm Hg

National initiative to improve blood pressure control

1. Prioritize blood pressure control
2. Take steps to improve
3. Receive recognition
Measure Accurately
Obtain actionable blood pressure (BP) measurements to diagnose hypertension and assess BP control.

Act Rapidly
Initiate and intensify treatment.

Partner with Patients
Support patient activation and to assess and improve adherence to treatment.
Each MAP component incorporates:

An evidence-based strategy and action steps

- Supporting tools and resources
- QI and clinical implementation (practice change facilitation)
- Performance metrics, dashboards, and monthly reports


MAP BP

Confirmatory Blood Pressure: Percentage of visits with an initial uncontrolled BP that are followed by a confirmatory BP reading.

Therapeutic Intensity: Average number of medications at at least a standard dose that are prescribed to uncontrolled patients.

Visit Follow-up: Percentage of visits with uncontrolled BP that have a follow-up visit within 30 days.

SBP Change After Therapeutic Intensification: Average drop in BP after an increase in therapeutic intensification.

Overall Outcome: Percentage of patients 18 - 85 years who had a diagnosis of hypertension and whose BP was adequately controlled on the last visit of the measurement period.
Evidence-based approach, sustained results

Results summary:

- MAP implemented in 16 practices, 16,000+ hypertensive patients
- BP control improved from 64.4% at baseline to 74.3% (P<0.001) at 6 and 73.6% (P<0.001) at 12 months
- Among adults with uncontrolled baseline BP and no medication changes (n=3654), measure accurately resulted in 11.1/5.1 mm Hg lower BP
- During the first 6 months of MAP, therapeutic inertia fell (52.0% versus 49.5%; P=0.01)
- Systolic BP decreased more per therapeutic intensification (−5.4 to −12.7; P<0.001)
At a glance, these metrics show the results you’re achieving with the program:
Data is securely collected and encrypted in a HIPAA-certified AWS environment with two-factor authentication.
Sample dashboard: Ambulatory Quality Registry
Engaging health care organizations (HCOs) across the United States

Purple states
Indicate our active presence in hypertension engagement
Recognition Program

Organizations that submitted data (46 states/U.S. territories)

1,183

Total patient population for submitted organizations

29 million+

Total adult patients with hypertension for submitted organizations

8 million+

539
Participating HCOs achieved BP control rate of ≥70%
(avg. control rate 78.2%)

644
Participating HCOs committed to BP control
Reaching 30 million people with hypertension in 5 years

Preventing Heart Attacks and Strokes (PHAS) in Primary Care

The PCORnet Blood Pressure Control Laboratory
A Platform for Surveillance and Efficient Trials

Mark J. Fletcher, MD, MPH, Valy Fontil, MD, MAS, Thomas Carton, PhD, Kathryn M. Shaw, MPH, Myra Smith, MPH, Sujung Choi, PhD, Jonathan Todd, PhD, Alanna M. Chamberlain, PhD, Emily C. O’Brien, PhD, Madelaine Faulkner, MPH, Carlos Maeztu, MA, Gregory Wozniak, PhD, Michael Rakotz, MD, Christina M. Shay, PhD, and Rhonda M. Cooper-DeHoff, PharmD, MS
Self-measured blood pressure monitoring

Self-measured blood pressure (SMBP) refers to blood pressure (BP) measurements obtained by the patient outside of a clinical setting, including at home.
Indications: Diagnose, guide treatment and follow up

<table>
<thead>
<tr>
<th>COR</th>
<th>LOE</th>
<th>RECOMMENDATION</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>A</td>
<td>1. Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension (Table 11) and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions (S4.2.1–S4.2.4).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COR</th>
<th>LOE</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A</td>
<td>1. Follow-up and monitoring after initiation of drug therapy for hypertension control should include systematic strategies to help improve BP, including use of HBPM, team-based care, and telehealth strategies (S8.3.2.1–S8.3.2.6).</td>
</tr>
</tbody>
</table>
AHA SCIENTIFIC STATEMENT

Measurement of Blood Pressure in Humans: A Scientific Statement From the American Heart Association

Paul Muntner, PhD, MHS, FAHA, Chair, Daichi Shimbo, MD, Vice Chair, Robert M. Carey, MD, FAHA, Jeanne B. Charleston, PhD, Trudy Gaillard, PhD, Sanjay Misra, MD, FAHA, Martin G. Myers, MD, Gbenga Ogedegbe, MD, FAHA, Joseph E. Schwartz, PhD, Raymond R. Townsend, MD, FAHA, Elaine M. Urbina, MD, MS, FAHA, Anthony J. Viera, MD, MPH, FAHA, William B. White, MD, FAHA, and Jackson T. Wright Jr, MD, PhD, FAHA

AHA POLICY STATEMENT

Self-Measured Blood Pressure Monitoring at Home: A Joint Policy Statement From the American Heart Association and American Medical Association

Daichi Shimbo, MD, Chair, Nancy T. Artinian, PhD, RN, FAHA, Jan N. Basile, MD, FAHA, Lawrence R. Krakoff, MD, FAHA, Karen L. Margolis, MD, MPH, Michael K. Rakotz, MD, FAHA, Gregory Wozniak, PhD, and On behalf of the American Heart Association and the American Medical Association
Barriers to widespread use of SMBP

Patient perceived barriers
- Rigid protocols
- Long periods of time
- Lack of education about benefits
- Out of pocket costs

Provider barriers
- Inaccuracy of devices
- Low adherence to monitoring schedules
- Impact on staff time, provider workload
- Lack of reimbursement for device purchase

Health system barriers
- Lack of systems to transfer SMBP data
- Lack of infrastructure for co-interventions
Technique and device accuracy

- Upper arm automated SMBP device
- Appropriately sized cuff
- Patient preparation and positioning
- Monitoring schedule
Will I get paid?

SMBP CPT® coding

Self-measured blood pressure (SMBP) refers to blood pressure (BP) measurements obtained outside of a physician’s practice, usually at home. When combined with clinical support (e.g., one-on-one counseling, web-based or telephone support tools, education), SMBP can enhance the quality and accountability of care for people with high blood pressure and improve blood pressure control. SMBP can be used to assess BP control and to make a diagnosis of hypertension. SMBP allows patients to actively participate in the management of their BP and has been shown to improve adherence to antihypertensive medications.

SMBP codes and descriptions


<table>
<thead>
<tr>
<th>CPT code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>99473</td>
<td>SMBP using a device validated for clinical accuracy: patient education/training and device calibration</td>
</tr>
<tr>
<td>99474</td>
<td>Separating measurements of two readings one minute apart, twice daily over a 30-day period (minimum of 12 readings), collection of data reported by the patient and/or caregiver to the physician or other qualified health care professional, with report of average systolic and diastolic pressures and subsequent communication of a treatment plan to the patient</td>
</tr>
</tbody>
</table>

The codes address both initial and ongoing SMBP clinical services:

- **CPT code 99473** can be used when a patient receives education and training (facilitated by clinical staff) on the set-up and use of a SMBP measurement device validated for clinical accuracy, including device calibration.
  - 99473 can only be reported once per device. It would most commonly be used prior to initiating SMBP in patients suspected of having hypertension or for those patients with an existing diagnosis of hypertension who have a new BP measurement device or are receiving training for the first time.

- **CPT code 99474** can be used for SMBP data collection and interpretation when patients use a BP measurement device validated for clinical accuracy to measure their BP twice daily (two measurements, one minute apart in the morning and evening), with a minimum of 12 readings required each billing period.
  - The SMBP measurements must be communicated back to the provider and can be manually recorded in an above-mentioned manner.

www.ama-assn.org/smbp-guide
Putting it all together

7-step SMBP quick guide

Helping patients achieve and maintain blood pressure goals

The recent COVID-19 pandemic has led to a rapid increase in the use of telemetry by many health care organizations, pharma companies, and personal devices. Long-term blood pressure (BP) monitoring with remote BP transmiters and real-time blood pressure (BP) feedback is now widely available.

There are over 111 million adults in the United States with hypertension, many of whom have uncontrolled hypertension levels due to a variety of factors such as lifestyle and a lack of awareness or treatment. SBMP can help patients better understand their BP levels and how to monitor their condition.

This guide highlights steps that physicians and care teams can take to use SBMP with patients. 10 years and older with high blood pressure, and includes links to useful resources.

Defining self-measured blood pressure

Self-measured blood pressure (SBMP) is the collection of BP measurements obtained outside of a physician’s office or clinic setting, usually at home. BP monitoring with remote BP transmitters and real-time BP feedback is now widely available.

Choosing the right SBMP device

When choosing the right SBMP device, consider factors such as ease of use, accuracy, and cost.

Helping patients obtain SMBP results

Self-measured blood pressure (SBP) is obtained at home on a regular basis, and can help patients better understand their BP levels and how to monitor their condition.

Ensuring use of validated measurement devices

SBMP devices must be accurate and reliable to ensure accurate and consistent results.

SMBP classifications

SMBP is a critical component of any hypertension management plan and should be used in conjunction with other tools and resources.

Self-measured blood pressure (SBP) refers to blood pressure (BP) measurements obtained outside of a physician’s office or clinic setting, usually at home. When combined with clinical support (e.g., in-person or via telehealth), it can help patients better understand their condition and make necessary lifestyle changes.

SMBP codes and descriptions

SMBP codes can be used by hospitals, health systems, and third-party administrators to report and bill for SBMP services.

SMBP CPT® coding

The American Medical Association (AMA) has developed CPT codes to support the implementation of SBMP programs.

For more information, please visit https://www.ama-assn.org/delivering-care/hypertension/7-step-self-measured-blood-pressure-smbp-quick-guide
## 2019 ACC/AHA Clinical Performance/Quality/Structural Measures


Donald E. Casey Jr. MD, MPH, MBA, FAHA, Chair, Randel J. Thomas, MD, MS, FACC, FAHA, Vice Chair”, Vivek Bhalla, MD, FAHA, Yvonne Commodore-Morais, PhD, RN, FAHA, FPCNA1, Paul A. Heldenreich, MD, MS, FACC, FAHA, Dhaval Kolte, MD, PhD, Paul Munther, PhD, FAHA, Sidney C. Smith Jr, MD, MACC, FAHA, John A. Spearus, MD, MPH, FACC, FAHA, John R. Windle, MD, FACC, Gregory D. Wozniak, PhD1, and Boback Zielian, MD, PhD, FACC

**Key Words:** AHA Scientific Statements  high blood pressure  hypertension  performance measures  quality measures  quality indicators

<table>
<thead>
<tr>
<th>PM-5</th>
<th>Use of HBPM for management of ACC/AHA stage 2 HBP</th>
<th>+</th>
<th>-</th>
<th>-</th>
<th>COR: 1, LOE: A</th>
</tr>
</thead>
<tbody>
<tr>
<td>QM-5</td>
<td>Use of HBPM for management of ACC/AHA stage 1 HBP</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>COR: 1, LOE: A</td>
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<tr>
<td>QM-6</td>
<td>Use of HBPM for management of ACC/AHA stage 1 or ACC/AHA stage 2 (composite measure combining PM-5 and QM-5)</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>COR: 1, LOE: A</td>
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<tr>
<td>SM-4</td>
<td>Use of an EHR to accurately diagnose and assess HBP control</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>COR: 1, LOE: B-NR</td>
</tr>
<tr>
<td>SM-8</td>
<td>Use of telehealth, m-health, e-health, and other digital technologies to better diagnose and manage HBP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>COR: 2a, LOE: A / COR: 1, LOE: A</td>
</tr>
</tbody>
</table>
Quality measures for controlling high blood pressure

SMBP measurements now accepted for use in Controlling High Blood Pressure quality measures

“Digitally stored and transmitted”
- NQF0018
- CMS165V8
- UDS 2020
- MIPS 236

Patient reported
- HEDIS 2020 and 2021