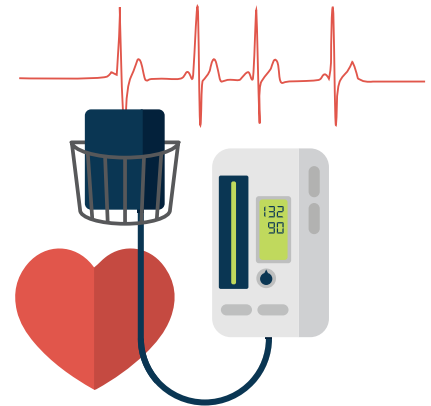


Improving blood pressure control



Measure, Act and Partner (M.A.P.) to help patients control blood pressure and ultimately prevent heart disease.

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MEDICINE

CME
CREDITS:
1.0

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How will this module help me control my patients' blood pressure?

- 1 Learn about the evidence-based M.A.P. framework to obtain accurate blood pressure readings, reduce clinical inertia and encourage patient self-management to improve blood pressure control
- 2 Identify answers to commonly asked questions
- 3 Learn what practices are doing to successfully monitor and control patients' blood pressure

One in three US adults has hypertension. With such a high prevalence rate, it is likely that most primary care practices treat many patients with this condition. Most people with hypertension are aware of their condition, but only about half have their blood pressure under control. People with uncontrolled blood pressure may not be aware that it is the leading cause of premature death in the world. Clinicians need simple and effective ways to improve hypertension control in their patient populations.

Improving blood pressure control in primary care

Release Date: June 2015

End Date: June 2019

Objectives

At the end of this activity, participants will be able to:

1. Measure blood pressure more accurately
2. Act rapidly to treat blood pressure that is not controlled
3. Use evidence-based communication strategies
4. Instruct patients to properly self-measure blood pressure
5. Instruct patients to follow evidence-based lifestyle changes to lower blood pressure

Target Audience

This activity is designed to meet the educational needs of practicing physicians.

Statement of Need

Currently, only 54 percent of the estimated 80 million US adults with hypertension have their blood pressure under control. Most patients with hypertension do have a usual source of care and do see the doctor at least once a year. Physicians failing to escalate therapy during a visit or scheduling follow up (clinical inertia) are felt to be leading factors contributing to lack of blood pressure control in the US. Another common factor includes patient non-adherence to therapy (medications and lifestyle recommendations). The leading cause of clinical inertia by physicians is clinical uncertainty, largely centered on the accuracy and reliability of blood pressure measurements. Evidence has demonstrated that improved blood pressure measurement technique and use of standardized protocols for obtaining multiple blood pressures, both in and out of the office, increases diagnostic accuracy and reliability of blood pressure measurements. Through use of the *Measure accurately* checklist and tools, combined with those from *Act rapidly and Partner with patients, families and communities*, clinical inertia can be reduced and at the same time patients can be empowered to self-manage their disease.

Statement of Competency

This activity is designed to address the following ABMS/ACGME competencies: practice-based learning and improvement, interpersonal and communications skills, professionalism, systems-based practice, interdisciplinary teamwork and quality improvement.

Accreditation Statement

The American Medical Association is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Credit Designation Statement

The American Medical Association designates this enduring material for a maximum of 1.0 *AMA PRA Category 1 Credit*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Claiming Your CME Credit

To claim *AMA PRA Category 1 Credit*[™], you must 1) view the module content in its entirety; 2) successfully complete the quiz answering 4 out of 5 questions correctly and 3) complete the evaluation.

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About the Professional Satisfaction, Practice Sustainability Group

The AMA Professional Satisfaction and Practice Sustainability group has been tasked with developing and promoting innovative strategies that create sustainable practices. Leveraging findings from the 2013 AMA/RAND Health study, “Factors affecting physician professional satisfaction and their implications for patient care, health systems and health policy,” and other research sources, the group developed a series of practice transformation strategies. Each has the potential to reduce or eliminate inefficiency in broader office-based physician practices and improve health outcomes, increase operational productivity and reduce health care costs.

About the Improving Health Outcomes Group

The AMA’s Improving Health Outcomes area is tackling two of the nation’s most prevalent issues: cardiovascular disease and type 2 diabetes. Beginning with a focus on risk factors for these conditions, the AMA is helping physicians and care teams to control high blood pressure and prevent diabetes—two disease burdens that cost the US health care system more than 500 billion dollars annually. With work already underway to engage organized medicine, the private/public sector, the federal government and local communities, the AMA is adding its resources and skill in orchestrating effective collaborative efforts to help improve the health of the nation.

Disclosure Statement

The content of this activity does not relate to any product of a commercial interest as defined by the ACCME; therefore, neither the planners nor the faculty have relevant financial relationships to disclose.

Media Types

This activity is available to learners through Internet and Print.

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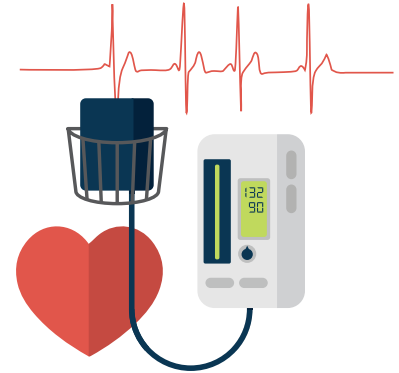
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Introduction

Why is controlling hypertension so vital?

One in three US adults—about 80 million people¹—has hypertension. With such a high prevalence of hypertension in the US, it is likely that your practice treats many patients with this condition. Most people with hypertension are aware of their condition, but only about half have their blood pressure under control.¹ People with uncontrolled blood pressure may not be aware that it is the leading cause of premature death in the world.² Clinicians like you need simple and effective ways to tackle hypertension in your patient population.



M.A.P. to improve blood pressure control

The American Medical Association and Johns Hopkins Medicine, in collaboration with clinical care teams from ten practices and health centers, formed an initiative called “Improving health outcomes: Blood pressure,” and created the “M.A.P. to improve blood pressure control.”

M.A.P. stands for:

1. **Measure** blood pressure accurately

2. **Act** rapidly to manage uncontrolled blood pressures

3. **Partner** with patients, families and communities

DOWNLOAD [M.A.P. checklists](#)

The M.A.P. framework addresses common barriers to hypertension control, such as:

- Poor or inconsistent measurement techniques
- “White coat effect”
- Clinical inertia
- Ineffective care team communication
- Missing or inconsistent care protocols
- Poor patient engagement

White coat effect: the alerting reaction that many patients experience when having their blood pressure measured in a health care setting. This effect commonly causes office blood pressures to be higher than out-of-office blood pressures or self-measured blood pressures at home.

Clinical inertia: a lack of treatment intensification at the end of an office visit in a patient with a blood pressure not at goal.

Benefits:

You and your care team can improve the accuracy of blood pressure measurement through teamwork, improved communication and using standardized protocols. Measuring blood pressure accurately leads to reliable diagnosis and efficient and appropriate treatment.

Evidence-based treatment protocols encourage consistent delivery of care and help formalize the treatment plan, including reassessment schedules. Clinical teams with well-communicated plans will achieve greater success in improving blood pressure control.

Finally, patients who proactively participate in managing their hypertension tend to have better blood pressure control. By committing to lifestyle and behavior changes, taking medications as prescribed and participating in self-measurement of blood pressure, patients can make significant contributions to their overall health and well-being.



We thought we were doing a good job treating patients with hypertension, however we are more aware of the many patients that are not at goal. We learned a lot from the initiative. It's been a great experience.



Practicing physician

Three steps to help patients improve blood pressure control

1 Measure blood pressure accurately

When screening patients for high blood pressure (BP) in the office:

- ✓ Use a validated, automated device to measure BP³
- ✓ Use the correct cuff size on a bare arm⁴⁻¹²
- ✓ Ensure the patient is positioned correctly^{4,5,13-21}

If the initial office blood pressure is $\geq 140/90$ mm Hg, obtain confirmatory measurements:

- ✓ Repeat screening steps above
- ✓ Ensure patient has an empty bladder^{4,5,23}
- ✓ Ensure patient has rested quietly for at least five minutes^{4,5,24,25}
- ✓ Obtain the average of at least three BP measurements^{4,5,26}

Q&A

How do I know if the cuff size is correct?

A properly fitted cuff should have a bladder length that is 80 percent of the circumference of the arm, and a width that is at least 40 percent of the circumference of the arm. Measure arm circumference with a tape measure around the mid-arm at the bicep. Although the lines on cuffs for proper fit are correct when the patient’s arm falls in the middle of the range, they are not 100 percent reliable, and less so at the upper and lower limits of what each cuff size allows. See Table 1 for guidance on selecting the appropriate cuff size for your patient.

Table 1. Cuff sizes for accurate blood pressure measurement²²

ADULT ARM CIRCUMFERENCE	RECOMMENDED CUFF SIZE (WIDTH X LENGTH)
22 to 26 cm	12 x 22 cm (small adult)
27 to 34 cm	16 x 30 cm (adult)
35 to 44 cm	16 x 36 cm (large adult)
45 to 52 cm	16 x 42 cm (adult thigh)
> 52 cm	Use a validated wrist cuff

Why does taking multiple measurements matter?

Increasing the number of blood pressure readings may increase diagnostic accuracy. If the initial office blood pressure measured is $\geq 140/90$ mm Hg, the chance of a misclassification of hypertension is significantly increased.²⁶ An average of three blood pressure readings is recommended.

Why is patient positioning important?

Several factors must be considered to accurately measure blood pressure, including body positioning (see Table 2). Dangling feet off of an exam table can raise systolic blood pressure by up to 10 mm Hg. Emphasize to your patients that proper technique and body positioning be followed for every blood pressure measurement, both in and out of the office.

Table 2. Common problems that account for inaccurate blood pressure measurement

WHEN THE PATIENT HAS...	BP CAN APPEAR HIGHER BY...
Cuff over clothing	5-50 mm Hg ⁴⁴
A full bladder	10 mm Hg ⁴⁴
Talking or active listening	10 mm Hg ⁴⁴
Unsupported arm	10 mm Hg ^{5,44}
Unsupported back/feet	6.5 mm Hg ⁴⁴
Cuff too small	2-10 mm Hg ⁴⁴
Crossed legs	2-8 mm Hg ⁵

Apply these evidence-based tips for correct positioning of the patient to all blood pressure measurements.

Ensure the patient is seated comfortably and the following conditions are met:

1. Back supported
2. Legs uncrossed with feet flat on the floor/supported with a stool
3. Arm supported with the BP cuff at heart level
4. No one should be talking during the measurement



Get more tips for measuring blood pressure accurately with this [office blood pressure poster for staff](#).

2

Act rapidly to treat blood pressures that are not controlled

To treat uncontrolled blood pressure:

If the patient has blood pressure >140/90 mm Hg confirmed:

- ✓ Use an evidence-based protocol to guide treatment²⁷⁻²⁹
- ✓ Re-assess patient every two to four weeks until BP is controlled³⁰⁻³²
- ✓ Whenever possible, prescribe single pill combination (SPC) therapy³³⁻³⁶

Evidence-based protocols typically include the following tasks:²⁷⁻²⁹

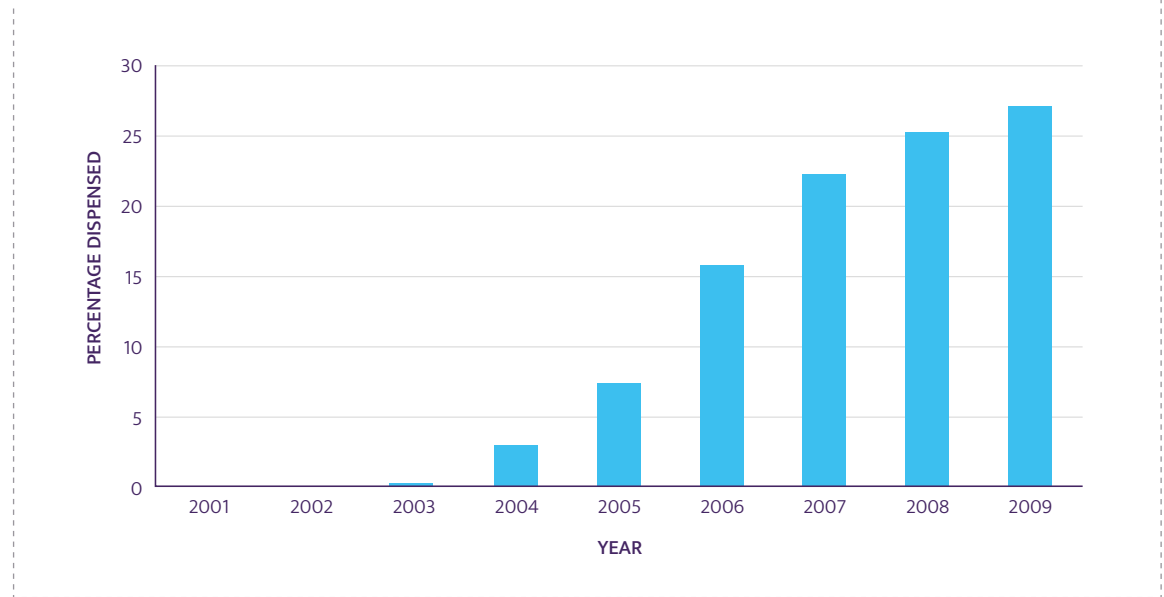
- Counsel on and reinforce lifestyle modifications
- Ensure early follow-up to monitor blood pressure and add preferred medications in a step-wise fashion, until BP is controlled
- For most patients, give preference to the following medication classes:
 - Thiazide diuretics
 - Dihydropyridine calcium channel blockers
 - ACE inhibitors (ACEI)
 - Angiotensin receptor blockers (ARB)
- **Do not prescribe both ACEI and ARB to same patient**
- If BP \geq 160/100 mm Hg, start therapy with two medications or a single pill combination

Q&A

What are the benefits of prescribing single-pill combination therapy?

Single pill combination therapies make it easier for patients to fill and take blood pressure prescriptions. From 2001 to 2009, Kaiser Permanente Northern California (KPNC) instituted a comprehensive quality improvement program that resulted in an improvement in control of blood pressure at goal from 44 percent to 80 percent.³⁶ Single pill combination therapy (lisinopril and hydrochlorothiazide, ACEI-HCTZ) was stressed as part of the program. From 2001-2009, the percentage of angiotensin-converting enzyme inhibitor prescriptions dispensed as a SPC (in combination with a thiazide diuretic) increased from < 1 percent to 27.2 percent (see Figure 1).³⁶ During this time period, prescriptions for the lisinopril-hydrochlorothiazide combination pill rose from 13 prescriptions per month to 23,144 prescriptions per month.³⁶ This shift in prescribing habits was a significant contributor to the success of the KPNC program.

Figure 1. Percentage of angiotensin-converting enzyme inhibitor prescriptions dispensed as single pill combination ACEI-HCTZ combination tablets for Kaiser Permanente Northern California members between 2001 and 2009



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3

Partner with patients, families and communities

To empower patients to control their blood pressure:

- ✓ Engage patients using evidence-based communication strategies³⁷⁻³⁹
- ✓ Help patients to accurately self-measure BP^{40,41}
- ✓ Direct patients and families to resources that support medication adherence and healthy lifestyles



Table 3. Evidence-based communication strategies³⁷⁻³⁹

STRATEGY	SUGGESTED APPROACH
Begin with open-ended questions about adherence, including recent medication use	AVOID: “Are you taking your medicines?” TRY: “How are your medicines working for you?”
Explore reasons for possible non-adherence	AVOID: “Let me prescribe a different pill that might work better.” TRY: “What do you think would make it easier?”
Elicit patient views on options and priorities to customize a care plan for each patient	AVOID: “Have you considered using a pillbox?” TRY: “What do you think would work for you?” or “What has worked for you in the past?”

Remain non-judgmental at all times

AVOID educational statements: “It’s really important to take your pills if you want to control your blood pressure.”
 TRY supportive statements: “Let’s think about this problem together, maybe we can come up with something that will work for you.”

Use teach-back to ensure understanding of the care plan

AVOID closed-ended question: “Does this make sense to you?”
 TRY: “What is your understanding of what we’ve discussed today?”

Evidence-based tips for patient self-measurement of blood pressure

- Instruct the patient how to measure blood pressure accurately using a validated, automated home blood pressure monitor and correct positioning
 - Upper arm monitors are recommended
 - All patients should also be instructed to bring in their monitors for testing in your office to make sure they are properly fitted and working properly for best results
- Ask the patient to record two morning and two evening blood pressure measurements (one minute apart) for at least four consecutive days between office visits (a minimum of 16 measurements)
- Develop a systematic approach to ensure patients can act rapidly to address elevated blood pressure readings between office visits
- Counsel patients that self-measured BP $\geq 135/85$ mm Hg is considered elevated

DOWNLOAD [SMBP monitoring program](#)



It [The M.A.P. Program] forced me to make a point to educate patients about their uncontrolled blood pressure and what they can do about it. It helped me to enlist patients in taking ownership of their BP.



Practicing physician



What are some benefits of implementing a self-measured blood pressure (SMBP) program at home?

SMBP programs improve blood pressure control, especially if some form of clinical support is provided to the patient.⁴¹ Clinical support varies based on your practice’s capabilities, but could include feedback from clinical office staff, feedback through reporting via a secure patient portal and instructing patients how to titrate medications.

In addition, SMBP improves adherence to antihypertensive therapy.⁴²

Evidence-based lifestyle changes to lower BP

Encourage patients to:

- Follow the Dietary Approach to Stop Hypertension (DASH) eating plan⁴³

The DASH plan:

- Is rich in fruits, vegetables and whole grains
- Includes low-fat dairy, poultry, fish and plant-based oils
- Limits sodium, sweets, sugary drinks, red meat and saturated fats
- Participate in moderate physical activity, such as brisk walking, for 40 minutes a day, at least four days a week.⁴³ Ten minute blocks of walking four times a day counts as 40 minutes of daily exercise
- Maintain a healthy body mass index (BMI)⁴³
- Limit alcohol consumption to ≤ 2 drinks per day for men or ≤ 1 drink per day for women⁴³

Access tools to help patients lower their blood pressure: [DASH eating plan](#), [A patient guide to lowering your blood pressure](#)

Q&A

Do lifestyle changes have an impact on improving blood pressure?⁴³

Yes, lifestyle changes can have a significant impact on blood pressure control for your patients. Examples are shown in the table below.

LIFESTYLE CHANGE	CAN LOWER SBP/DBP UP TO:
DASH diet instead of a typical American diet	11.6/5.3 mm Hg
Reducing sodium intake by an average of 1150 mg/day	4/2 mm Hg
Average weight loss of 11 lbs.	4.4/3.6 mm Hg
40 minutes of moderate-intensity aerobic physical activity, 3-4 times per week	4.4/3.6 mm Hg

What key messages should I use when advising patients about healthy lifestyle choices to lower blood pressure?

Communicate the following to your patients:

- Consume no more than 2400 mg of sodium/day by reducing the amount of salt in food and the consumption of processed foods
- Eat at least five servings of fruits and vegetables per day
- Choose whole grains products and high-fiber foods over refined grains (avoid white bread, rice and pastas)
- Gradually build up to 40 minutes of physical activity, like brisk walking, most days of the week
- Limit calories to meet and not exceed daily needs
- Use personalized and cultural food preferences (eat the foods you like, just don't overeat)

What does it mean to partner with families and communities in my practice?

For you as a clinician, this means that you:

- Identify and refer your patients to resources available in the community

- Volunteer at health fairs or blood pressure measuring events in your community
- Speak in the community on the importance of preventing cardiovascular disease and controlling high blood pressure
- Lead by example. Modeling a healthy lifestyle is a great example for your patients to follow

In addition, you should strive to encourage patients and families to participate in healthy lifestyle activities such as:

- Assisting each other with blood pressure monitoring
- Offering reminders for when to measure blood pressure and take medications
- Providing both physical and emotional support
- Participating in healthy lifestyle choices together, such as physical activity and healthy eating
- Taking advantage of community resources that offer BP screening and places to exercise together

Conclusion

Integrate the evidence-based strategies, tools and resources in this module into your workflow to improve your patients' blood pressure control. Using the M.A.P. framework, and adapting it to meet your practice's needs, can increase the accuracy of blood pressure measurement, reduce clinical inertia and empower patients to self-manage their blood pressure, leading to improved quality of care.



STEPS in practice

1

How's it working in Evanston, IL?

Northwestern Medicine™ Evanston instituted a self-measured blood pressure (SMBP) monitoring program. This practice assigned a medical assistant (MA) to manage the SMBP program. The physicians decided which patients would benefit from SMBP. The MA would then work with these patients. She received training on how to use SMBP monitors. She also learned how to educate patients about these monitors, including how to use them with proper body positioning, how often to take measurements based on a standardized office protocol, as well as how to read and record results.

Educational materials were created and provided to patients to teach them how to properly use the SMBP monitor. The materials included a reference flyer with a checklist to aid in proper technique and a SMBP flow sheet to track blood pressures (if the machine the patient was using did not have memory capabilities to store readings). The SMBP flow sheet also provided a written reminder of when to measure blood pressure. The MA was able to collect the results from the flow sheet without a physician visit. The SMBP results were averaged into a single systolic and diastolic blood pressure and recorded in the patient's chart. The physician then reviewed the chart and adjusted the treatment, if necessary.

This program led to a 4 percent increase in control rates (percentage of patients treated to goal blood pressure (<140/90 mm Hg) in adult patients) over a 12-month period.

Key elements of success of the SMBP program included:

- More accurate diagnosis and evaluation of hypertension management
- If needed, ability to provide rapid treatment changes with active follow-up
- Increased patient engagement in self-care of high blood pressure
- Increased clinical teamwork and efficiency
- Increased responsibility of MA, which allowed the practice to balance work load

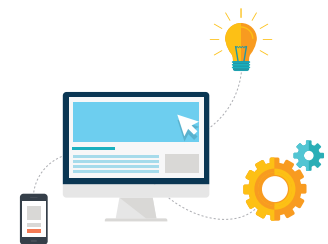


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