Guideline-Based Strategies for Improving Control of High Blood Pressure: The 2019 ACC/AHA Performance and Quality Measures for Adults with High Blood Pressure

MISSOURI HYPERTENSION CONTROL SUMMIT | Tuesday, December 10, 2019

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Director, Outcomes Analytics
Improving Health Outcomes
American Medical Association

2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults

In 2014, a 21 member multidisciplinary writing committee appointed to develop the guideline:

- Cardiologists, epidemiologists, internists, endocrinologist, geriatrician, nephrologist, neurologist, nurse, pharmacist, physician assistant, 2 lay/patient representatives
- Representation for each of the 11 participating professional organizations
- No Writing Committee member had a relevant relationship with industry

Writing Committee

Paul K. Whelton, MB, MD, MSc, FAHA, Chair
Robert M. Carey, MD, FAHA, Vice Chair

Wilbert S. Aronow, MD, FACC, FAHA	Bruce Ovbiagele, MD, MSc, MAS, MBA FAHA
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Sondra M. DePalma, MHS, PA-C, CLS, AACC	Sandra J. Taler, MD, FAHA
Samuel Gidding, MD, FACC, FAHA	Randal J. Thomas, MD, MS, FACC, FAHA
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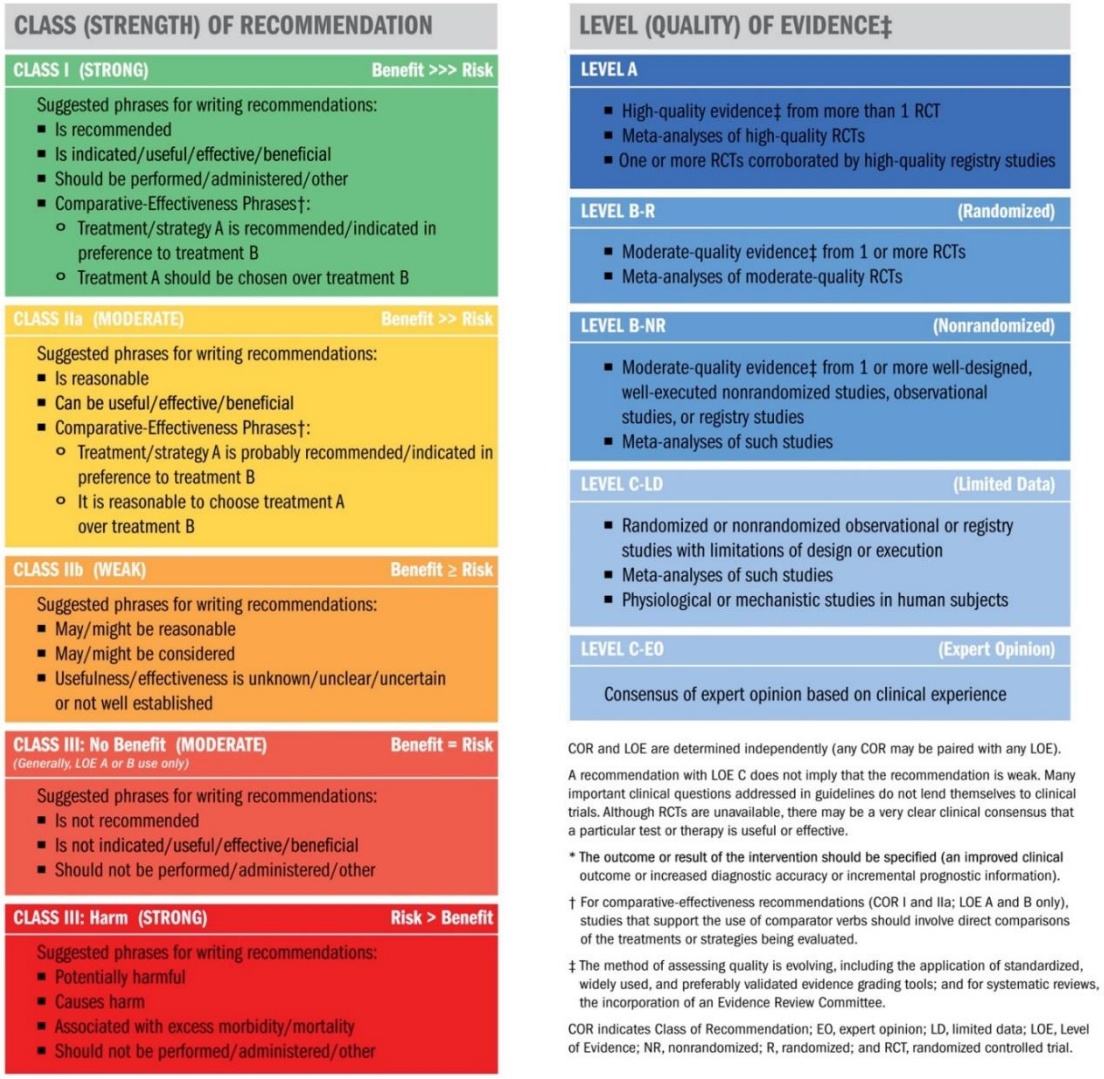
Daniel W. Jones, MD, FAHA	Jeff D. Williamson, MD, MHS
Eric J. MacLaughlin, PharmD	Jackson T. Wright, Jr, MD, PhD
Paul Muntner, PhD	

Table 1. Applying Class of Recommendation and Level of Evidence to Clinical Strategies, Interventions, Treatments, or Diagnostic Testing in Patient Care*

(Updated August 2015)



CLASS (STRENGTH) OF RECOMMENDATION

CLASS I (STRONG) — **Benefit >>> Risk**

Suggested phrases for writing recommendations:
- Is recommended
- Is indicated/useful/effective/beneficial
- Should be performed/administered/other
- Comparative-Effectiveness Phrases†:
  - Treatment/strategy A is recommended/indicated in preference to treatment B
  - Treatment A should be chosen over treatment B

CLASS IIa (MODERATE) — **Benefit >> Risk**

Suggested phrases for writing recommendations:
- Is reasonable
- Can be useful/effective/beneficial
- Comparative-Effectiveness Phrases†:
  - Treatment/strategy A is probably recommended/indicated in preference to treatment B
  - It is reasonable to choose treatment A over treatment B

CLASS IIb (WEAK) — **Benefit ≥ Risk**

Suggested phrases for writing recommendations:
- May/might be reasonable
- May/might be considered
- Usefulness/effectiveness is unknown/unclear/uncertain or not well established

CLASS III: No Benefit (MODERATE) — **Benefit = Risk**

(Generally, LOE A or B use only)

Suggested phrases for writing recommendations:
- Is not recommended
- Is not indicated/useful/effective/beneficial
- Should not be performed/administered/other

CLASS III: Harm (STRONG) — **Risk > Benefit**

Suggested phrases for writing recommendations:
- Potentially harmful
- Causes harm
- Associated with excess morbidity/mortality
- Should not be performed/administered/other

LEVEL (QUALITY) OF EVIDENCE‡

LEVEL A
- High-quality evidence‡ from more than 1 RCT
- Meta-analyses of high-quality RCTs
- One or more RCTs corroborated by high-quality registry studies

LEVEL B-R (Randomized)
- Moderate-quality evidence‡ from 1 or more RCTs
- Meta-analyses of moderate-quality RCTs

LEVEL B-NR (Nonrandomized)
- Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies
- Meta-analyses of such studies

LEVEL C-LD (Limited Data)
- Randomized or nonrandomized observational or registry studies with limitations of design or execution
- Meta-analyses of such studies
- Physiological or mechanistic studies in human subjects

LEVEL C-EO (Expert Opinion)

Consensus of expert opinion based on clinical experience

COR and LOE are determined independently (any COR may be paired with any LOE).

A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

† For comparative-effectiveness recommendations (COR I and IIa; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

‡ The method of assessing quality is evolving, including the application of standardized, widely used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.

2019 AHA/ACC Clinical Performance and Quality Measures

for Adults With High Blood Pressure

Donald Casey, Randal J. Thomas, Vivek Bhalla, Yvonne Commodore-Mensah, Paul A. Heidenreich, Dhaval Kolte, Paul Muntner, Sidney C. Smith, Jr., John Spertus, John Windle, Gregory D. Wozniak, Boback Ziaeian. 2019 ACC/AHA Clinical Performance and Quality Measures for Adults with High Blood Pressure. November 2019. JACC. http://onlinejacc.org/lookup/doi/10.1016/j.jacc.2019.10.001. Circulation: Cardiovascular Quality and Outcomes. https://www.ahajournals.org/doi/10.1161/HCQ.0000000000000057.

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American Heart Association.

High Blood Pressure Performance Measures Writing Committee

- In 2018, a 12-member writing committee was convened to revise and update the 2011 hypertension performance measure set.
- The committee was charged with developing new measures to evaluate the care of patients in accordance with the 2017 High Blood Pressure Clinical Practice Guidelines for the prevention, detection, evaluation, and management of high blood pressure (HBP) in adults.

Donald E. Casey, Jr, MD, MPH, MBA, FAHA, Chair **Randal J. Thomas, MD, MS, FACC, FAHA, Vice Chair**	
Vivek Bhalla, MD, FAHA	Sidney C. Smith, Jr, MD, MACC, FAHA
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Summary of Performance, Quality and Structural Measures

for the Diagnosis and Management of High Blood Pressure

Performance Measure Attributes

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Table 7. ACC/AHA Task Force on Performance Measures: Attributes for Performance Measures[24]

1. Evidence Based	
High-impact area that is useful in improving patient outcomes	a. For structural measures, the structure should be closely linked to a meaningful process of care that in turn is linked to a meaningful patient outcome. b. For process measures, the scientific basis for the measure should be well established, and the process should be closely linked to a meaningful patient outcome. c. For outcome measures, the outcome should be clinically meaningful. If appropriate, performance measures based on outcomes should adjust for relevant clinical characteristics through the use of appropriate methodology and high-quality data sources.
2. Measure Selection	
Measure definition	a. The patient group to whom the measure applies (denominator) and the patient group for whom conformance is achieved (numerator) are clearly defined and clinically meaningful.
Measure exceptions and exclusions	b. Exceptions and exclusions are supported by evidence.
Reliability	c. The measure is reproducible across organizations and delivery settings.
Face validity	d. The measure appears to assess what it is intended to.
Content validity	e. The measure captures most meaningful aspects of care.
Construct validity	f. The measure correlates well with other measures of the same aspect of care.
3. Measure Feasibility	
Reasonable effort and cost	a. The data required for the measure can be obtained with reasonable effort and cost.
Reasonable time period	b. The data required for the measure can be obtained within the period allowed for data collection.
4. Accountability	
Actionable	a. Those held accountable can affect the care process or outcome.
Unintended consequences avoided	b. The likelihood of negative unintended consequences with the measure is low.

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ACC indicates American College of Cardiology; and AHA, American Heart Association.

Summary of 2019 ACC/AHA Performance and Quality Measures for the Diagnosis and Management of High Blood Pressure

Measure No.	Measure Title/Description	ACC/AHA Stage 2 HBP	ACC/AHA Stage 1 HBP	ACC/AHA Elevated BP	COR/LOE
Performance Measures (PM)					
PM-1a	ACC/AHA Stage 2 High Blood Pressure Control Systolic BP < 140 mm Hg	+			1A
PM-1b	ACC/AHA Stage 2 High Blood Pressure Control Systolic BP < 130 mm Hg	+			1A/IIaC-EO
PM-2	ACC/AHA Stage 1 High Blood Pressure Control Systolic BP < 130 mm Hg		+		1A
PM-3	ACC/AHA Stage 2 and Stage 1 High Blood Pressure Control Systolic BP < 130 mm Hg (PM-1b + PM-2 Composite)	+	+		1A/IIaC-EO
PM-4	Nonpharmacological interventions for ACC/AHA Stage 2 High Blood Pressure	+			1A
PM-5	Home blood pressure monitoring (HBPM) for ACC/AHA Stage 2 management	+			1A
Process Quality Measures (QM)					
QM-1	Nonpharmacological interventions for ACC/AHA Elevated Blood Pressure			+	1A
QM-2	Nonpharmacological interventions for ACC/AHA Stage 1 High Blood Pressure		+		1A
QM-3	Nonpharmacological interventions for all ACC/AHA stages of High Blood Pressure (PM4 + QM1 + QM2 Composite)	+	+	+	1A
QM-4	Medication Adherence to Drug Therapy for ACC/AHA Stage 1 with ASCVD Risk ≥ 10% and ACC/AHA Stage 2 High Blood Pressure	+	+		1A
QM-5	Home blood pressure monitoring (HBPM) for management of ACC/AHA Stage 1 High Blood Pressure		+		1A
QM-6	Home blood pressure monitoring (HBPM) for management of ACC/AHA Stage 1 and ACC/AHA Stage 2 (PM-5 + QM-5 Composite)	+	+		1A

2019 ACC/AHA High Blood Pressure Performance & Quality Measure Logic Model

	BP Control				Lifestyle Modification				Home BP Monitoring			Medication Adherence
HBP Stage	**PM 1**	**PM 2**	**PM 3**	**PM 4**	**PM 5**	**QM 1**	**QM 2**	**QM 3**	**PM 6**	**QM 5**	**QM 6**	**QM 4**
Stage 2 (>= 140)	X	X*		X**	X			X	X		X	X
Stage 1 (< 140 >= 130, ASCVD >= 10%)			X	X**		X		X		X	X	X
Stage 1 (< 140 >= 130, ASCVD < 10%)			X	X**		X		X				
Elevated BP							X	X				

* PM 2 measures Stage 2 < 130; ** PM 4 is composite of PM 2 and PM 3

Summary of 2019 ACC/AHA Structural Measures for the Diagnosis and Management of High Blood Pressure

Measure No.	Measure Title/Description	ACC/AHA Stage 2 HBP	ACC/AHA Stage 1 HBP	ACC/AHA Elevated BP	COR/LOE
Structural Quality Measures (SM)					
Diagnosis, Assessment and Accurate Measurement					
SM-1	Use of a Standard Protocol to consistently and correctly measure Blood Pressure	+	+	+	1C-EO
SM-2	Use of a standard process for assessing ASCVD risk (Prevention GL)	+	+	+	IB-NR
SM-3	Use of a standard process for properly screening all adults 18 years and older for High Blood Pressure (USPSTF)	+	+	+	A (USPSTF)
SM-4	Use of an Electronic Health Record to accurately diagnose and assess High Blood Pressure Control	+	+	+	1B-NR
A Patient-Centered Approach for Controlling High Blood Pressure					
SM-5	Use of a standard process to engage patients in shared decision-making, tailored to their personal benefits, goals and values for evidence-based interventions to improve control of High BP (Prevention GL)	+	+	+	IB-R
SM-6	Demonstration of infrastructure and personnel that assesses and addresses social determinants of health of patients with High Blood Pressure (Prevention GL)	+	+	+	IB-NR
Implementation of a System of Care for Patients with High Blood Pressure					
SM-7	Use of Team Based Care to better manage High Blood Pressure	+	+	+	1A
SM-8	Use of Telehealth, m-health and e-health and other digital technologies to better diagnose and manage High Blood Pressure	+	+	+	IIaA/1A
SM-9	Use of a single, standardized plan of care for all patients with High Blood Pressure	+	+	+	1C-EO
Use of Performance Measures to Improve Care for High Blood Pressure					
SM-10	Use of performance measures to improve quality of care for patients with High Blood Pressure	+	+		IIaB-NR

Performance Measures

Performance Measures (PM):

- Developed from Class 1 class of recommendation (COR) and Level A and B level of evidence (LOE) (i.e., strong recommendations based on the highest quality of evidence).
- Designed to be considered for use in national quality payment and reporting programs by entities such as the Centers for Medicare & Medicaid Services (CMS) and the National Committee for Quality Assurance (NCQA).

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Performance Measure Themes

1. Control of High Blood Pressure (Stages 1 and 2)
2. Lifestyle Modification (Stage 2)
3. Home Blood Pressure Monitoring (Stage 2)

2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults

BP Classification (JNC 7 and ACC/AHA Guidelines)

SBP		DBP	JNC7	2017 ACC/AHA
<120	and	<80	**Normal BP**	**Normal BP**
120–129	and	<80	**Prehypertension**	**Elevated BP**
130–139	or	80–89	**Prehypertension**	**Stage 1 hypertension**
140–159	or	90-99	**Stage 1 hypertension**	**Stage 2 hypertension**
≥160	or	≥100	**Stage 2 hypertension**	**Stage 2 hypertension**

- Blood Pressure should be based on an average of ≥2 careful readings on ≥2 occasions
- Adults with SBP or DBP in two categories should be designated to the higher BP category

2020 ICD-10-CM Diagnosis Code I10
Essential (primary) hypertension

- **A blood pressure of 140/90 or higher. High blood pressure usually has no symptoms. It can harm the arteries and cause an increase in the risk of stroke, heart attack, kidney failure, and blindness.**
- **A disorder characterized by a pathological increase in blood pressure; a repeatedly elevation in the blood pressure exceeding 140 over 90 mm hg.**
- **Blood pressure is the force of your blood pushing against the walls of your arteries. Each time your heart beats, it pumps out blood into the arteries. Your blood pressure is highest when your heart beats, pumping the blood. This is called systolic pressure. When your heart is at rest, between beats, your blood pressure falls. This is the diastolic pressure. Your blood pressure reading uses these two numbers, the systolic and diastolic pressures. Usually they are written one above or before the other. A reading of**
  - ***120/80 or lower is normal blood pressure***
  - ***140/90 or higher is high blood pressure ----------Stage 1 threshold in JNC7, Stage 2 threshold in 2017 ACC/AHA***
  - ***between 120 and 139 for the top number, or between 80 and 89 for the bottom number is prehypertension***
- **high blood pressure usually has no symptoms, but it can cause serious problems such as stroke, heart failure, heart attack and kidney failure. You can control high blood pressure through healthy lifestyle habits and taking medicines, if needed.**
- **Hypertension occurring without preexisting renal disease or known organic cause.**
- **Pathological increase in blood pressure; a repeatedly elevated blood pressure exceeding 140 over 90 mmhg.**
- **Persistantly high arterial blood pressure.**
- **Persistently high systemic arterial blood pressure. Based on multiple readings (blood pressure determination), hypertension is currently defined as when systolic pressure is consistently greater than 140 mm hg or when diastolic pressure is consistently 90 mm hg or more.**

- https://www.icd10data.com/ICD10CM/Codes/I00-I99/I10-I16/I10-/I10

HEDIS Controlling High Blood Pressure 1999-2017

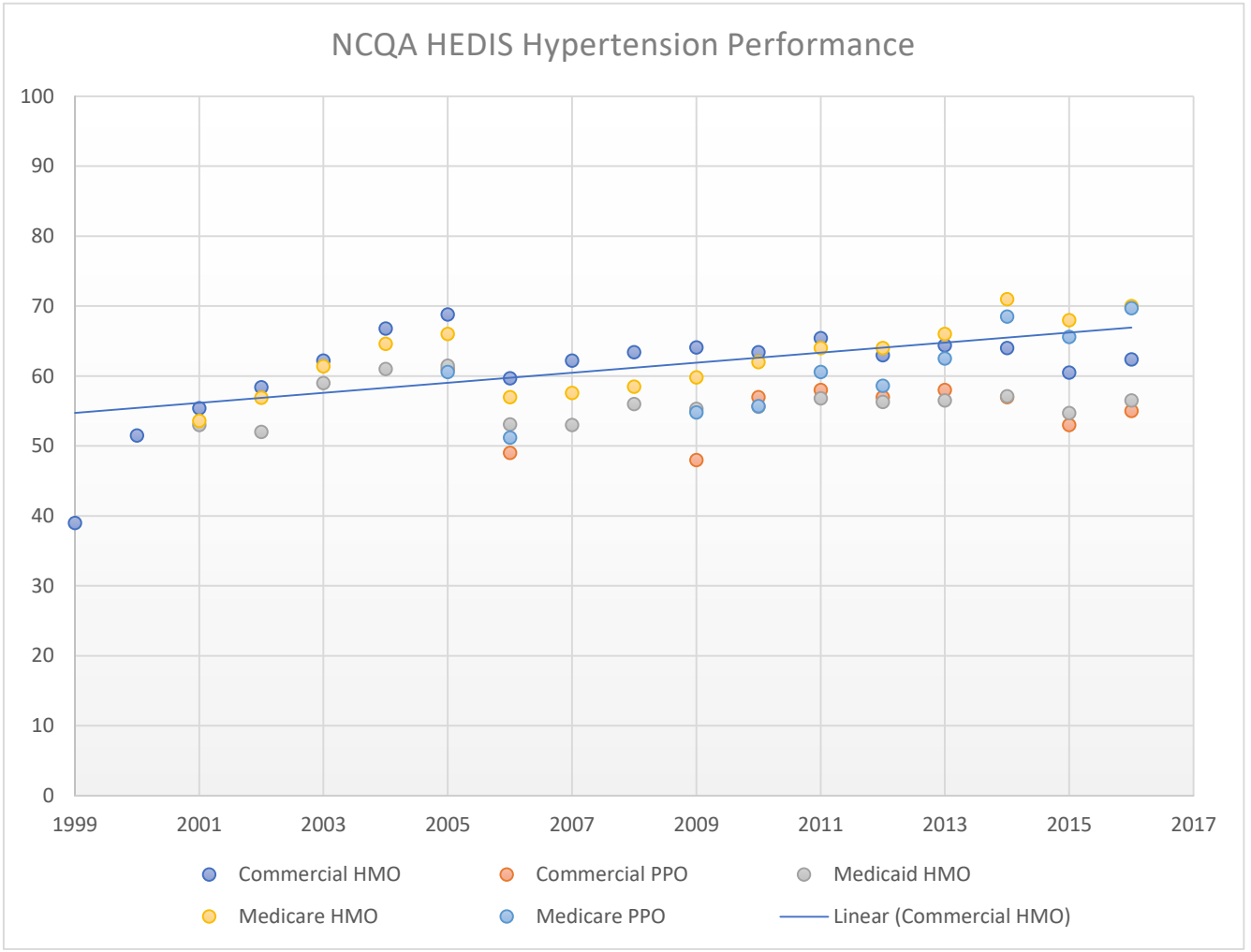
Measuring what seems to matter doesn't seem to matter.....

This HEDIS Measure

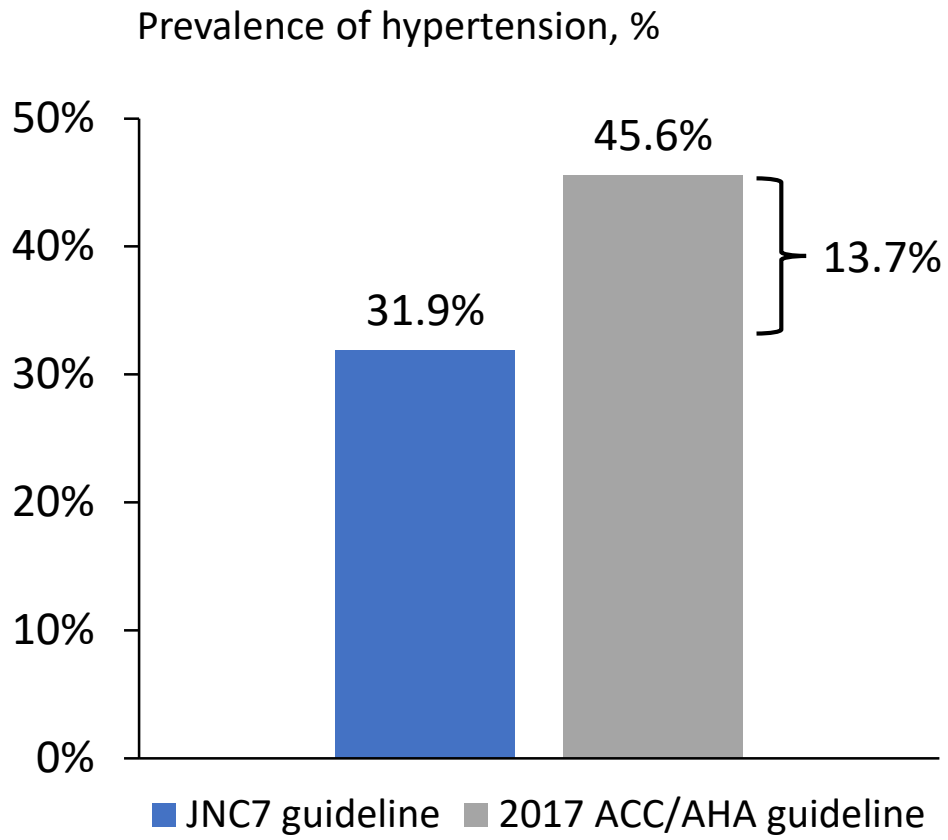
Assesses adults 18–85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled based on the following criteria:

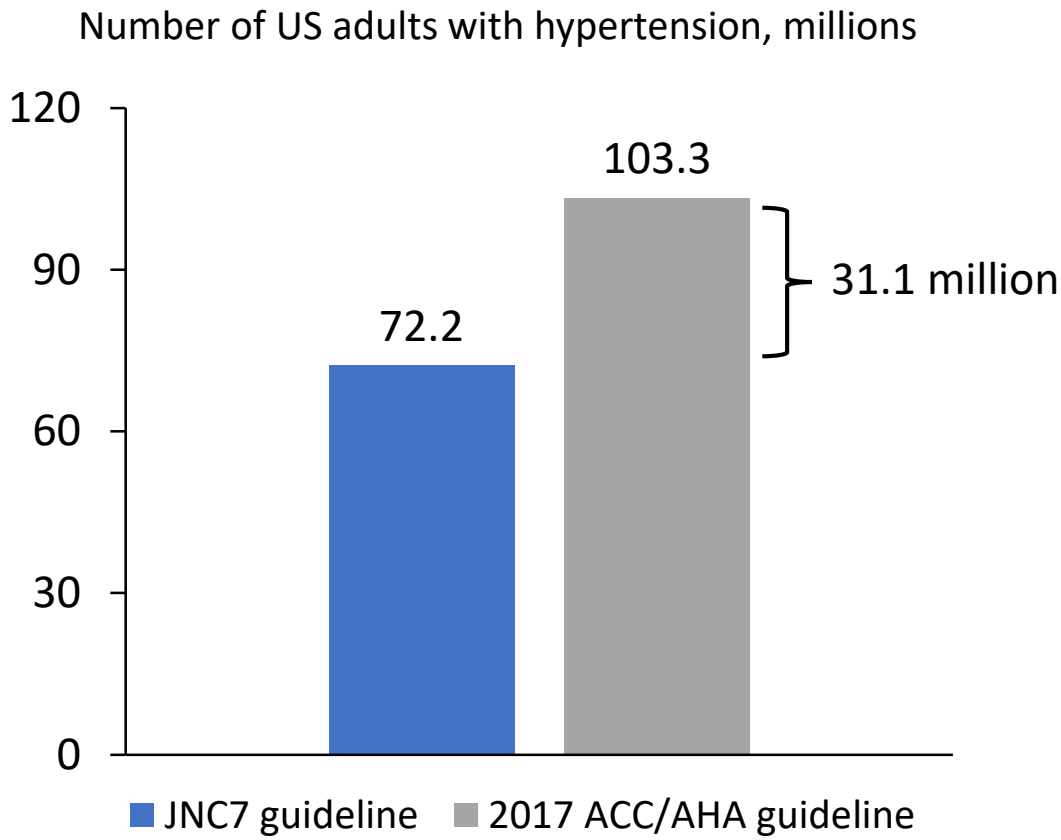
- Adults 18-59 years of age whose blood pressure was <140/90 mm Hg.
- Adults 60-85 years of age, with a diagnosis of diabetes, whose blood pressure was <140/90 mm Hg.
- Adults 60-85 years of age, without a diagnosis of diabetes, whose blood pressure was <150/90 mm Hg.*

	Commercial		Medicaid	Medicare	
	HMO	PPO	HMO	HMO	PPO
2016	62	55	57	70	70
2015	61	53	55	68	66
2014	64	57	57	71	69
2013	64	58	57	66	63
2012	63	57	56	64	59
2011	65	58	57	64	61
2010	63	57	56	62	56
2009	64	48	55	60	55
2008	63		56	59	
2007	62		53	58	
2006	60	49	53	57	51
2005	69	61	62	66	61
2004	67		61	65	
2003	62		59	61	
2002	58		52	57	
2001	55		53	54	
2000	52				
1999	39				



Prevalence of Hypertension – 2017 ACC/AHA and JNC7 Guidelines





Muntner et. al., Journal of the American College of Cardiology (2018)
Muntner et. al., Circulation (2018)

Measure No.	Measure Title/Description	ACC/AHA Stage 2 HBP	ACC/AHA Stage 1 HBP	ACC/AHA Elevated BP	COR/LOE
Performance Measures (PM)					
PM-1a	ACC/AHA Stage 2 High Blood Pressure Control Systolic BP < 140 mm Hg	+			1A
PM-1b	ACC/AHA Stage 2 High Blood Pressure Control Systolic BP < 130 mm Hg	+			1A/IIaC-EO
PM-2	ACC/AHA Stage 1 High Blood Pressure Control Systolic BP < 130 mm Hg		+		1A
PM-3	ACC/AHA Stage 2 and Stage 1 High Blood Pressure Control Systolic BP < 130 mm Hg (PM-1b + PM-2 Composite)	+	+		1A/IIaC-EO
PM-4	Nonpharmacological interventions for ACC/AHA Stage 2 High Blood Pressure	+			1A
PM-5	Home blood pressure monitoring (HBPM) for ACC/AHA Stage 2 management	+			1A

Decision to use BP-Lowering Medications: ACC/AHA COR/LOE

	Stage 2 High BP	Stage 1 High BP	Elevated BP
ASCVD Risk ≥ 10%	1A	1A	Not recommended
ASCVD Risk < 10%	1 C-LD	Not recommended	Not recommended

- **All require intensive lifestyle modification. (1A)**
- For older adults (≥65 years of age) with hypertension and a high burden of comorbidity and limited life expectancy, clinical judgment, patient preference, and a team-based approach to assess risk/benefit is reasonable for decisions regarding intensity of BP lowering and choice of antihypertensive drugs. **(IIa-CEO)**

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Out-of-Office and Self-Monitoring of BP

COR	LOE	Recommendation for Out-of-Office and Self-Monitoring of BP
I	A^{SR}	Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions.

SR indicates systematic review.

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Short Title: PM-1b: ACC/AHA stage 2 HBP control SBP <130 mm Hg (enhancing measure)

PM-1b: Percentage of patients 18 to 85 years of age who had a diagnosis of ACC/AHA stage 2 HBP and whose SBP was <130 mm Hg during the measurement year.	
Measure Description: Percentage of patients with ACC/AHA stage 2 HBP with ***SBP <130 mm Hg (harmonizes with current performance measure "Controlling High Blood Pressure" in widespread use) LOWER TARGET***	
Numerator	Patients with SBP <130 mm Hg
Denominator	All patients 18–85 y of age with ACC/AHA stage 2 HBP who had at least 1 outpatient encounter with a diagnosis of HBP during the first 6 mo of the measurement year or any time before the measurement period
Denominator Exclusions	End-stage renal disease, kidney transplantation, pregnancy, BP readings taken during an inpatient stay
Denominator Exceptions	Documentation of a medical reason (e.g., treatment intolerance, significant risk of treatment intolerance, especially for frail patients ≥65 y of age) Documentation of a patient reason (e.g., economic/access issues)
Measurement Period	12 mo/measurement year
Sources of Data	Paper medical record/prospective data collection flow sheet, Qualified Electronic Health Record, QCDR, electronic administrative data (claims), expanded (multiple source) administrative data, electronically or telephonically transmitted BP readings
Attribution	Healthcare provider (healthcare provider, physician group practice, accountable care organization, clinically integrated network, health plan, integrated delivery system)
Care Setting	Outpatient (office, clinic, home, or ambulatory)

Short Title: PM-2: ACC/AHA stage 1 HBP control SBP <130 mm Hg (harmonizing measure)

PM-2: Percentage of patients 18 to 85 years of age who had a diagnosis of ACC/AHA stage 1 HBP and whose SBP was <130 mm Hg during the measurement year.	
Measure Description: Percentage of patients *with* ***ACC/AHA stage 1 HBP with SBP <130 mm Hg*** *(*harmonizes with current performance measure "Controlling High Blood Pressure" for ACC/AHA stage 2 HBP currently in widespread use)	
Numerator	Patients with SBP <130 mm Hg
Denominator	All patients 18–85 y of age with ACC/AHA stage 1 HBP who had at least 1 outpatient encounter with a diagnosis of HBP during the first 6 mo of the measurement year or any time before the measurement period
Denominator Exclusions	End-stage renal disease, kidney transplantation, pregnancy, BP readings taken during an inpatient stay
Denominator Exceptions	Documentation of a medical reason (e.g., treatment intolerance, significant risk of treatment intolerance, especially for frail patients ≥65 y of age) Documentation of a patient reason (e.g., economic/access issues)
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Care Setting	Outpatient (office, clinic, home, or ambulatory)

ACC indicates American College of Cardiology; AHA, American Heart Association; BP, blood pressure; HBP, high blood pressure; PM, performance measure; QCDR, Qualified Clinical Data Registry; and SBP, systolic blood pressure.

Quality Measures

Quality Measures (QM):

- Based on variable ranges of CORs and LOEs, Face Validity, Attribution, etc.
- Designed to support quality improvement initiatives and activities at the national or microsystem levels.

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Quality Measure Themes

1. Lifestyle Modification (All Stages)
2. Medication Adherence (Stage 2 and Stage 1 w ASCVD Risk ≥ 10)
3. Home Blood Pressure Monitoring (Stage 2 and Stage 1)

Summary of 2019 ACC/AHA Performance and Quality Measures for the Diagnosis and Management of High Blood Pressure

HBP Quality Measures

Measure No.	Measure Title/Description	ACC/AHA Stage 2 HBP	ACC/AHA Stage 1 HBP	ACC/AHA Elevated BP	COR/LOE
Process Quality Measures (QM)					
QM-1	Nonpharmacological interventions for ACC/AHA Elevated Blood Pressure			+	1A
QM-2	Nonpharmacological interventions for ACC/AHA Stage 1 High Blood Pressure		+		1A
QM-3	Nonpharmacological interventions for all ACC/AHA stages of High Blood Pressure (PM4 + QM1 + QM2 Composite)	+	+	+	1A
QM-4	Medication Adherence to Drug Therapy for ACC/AHA Stage 1 with ASCVD Risk ≥ 10% and ACC/AHA Stage 2 High Blood Pressure	+	+		1A
QM-5	Use of home blood pressure monitoring (HBPM) for management of ACC/AHA Stage 1 High Blood Pressure		+		1A
QM-6	Use of home blood pressure monitoring (HBPM) for management of ACC/AHA Stage 1 and ACC/AHA Stage 2 (PM-5 + QM-5 Composite)	+	+		1A

Decision to use BP-Lowering Medications: ACC/AHA COR/LOE

	Stage 2 High BP	Stage 1 High BP	Elevated BP
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Out-of-Office and Self-Monitoring of BP

COR	LOE	Recommendation for Out-of-Office and Self-Monitoring of BP
I	A^{SR}	Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions.

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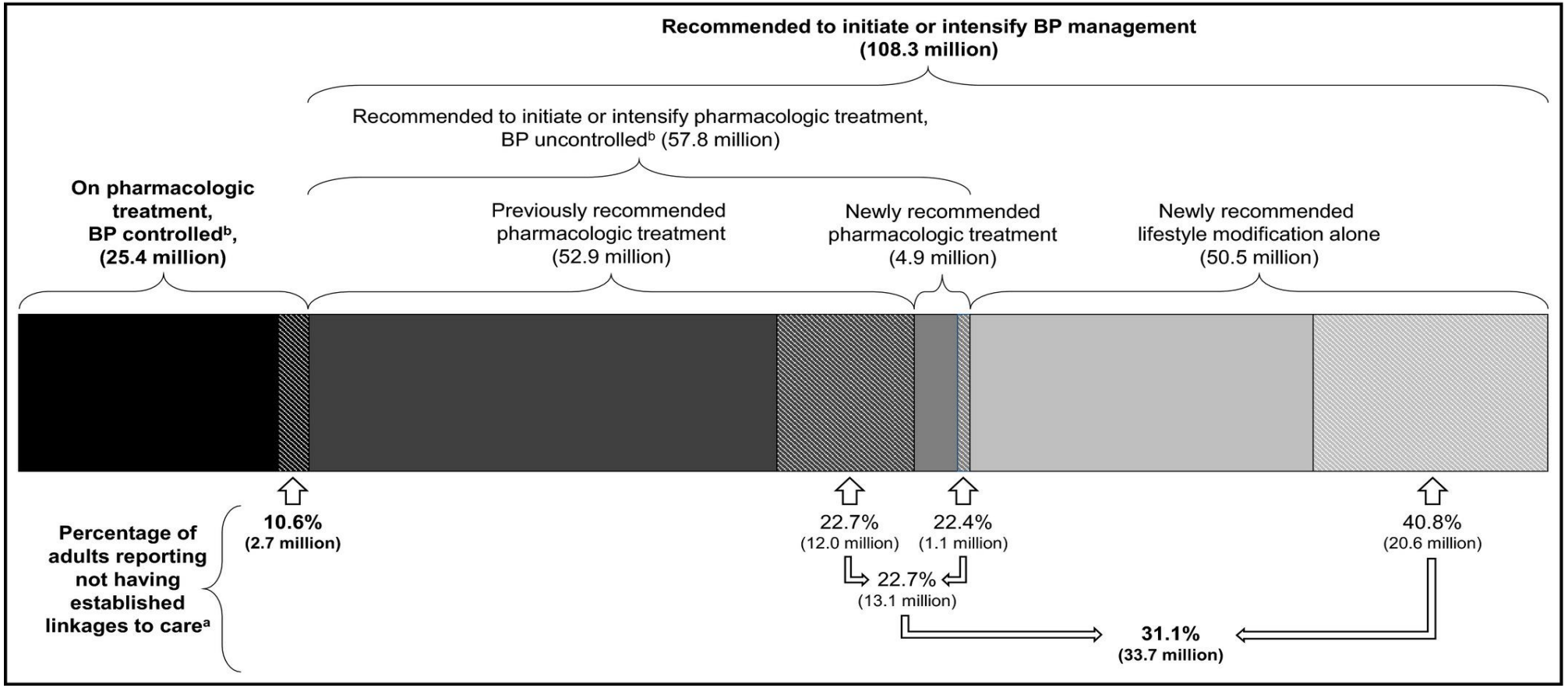
Process Quality Measure QM-3 (PM-4, QM-1, QM-2)

Nonpharmacological Intervention Composite

Potential need for expanded pharmacologic treatment and lifestyle modification services under the 2017 ACC/AHA Hypertension Guideline



Ritchey, et. al., The Journal of Clinical Hypertension (2018)

Short Title: QM-3: Nonpharmacological interventions for all ACC/AHA stages of HBP (composite measure combining PM-4, QM-1, and QM-2)

QM-3: Percentage of adults 18 to 85 years of age who had a diagnosis of any ACC/AHA stage of HBP (elevated BP, stage 1 HBP, or stage 2 HBP) who have a documented discussion of intensive lifestyle modification in ≥1 visits during the measurement year.	
Measure Description: Percentage of patients with any ACC/AHA stage of HBP (elevated BP, stage 1 HBP, or stage 2 HBP) who have a documented discussion of intensive lifestyle modification in ≥1 visits during the measurement year	
Numerator	Patients who have a documented discussion of intensive lifestyle modification at least once in the performance year and in accordance with ACC/AHA guidelines on nonpharmacological therapy
Denominator	All patients 18–85 y of age with any ACC/AHA stage of HBP (elevated BP, stage 1 HBP, or stage 2 HBP) who had at least 1 outpatient encounter with a diagnosis of HBP during the first 6 mo of the measurement year or any time before the measurement period
Denominator Exclusions	BP readings taken during an inpatient stay
Denominator Exceptions	None
Measurement Period	12 mo/measurement year
Sources of Data	Paper medical record/prospective data collection flow sheet, Qualified Electronic Health Record, QCDR, electronic administrative data (claims), expanded (multiple source) administrative data, electronically or telephonically transmitted BP readings
Attribution	Physician group practice, accountable care organization, clinically integrated network, health plan, integrated delivery system
Care Setting	Outpatient (office, clinic, home, or ambulatory)

ACC indicates American College of Cardiology; AHA, American Heart Association; BP, blood pressure; HBP, high blood pressure; PM, performance measure; QCDR, Qualified Clinical Data Registry; and QM, quality measure.

Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension*

	Nonpharmacological Intervention	Dose	Approximate Impact On SBP	
			Hypertension	Normotension
Weight loss	Weight/body fat	Best goal is ideal body weight, but aim for at least a 1-kg reduction in body weight for most adults who are overweight. Expect about 1 mm Hg for every 1-kg reduction in body weight.	-5 mm Hg	-2/3 mm Hg
Healthy diet	DASH dietary pattern	Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products, with reduced content of saturated and total fat.	-11 mm Hg	-3 mm Hg
Reduced intake of dietary sodium	Dietary sodium	Optimal goal is <1500 mg/d, but aim for at least a 1000-mg/d reduction in most adults.	-5/6 mm Hg	-2/3 mm Hg
Enhanced intake of dietary potassium	Dietary potassium	Aim for 3500–5000 mg/d, preferably by consumption of a diet rich in potassium.	-4/5 mm Hg	-2 mm Hg

*Type, dose, and expected impact on BP in adults with a normal BP and with hypertension. DASH indicates Dietary Approaches to Stop Hypertension; and SBP, systolic blood pressure. Resources: Your Guide to Lowering Your Blood Pressure With DASH—How Do I Make the DASH? Available at: https://www.nhlbi.nih.gov/health/resources/heart/hbp-dash-how-to.
Top 10 Dash Diet Tips. Available at: http://dashdiet.org/dash_diet_tips.asp

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Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension* *(continued)*

	Nonpharmacological Intervention	Dose	Approximate Impact On SBP	
			Hypertension	Normotension
Physical activity	Aerobic	• 90–150 min/wk • 65%–75% heart rate reserve	-5/8 mm Hg	-2/4 mm Hg
	Dynamic resistance	• 90–150 min/wk • 50%–80% 1 rep maximum • 6 exercises, 3 sets/exercise, 10 repetitions/set	-4 mm Hg	-2 mm Hg
	Isometric resistance	• 4 × 2 min (hand grip), 1 min rest between exercises, 30%–40% maximum voluntary contraction, 3 sessions/wk • 8–10 wk	-5 mm Hg	-4 mm Hg
Moderation in alcohol intake	Alcohol consumption	In individuals who drink alcohol, reduce alcohol† to: • Men: ≤2 drinks daily • Women: ≤1 drink daily	-4 mm Hg	-3 mm

*Type, dose, and expected impact on BP in adults with a normal BP and with hypertension.
†In the United States, one “standard” drink contains roughly 14 g of pure alcohol, which is typically found in 12 oz of regular beer (usually about 5% alcohol), 5 oz of wine (usually about 12% alcohol), and 1.5 oz of distilled spirits (usually about 40% alcohol).

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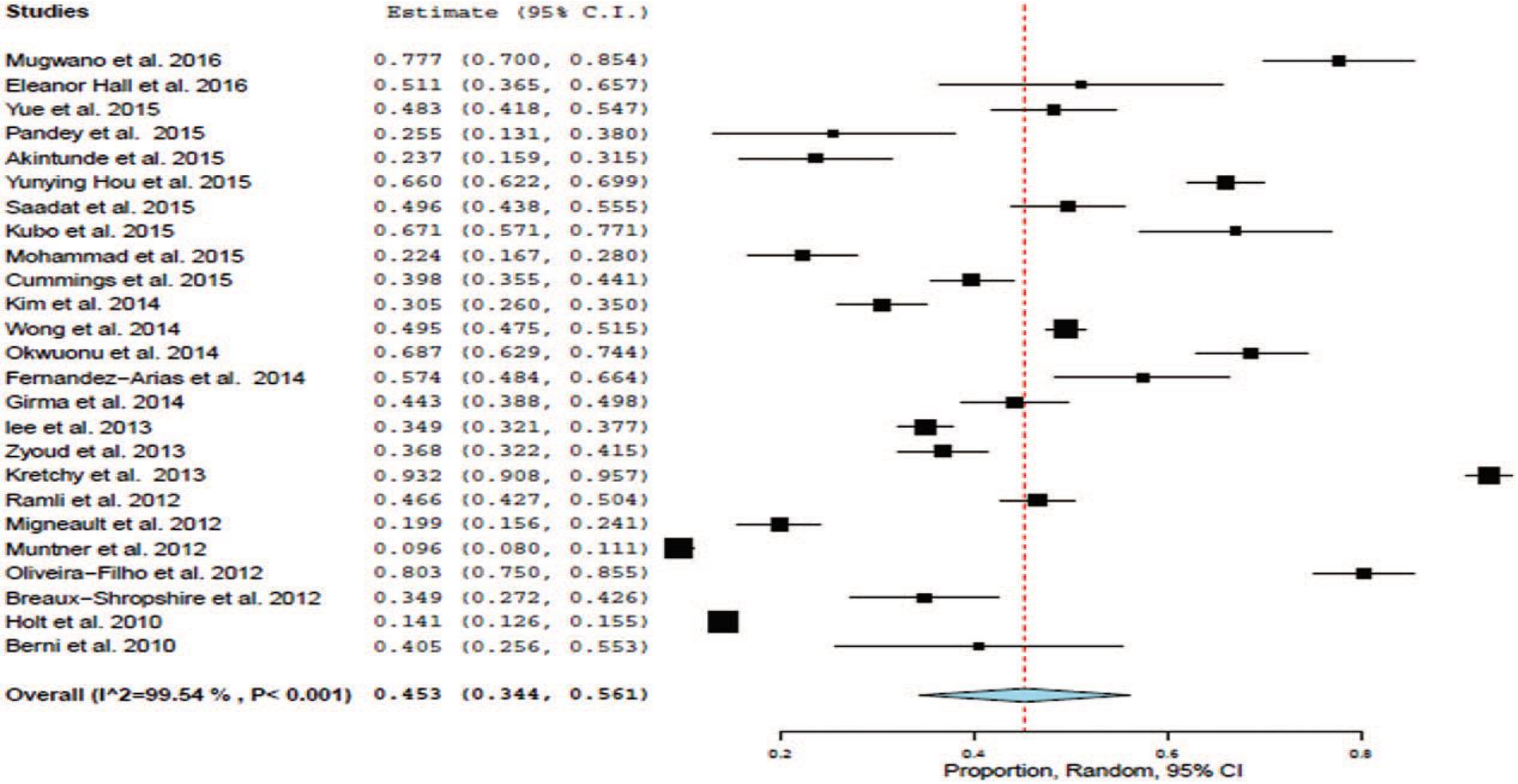
Process Quality Measure QM-4

Medication Adherence

Opportunity to improve medication adherence

Figure 1. Nonadherence in hypertensive patients



Abegaz, et, al., Medicine (2017)

Consequence of suboptimal adherence to antihypertensive medications

Adverse Outcome	References
1. Uncontrolled hypertension	Abegaz et al,[116] Butler et al,[117] and Breekveldt-Postma et al[118]
2. Progression to hypertensive crisis	Saguner et al[119]
3. Vascular stiffness	Berni et al[120]
4. Left ventricular hypertrophy	Comberg et al[121] and Bruno et al[122]
5. Microalbuminuria	Kim et al[123]
6. Myocardial infarction	Mazzagliaet al,[124] Corrao et al,[125] Chowdhury et al,[126] Herttuaet al,[127] Yang et al,[128] Perreault et al,[129,130] and Breekveldt-Postma et al[131]
7. Stroke	Mazzagliaet al,[124] Corrao et al,[125] Chowdhury et al,[126] Herttuaet al,[127] Yang et al,[128] Perreault et al,[129,130] and Breekveldt-Postma et al[131]

Adverse Outcome	References
8. Chronic heart failure	Mazzagliaet al,[124] Corrao et al,[125] Chowdhury et al,[126] Herttuaet al,[127] Yang et al,[128] Perreault et al,[129,130] and Breekveldt-Postma et al[131]
9. Chronic kidney and end-stage renal disease	Cedillo-Couvert et al[132] and Roy et al[133]
10. Cognitive dysfunction, dementia	Poon et al[134] and Vik et al[135]
10. Excess emergency department and hospital admissions	Herttuaet al,[127] Heaton et al,[136] and Pittman et al[137]
11. Reduced quality of life	Wiklund et al[138]
12. Impaired work productivity, disability	Mokdad et al[139] and Wagner et al[140]
13. Increased healthcare costs	Pittman et al[137], Iuga et al,[141] Cherry et al,[142] and Roebuck et al[143]
14. Death	Cherry et al[142]

Burnier, Egan. Circ. Res. (2019)

Short Title: QM-4: Medication adherence to drug therapy for ACC/AHA stage 1 with ASCVD risk ≥10% or ACC/AHA stage 2 HBP

QM-4: Percentage of adults 18 to 85 years of age who had a diagnosis of ACC/AHA stage 1 HBP with ASCVD risk ≥10% or ACC/AHA stage 2 HBP with ≥1 prescriptions for BP medication who had ≥80% adherence to BP medication(s) during the measurement year.	
Measure Description: Percentage of patients with ACC/AHA stage 1 HBP and ASCVD risk ≥10% or ACC/AHA stage 2 HBP who had ≥80% adherence to prescribed BP medication(s) during the measurement year	
Numerator	Patients with ≥1 prescriptions for BP medication(s) who met the PDC threshold of ≥80% during the measurement year
Denominator	All patients 18–85 y of age with ACC/AHA stage 1 HBP and ASCVD risk ≥10% or ACC/AHA stage 2 HBP who had at least 1 outpatient encounter with a diagnosis of HBP and had ≥1 or more prescriptions for BP medications during the first 6 mo of the measurement year or any time before the measurement period
Denominator Exclusions	End-stage renal disease, kidney transplantation, pregnancy, BP readings taken during an inpatient stay, patients solely on nonpharmacological therapy
Denominator Exceptions	Documentation of a medical reason (e.g., treatment intolerance, significant risk of treatment intolerance, especially for frail patients ≥65 y of age) Documentation of a patient reason (e.g., economic/access issues)
Measurement Period	12 mo/measurement year
Sources of Data	Medicaid claims data, commercial claims data, Medicare claims data, Tricare claims data
Attribution	Physician group practice, accountable care organization, clinically integrated network, health plan, integrated delivery system
Care Setting	Outpatient (office, clinic, home, or ambulatory)

ACC indicates American College of Cardiology; AHA, American Heart Association; ASCVD, atherosclerotic cardiovascular disease; BP, blood pressure; HBP, high blood pressure; PDC, proportion of days covered; QCDR, Qualified Clinical Data Registry; and QM, quality measure.

Short Title: QM-4: Medication adherence to drug therapy for ACC/AHA stage 1 with ASCVD risk ≥10% or ACC/AHA stage 2 HBP

Adherence to drug therapy lowers BP and reduces the risk of cardiovascular events and death.
As many as 50% to 80% of patients prescribed antihypertensive medications demonstrate suboptimal adherence.
Adherence to drug therapy is influenced by several interrelated factors, including large pill burden, complex drug regimen, cost of medications, side effects of multidrug antihypertensive regimens, poor patient–provider relationship, and **clinical inertia**.

No single strategy has been found to be more effective than others in improving adherence, but rather, a combination of patient-level, provider-level, and system-level strategies is likely to be the most effective.

Medication adherence is highest with once-daily dosing and declines within increasing dosing frequency. Medication adherence tools, such as the Hill-Bone Compliance to HBP Therapy Scale, may be used to identify barriers to medication adherence, in combination with other more objective methods, such as pill counts and data on medication refills.

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Process Quality Measure QM-6 (PM-5, QM-5)

Use of Home Blood Pressure Monitoring (HBPM) Composite

Short Title: QM-6: Use of HBPM for management of ACC/AHA stage 1 or ACC/AHA stage 2 (composite measure combining PM-5 and QM-5)

QM-6: Use of HBPM for management of ACC/AHA stage 1 HBP or ACC/AHA stage 2 HBP (composite measure combining PM-5 and process QM-5).	
Measure Description: Percentage of patients 18 to 85 y of age who had a diagnosis of either ACC/AHA stage 1 HBP or ACC/AHA stage 2 HBP for whom HBPM is recommended and HBPM data are documented in the patient record	
Numerator	Documentation of home BP readings in the medical record
Denominator	All patients 18 to 85 y of age who had a diagnosis of either ACC/AHA stage 1 HBP or ACC/AHA stage 2 HBP who had at least 1 outpatient encounter with a diagnosis of HBP during the first 6 mo of the measurement year or any time before the measurement period
Denominator Exclusions	End-stage renal disease, kidney transplantation, pregnancy, BP readings taken during an inpatient stay
Denominator Exceptions	None
Measurement Period	12 mo/measurement year
Sources of Data	Paper medical record/prospective data collection flow sheet, Qualified Electronic Health Record, QCDR, electronic administrative data (claims), expanded (multiple source) administrative data, electronically or telephonically transmitted BP readings
Attribution	Healthcare provider (healthcare provider, physician group practice, accountable care organization, clinically integrated network, health plan, integrated delivery system)
Care Setting	Outpatient (office, clinic, home, or ambulatory)

ACC indicates American College of Cardiology; AHA, American Heart Association; BP, blood pressure; HBP, high blood pressure; HBPM, home blood pressure monitoring; PM, performance measure; QCDR, Qualified Clinical Data Registry; and QM, quality measure.

Short Title: QM-6: Use of HBPM for management of ACC/AHA stage 1 or ACC/AHA stage 2 (composite measure combining PM-5 and QM-5)

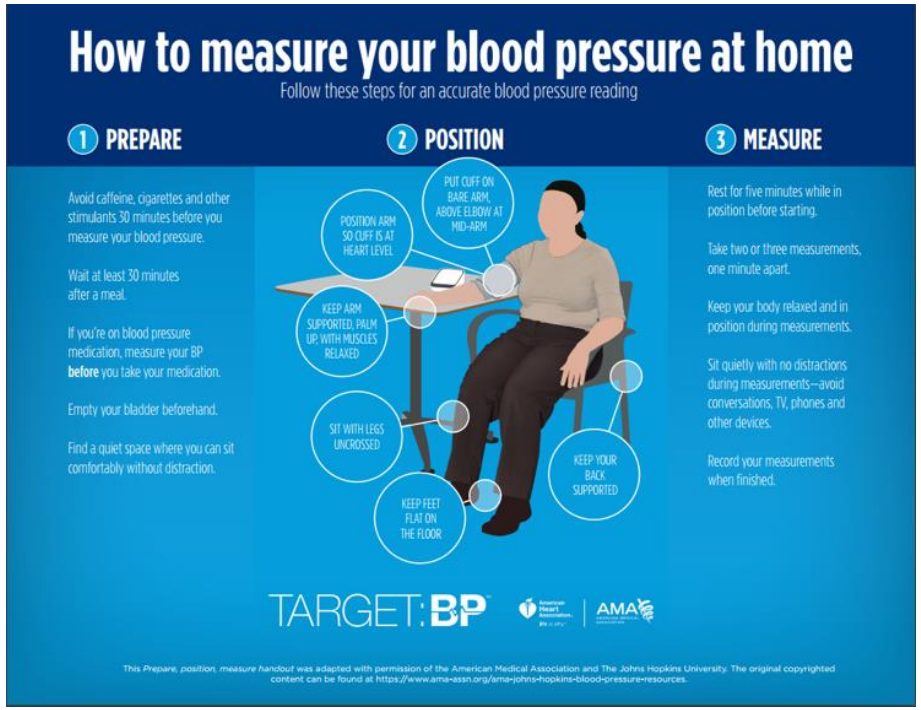
Patient training should occur under medical supervision, including:
• Information about hypertension
• Selection of equipment
• Acknowledgment that individual BP readings may vary substantially
• Interpretation of results
Devices: Verify use of automated validated devices. Monitors with provision for storage of readings in memory are preferred. Verify use of appropriate cuff size to fit the arm. • Remain still:
• Sit correctly:
• Bottom of the cuff should be placed directly above the antecubital fossa (bend of the elbow).
• Take multiple readings:
• Record all readings accurately:

Tools for using Home BP Monitoring

Self-measured blood pressure (SMBP) monitoring helps patients better self-manage their high blood pressure and allows providers to diagnose and manage hypertension more effectively.

Available resources:

- Training video*
- Infographic*
- SMBP recording log
- General overview materials for patients



https://targetbp.org/tools_downloads/self-measured-blood-pressure-video/

* Available in English and Spanish.

Muntner P, Shimbo D, Carey RM, Charleston JB, Gaillard T, Misra S, Myers MG, Ogedegbe G, Schwartz JE, Townsend RR, et al. Measurement of blood pressure in humans: a scientific statement from the American Heart Association. Hypertension. 2019;73:e35–e66. DOI: 10.1161/HYP.0000000000000087

2020 CPT codes –

Self Monitored Blood Pressure

- 99473: *SMBP using a device validated for clinical accuracy; patient education/training and device calibration*
  - Can be submitted once
- 99474: *SMBP using a device validated for clinical accuracy; separate self-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*
  - Can be submitted monthly

American Medical Association. CPT© 2020 Professional Edition Codebook; https://s3.amazonaws.com/public-inspection.federalregister.gov/2019-24086.pdf

Structural Quality Measures

- Designed to evaluate the capability and capacity of various levels of the US healthcare system to implement recommended strategies from Clinical Practice Guidelines, such as standardized protocols, electronic health record surveillance, telehealth, team-based care, a single plan of care, and performance measurement.
- Intended for qualitative evaluation of process and infrastructure for these strategies at the care delivery unit (CDU) level (including solo/small physician offices, group practices, health systems, public health sites, accountable care organizations, and clinically integrated networks).

Structural Quality Measure Themes

1. Diagnosis, Assessment, and Accurate Measurement
2. A Patient-Centered Approach for Controlling HBP
3. Implementation of a System of Care for Patients with HBP
4. Use of Performance Measures for accountability and quality improvement of care for people with HBP

Summary of 2019 ACC/AHA Structural Measures for the Diagnosis and Management of High Blood Pressure

Measure No.	Measure Title/Description	ACC/AHA Stage 2 HBP	ACC/AHA Stage 1 HBP	ACC/AHA Elevated BP	COR/LOE
Structural Quality Measures (SM)					
Diagnosis, Assessment and Accurate Measurement					
SM-1	Use of a Standard Protocol to consistently and correctly measure Blood Pressure	+	+	+	1C-EO
SM-2	Use of a standard process for assessing ASCVD risk (Prevention GL)	+	+	+	IB-NR
SM-3	Use of a standard process for properly screening all adults 18 years and older for High Blood Pressure (USPSTF)	+	+	+	A (USPSTF)
SM-4	Use of an Electronic Health Record to accurately diagnose and assess High Blood Pressure Control	+	+	+	1B-NR
A Patient-Centered Approach for Controlling High Blood Pressure					
SM-5	Use of a standard process to engage patients in shared decision-making, tailored to their personal benefits, goals and values for evidence-based interventions to improve control of High BP (Prevention GL)	+	+	+	IB-R
SM-6	Demonstration of infrastructure and personnel that assesses and addresses social determinants of health of patients with High Blood Pressure (Prevention GL)	+	+	+	IB-NR
Implementation of a System of Care for Patients with High Blood Pressure					
SM-7	Use of Team Based Care to better manage High Blood Pressure	+	+	+	1A
SM-8	Use of Telehealth, m-health and e-health and other digital technologies to better diagnose and manage High Blood Pressure	+	+	+	IIaA/1A
SM-9	Use of a single, standardized plan of care for all patients with High Blood Pressure	+	+	+	1C-EO
Use of Performance Measures to Improve Care for High Blood Pressure					
SM-10	Use of performance measures to improve quality of care for patients with High Blood Pressure	+	+		IIaB-NR

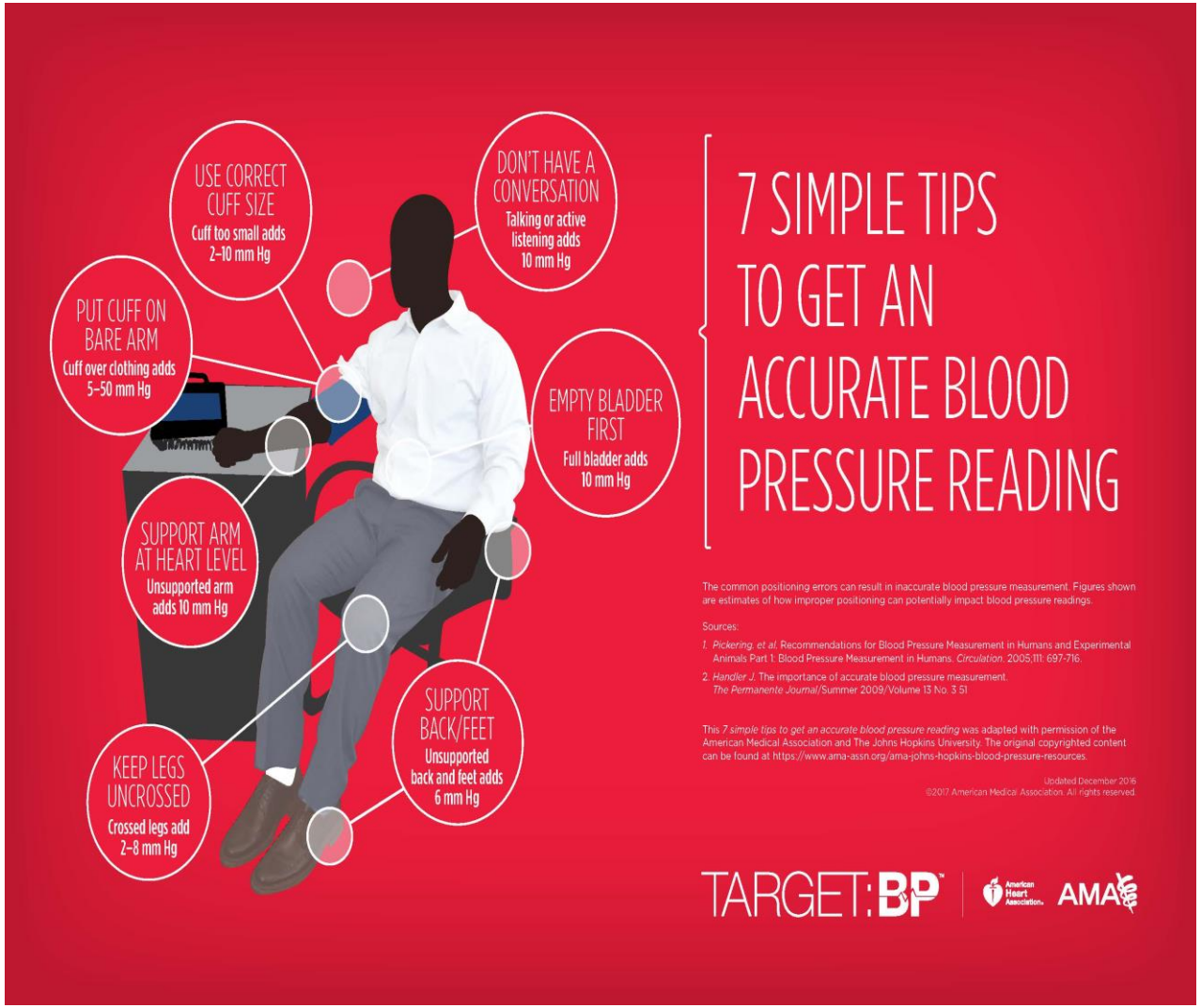
Diagnosis, Assessment, and Accurate Measurement

SM-1: Use of a standard protocol to consistently and correctly measure BP in the ambulatory setting

Measure Components	The CDU uses a standard process/protocol for properly measuring BP consistently and correctly, including: • Adoption and implementation of a protocol for accurate measurement and documentation of BP. • Availability of staff who are trained in measurement and documentation of BP. • Documentation of staff assessment of correct BP measurement skill.
Elements	• Protocol includes preassessment tools, checklists, and metrics to assess gaps in care. • **Certification** of staff correct BP measurement skills.
Recommended Protocol	• 2017 Hypertension Clinical Practice Guidelines • Blood Pressure Assessment in Adults in Clinical Practice and Clinic-Based Research
Documentation	Documenting the implementing protocols may impose additional burdens on HCOs. Potential options to consider: • Attestation, self-reported information • External auditor/rater • Competency testing

BP indicates blood pressure; CDU, care delivery unit; HCO, home care organization; and SM, structural measure.

In-Office Blood Pressure Measurement



TARGET:BP

Blood pressure measurement:
Measure accurately

Screening for high blood pressure

- Use a validated, automated device to measure BP
- Use the correct cuff size on a bare arm
- Ensure the patient is positioned correctly

If initial blood pressure is elevated, obtain a confirmatory measurement

- Repeat above steps
- Ensure the patient has an empty bladder
- Ensure the patient has rested quietly for at least five minutes
- Obtain the average of at least three BP measurements

Evidenced-based tips for correct positioning

- Ensure the patient is seated comfortably with:
  - [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
- Remain quiet: No one should be talking during the measurement

Diagnosis, Assessment, and Accurate Measurement

SM-2: Use of a standard process for assessing ASCVD risk

Measure Components	The CDU uses a standard process/protocol for properly measuring/assessing ASCVD risk, including: 1. Measurement of ASCVD Risk a. Use of ACC/AHA Risk Estimator is recommended. Others may be used as alternatives when evaluated in the population seen clinically. b. Healthcare providers identify the health provider responsible for insuring competency and implementation of risk assessment in practice. 2. Incorporation Into Record a. Baseline risk should be part of patient demographics and included in each note when BP is 130–139/80–89 mm Hg, with indication of how it is used in defining treatment strategy. b. EMR for systems (e.g., Epic, Cerner) should be requested to automatically place cardiovascular risk assessment in the patient record as part of vital signs. 3. Confirmation of Patient–Clinician Discussion a. The risk assessment used in the patient–clinician discussion should be entered 1) directly by EHR (e.g., Epic, Cerner) or 2) by physician or other healthcare provider as part of documentation of the discussion. b. Patients should be knowledgeable about their results and, if interested, may be instructed on how to use the mobile ASCVD risk assessment app.

ACC indicates American College of Cardiology; AHA, American Heart Association; ASCVD, atherosclerotic cardiovascular disease; BP, blood pressure; CDU, care delivery unit; EHR, electronic health record; EMR, electronic medical record; and SM, structural measure.

Decision to use BP-Lowering Medications: ACC/AHA COR/LOE

	Stage 2 High BP	Stage 1 High BP	Elevated BP
ASCVD Risk ≥ 10%	1A	1A	Not recommended
ASCVD Risk < 10%	1 C-LD	Not recommended	Not recommended

- All require intensive lifestyle modification. **(1A)**
- For older adults (≥65 years of age) with hypertension and a high burden of comorbidity and limited life expectancy, clinical judgment, patient preference, and a team-based approach to assess risk/benefit is reasonable for decisions regarding intensity of BP lowering and choice of antihypertensive drugs. **(IIa-CEO)**

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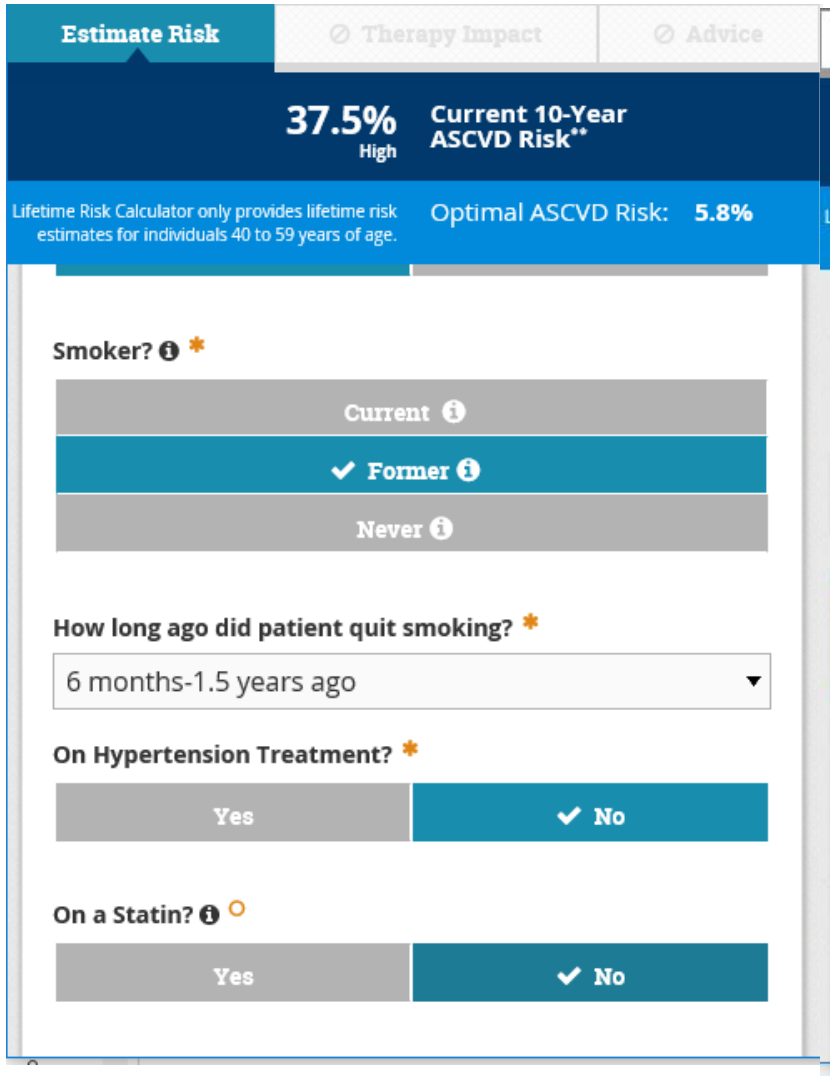
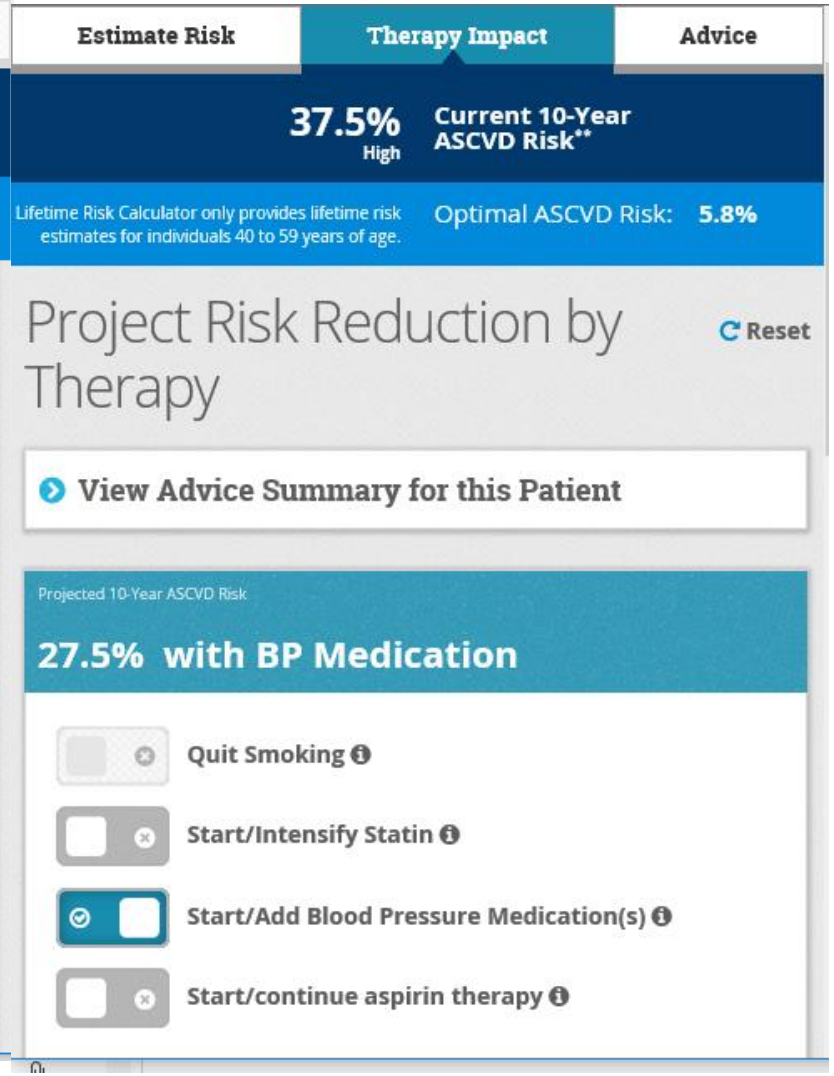
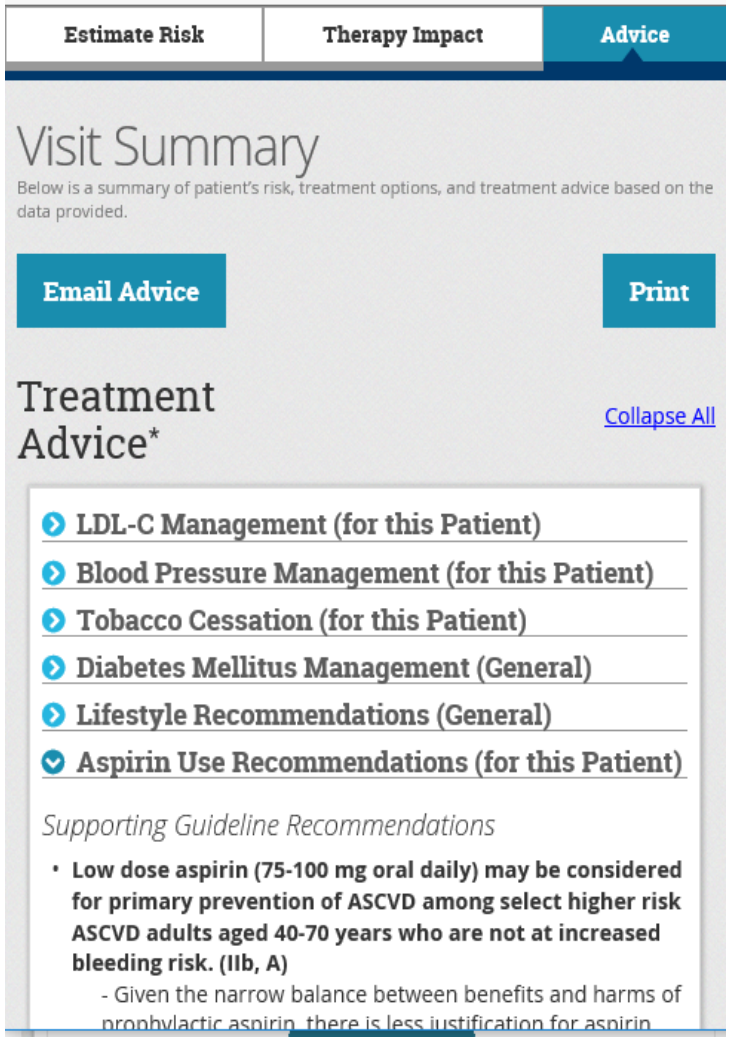
ASCVD Risk Estimator Plus







SM-2: Use of a Standard Process for Assessing ASCVD Risk

Assessment of cardiovascular risk is the fundamental first step toward developing effective evidence-based therapy for treatment strategies for and shared decision discussions with patients. This includes using this assessment to correctly classify a patient's current stage of HBP in accordance with recommendations from the 2017 Hypertension Clinical Practice Guidelines.

In general, the ACC/AHA race- and sex-specific Pooled Cohort Equations (ASCVD Risk Estimator) should be used for screening and management of hypertension.

The 10-y risk is used for patients without ASCVD who have stage 1 hypertension (130/80–139/89 mm Hg) to determine those who should be treated with medical therapy (10-y risk >10%) and those who should who should be managed with nonpharmacological therapy (10-y risk <10%).

Patients should know their current cardiovascular risk and how it relates to decisions about their therapy.

ACC indicates American College of Cardiology; AHA, American Heart Association; ASCVD, atherosclerotic cardiovascular disease; BP, blood pressure; CDU, care delivery unit; EHR, electronic health record; EMR, electronic medical record; and SM, structural measure.

A Patient-Centered Approach for Controlling HBP

SM-5: Use of a standard process to engage patients in shared decision-making, tailored to their personal benefits, goals, and values for evidence-based interventions to improve control of HBP

Measure Components	The CDU uses a standard process/protocol for implementing SDM in clinical settings for patients with HBP, including:
	One of the following:
	• Structured decision aids
	  ○ A formal SDM tool is available, with evidence that it is being routinely used in clinical encounters.
	  ▪ The choice of a decision aid should be informed by a formal quality assessment, as recommended by IPDAS. The tool should be published, free of bias, and ideally endorsed by professional organizations.
	  ○ A process exists whereby patients with hypertension are identified and exposed to the SDM tool.
	  ▪ A formal SDM encounter occurs between the patient and provider using an evidence-based decision tool before initiation or adjustment of GDMT.
	• Communication skills training for providers
	  ○ A program exists to provide skills in SDM to practitioners, with periodic assessments of providers' skills.
	• Built-in triggers in EHRs to remind clinicians to provide a decision aid to patients with hypertension.
	  ○ The use of an SDM tool is documented within the EHR.
	  ○ A process exists for identifying patients with hypertension who have not participated in SDM so that such a process can be offered.

CDU indicates care delivery unit; EHR, electronic health record; GDMT, guideline-directed medical therapy/treatment; HBP, high blood pressure; IPDAS, International Patient Decision Aid Standards; SDM, shared decision making; and SM, structural measure.

SM-5: Use of a Standard Process to Engage Patients in Shared Decision-Making, Tailored to Their Personal Benefits, Goals, and Values for Evidence-Based Interventions to Improve Control of HBP

Decisions about primary prevention should be collaborative between a clinician and a patient. SDM occurs when practitioners engage patients in discussions about personalized ASCVD risk estimates and their implications on the perceived benefits of preventive strategies, including lifestyle habits, goals, and medical therapies.

Collaborative decisions are more likely to address potential barriers to treatment options.

Patients should be engaged in the selection of
antihypertensive drug therapy and lifestyle modification strategies, with consideration of individual values, preferences, and associated conditions and
comorbidities (2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease).

Implementation of a System of Care for Patients with HBP

SM-7: Use of team-based care to better manage HBP

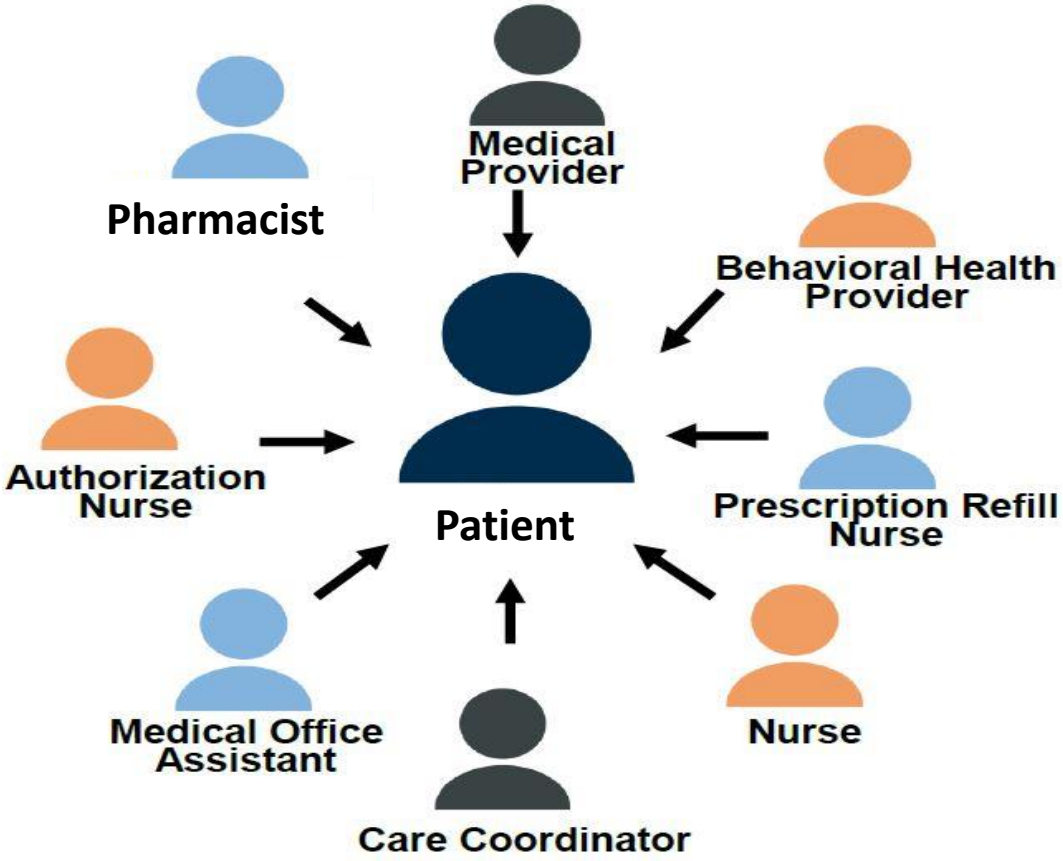
Measure Components	Goals of Team-Based Care • Improve clinical workflow • Patient education • Closer follow-up of BP after initiation • Medication titration • Laboratory follow-up • Improved adherence • Lower clinician burn-out Checklist Goal: To optimize outpatient hypertension management (to be specifically stated as team's purpose/responsibility). Team Members: • Lead clinician (at least 1): APRN or physician • Clinical support (at least 1): pharmacist, nurse, physician assistant, medical assistant, community health worker, care manager, or EHR support modules specific to hypertension • Administrative support (at least 1): scheduler, receptionist • Expert referral (onsite or external): designated referral system for refractory patients: cardiologist, nephrologist, endocrinologist Team meetings: regular meetings on at least a quarterly basis to evaluate delivery of care for patients with hypertension.

Implementation of a System of Care for Patients with HBP

SM-7: Use of team-based care to better manage HBP (cont'd)

Measure Components	Performance monitoring: Use of PM 1-5 and QM 1-6 for feedback on performance and quality of care. Program elements (**at least 2**): 1. Patient educational materials or sessions on hypertension. 2. Availability of BP-specific follow-up in 1 mo (telephone based, with HBPM, telehealth, or clinical support or clinician follow-up). 3. Ability of patients to contact team-based care team in a timely fashion about hypertension concerns (telephone, secure EHR messaging, email, urgent appointments). **4. Algorithm for medication titration led by clinical support team member and lead clinician supervision.** 5. Timely follow-up and monitoring of laboratory results, with titration of relevant drug classes. 6. Monitoring adherence by using pharmacy fill data. 7. Provider-specific performance reports with hypertension metrics.

BP indicates blood pressure; EHR, electronic health record; HBP, high blood pressure; HBPM, home blood pressure monitoring; PM, performance measure; QM, quality measure; and SM, structural measure.



I am a member of a team, and I rely on the team, I defer to it and sacrifice for it, because the ***team****, not the individual, is the ultimate* ***champion****. –Mia Hamm*

Implementation of a System of Care for Patients with HBP

SM-9: Use of a single, standardized plan of care for all patients with HBP	
Measure Components	The CDU has developed and implemented a single, standardized plan of care for HBP that addresses health behaviors, comorbid conditions, follow-up, and treatment goals through shared decision making, in accordance with the flowchart below.

Clinician's Sequential Flowchart for the Management of Hypertension
Measure office BP accurately
Detect white-coat hypertension or masked hypertension by using ABPM and HBPM
Evaluate for secondary hypertension
Identify target-organ damage
Introduce lifestyle interventions
Identify and discuss treatment goals
Use ASCVD risk estimation to guide BP threshold for pharmacological therapy
Align treatment options with comorbidities
Account for age, race, ethnicity, sex, and special circumstances in antihypertensive treatment
Initiate antihypertensive pharmacological therapy
Insure appropriate follow-up
Use team-based care
Connect patient to clinician via telehealth
Detect and reverse nonadherence
Use health information technology for remote monitoring and self-monitoring of BP

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Thank you!


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QUESTIONS?