



American
Heart
Association.

Even Better: Learning Health Systems' Role to Achieve Better Health Outcomes for Everyone, Everywhere.

Opening Plenary
April 21, 2026

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American
Heart
Association.

Disclosure and Personal/ Positionality Statement:

No financial disclosures

- First generation US citizen
- Family medicine residency trained
- Public health trained
- Blues plan experience
- A lifelong implementation practitioner
- Married to Katherine Sanchez, PhD





The Opportunity

Now may be the moment to imagine **a transformed health and health care delivery system** for the United States and **the role that learning health systems can play in contributing to, accelerating, and achieving transformation.**

Description

- Review the National Academy of Medicine (NAM) and Agency for Healthcare Research and Quality (AHRQ) definitions and characteristics of a learning health system.
- Discuss potential new roles for learning health systems as drivers of research and disseminators of implementation science.
- Challenge to HCSRN, as a network of learning health systems, to play a leadership role to transform the U.S. health and healthcare system and realize better healthcare, better outcomes, and better health.



Know Your Audience

- The HCSRN brings together the research centers from many of the nation's best and most innovative health care systems. **Collectively, the HCSRN represents more than 2,000 scientists and research staff** with methodological and content expertise from an array of disciplines including epidemiology, economics, disparities, outcomes and quality assessment, clinical trials, and genomics.



Know Your Audience

- **Mission: To improve individual and population health through research that connects the resources and capabilities of learning health care systems for all.**
- Vision: The Health Care Systems Research Network is the nation's preeminent source of population-based research that measurably improves health and health care for all.



Learning Health System

National Academy of Medicine (NAM) definition

“one in which *science, informatics, incentives, and culture* are aligned for continuous improvement, innovation, and equity—with best practices and discovery seamlessly embedded in the delivery process, individuals and families active participants in all elements, and new knowledge generated as an integral by-product of the delivery experience.”



Learning Health System (LHS)

NAM seeks to accelerate transformation of health and health care outcomes to improve quality, safety, patient-centeredness, and affordability through the LHS Shared Commitments Initiative:

1. Engaged
2. Safe
3. Effective
4. Equitable
5. Efficient
6. Accessible
7. Accountable
8. Transparent
9. Secure
10. Adaptive



Learning Health System

AHRQ definition - a health system in which internal data and experience are systematically integrated with external evidence, and that knowledge is put into practice. As a result, patients get higher quality, safer, more efficient care, and health care delivery organizations become better places to [seek care] and work.



Learning Health Systems _AHRQ

- Have leaders committed to a culture of **continuous learning and improvement**.
- **Systematically gather and apply evidence** in real-time to guide care.
- **Employ IT methods** to share new evidence with clinicians to improve decision-making.
- **Promote the inclusion of patients** as vital members of the learning team.
- Capture and analyze data and care experiences to improve care.
- Continually assess outcomes and refine processes and training to create a feedback cycle for learning and improvement.



Are you or can you be a better Learning Health System?

Ask yourself if you:

- Have leaders who are committed to a culture of **continuous learning and improvement**?
- **Systematically gather and apply evidence** in real-time to guide care?
- **Employ IT methods** to share new evidence with clinicians to improve decision-making?
- **Promote the inclusion of patients** as vital members of the learning team?
- Capture and analyze data and care experiences to improve care?
- Continually assess outcomes and refine processes and training to create a feedback cycle for learning and improvement?



The nation's preeminent source of population-based research that measurably improves health and health care for all.

Are you committed to collaborative implementation research?



How might HSCRN makes its vision reality?

- **Set the agenda**
 - **Pick an area of focus – a cause to “champion”.**
- **Work together as system of learning health systems.**
- **Demonstrate collaborative research, learning, and action.**
- **Share outcomes with one another.**
- **Share outcomes with everyone else.**



Where might HSCRN share outcomes with everyone else?

American Heart Association Peer-Reviewed Journals (14)

- **Circulation: Population Health and Outcomes (formerly known as Circulation: Cardiovascular Quality and Outcomes)**
 - [Association Between Social Determinants of Health and Adherence to Antihypertensive Medications in US Patients With Uncontrolled, Treated Hypertension](#)
- **Journal of the American Heart Association**
 - [Dementia Risk in the Decade Before and After Coronary Heart Disease Diagnosis: Hybrid Case–Control and Cohort Study](#)
- **Hypertension**
 - [Contemporary Prevalence and Treatment Patterns Among US Adults With Apparent Treatment-Resistant Hypertension](#)

Where to focus

When asked why he robbed banks, Willie Sutton answered...

**because that's where the
money is.**

\$\$\$



Where to focus

HCSRN

**That's where there might
be significant impact.**

HTN?





Prevalence of Hypertension in US (2021-2023) is high

- **46.2%** - the age-standardized proportion of US adults with hypertension defined by the 2017 ACC/AHA BP guideline in 2021–2023.
-
- **32.8%** - The age-adjusted prevalence of US adults with systolic BP ≥ 140 mm Hg, diastolic BP ≥ 90 mm Hg, or reporting antihypertensive medication use in 2021-2023
- Prevalence of hypertension in the US is projected to increase from $\sim 50\%$ in 2020 to **61% in 2050**.

Leading Risk Factors for CVD

Population Attributable Fraction (PAF)

Rank	Risk Factor	PAF (95% CI)
1	Hypertension	22.3% (17.4-27.2)
2	High non-HDL cholesterol	8.1% (3.1-13.2)
3	Household air pollution	6.9% (4.7-9.1)
4	Tobacco use	6.1% (4.5-7.6)
5	Poor diet	6.2% (2.8-9.5)
6	Low education	5.8% (2.8-8.8)
7	Abdominal obesity	5.7% (1.7-9.8)
8	Diabetes	5.1% (2.9-7.4)
9	Low grip strength	3.3% (0.9-5.7)
10	Low physical activity	1.5% (0.3-2.7)





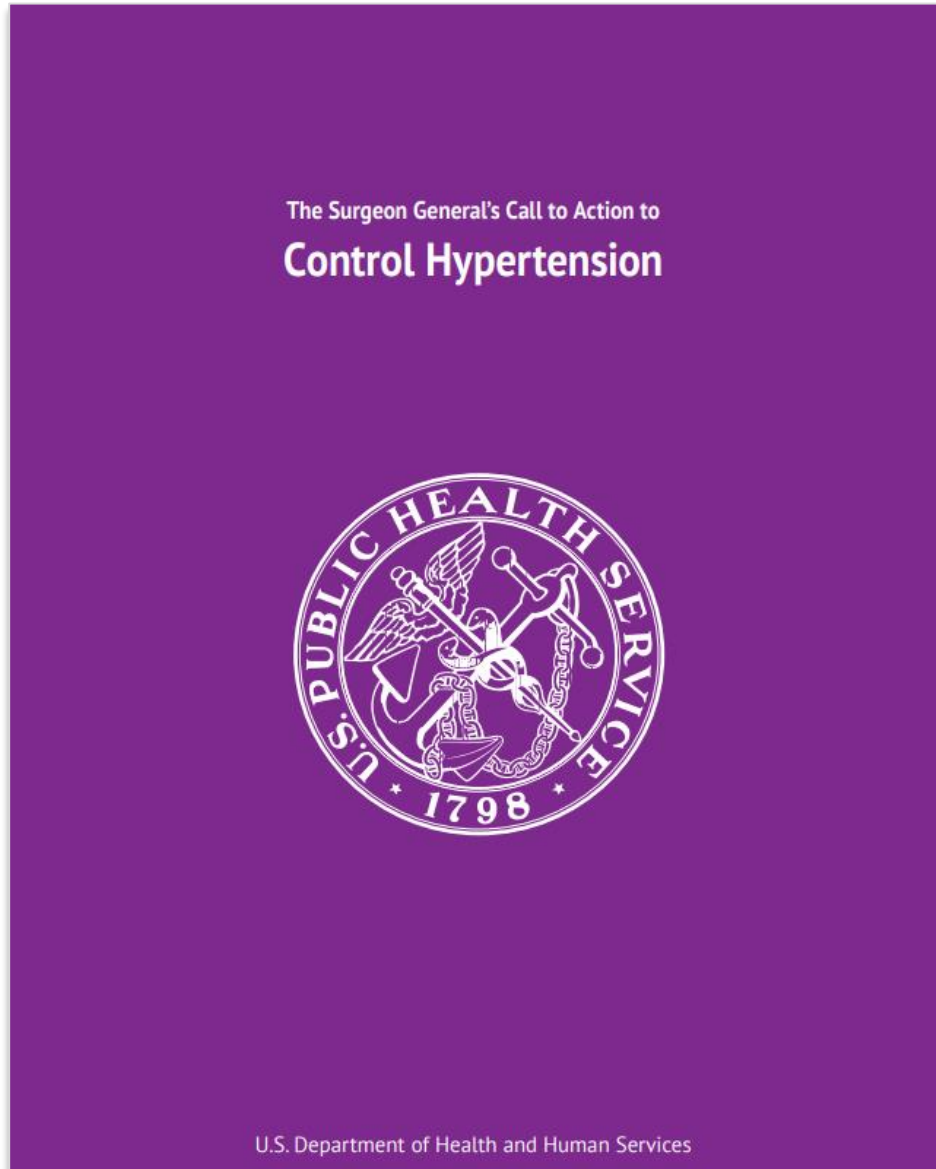
Hypertension is a modifiable risk factor for leading causes of death

Provisional Causes of Death (2023)

Rank	Cause	Number
1	Heart Disease	680,980
2	Cancer	613,352
3	Unintentional injury	222,725
4	Stroke	162,640
5	Chronic lower respiratory disease	145,357
6	Alzheimer disease	114,034
7	Diabetes	95,190
8	Kidney disease	55,250
9	Chronic liver disease and cirrhosis	52,222
10	COVID-19	49,931



Calls to action domestically and globally.





Blood Pressure Control Among Adults with Hypertension in the US (2021-2023)

Sociodemographic Factors

Characteristic	Control Rate (%) – With Hypertension	Control Rate (%) – With Hypertension and on Medication
Overall Control Rate	51.1%	68.3%
Female	52.3%	69.3%
Male	51.3%	68.4%
Non-Hispanic White	51.8%	69.3%
Non-Hispanic Black	49.6%	62.6%
Non-Hispanic Asian	53.5%	71.0%
Hispanic	48.8%	66.4%



Blood Pressure Control Among Adults with Hypertension in the US (2021-2023) - Sociodemographic Factors

Characteristic	Control Rate (%) – With Hypertension	Control Rate (%) – With Hypertension and on Medication
Less than high school graduation	45.0%	60.7%
High school and some college	51.3%	67.6%
College graduation	53.4%	73.7%
Income/Poverty <1	43.0%	58.4%
Income/Poverty 1 - <2	50.0%	62.6%
Income/Poverty 2 - <4	49.5%	67.3%
Income/Poverty 4+	54.6%	76.5%
Private health insurance	44.4%	58.5%
Medicare	59.2%	69.2%
Medicaid	NSR	NSR
Uninsured	45.2%	NSR
Routine place for care	53.1%	68.9%
No routine place for care	23.3%	52.6%
No healthcare in past 12 months	NA	NA

NSR – Not Statistically Reliable
NA – Not Available

CLINICAL PRACTICE GUIDELINES



2025 AHA/ACC/AANP/AAPA/ABC/ACCP/
ACPM/AGS/AMA/ASPC/NMA/PCNA/
SGIM Guideline for the Prevention, Detection,
Evaluation and Management of High Blood
Pressure in Adults: A Report of the American
College of Cardiology/American Heart
Association Joint Committee on Clinical Practice
Guidelines

Developed in Collaboration With and Endorsed by American Academy of Physician Associates; American Association of Nurse Practitioners; American College of Clinical Pharmacy; American College of Preventive Medicine; American Geriatrics Society; American Medical Association; American Society of Preventive Cardiology; Association of Black Cardiologists; National Medical Association; Preventive Cardiovascular Nurses Association; and the Society of General Internal Medicine.

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Top 10 Takeaways

1. High blood pressure (BP) is the **most prevalent and modifiable risk factor** for the development of cardiovascular diseases, stroke, dementia, chronic kidney disease, and all-cause mortality. **The overarching blood pressure treatment goal is <130/80 mm Hg for almost all adults.**
2. Clinicians should **collaborate with community leaders, health systems, and practices** to implement **BP screening** in communities and implement guideline-based recommendations regarding prevention and management of high BP.
3. Multidisciplinary **team-based care** is effective in assessing and addressing patient access to medications and other structural barriers to support patient needs : physicians, pharmacists, nurse practitioners, nurses, physician assistants/associates, dietitians, community health workers, and other health care professionals.
4. **BP is classified** by the following framework: normal blood pressure is defined as <120 mm Hg systolic and <80 mm Hg diastolic; elevated blood pressure as 120 to 129 and <80 ; stage 1 hypertension as 130 to 139 or 80 to 89; and stage 2 hypertension as ≥ 140 or ≥ 90 .
5. For all adults, **lifestyle changes**, including maintaining or achieving a healthy weight, healthy eating pattern, reducing sodium intake, increasing dietary potassium intake, adopting a moderate physical activity program, managing stress, and reducing or eliminating alcohol intake are **strongly recommended to prevent or treat elevated blood pressure and hypertension.**



Blood Pressure Control Among Adults with Hypertension in the US (2021-2023)




Definition of Control	Control Rate (%) – With Hypertension	Control Rate (%) – With Hypertension and on Medication
< 140/90 mm Hg	51.1%	68.3%
< 130/80 mm Hg	23.0%	39.9%



Evidence for Blood Pressure Goal of <130/80 mm Hg Among Adults with Hypertension in the US

- 22% reduction in coronary heart disease and 41% reduction in stroke for adults with hypertension with a 10 mm Hg lower treatment SBP or 5 mm Hg lower diastolic BP (DBP).
- More intensive BP lowering to an average SBP/DBP of 133/76 mm Hg reduced major adverse cardiac events (MACE) 14% compared with less intensive treatment to an average SBP/DBP of 140/81 mm Hg.
- A 10 mm Hg lower treatment SBP reduced MACE by 20%.
- A systematic review provided strong evidence that achieving SBP <130 compared to \geq 130 mm Hg reduced risk of stroke, coronary heart disease, CVD mortality, and all-cause mortality by 29%, 14%, 20%, and 16%), respectively.
- More (average 129/76 mm Hg) compared with less (average 138/81 mm Hg) BP lowering resulted in a risk reduction of 20% for stroke and 15% for MI.
- Randomized groups achieving a mean SBP 120 to 124 mm Hg had lower risk for all-cause mortality of 27%, 41%, 49%, and 53% compared with those achieving SBP of 130 to 134, 140 to 144, 150 to 154 and \geq 160 mm Hg, respectively.

*Plan of Care for Adults with Uncontrolled HTN

COR	RECOMMENDATIONS
1	 Team-based care approach is recommended.
1	 Evidence-based care plan utilizing HBPM and team-based care that is responsive to addressing adverse SDOH is recommended.
1	 An integrated treatment model that includes accurate BP measurement, prompt treatment, patient engagement, and ongoing review of HBPM is recommended to improve BP control.

Abbreviation: BP indicates blood pressure; HBPM, home blood pressure monitoring; HTN, hypertension; and SDOH, social determinants of health.

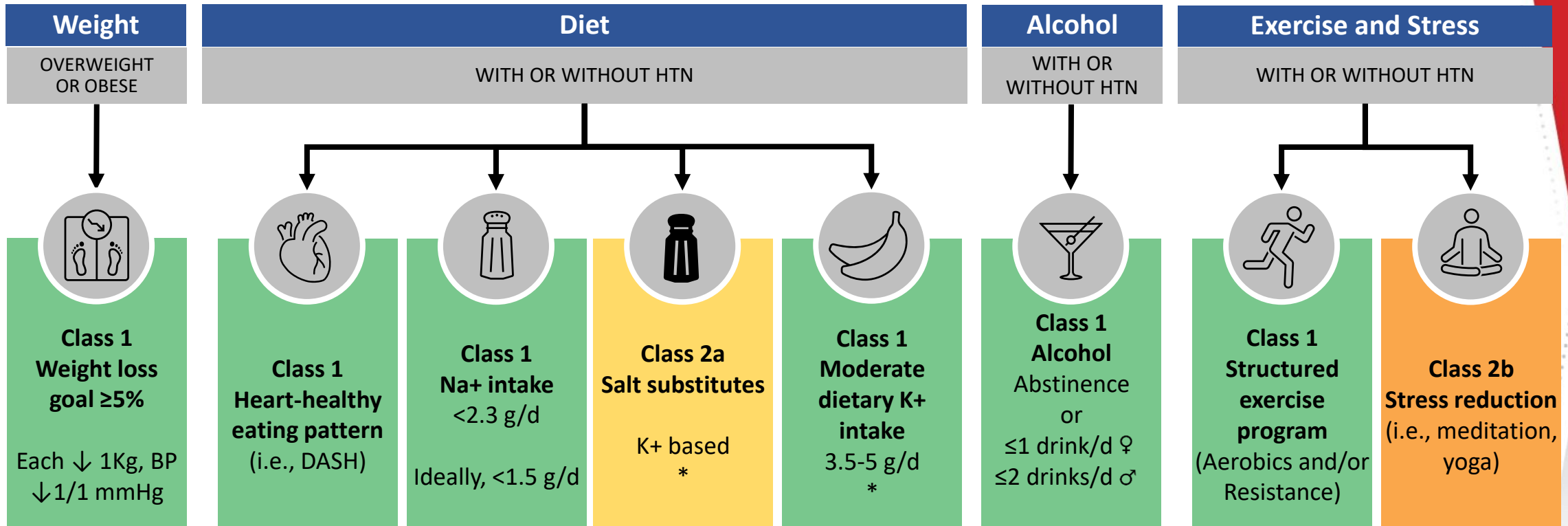
*Definition and Classification of Blood Pressure

COR	RECOMMENDATIONS
1	In adults, BP should be categorized as normal, elevated, or stage 1 or stage 2 hypertension to prevent and treat high BP.

Blood Pressure Category	SBP		DBP
Normal	< 120 mmHg	and	< 80 mmHg
Elevated	120 to 129 mmHg	and	< 80 mmHg
Hypertension			
Stage 1 Hypertension	130 to 139 mmHg	or	80 to 89 mmHg
Stage 2 Hypertension	≥ 140 mmHg	or	≥ 90 mmHg

Abbreviations: BP indicates blood pressure; DBP, diastolic blood pressure; and SBP, systolic blood pressure.

Blood Pressure Management: *Lifestyle and Psychosocial Approaches



***Monitor potassium in those at risk for hyperkalemia**

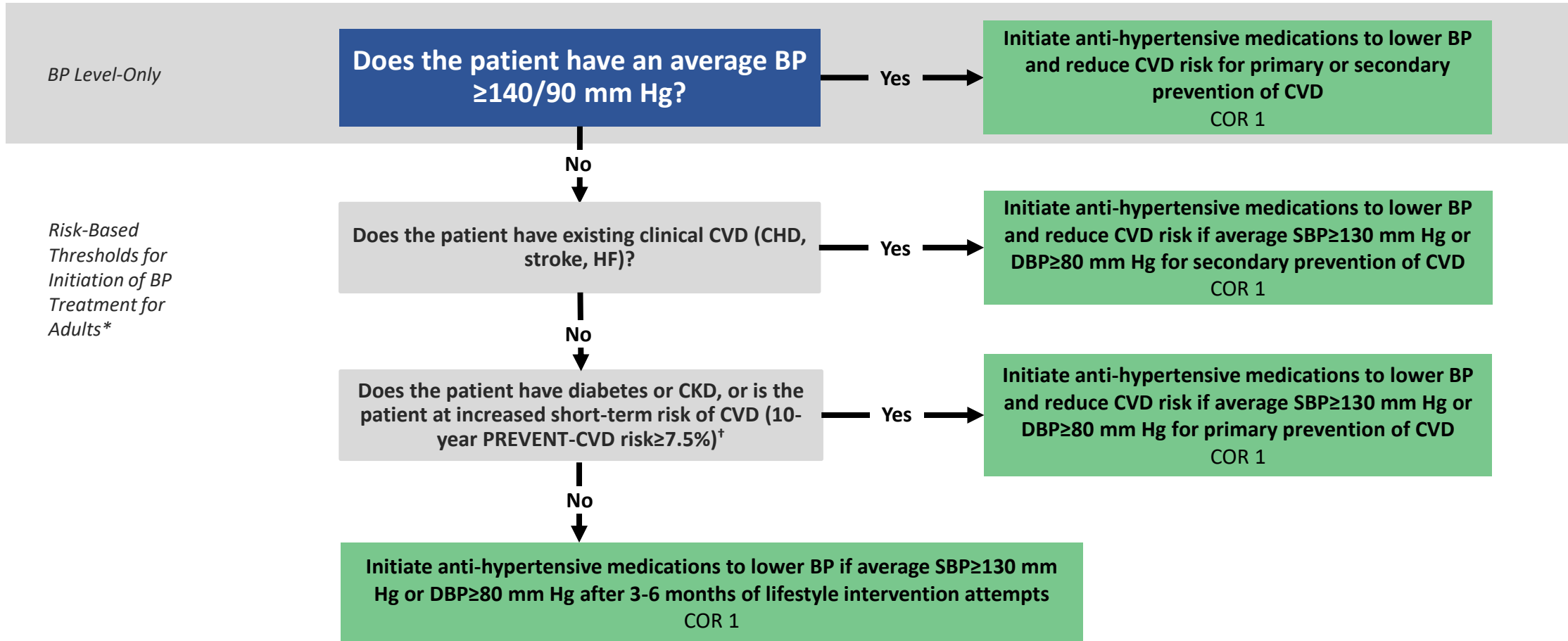
Abbreviations: BP indicates blood pressure; DASH, Dietary Approaches to Stop Hypertension diet Kg, kilograms; and HTN, hypertension.



Top 10 Takeaways

6. Medication therapy to lower BP in addition to lifestyle interventions is recommended **for all adults with average blood pressure $\geq 140/90$ mm Hg** and/or for selected adults with average BP $\geq 130/80$ who have clinical cardiovascular disease, previous stroke, diabetes, chronic kidney disease, or increased 10-year predicted cardiovascular risk of $\geq 7.5\%$ defined by PREVENT (Predicting Risk of CVD EVENTS).
7. In adults with average BP $\geq 130/80$ and at lower 10-year cardiovascular disease risk defined by PREVENT of $< 7.5\%$, **medication therapy** to lower blood pressure is recommended if average BP remains $\geq 130/80$ after an initial **3- to 6-month trial of lifestyle modification**.
8. For all adults with stage 2 hypertension, the initiation of antihypertensive drug therapy with 2 first-line agents of different classes in a **single-pill, fixed-dose combination is preferred** over 2 separate pills to improve adherence and reduce time to achieve BP control.
9. **Home BP monitoring** combined with **frequent interactions with multidisciplinary team members** using standardized measurement and treatment protocols and home measurement protocols is an important integrated tool to improve rates of **blood pressure** control. **Reliance on cuffless devices, including smartwatches, for accurate blood pressure measurements should be avoided until these devices demonstrate greater precision and reliability.**
10. Severe hypertension in nonpregnant individuals, defined as blood pressure $> 180/120$ mm Hg, without evidence of acute target organ damage, should be evaluated and treated in the outpatient setting with initiation, reinstatement, or intensification of oral antihypertensive medications in a timely manner.

*Use of Risk Based Thresholds for Initiation of BP Treatment

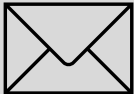





Abbreviations: BP indicates blood pressure; CHD, coronary heart disease; CKD, chronic kidney disease; CVD, cardiovascular disease; DBP, diastolic blood pressure; HF, heart failure; PREVENT, Predicting Risk of CVD EVENTS; and SBP, systolic blood pressure.

*From Clinic to Home Blood Pressure Monitoring

COR	RECOMMENDATIONS
1	In adults with suspected hypertension, out-of-office BP measurements by either ABPM or HBPM are recommended to confirm the diagnosis of hypertension.
1	In adults who are taking antihypertensive medication, HBPM is recommended for monitoring the titration of BP-lowering medication , along with co-interventions such as patient education, telehealth counseling, and clinical interventions.
3: No Benefit	In adults, the use of cuffless BP devices is not recommended for the diagnosis or management of high BP.

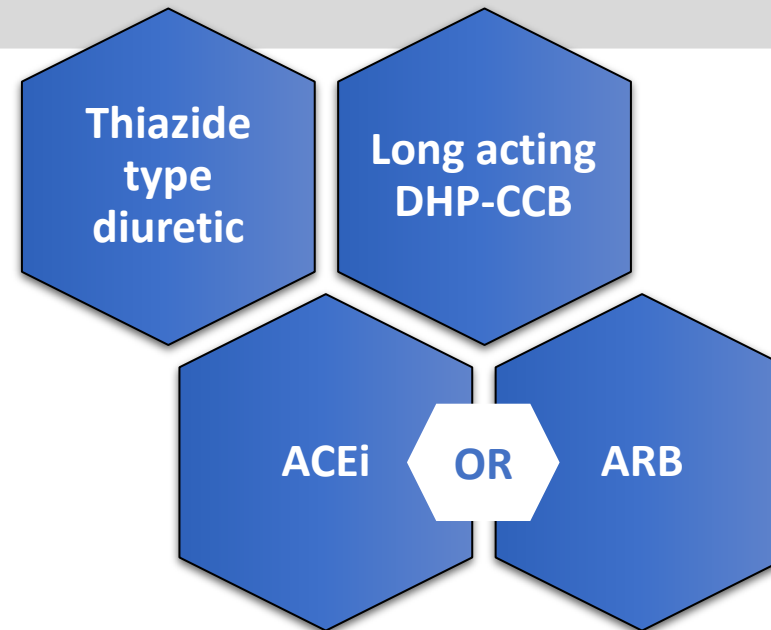
Plan of Care for Adults with Uncontrolled HTN

COR	RECOMMENDATIONS
1	 <p>Health information technology is beneficial in improving BP control, access to care, and adherence to standards of care.</p>
1	 <p>Use of electronic health record and patient registries is beneficial for screening and identification of hypertension to focus on those who need additional care.</p>
2a	 <p>Telehealth interventions can be useful to reduce BP and improve office BP control.</p>
1	 <p>Adults with uncontrolled hypertension placed on new or intensified medical therapy should have follow-up evaluations for medication adherence and response to treatment at monthly intervals until control is achieved.</p>

Abbreviation: BP indicates blood pressure; and HTN, hypertension.

Initial Medication Selection for Treatment of Primary HTN

COR	RECOMMENDATIONS
1	For adults initiating antihypertensive drug therapy, thiazide-type diuretics, long-acting dihydropyridine CCBs, and ACEi or ARBs are recommended as first-line therapy to prevent CVD.



Abbreviations:

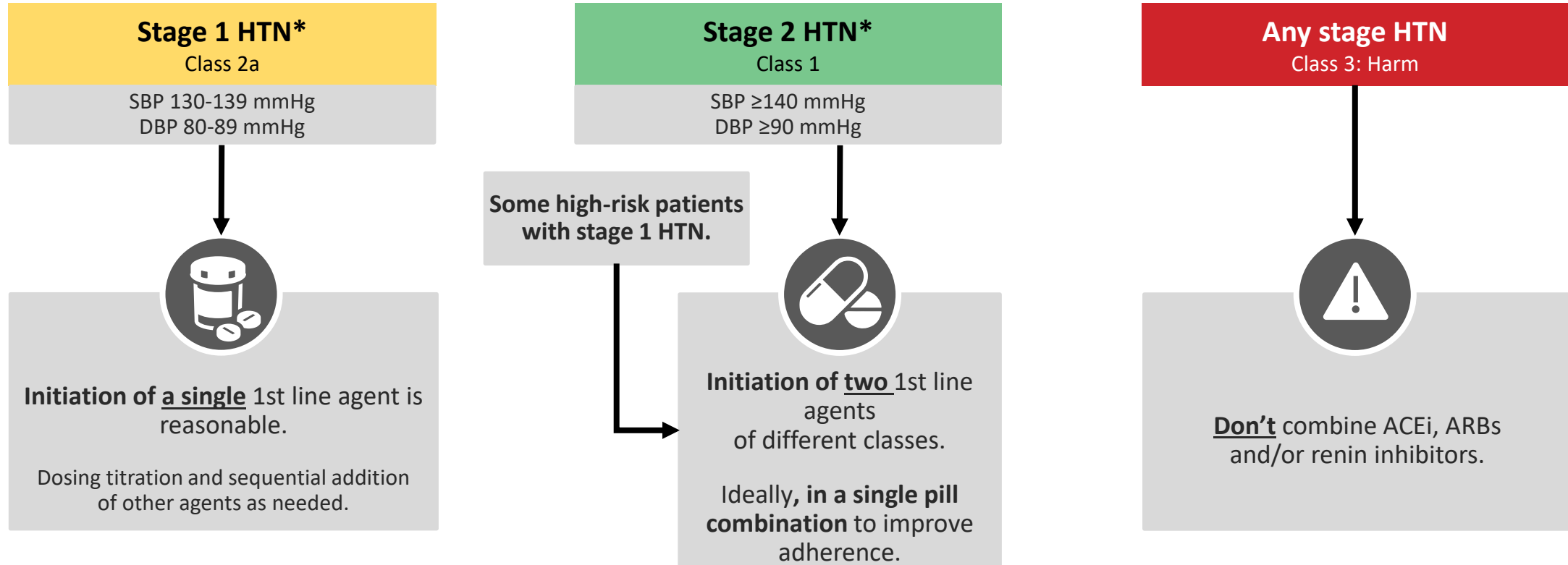
ACEi: Angiotensin Converting Enzyme inhibitors;

ARB: Angiotensin Receptor Blocker;

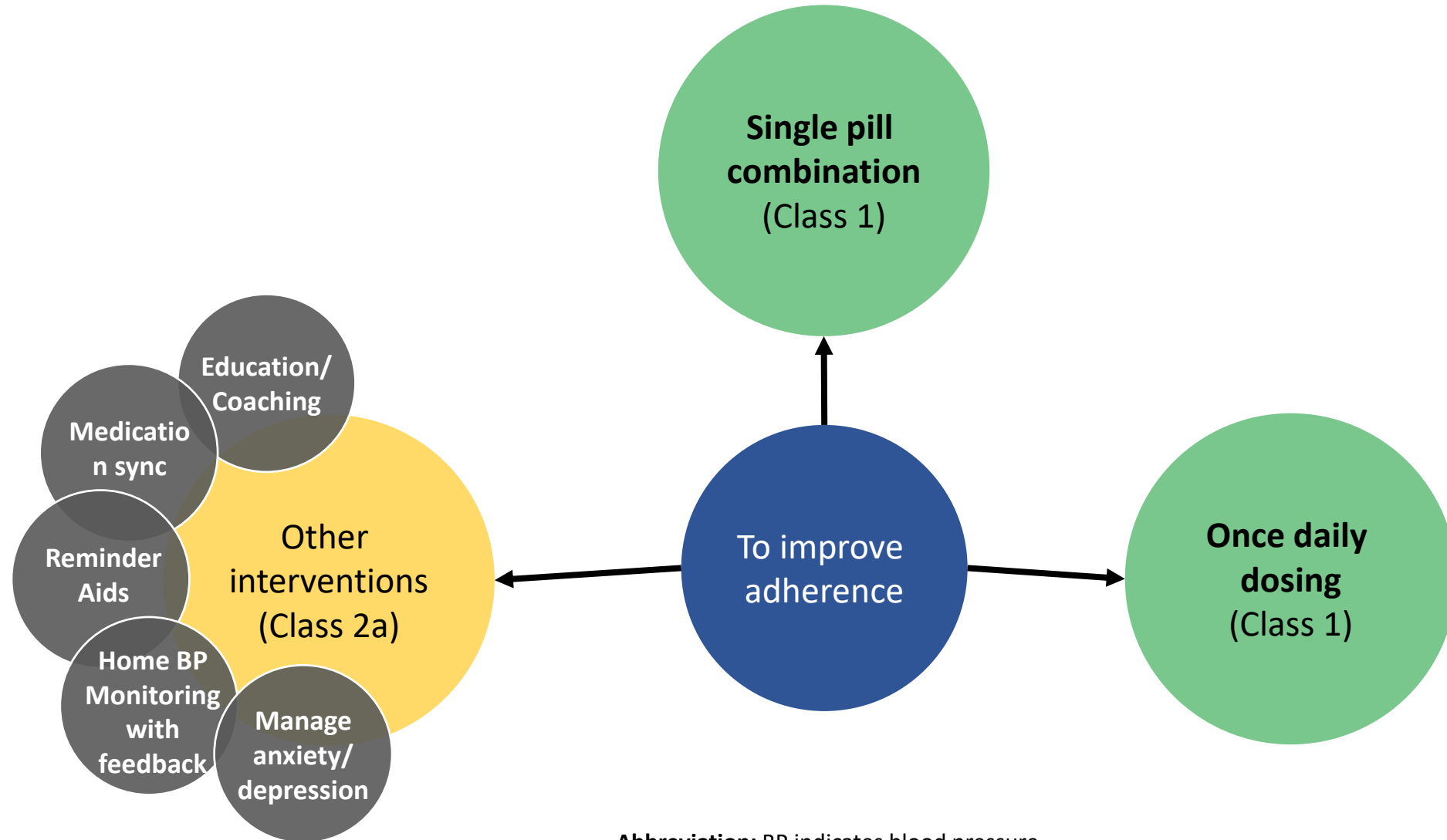
CVD: cardiovascular disease; and

DHP-CCB: Dihydropyridine Calcium Channel Blocker.

Choice of initial combination drug therapy vs monotherapy

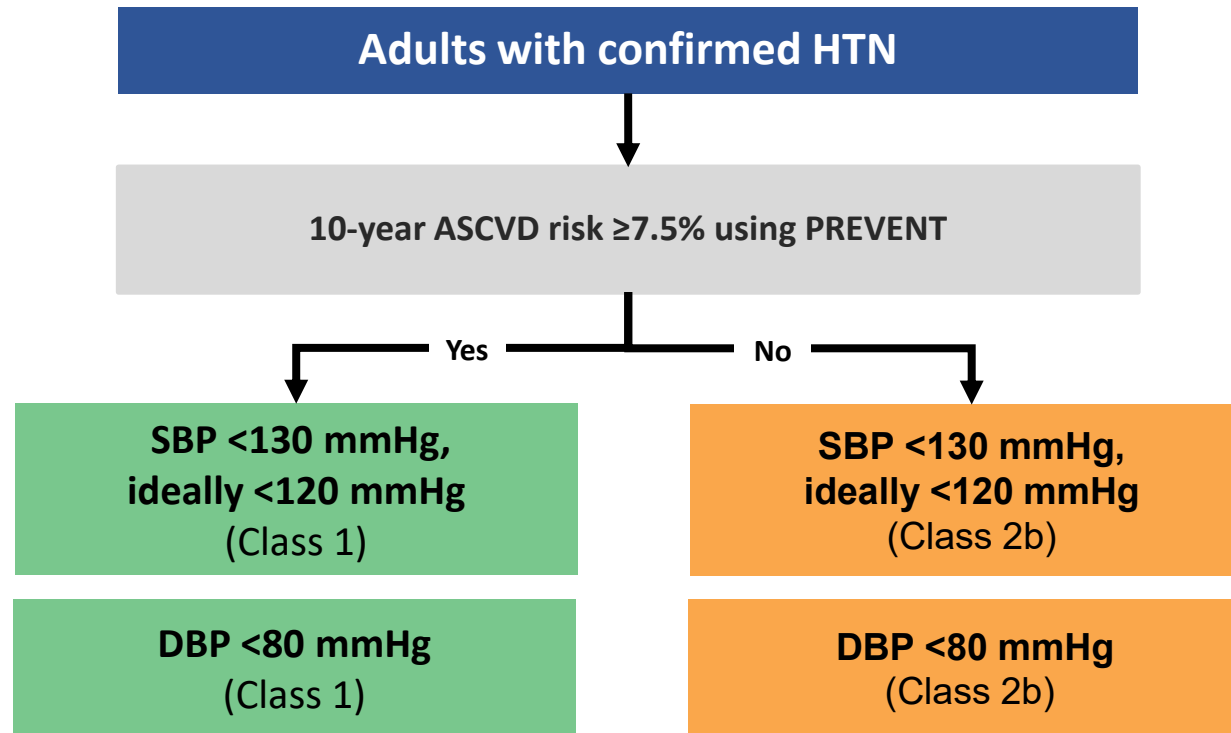


*Antihypertension Medication Adherence Strategies



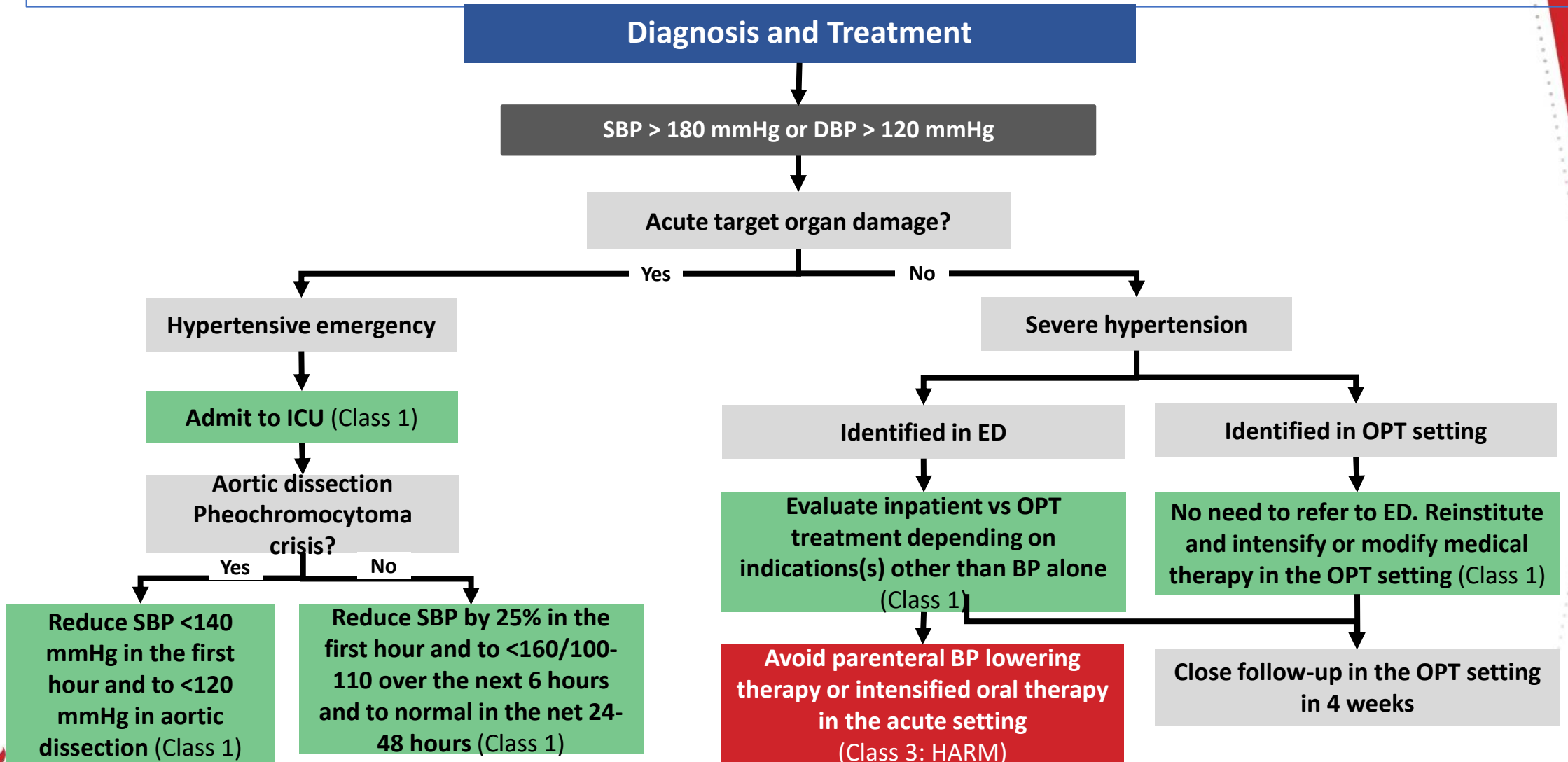
Abbreviation: BP indicates blood pressure

Blood Pressure Goals For Patients With HTN



Abbreviations: ASCVD indicates atherosclerotic cardiovascular disease; BP, blood pressure; DBP, diastolic blood pressure; HTN, hypertension; PREVENT, Predicting Risk of CVD EVENTS; and SBP, systolic blood pressure.

Severe Hypertension and Hypertensive Emergencies



Abbreviations: DBP indicates diastolic blood pressure; ED, emergency department; ICU, intensive care unit; OPT, outpatient; and SBP, systolic blood pressure.



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Translating Guidelines into Practice

Kaiser Permanente Northern California



Hypertension Control in a Large Health System

Improved Blood Pressure Control Associated With a Large-Scale Hypertension Program: BP control from 43.6% in 2001 to 80.4% in 2009

- 1. Health system-wide hypertension registry**
- 2. Development and sharing of performance metrics – every 1-3 months**
- 3. Adoption of an evidence-based treatment algorithm (protocol)**
- 4. Medical assistants for blood pressure monitoring**
- 5. Simplified pharmacotherapy – single-pill combination**



American
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Translating Guidelines into Practice

Target: BP™

Translating Science into Practice

Target: BP™:

Leverages American Heart Association guidelines and scientific statements and the American Medical Association MAP™ framework, to help care teams organize their approach to providing evidence-based care. The framework includes Measure Accurately, Act Rapidly and Partner with Patients.

Assists health care organizations in their journeys to improve and sustain BP control with professional education, practice tools, and resources, including additional support through quality improvement programs.

Recognizes health care organizations annually with achievement awards by celebrating those that have committed to improvement, adopted evidence-based BP activities, and achieved BP control rates ≥ 70 percent with the patients they serve.



Public
Awareness
& Patient
Education



Professional
Education &
Practice
Resources



Regional
Support &
Events



Data Tools &
Registries



National Practice &
Outcome
Achievement
Awards



Advocacy for
Federal, State &
Institutional
Policy



American Heart Association.

Target: BP™

Because access to high-quality care is something that everyone should have.



Target: BP™

Target: BP™ is a national blood pressure control initiative created by the American Heart Association (AHA) and the American Medical Association (AMA) and launched in 2017.



Leverages AHA guidelines and scientific statements and the AMA MAP™ framework



Assists health care organizations to improve and sustain BP control



Recognizes health care organizations annually with achievement awards

AMA MAP™ Framework

M

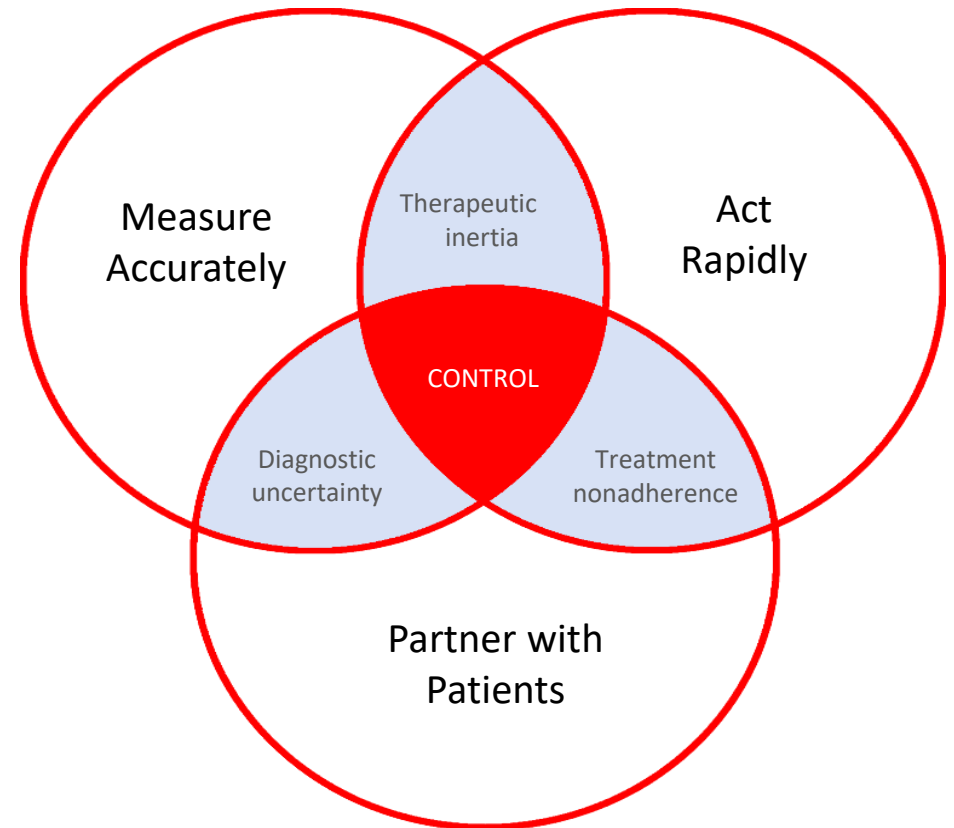
Measure Accurately every time to obtain accurate (the right equipment – e.g., validated devices - and the right technique), representative BPs, reducing clinical uncertainty

A

Act Rapidly to diagnose and treat hypertension, enhancing clinical intensification, and reducing diagnostic and therapeutic inertia

P

Partner with patients to activate patients to activate them to self-manage (including **Self-Measured Blood Pressure monitoring**) and promote adherence to treatment

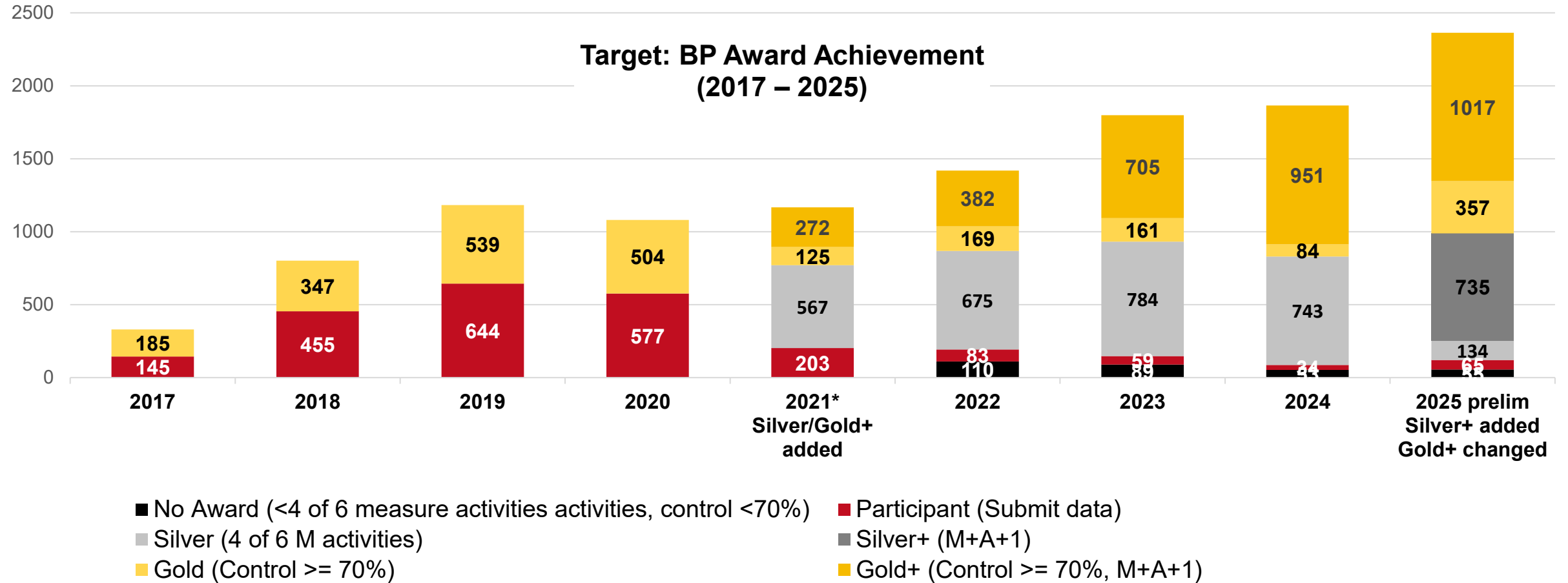


Self-Measured Blood Pressure
Monitoring



Target: BP Timeline - Awards - (2025 preliminary data)

From 2017-2025, overall participation grew from 330 to 2,384. In 2025, 1,374 organizations reported BP control rates ≥ 70 percent and 2,074 reported the adoption of ≥ 4 of 6 evidence-based BP measurement activities.



Acknowledging Implementation, Achievement and Effort: 2026 Award Levels & Criteria



Achieve $\geq 70\%$ control rate
Attest to ≥ 4 of 6 criteria for
'M' + 'A' + 1 more pillar



Achieve $\geq 70\%$ control rate



Attest to ≥ 4 of 6
criteria for 'M' + 'A'
+ 1 more pillar



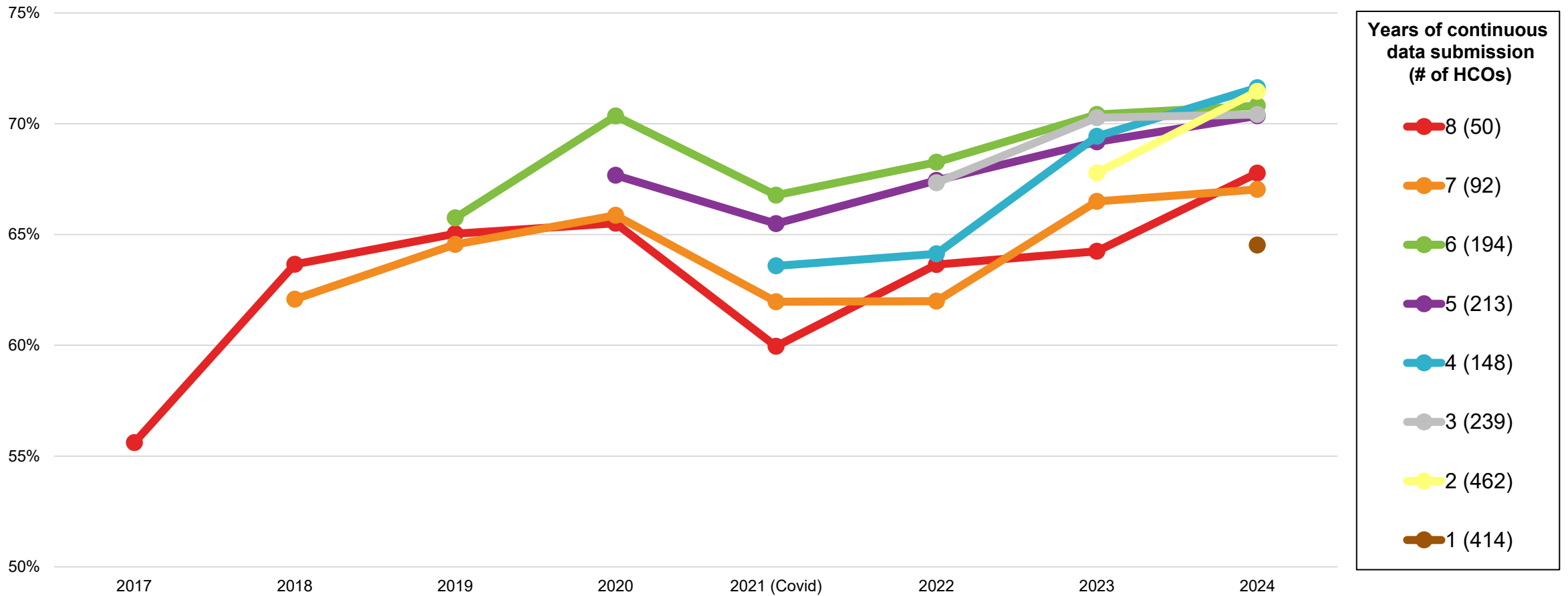
Attest to ≥ 4 of 6
criteria for 'M' + 'A'
+ 1 more pillar



Submit data
(1st time only)

Continuous engagement and improvement

Average Control Rate by Continuous Years of Data Submission



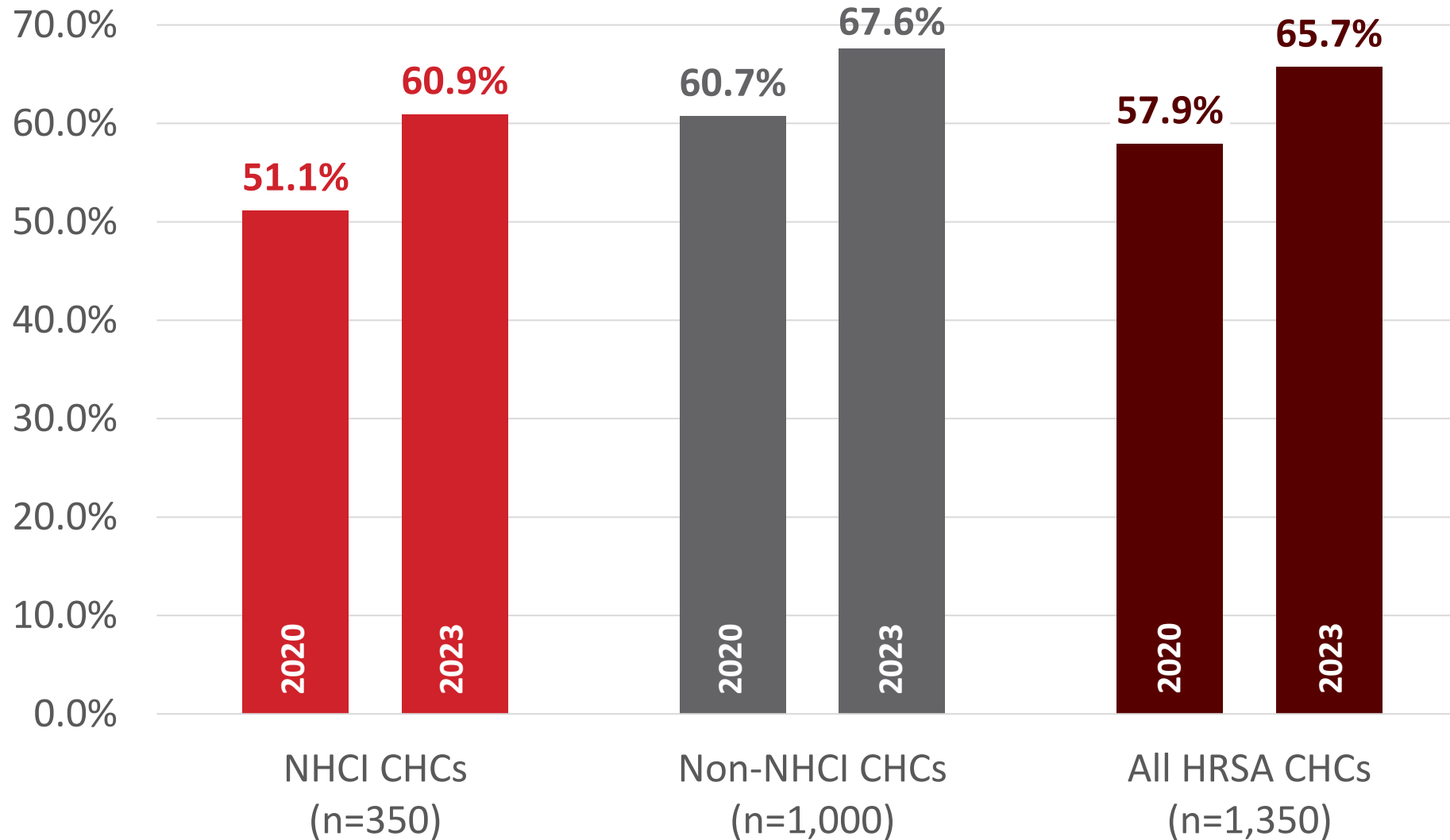


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Translating Guidelines into Practice National Hypertension Control Initiative (NHCI) Implementation



National Hypertension Control Initiative (NHCI) Blood Pressure Control Rates



19.2%
Increase from '20-23
(9.8 percentage points)

11.4%
Increase from '20-23
(6.9 percentage points)

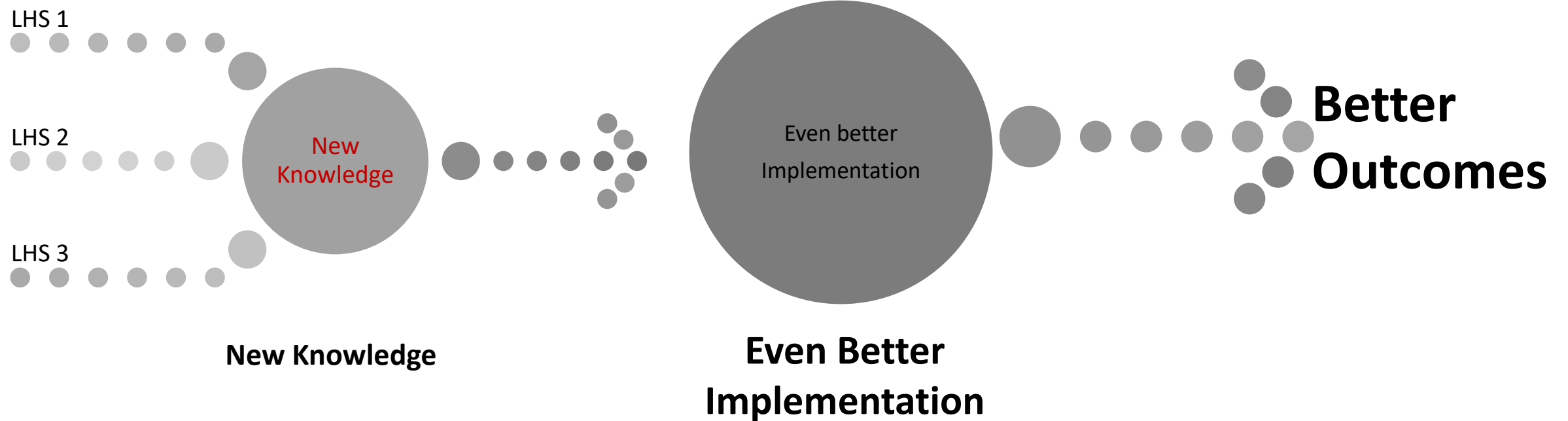
13.5%
Increase from '20-23
(7.8 percentage points)



Translating Guidelines into Practice = Learning Health Systems Implementation

- Collectively commit to a culture of **continuous learning and improvement**.
- **Systematically implement Heart Association 2025 BP GL.**
 - Target: BP
- **Employ IT methods** to monitor performance with clinicians to improve decision-making – described in the literature
- **Promote the inclusion of patients** as vital members of the learning team – BSWH PACER Center PEARLS.
- **Capture and analyze BP data** and HTN care experiences to improve care – described in the literature .
- **Continually assess outcomes** and refine processes and training to create a feedback cycle for learning and improvement.

HCSRN Call to Action – Change the World!





HSCRN Call to Action

1. Pick an area (or areas) for collective/collaborative research
 - a) **Cancer - SIG**
 - b) **Kidney disease**
 - c) **Musculoskeletal conditions**
 - d) **Depression-SIG**
 - e) **Anxiety - SIG**
 - f) **Substance use disorders**
 - g) **Cardiovascular disease -SIG**
2. Identify relevant guideline(s)
3. Conduct Implementation Science
4. Share results



You can do this!

“Si se puede.”

Dolores Huerta



You can do this!

“I’m a noncommittal optimist,
but I am a very committed possibilist.”

Adapted from Hans Rosling (1948-2017)

Acknowledgments

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For more information - [Hub - 2025 High Blood Pressure Guideline - American Heart Association](#)

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<https://professional.heart.org/en/science-news> .



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THANK YOU!