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Health Quality Innovation Network

HEARTS in America: Review of Key Concepts and Tools to Increase Hypertension Control

November 20, 2022

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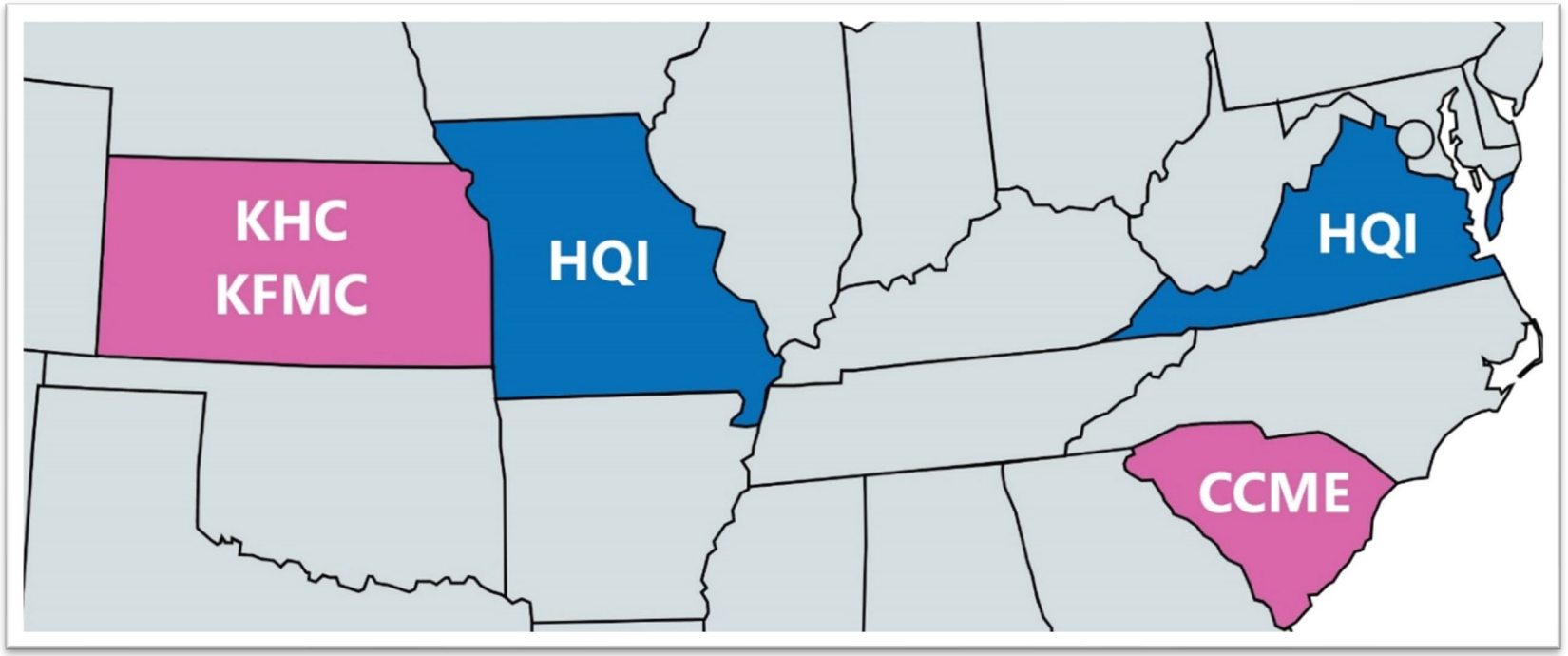

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This HQIN **HEARTS in America** series is delivered by **HEARTS** subject matter experts. They are introducing the pillars of the HEARTS Technical Package while beginning the conversation about HEARTS in America.

If you would like to speak to a HEARTS Advisor, learn more about the initiative, and discuss possibilities for your organization, please connect with your HQIN Quality Improvement Advisor to begin the next steps.

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HEARTS in America: Review of Key Concepts and Tools to Increase Hypertension Control

Donald J DiPette MD, FACP, FAHA

Health Sciences Distinguished Professor, University of South Carolina

University of South Carolina School of Medicine, Columbia South Carolina USA

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Purpose & Learning Objectives

1. Review the pillars of HEARTS and series topics impacting and improving hypertension through implementation of HEARTS in the Americas.

2. Recognize the importance of screening and determining the presence of chronic kidney disease and diabetes in treating hypertension in primary care.

3. Review the current approach to hypertension treatment including development of a population-based approach.

4. Review the current barriers to hypertension control.

Donald J. DiPette, MD, FACP, FAHA

Donald DiPette M.D., FACP, FAHA is currently the Health Sciences Distinguished Professor at the University of South Carolina and the University of South Carolina School of Medicine in Columbia, South Carolina. He has previously held the positions of Special Assistant to the Provost for Health Affairs, Vice President for Medical Affairs and Dean of the School of Medicine at the University of South Carolina. He was Interim Senior Executive Dean and Chairman of Medicine and Professor of Medicine at the Texas A&M Health Sciences Center College of Medicine.
Dr. DiPette has served as the Director of Hypertension Research Program at Allegheny General Hospital and at University of Texas, he was Director of the Division of General Internal Medicine, Director for the Hypertension Section, and Vice Chairman for Educational Affairs and In-patient Affairs.

Dr. DiPette earned his bachelor's degree from Seton Hall University in South Orange, N.J. and his M.D. degree from Pennsylvania State University in Hershey, P.A. He is board certified in internal medicine and clinical pharmacology and has a specialist certification in hypertension. His major areas of research, which have been funded by the American Heart Association and the National Institutes of Health, include the pharmacologic treatment of hypertension and the role of novel neuropeptides in the pathophysiology of hypertension.

Dr. DiPette is actively involved in the Global HEARTS Initiative of the Centers for Disease Control and the World Health Organization, as well as the HEARTS in the Americas Program of the Pan American Health Organization. He currently serves as the Envoy for Latin American and the Caribbean to the World Hypertension League and is a member of the Editorial Board of the Journal of Clinical Hypertension.

He was the awardee of the World Hypertension League 2022 Detlev Ganten Excellence in Hypertension Award and Global Health Implementation.

HEARTS in America: Lunch and Learn Series 2022: Curriculum

- Hypertension Call to Action; Donald DiPette, MD
- Hypertension Pharmacologic Treatment Protocols; Donald DiPette, MD
- Cardiovascular Risk Assessment; Andres Rosende, MD
- Importance of Hypertension Control in Primary Care; Andres Rosende, MD
- Critical Driver of Hypertension; Jeffery Brettler, MD
- Hypertension and Diabetes: Care integration; David Flood, MD
- Alignment with National Best-Practices; Dan Lackland, MD
- Chronic Kidney Disease: Screening and Early Management, Ben Broome, MD
- Hypertension and CVD Disparities within Healthcare-Kenneth Connell, MD

HEARTS IN THE AMERICAS

Process for Successful Change: Kotter

Establish a "sense of urgency/burning platform"

- Form a powerful coalition/allies
- Create a vision for change
- Communicate the vision
- Empower others to act on the vision/remove obstacles
- Build on the change/create short-term wins
- Consolidate improvements producing more change
- Anchor the change/institutionalize the new approaches

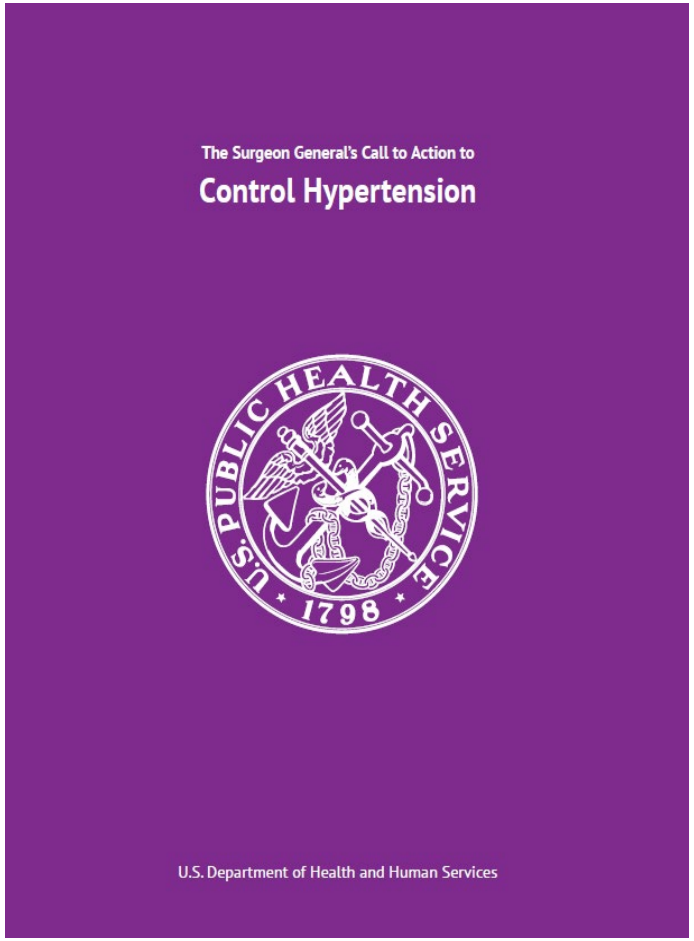
Establish a "Sense of Urgency/Burning Platform"

- Noncommunicable diseases (NCDs) especially cardiovascular disease (CVD) is the leading cause of morbidity and mortality globally, in the nation, and in South Carolina. **Hypertension is the leading risk factor for CVD.**
- **Hypertension control rates (>140/90 mmHg) globally are approximately 20%** (Lancet 2021).
- **S. Carolina's hypertension prevalence is (61.96%) higher that the national average (57.2%). Two if five African Americans and nearly two in five adults in S. Carolina have high blood pressure.** (SC DHEC Vital Statistics, 2019).
- Safe, effective, and affordable pharmacologic treatment for hypertension is available.
- Start honest discussions regarding how current practices have not been successful.
- Examine opportunities to increase the control rates of hypertension.
- **The definition of insanity is doing the same thing over and over again and expecting different results!**

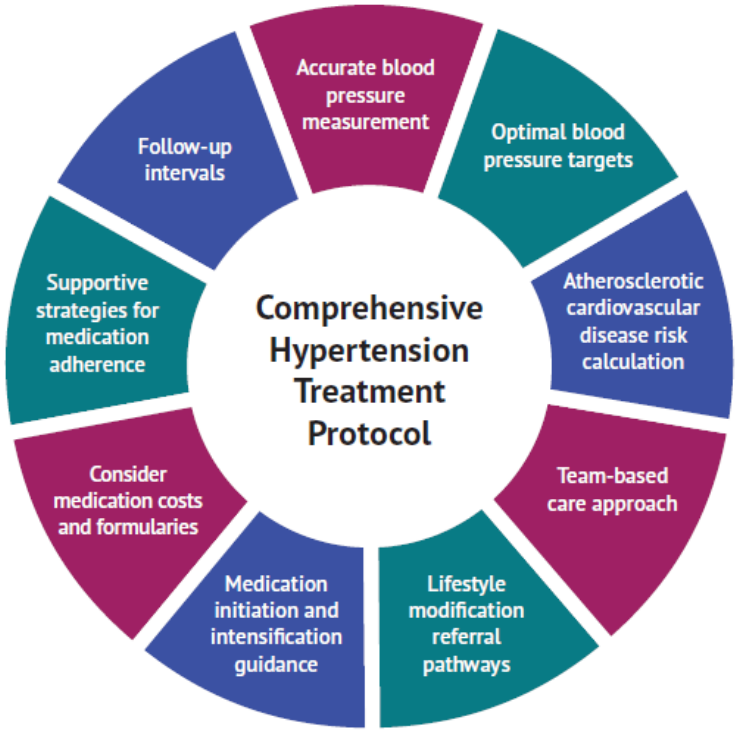
Recent NHANES Data:
U.S. Population Results: A call to action! (JAMA 2020)

- Hypertension control rates (using <140/90 mmHg) continued to increase to 53.8% in the 2013-2014 survey
- However, hypertension control rates (**using <140/90 mmHg**) have significantly **decreased to 43.7%** in the last 2017-2018 survey
- Using the ACC-AHA **criteria of <130/80 mmHg**, the hypertension control rate is **19%** in the 2017-2018 survey
- This decrease in control rate parallels the recent increase in CVD-related morbidity and mortality!

HEARTS

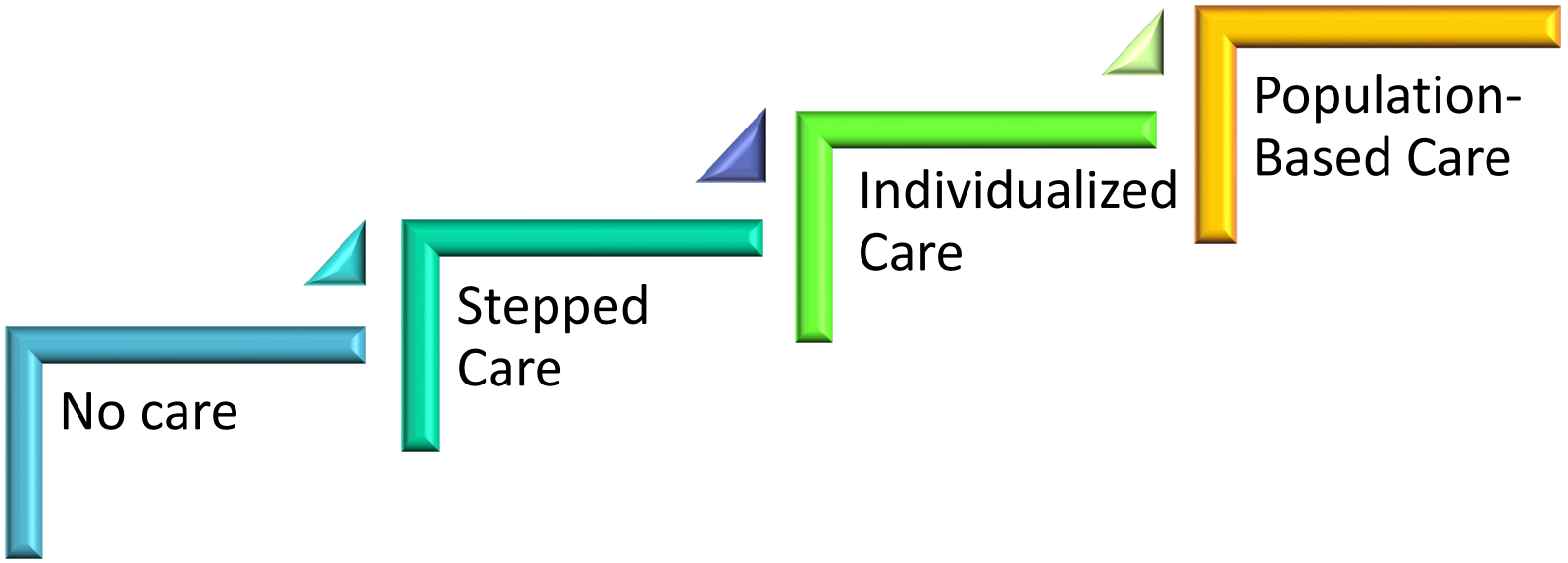


Goals and Strategies to Improve Hypertension Control



https://www.cdc.gov/bloodpressure/CTA.htm#:~:text=The%20Surgeon%20General's%20Call%20to%20Action%20to%20Control%20Hypertension%20(Call,settings%20across%20the%20United%20States.

Approaches to Care in the Pharmacologic Treatment of Hypertension



DiPette, Ridley 2020

Skeete, Connell, Ordunez, DiPette. Integrated

Barriers to Blood Pressure Control

- **Patient**
  - Limited access to treatment
  - Poor adherence to treatment
- **Health Care Provider**
  - Raised blood pressure attributed to “white coat hypertension”
  - Reluctance to treat an asymptomatic condition
  - Lack of adequate time with patient
  - Therapeutic/Clinical inertia
  - Lack of adherence to treatment guidelines
- **Health Systems**
  - Failure to delegate responsibility to non-physicians
  - Inappropriate follow-up
  - Absence of feedback to clinicians
  - Issues related to supply, distribution, and cost of medications
  - Complex medical regimens

Global Hearts Initiative

Population approach

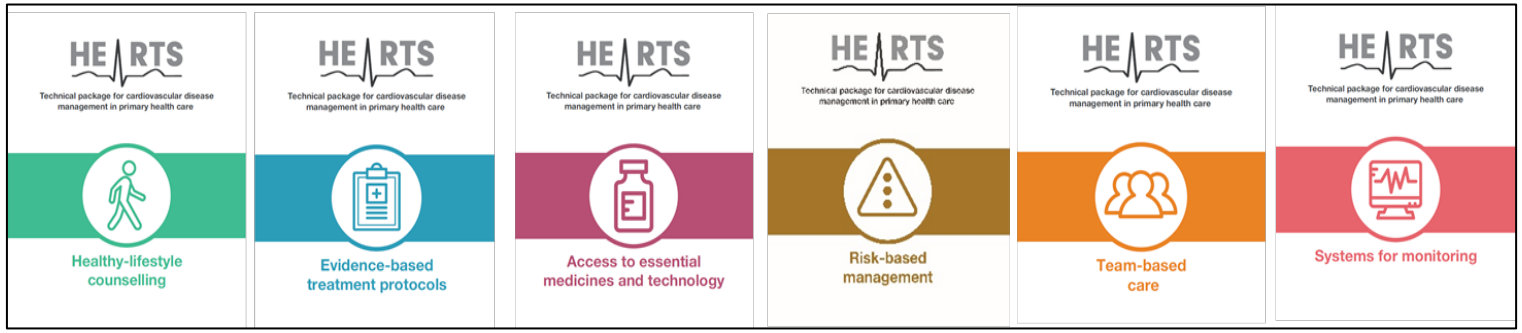
mpower

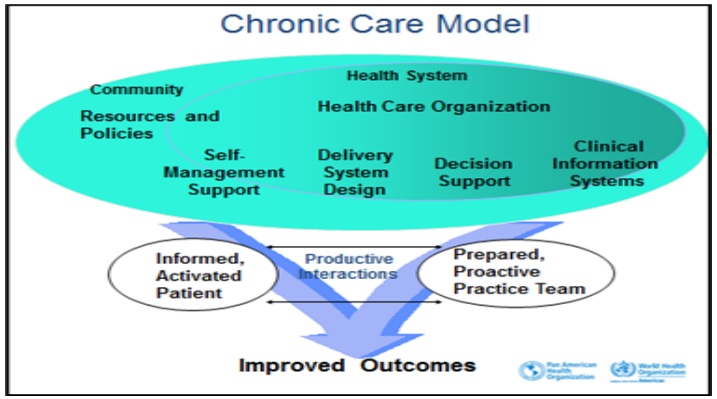
Active

SHAKE
THE SALT HABIT

REPLACE
TRANS FAT

Health Services/Clinical approach





WHO. Global Hearts Initiative. https://www.who.int/cardiovascular_diseases/global-hearts/en/

https://www.paho.org/en/hearts-americas

HEARTS IN THE AMERICAS

HEARTS in the Americas Technical Pillars

VISION: HEARTS will be the institutionalized model of care for cardiovascular risk management, with special emphasis on the control of hypertension and secondary prevention in primary health care in the Americas by 2025.

Campbell NRC et al. CJC 2021. https://pubmed.ncbi.nlm.nih.gov/33310142/

HEARTS IN THE AMERICAS

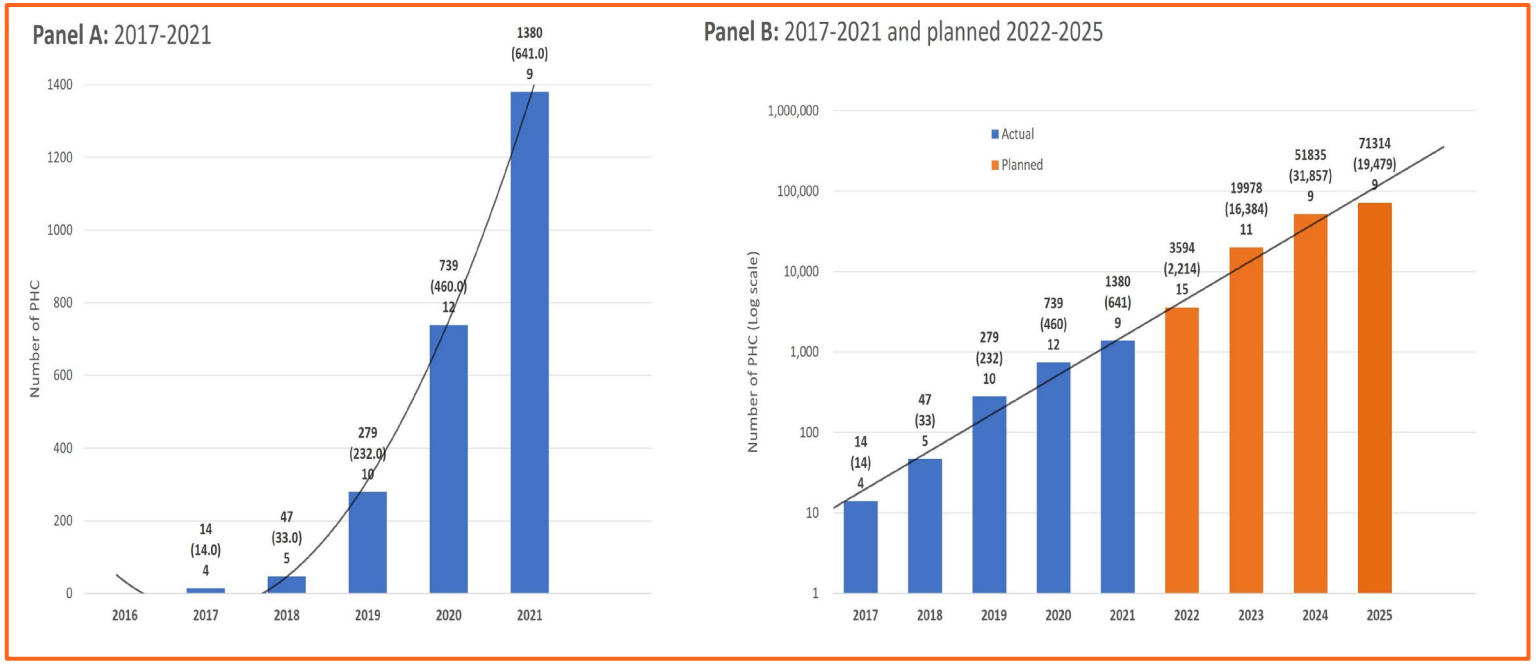
HEARTS

MODULES OF THE HEARTS TECHNICAL PACKAGE

Module	What does it include?	Who are the target users?		
		National	Subnational	Primary care
Healthy-lifestyle counselling	Information on the four behavioural risk factors for CVD is provided. Brief interventions are described as an approach to providing counselling on risk factors and encouraging people to have healthy lifestyles.		✓	✓
Evidence-based protocols	A collection of protocols to standardize a clinical approach to the management of hypertension and diabetes.	✓	✓	✓
Access to essential medicines and technology	Information on CVD medicine and technology procurement, quantification, distribution, management and handling of supplies at facility level.	✓	✓	✓
Risk-based CVD management	Information on a total risk approach to the assessment and management of CVD, including country-specific risk charts.		✓	✓
Team-based care	Guidance and examples on team-based care and task shifting related to the care of CVD. Some training materials are also provided.		✓	✓
Systems for monitoring	Information on how to monitor and report on the prevention and management of CVD. Contains standardized indicators and data-collection tools.	✓	✓	✓

HEARTS in the Americas

- 22 countries implementing HEARTS.
- More than 1300 PHC.
- More than 5 millon people covered.



Ordunez P, et al. HEARTS in the Americas. Pan Am J Pub Health 2022 (in press)

HEARTS

Hypertension treatment algorithm: Key to a population-base, public health, primary care approach

- Critical strategy to increase hypertension control rates
- Addresses clinical/therapeutic inertia
- Simple, straightforward, and standardized
- Adopted: local/system, state, and/or country-wide

GUIDING PRINCIPLES:

- Primary care based
- Algorithm is for the “rule” NOT the “exception”
- Few medication titration steps: linear with no branch points
- Half-maximal effective dose of selected agent(s) for initial treatment
- Two medications (two pills or in FDC/SPC) for initial treatment

Adult Hypertension

care management | institute

NNT CVA[2] = 63
NNT MI[2] = 86
NNT CVA or MI[2] = 36

BLOOD PRESSURE (BP) GOAL

≤ 139 / 89 mm Hg – All Adult Hypertension

ACE-INHIBITOR[1] / THIAZIDE DIURETIC
~~Lisinopril / HCTZ~~
(Advance as needed)
20 / 25 mg X ½ daily
20 / 25 mg X 1 daily
20 / 25 mg X 2 daily
Pregnancy Potential: Avoid ACE-Inhibitors[1]

If pregnancy potential →

THIAZIDE DIURETIC
HCTZ 25 mg → 50 mg
OR
Chlorthalidone 12.5 mg → 25 mg

If not in control ↓

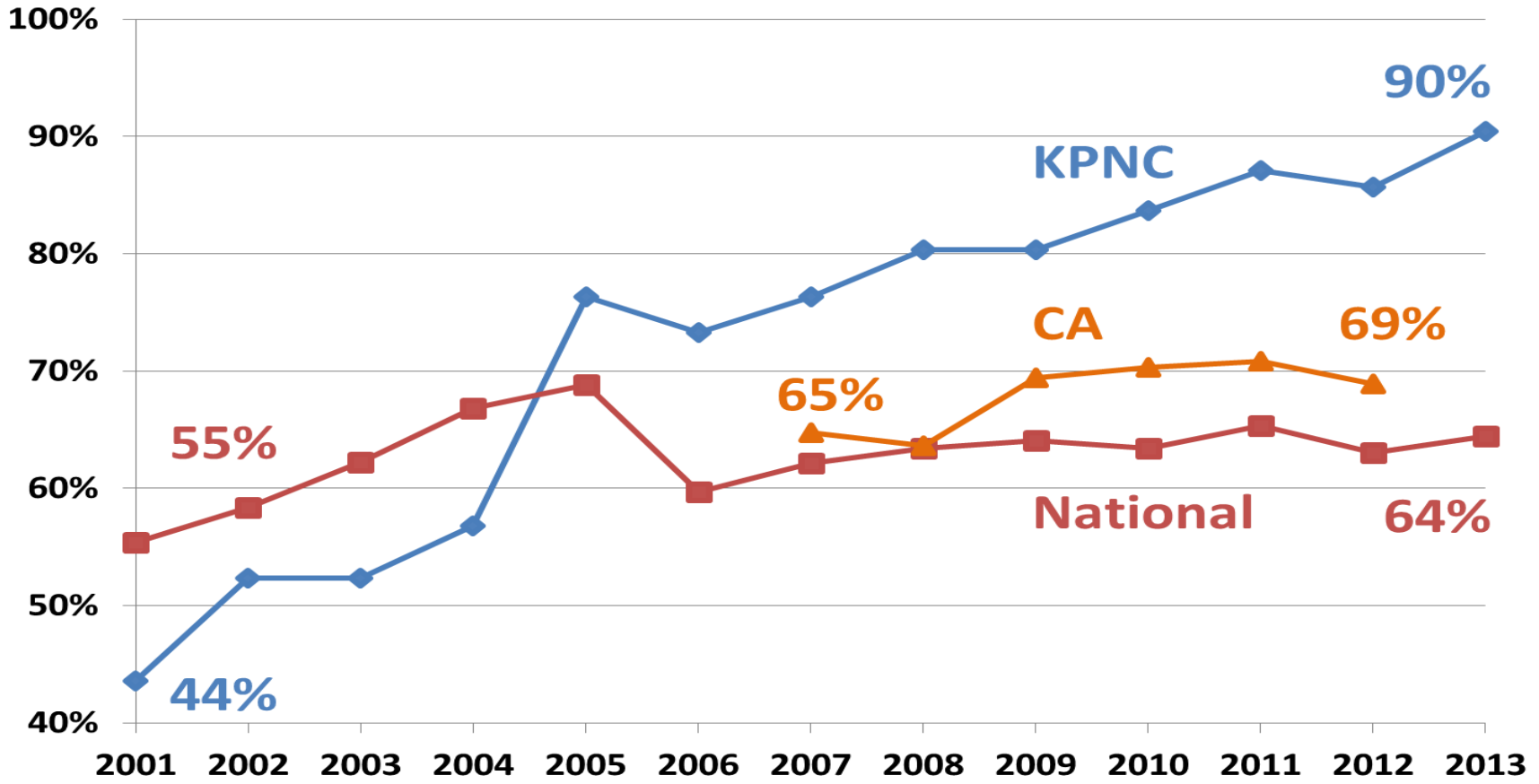
CALCIUM CHANNEL BLOCKER
Add amlodipine 5 mg X ½ daily → 5 mg X 1 daily → 10 mg daily

If not in control ↓

SPIRONOLACTONE OR BETA-BLOCKER
IF on thiazide **AND** eGFR ≥ 60 mL/min/1.73m^2 **AND** K < 4.5
Add spironolactone 12.5 mg daily → 25 mg daily
OR
Add atenolol 25 mg daily → 50 mg daily (Keep heart rate > 55)

Go,AS et al J Am Coll Cardiol. 2013

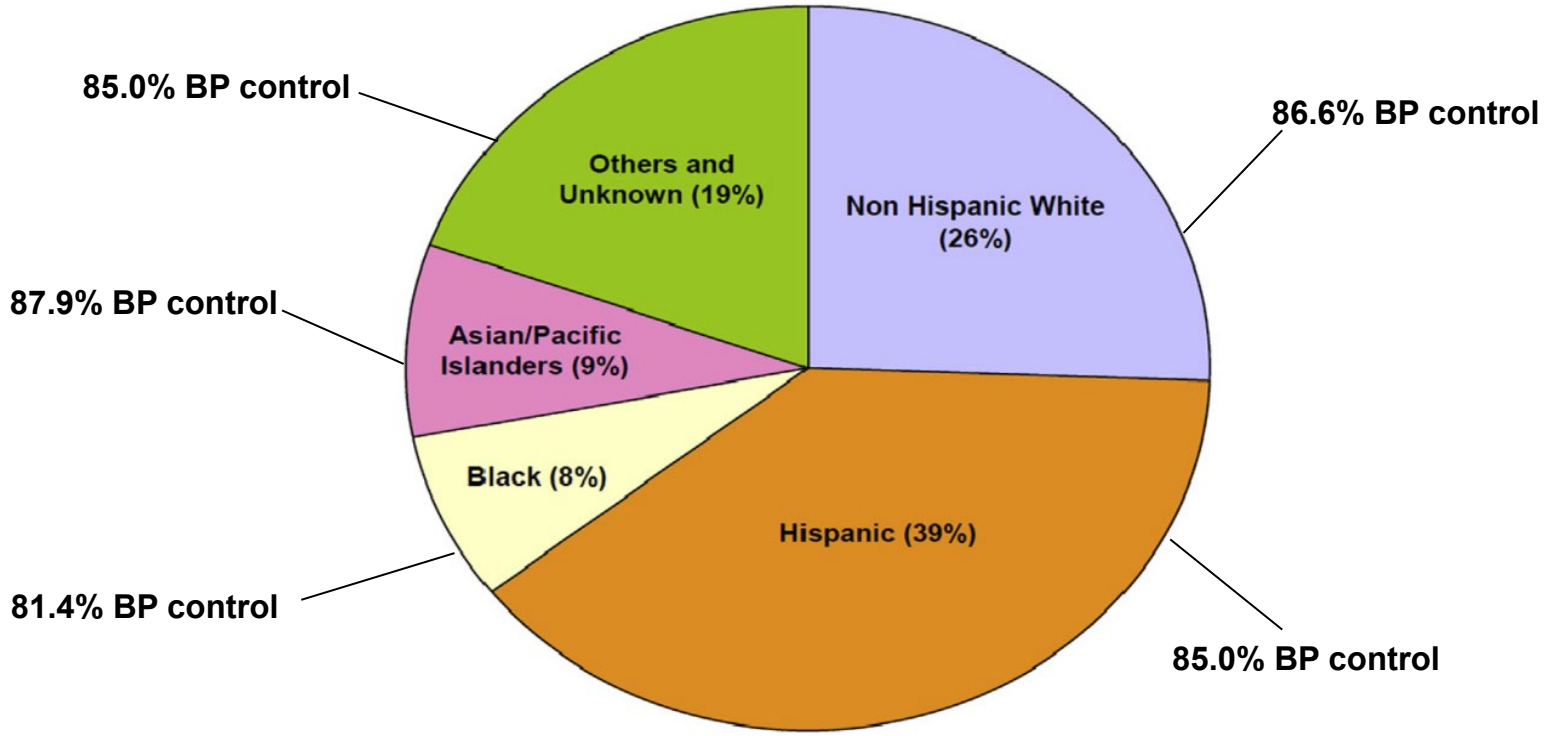
Kaiser Permanente Northern California vs. Statewide and National HTN Control



M Jaffe

Standardized Treatment Protocols Can Help Reduce Disparate Outcomes Kaiser Permanente Southern California

"Across all ages, races, and sexes, hypertension control exceeded



Shaw KM, Handler J, Wall HK, Kanter MH. Improving Blood Pressure Control in a Large Multiethnic California Population Through Changes in Health Care Delivery, 2004–2012. Prev Chronic Dis 2014;11:140173.
DOI: http://dx.doi.org/10.5888/pcd11.140173

HEARTS

Early Results

	BARBADOS	CHILE	COLOMBIA	CUBA
Secured political commitment	✓	✓	✓	✓
Demonstration site in place	✓ (2)	✓ (2)	✓ (2)	✓ (1)
Target (adult) population size	21,000	50,000	75,000	26,000
Staff, trained and certified in BP measuring & PAHO virtual course	✓	✓	✓	✓
Algorithm defined	✓	✓	✓	✓
Core set of medications	✓	✓	✓	✓
• **Fixed dose combination**	O **(LIS + HTZ)**	✓ **(VAL-AMP)**	✓ **(LOS-HTZ)**	0 **(ENA-HTZ)**
Registry	✓ (electronic)	✓ (electronic)	✓ (manual)	✓ (manual)
• **Registry completeness (%)**	45% & 49%	87%	73%	89%
Metrics M & E defined	✓	✓	✓	✓
Redistribution of Task well defined	✓	✓	✓	✓

1. BP measurement accuracy

2. CVD risk assessment

3. Standardized Treatment Protocol

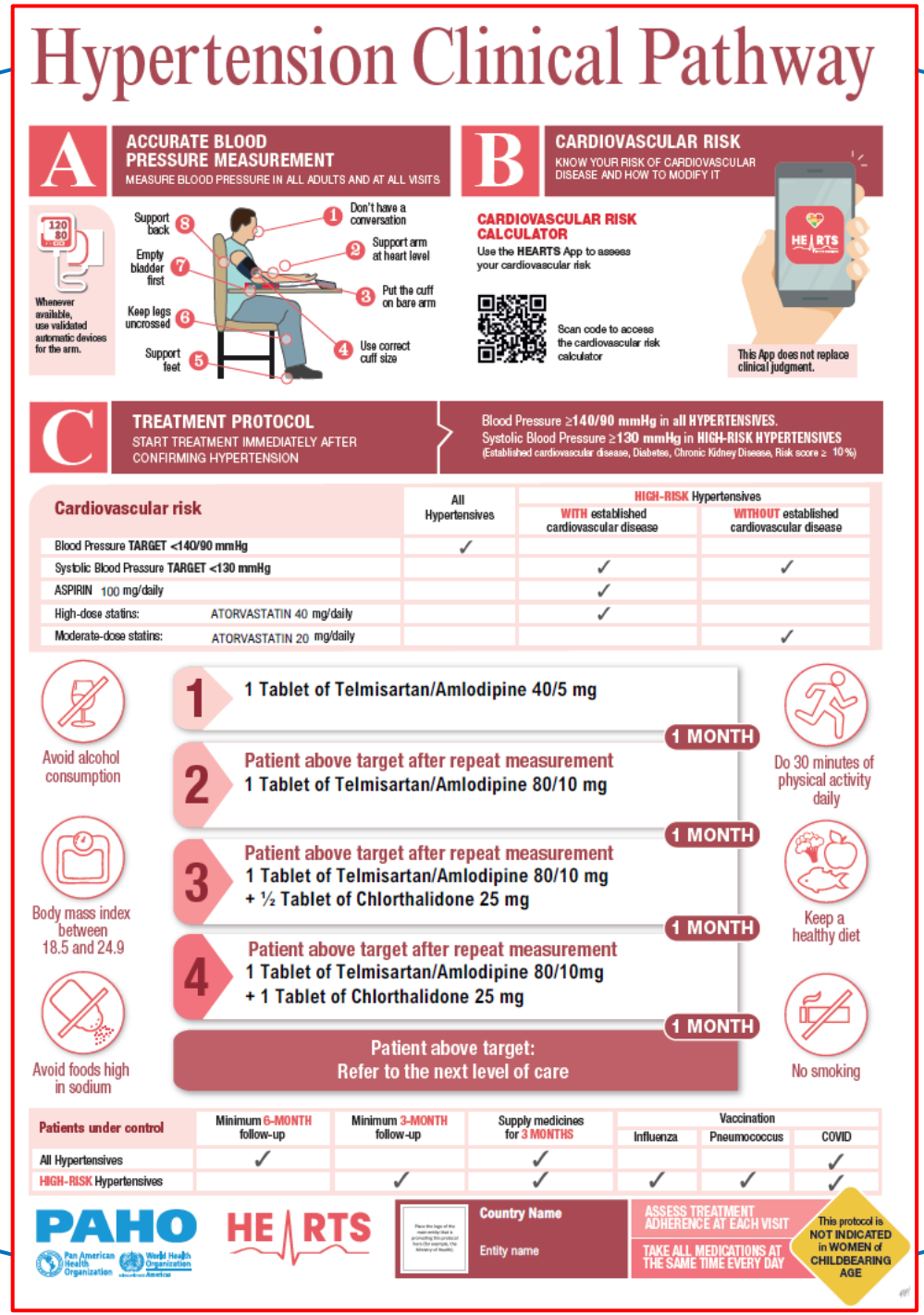
4. Treatment intensification

5. Continuity of care and follow-up

6. Team-based care and task-shifting

7. Medication refill frequency

8. System for performance evaluation with feedback



HEARTS IN THE AMERICAS

Brettler JW ate al. Lancet Reg Health Am 2022.https://www.thelancet.com/journals/lanam/article/PIIS2667-193X(22)00040-0/fulltext

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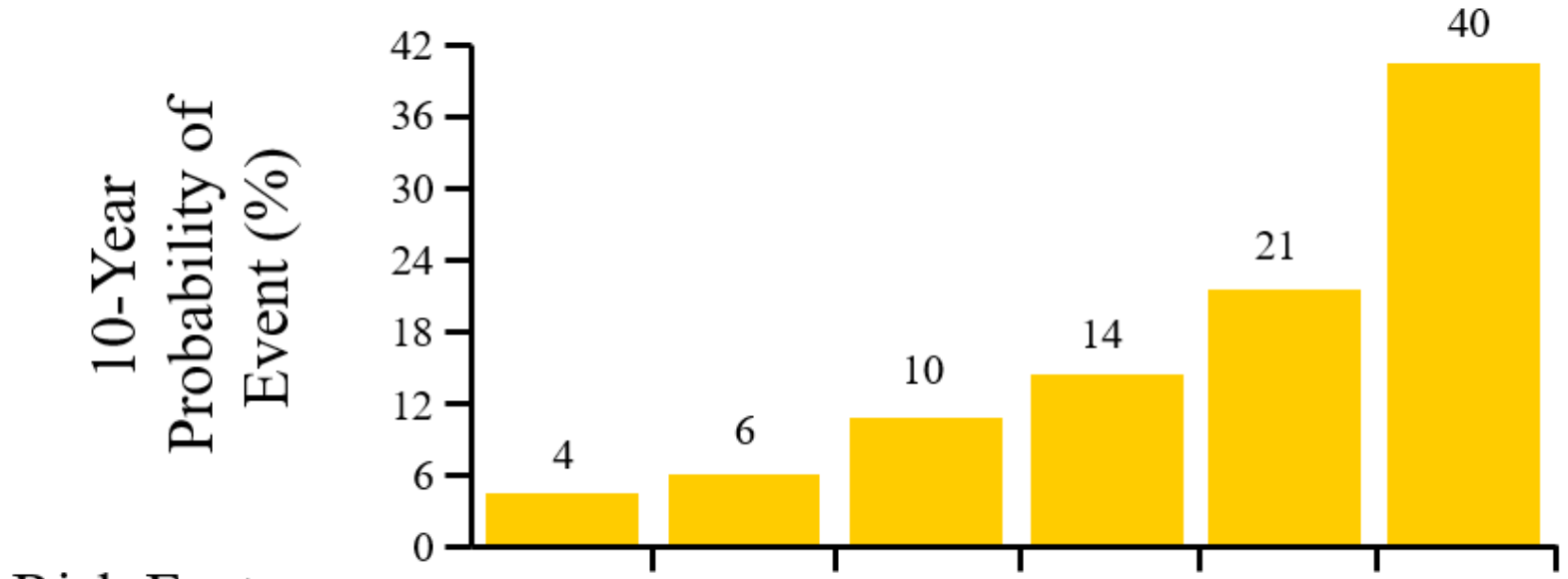
CVD Risk Factors

- Hypertension*
- Cigarette smoking
- Obesity* (BMI $\geq$30 kg/m^2)
- Physical inactivity
- Dyslipidemia*
- Diabetes mellitus*
- Microalbuminuria or estimated GFR <60 ml/min
- Age (older than 55 for men, 65 for women)
- Family history of premature CVD
  (men under age 55 or women under age 65)

*Components of the metabolic syndrome.

Risk of CHD in Mild Hypertension by Intensity of Associated Risk Factors



Risk Factors						
SBP 150-160 mm Hg	+	+	+	+	+	+
TC 240-262 mg/dL	–	+	+	+	+	+
HDL-C 33-35 mg/dL	–	–	+	+	+	+
Diabetes	–	–	–	+	+	+
Cigarette smoking	–	–	–	–	+	+
ECG-LVH	–	–	–	–	–	+

Adapted from Kannel WB. *Am J Hypertens.* 2000;13:3S-10S.

HEARTS

Cardiovascular Risk Assessment: Implications for Clinical Decisions

Importance in determining:

1. Over-all health assessment
2. Blood pressure pharmacologic treatment thresholds
3. Blood pressure pharmacologic treatment targets
4. Intensity of “statin” dosage in diabetes

HEARTS

WHO Guideline for the Pharmacological Treatment of Hypertension in Adults: R1. BP threshold for the initiation of pharmacologic treatment

WHO recommends initiation of pharmacological antihypertensive treatment of individuals with a confirmed diagnosis of hypertension and SBP of >/= 140 mmHg or DBP of >/= 90 mmHg. (Strong recommendation, moderate-high certainty evidence)

WHO recommends pharmacological antihypertensive treatment of individuals with existing cardiovascular disease and systolic blood pressure of 130-139 mmHg (Strong recommendation, moderate-high certainly evidence)

WHO suggests pharmacological treatment of individuals without cardiovascular disease but with high cardiovascular risk, diabetes mellitus, chronic kidney disease, and a SBP of 130-139 mmHg (Conditional recommendation, moderate-high certainly evidence)

HEARTS

WHO Guideline for the Pharmacological Treatment of Hypertension in Adults: R6. Recommendation on target blood pressures

WHO recommends a target blood pressure treatment goal of <140/90 mmHg in all patients with hypertension without comorbidities (Strong recommendation, moderate-certainty evidence)

WHO recommends a target SBP treatment goal of <130 mmHg in all patients with hypertension and known cardiovascular disease (CVD) (Strong recommendation, moderate-certainty evidence)

WHO suggests a target SBP goal of <130 mmHg in high-risk patients with hypertension (those with high CVD risk, diabetes mellitus, and chronic kidney disease) (Conditional recommendation, moderate-certainty evidence)

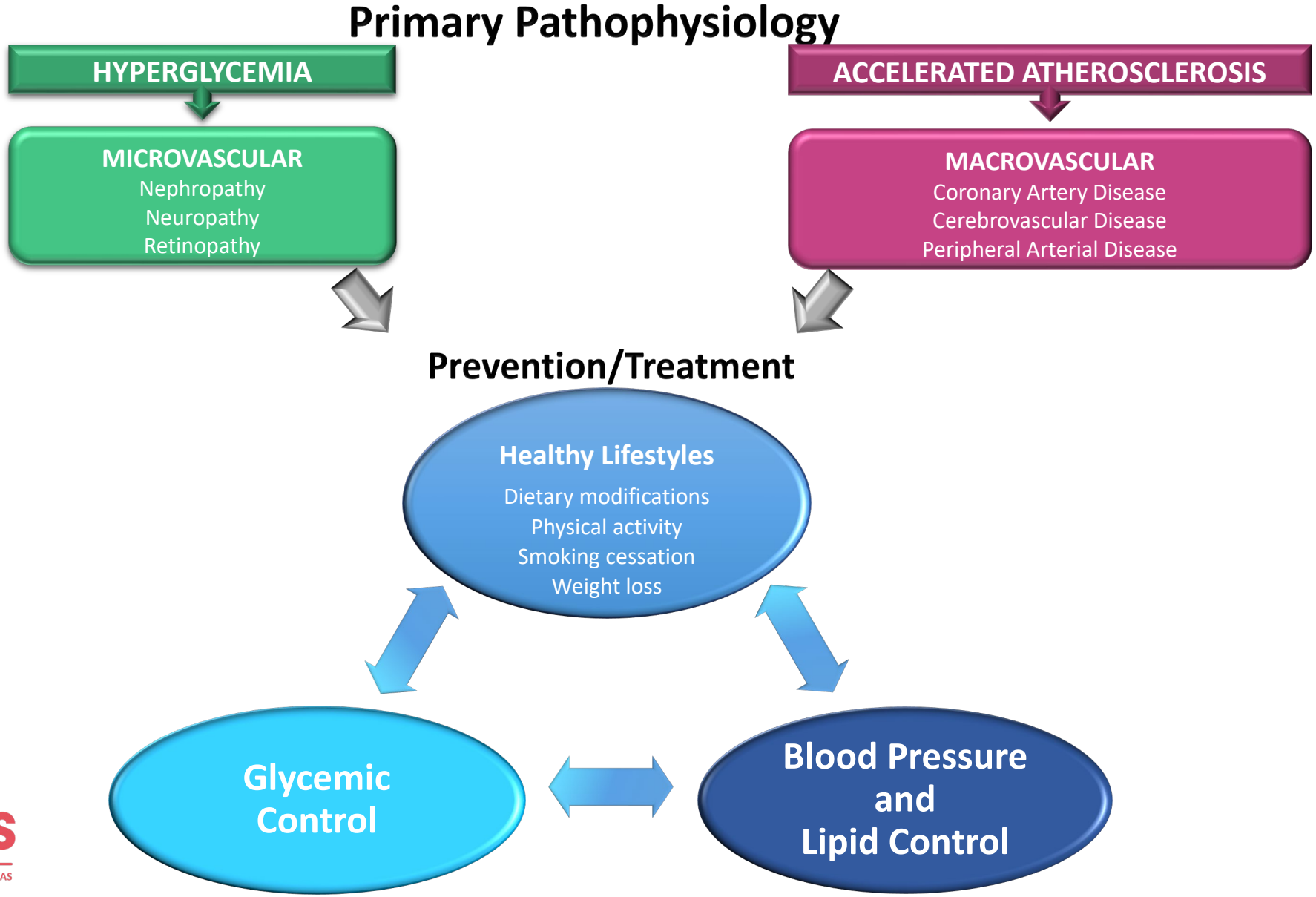
HEARTS

WHO Guideline for the Pharmacological Treatment of Hypertension in Adults: R3. CVD risk assessment as a guide to initiation of antihypertensive medications

- **WHO suggests cardiovascular risk assessment at or after the initiation of pharmacological treatment for hypertension, but only where this is feasible and does not delay treatment** (Conditional recommendation, low-certainty evidence)

- **Implementation remarks:**
  - Most patients with BP ≥ 140/90 mmHg are high risk and treatment is indicated; they do not need CVD risk assessment prior to initiating treatment. Assessment is more important for guiding treatment decisions in those with SBP 130-139 mmHg and to identify other risk factors so that they can be treated appropriately as well
  - Risk assessment should be postponed and included in the follow-up strategy if it interferes with timely treatment

Integrated Management of Diabetes and Hypertension: Critical Role of HEARTS



HEARTS IN THE AMERICAS

Chronic Kidney Disease (CKD): Screening and Early Management

- Similar to diabetes, CKD and hypertension are pathophysiologically integrated
- Must screen for CKD, serum creatinine (eGFR) and urine albumin
- If CKD and hypertension are present, BP pharmacologic treatment threshold and target (goal) levels are lower

HEARTS

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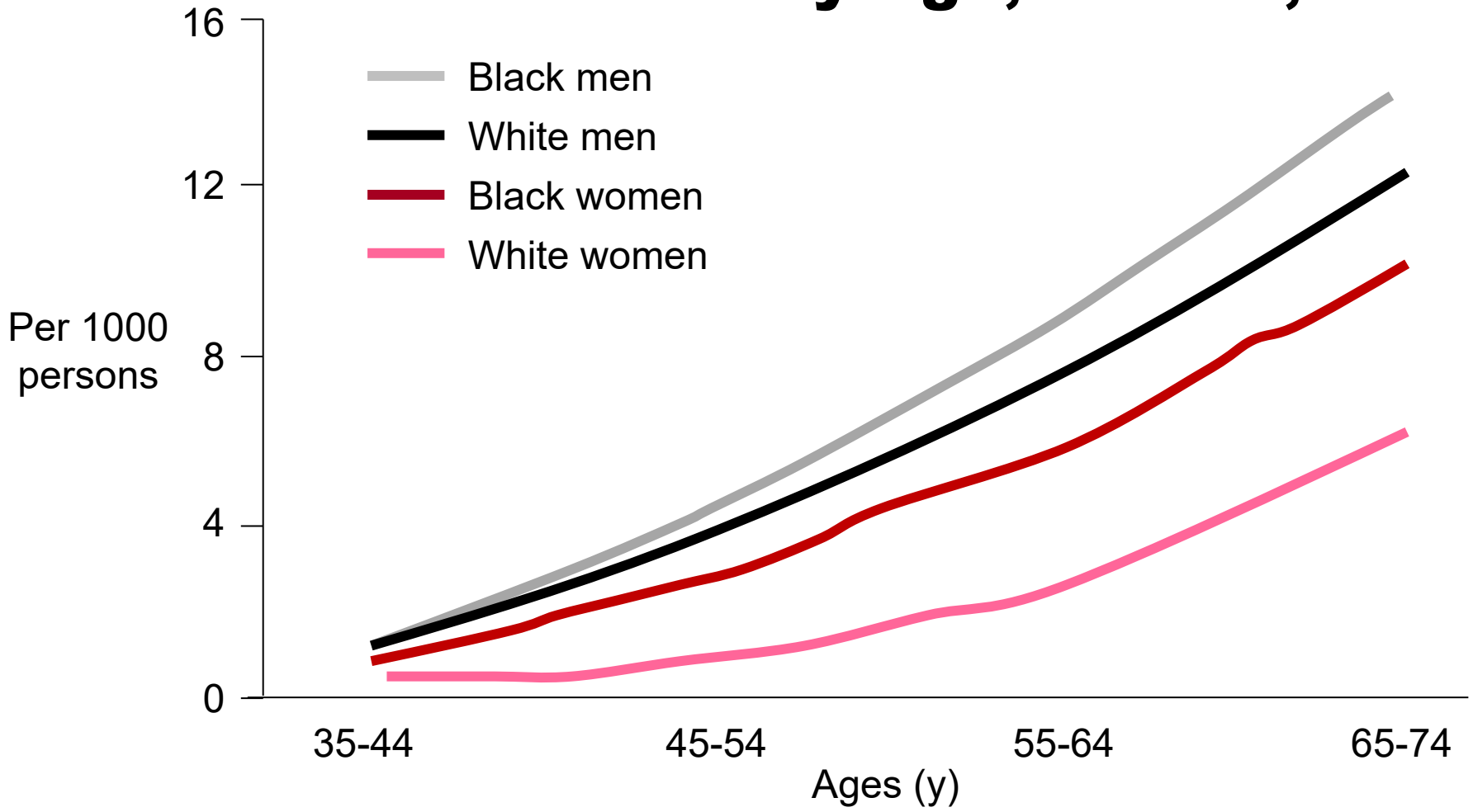
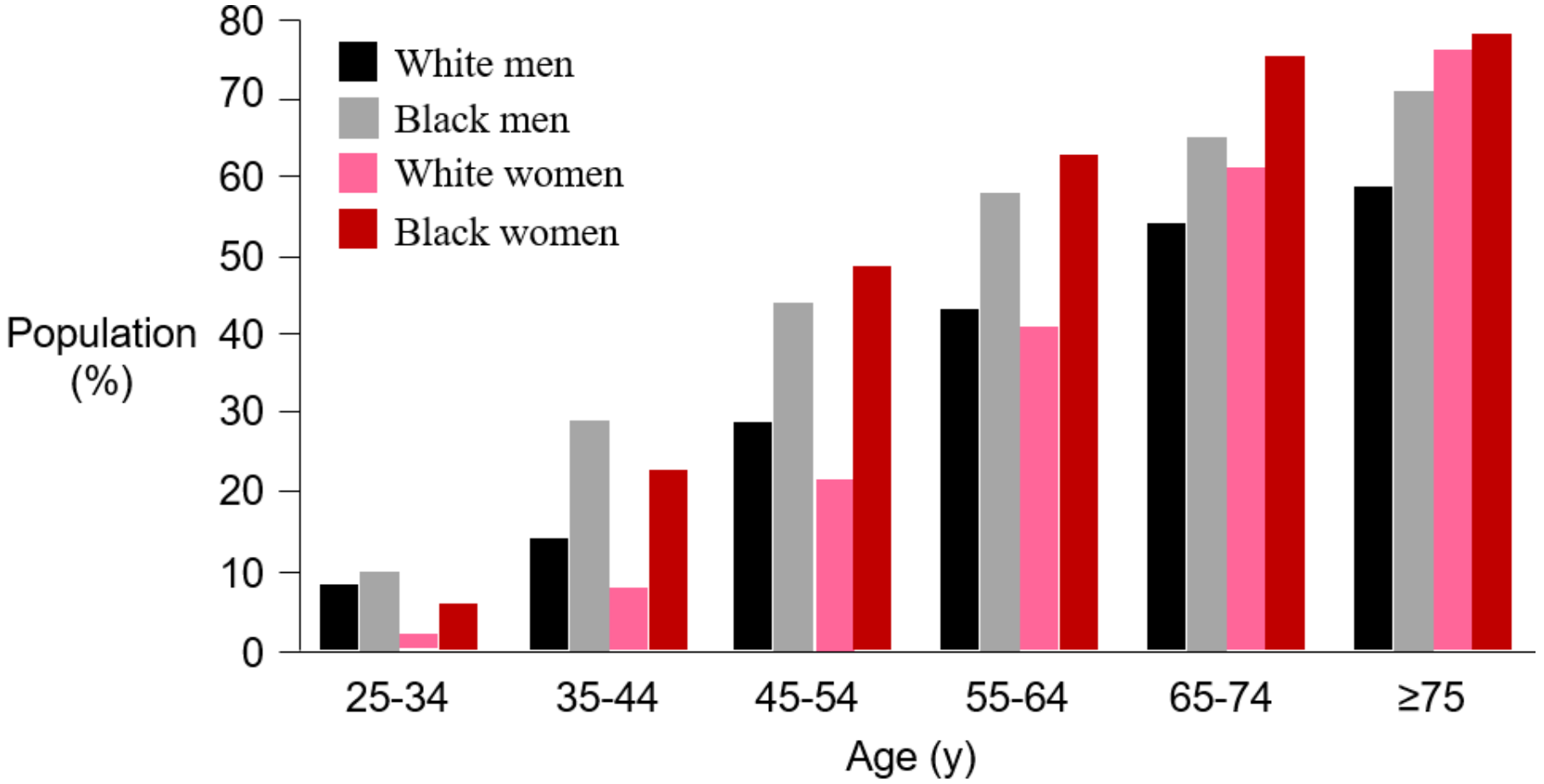
HEARTS

Annual Rate of First MI by Age, Gender, and Race*



*Source: Atherosclerosis Risk in Communities (ARIC) surveillance study, 1987-2000
MI, myocardial infarction.
American Heart Association. *Heart Disease and Stroke Statistics – 2004 Update.*

Prevalence of Hypertension by Age, Gender, and Race*



*United States: 1988-1994.

Wolz M et al. *Am J Hypertens*. 2000;13:103-104.
American Heart Association. *Heart Disease and Stroke Statistics – 2004 Update.*

HEARTS

IN THE AMERICAS

Consensus Among Main Global Organizations

HEARTS in America: Review of key concepts and tools to increase hypertension control: Conclusions

- HEARTS in America is a comprehensive blueprint across a spectrum of populations: economic, geographic, racial, ethnic, and cultural.
- Foundation is the use of a standardized, simplified pharmacologic protocol to treat hypertension using two medications upon the initial diagnosis.
- Develops a primary care-based approach for the treatment of the patient with hypertension (patient "rule" not the "exception").
- Outlines the critical drivers of hypertension control and incorporates CVD risk assessment and a hypertension clinical pathway in management and treatment of hypertension.
- Integrates the management of hypertension, diabetes, and chronic kidney disease.
- The launch of HEARTS in America can significantly improve the detection and treatment and importantly the control of hypertension.
- HEARTS in America is in addition and complementary to programs already in place.


The HEARTS Initiative is the 2019 recipient of Organizational Excellence Award for Hypertension Prevention and Control
The HEARTS Initiative is the 2023 recipient of WHF Advocacy Award in Cardiovascular Health
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IN THE AMERICAS
GUIDE AND ESSENTIALS
FOR IMPLEMENTATION
PAHO
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World Health Organization
PAHO 120

Questions?


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- Southern Medical Association (SMA) **will create an online account for you** including your unique login, **using the email address you provided during registration** (your username/ID is your email address).
- Upon receipt of your post-meeting email, click the link provided, and please **make sure that your name and email address appear at the top of the form before completion**.
- **After you complete and submit your evaluation and attendance documentation, your certificate will be emailed to you as a .pdf attachment from customerservice@sma.org within 24 hours.**

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