HYPERTENSION CLINICAL PATHWAY: HEARTS BLUEPRINT FOR THE DETECTION AND TREATMENT OF HYPERTENSION

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HEARTS AND NCD SURVEILLANCE WORKSHOP
ST. LUCIA MAY 2023

Where HEARTS in the Americas Began

- CDC Noncommunicable Disease Division and PAHO start planning
- 2013 First HEARTS Summit held in Miami Florida
- Barbados first country to implement HEARTS
- 2016 First paper detailing HEARTS published
- HEARTS now
  - 26 countries
  - 3 new implementing
  - Over 20 million lives impacted

H — **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.

E — **Evidence-based treatment protocols**
A collection of protocols to standardize a clinical approach to the management of hypertension and diabetes.

A — **Access to essential medicines and technology**
Information on CVD medicine and technology procurement, quantification, distribution, management and handling of supplies at facility level.

R — **Risk-based CVD management**
Information on a total risk approach to the assessment and management of CVD, including country-specific risk charts.

T — **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.

S — **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

GUIDE AND ESSENTIALS FOR IMPLEMENTATION

PAHO Pan American Health Organization World Health Organization

PAHO 120th ANNIVERSARY

2

HEARTS pillars and technical package

2021 WHO Hypertension Guidelines

Hypertension Drivers and Scorecards

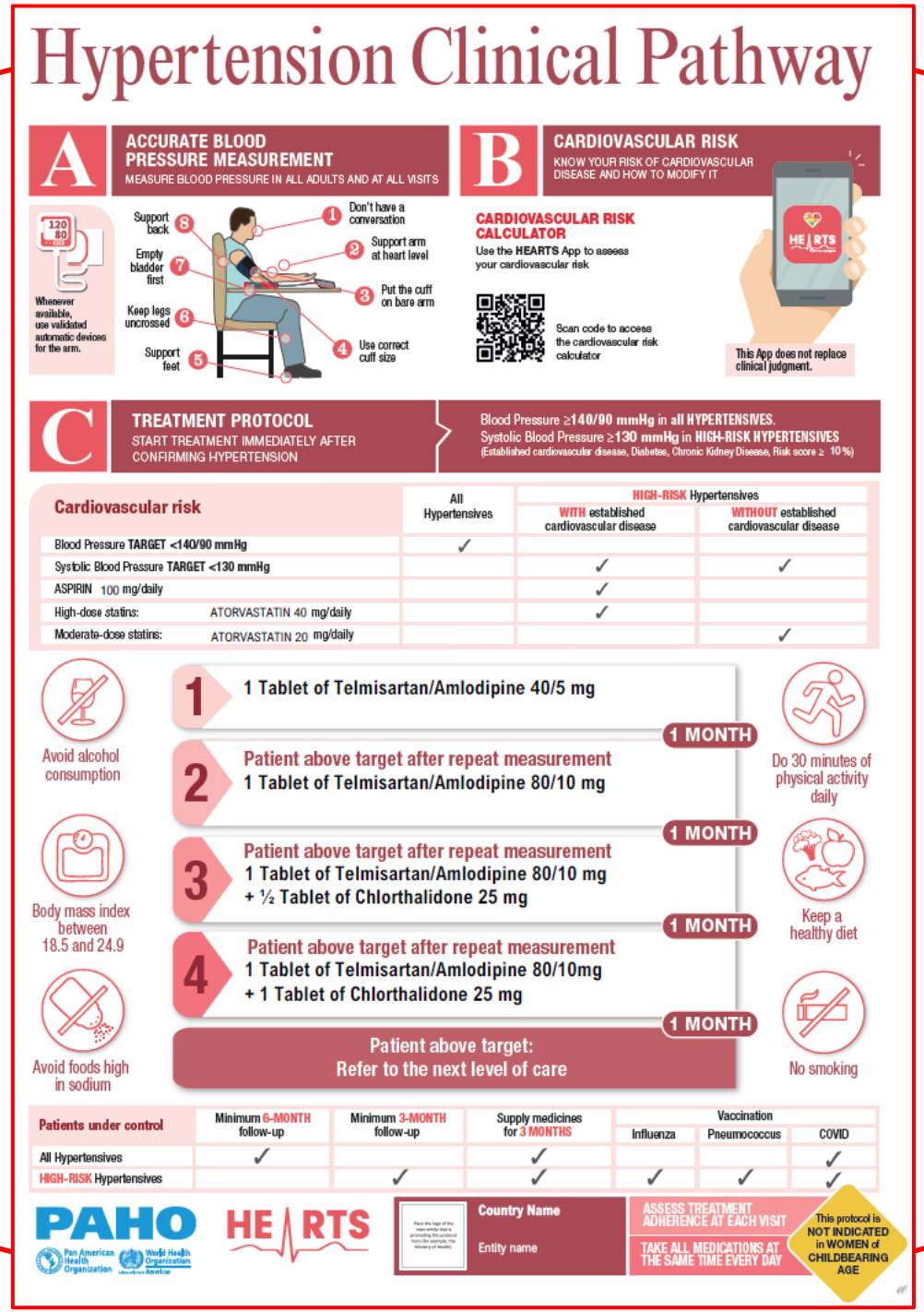
Maturity and Performance Indexes

System for Monitoring and Evaluation

Regulatory Framework on BPMDs

HEARTS App – CVD Risk Calculator

Access to medicines through the Strategic Fund



WHO Guideline for the Pharmacological Treatment of Hypertension in Adults: Scope and Objectives

(Almakki, DiPette, Whelton, et al. Hypertension 2022)

The guidelines address issues related to pharmacotherapy in adults with confirmed hypertension

1. BP threshold to start treatment
2. Whether lab tests or CVD risk assessment are needed first
3. Which drug(s) to prescribe and in which combinations
4. BP target for control of hypertension
5. Follow-up intervals
6. Use of nonphysician HCWs in the further management of hypertension

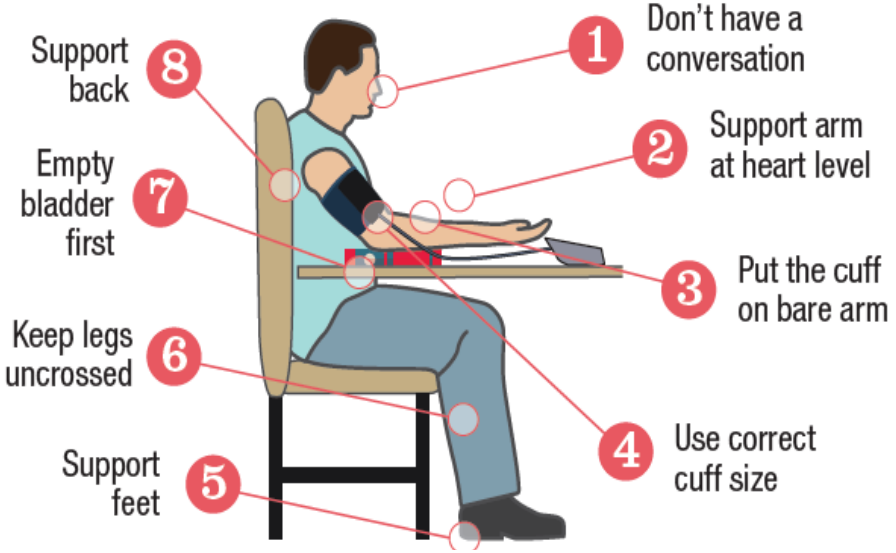
HEARTS IN THE AMERICAS

Hypertension Clinical Pathway

A ACCURATE BLOOD PRESSURE MEASUREMENT

MEASURE BLOOD PRESSURE IN ALL ADULTS AND AT ALL VISITS

Whenever available, use validated automatic devices for the arm.



B CARDIOVASCULAR RISK

KNOW YOUR RISK OF CARDIOVASCULAR DISEASE AND HOW TO MODIFY IT

CARDIOVASCULAR RISK CALCULATOR

Use the **HEARTS** App to assess your cardiovascular risk

Scan code to access the cardiovascular risk calculator

This App does not replace clinical judgment.

C

TREATMENT PROTOCOL

START TREATMENT IMMEDIATELY AFTER CONFIRMING HYPERTENSION

Blood Pressure ≥**140/90 mmHg** in **all HYPERTENSIVES**.
Systolic Blood Pressure ≥**130 mmHg** in **HIGH-RISK HYPERTENSIVES**
(Established cardiovascular disease, Diabetes, Chronic Kidney Disease, Risk score ≥ 10%)

Cardiovascular risk	All Hypertensives	**HIGH-RISK** Hypertensives	
		WITH established cardiovascular disease	**WITHOUT** established cardiovascular disease
Blood Pressure **TARGET <140/90 mmHg**	✓		
Systolic Blood Pressure **TARGET <130 mmHg**		✓	✓
ASPIRIN 100 mg/daily		✓	
High-dose statins: ATORVASTATIN 40 mg/daily		✓	
Moderate-dose statins: ATORVASTATIN 20 mg/daily			✓

Avoid alcohol consumption

Body mass index between 18.5 and 24.9

Avoid foods high in sodium

1 1 Tablet of Telmisartan/Amlodipine 40/5 mg

1 MONTH

2 Patient above target after repeat measurement
1 Tablet of Telmisartan/Amlodipine 80/10 mg

1 MONTH

3 Patient above target after repeat measurement
1 Tablet of Telmisartan/Amlodipine 80/10 mg
+ ½ Tablet of Chlorthalidone 25 mg

1 MONTH

4 Patient above target after repeat measurement
1 Tablet of Telmisartan/Amlodipine 80/10mg
+ 1 Tablet of Chlorthalidone 25 mg

1 MONTH

Patient above target:
Refer to the next level of care

Do 30 minutes of physical activity daily

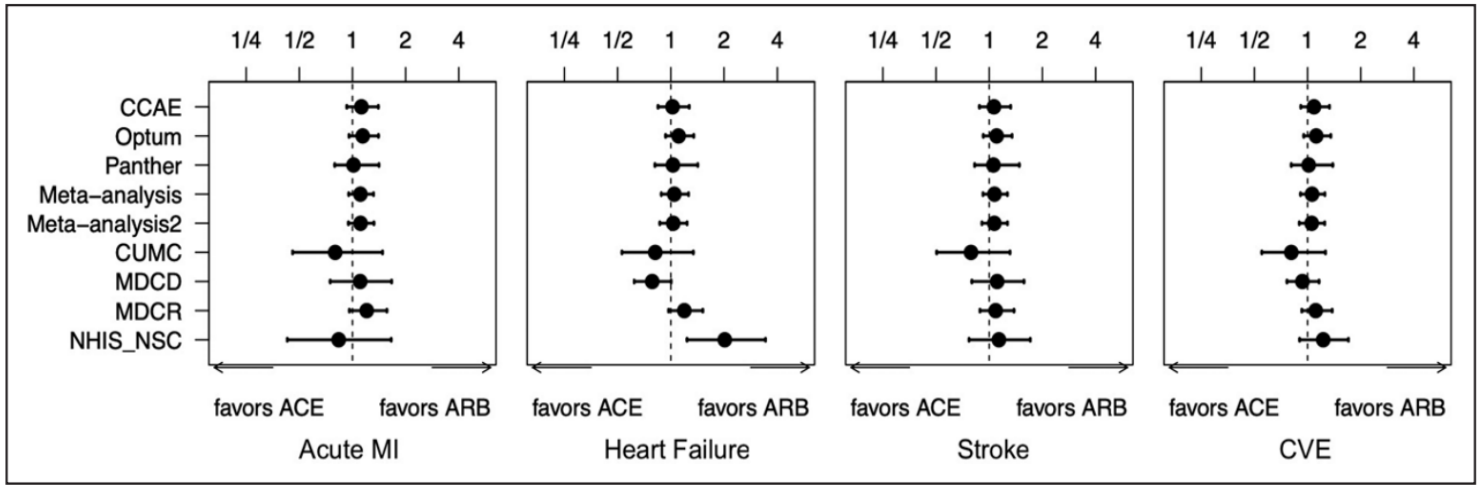
Keep a healthy diet

No smoking

Outcome	HR (95% CI)	*P* value	Calibrated HR (CI)	Calibrated *P* value
Acute myocardial infarction	1.10 (1.04–1.17)	<0.01	1.11 (0.95–1.32)	0.19
CVEs	1.04 (0.99–1.10)	0.12	1.06 (0.90–1.25)	0.49
Heart failure	1.02 (0.94–1.11)	0.64	1.03 (0.87–1.24)	0.68
Stroke	1.06 (1.00–1.12)	0.06	1.07 (0.91–1.27)	0.40

Calibrated hazard ratios (HRs), CIs, and *P* value are calibrated empirically using the distributions of positive and negative control outcomes to minimize residual systematic error (see Methods for detailed description). ACE indicates angiotensin-converting enzyme; ARB, angiotensin receptor blocker; CVE, composite cardiovascular event; HR, hazard ratio; NHIS, National Health Insurance Service; NSC, National Sample Cohort; and PS, propensity score.

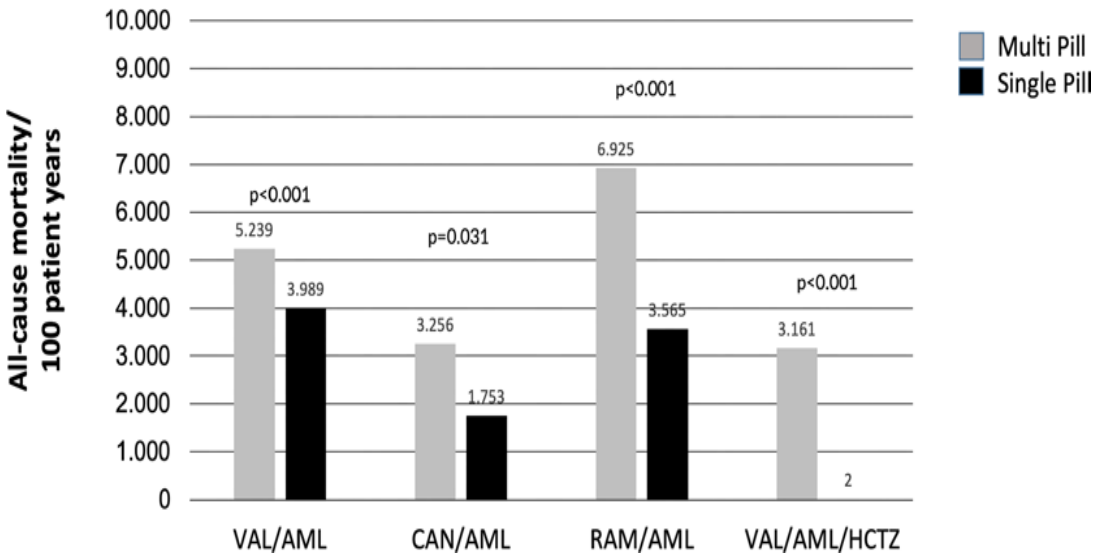
Primary Effectiveness Outcomes for ACE Inhibitors Compared With ARBs (on-Treatment, PS Stratification, Excluding NHIS/NSC)



Risk of cardiovascular outcomes in ACE (angiotensin-converting enzyme) inhibitors vs angiotensin receptor blockers (ARBs) across all databases.

DATA NOT SHOWN: ARBs had significantly lower risk of angioedema, cough, pancreatitis, and GI bleeding

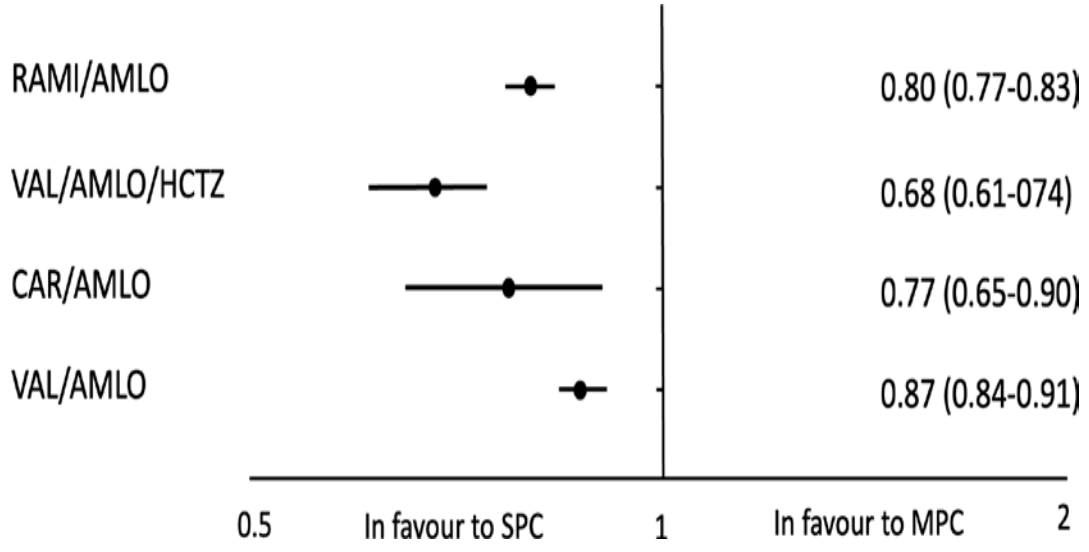
(Chen et al., Hypertension. 2021;78:591 - 603)



All-cause mortality in the single-pill concept (SPC) vs multipill combinations (MPC) groups

Figure shows the number of all-cause mortality per observed 100 patient-years in the respective cohorts. Comparisons are done between matched SPC versus MPC cohorts.

CAR/AML indicates candesartan/amlodipine; RAMI/AML, ramipril/amlodipine; VAL/AML, valsartan/amlodipine; and VAL/AML/HCTZ, valsartan/amlodipine/hydrochlorothiazide.



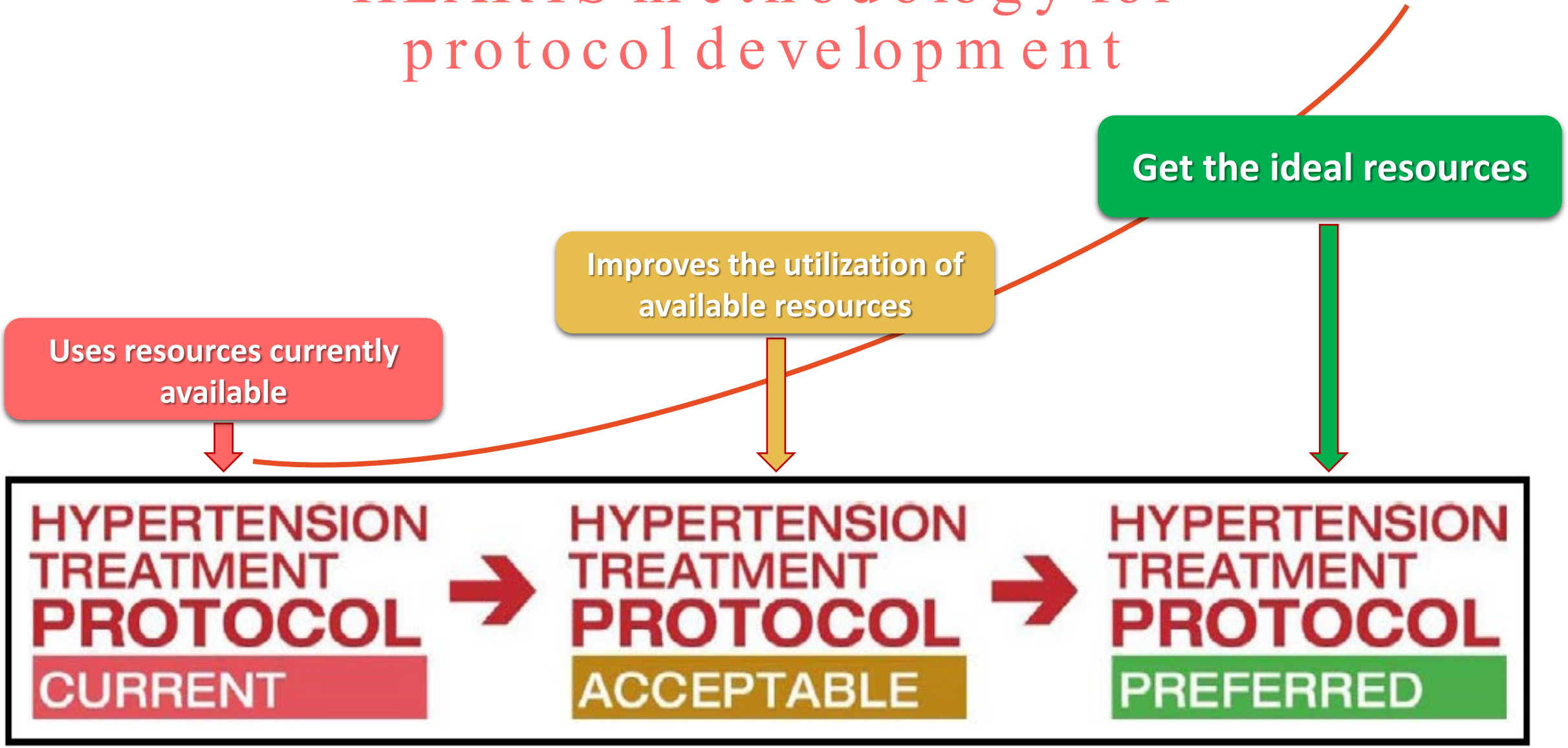
Results for the composite outcome of all-cause hospitalization and all-cause death.

Figure shows the results for the hazard ratios for the time to the first event regarding the predefined composite outcome of all-cause death and all cause hospitalizations based on a comparison of propensity score–matched single-pill concept (SPC) versus multipill combinations (MPC) cohorts.

CAR/AMLO indicates candesartan/amlodipine; RAMI/AMLO, ramipril/amlodipine; VAL/AMLO, valsartan/amlodipine; and VAL/AMLO/HCZT, valsartan/amlodipine/hydrochlorothiazide.

(**START STUDY:** Schmieder et al., *Hypertension.* 2023;80:00–00. DOI: 10.1161/HYPERTENSIONAHA.122.20810)

HEARTS methodology for protocol development



DiPette DJ, et al. Standardized treatment to improve hypertension control in primary health care: The HEARTS in the Americas Initiative. J Clin Hypertens (Greenwich). 2020 Dec;22(12):2285-2295. doi: 10.1111/jch.14072.

Patients under control	Minimum 6-MONTH follow-up	Minimum 3-MONTH follow-up	Supply medicines for 3 MONTHS	Vaccination		
				Influenza	Pneumococcus	COVID
All Hypertensives	✓		✓			✓
HIGH-RISK Hypertensives		✓	✓	✓	✓	✓

Country name
Entity name

HEARTS

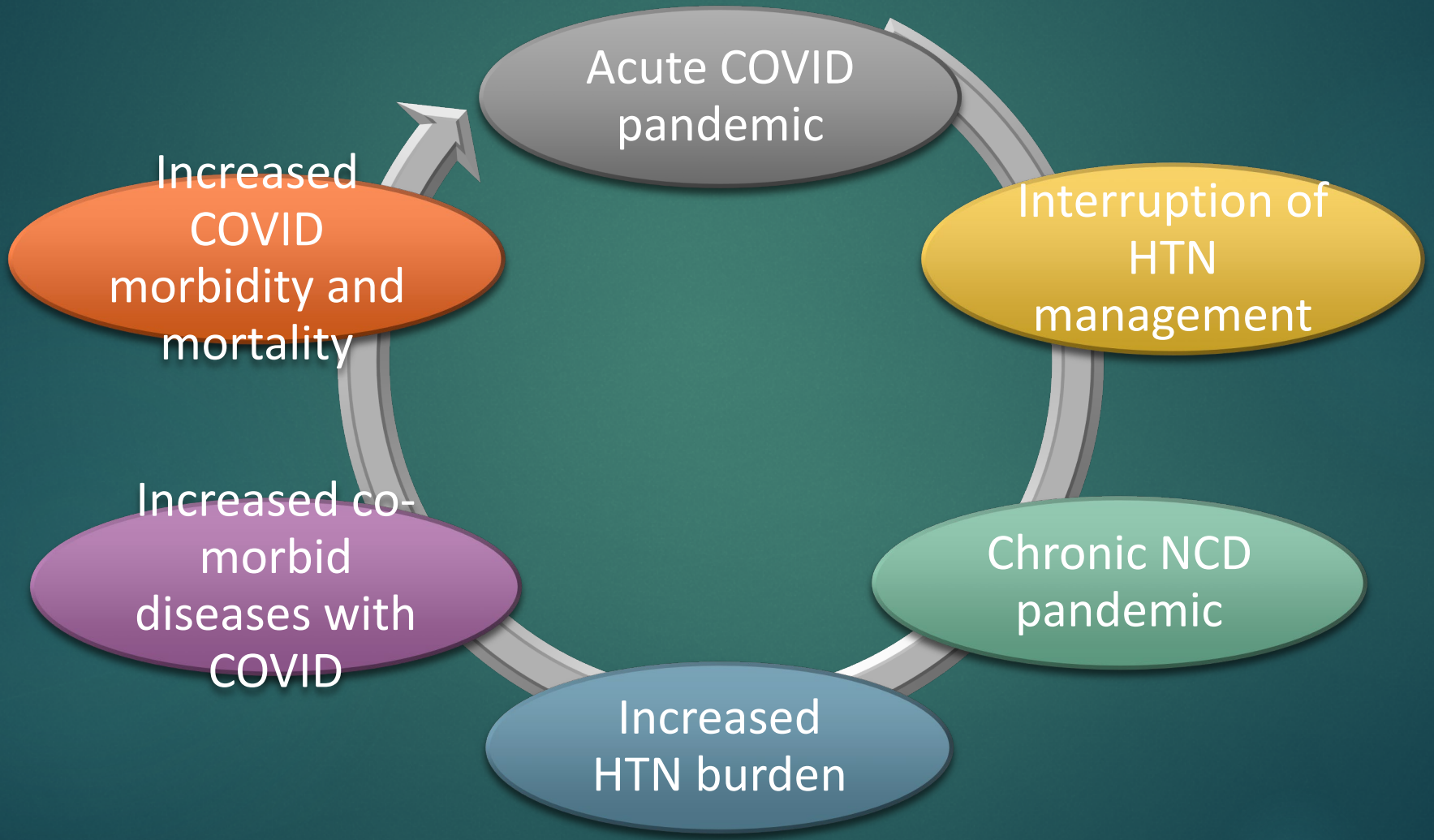
ASSESS TREATMENT ADHERENCE AT EACH VISIT

TAKE ALL MEDICATIONS AT THE SAME TIME EVERY DAY

This protocol is **NOT INDICATED** in **WOMEN** of **CHILDBEARING AGE**

The Hypertension Clinical Pathway is the fundamental tool for the HEARTS implementation, catalyzing the recommendations of the new WHO CPG and the Drivers for Hypertension Control.

Relationship between the COVID and NCD pandemics: the perfect storm



DiPette, Ridley 2020
Skeete, Connell, Ordunez, DiPette Integrated Blood Control. 2020

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All Hypertensives	✓		✓			✓
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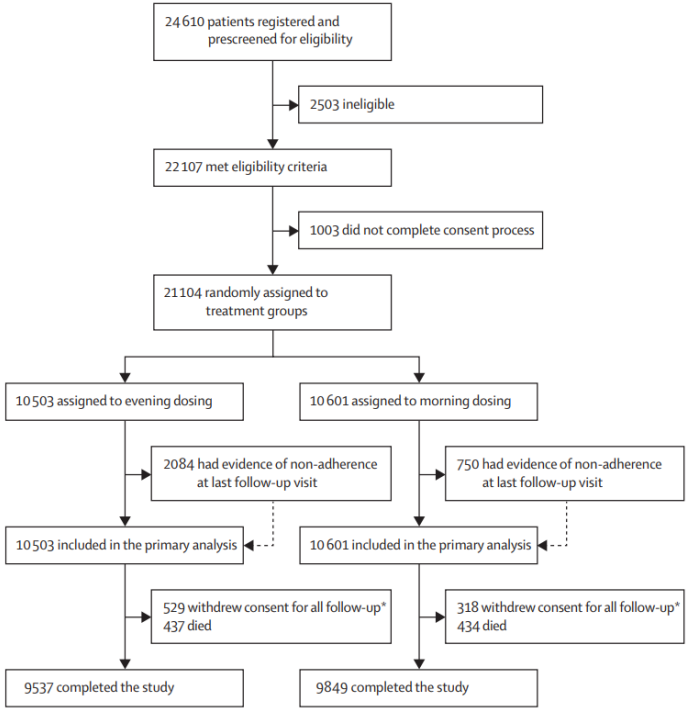
Cardiovascular outcomes in adults with hypertension with evening versus morning dosing of usual antihypertensives in the UK (TIME study): a prospective, randomised, open-label, blinded-endpoint clinical trial

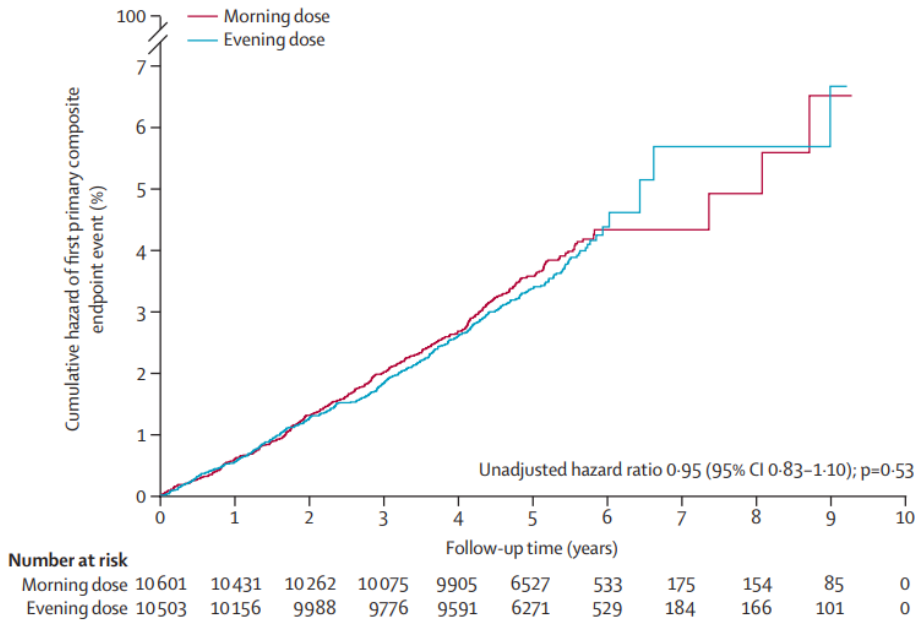
*Isla S Mackenzie, Amy Rogers, Neil R Poulter, Bryan Williams, Morris J Brown, David J Webb, Ian Ford, David A Rorie, Greg Guthrie, J W Kerr Grieve, Filippo Pigazzani, Peter M Rothwell, Robin Young, Alex McConnachie, Allan D Struthers, Chim C Lang, Thomas M MacDonald, on behalf of the TIME Study Group**

-Mackenzie et al., Lancet 2022; 400: 1417–25



Study profile

(*participants who withdrew consent for all follow-up were included in the time-to-event analysis up to the point of withdrawal)



Cumulative hazard of the first primary composite endpoint event, accounting for the competing risk of deaths not included in the endpoint (intention-to-treat population; n=21 104).

The primary composite endpoint was vascular death or hospitalisation for non-fatal myocardial infarction or nonfatal stroke.

(Mackenzie et al., Lancet 2022; 400: 1417–25)

Hypertension Clinical Pathway: HEARTS Blueprint for Detection and Treatment of Hypertension: Closing Thoughts

"START WITH THE END IN MIND": INCREASING HYPERTENSION CONTROL

- Comprehensive, evidence-based, aligned with current major hypertension guidelines (WHO)
- Combines the key components of detection and treatment
- Stresses the importance of the use of a standardized, straightforward, and simple treatment algorithms/protocol
- Details the use of two medications (two-pills or preferably a single-pill, fixed dose combination) in the initial treatment in newly diagnosed hypertension
- Importance of timely patient follow-up, rapid titration, and vaccinations

Thank You

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