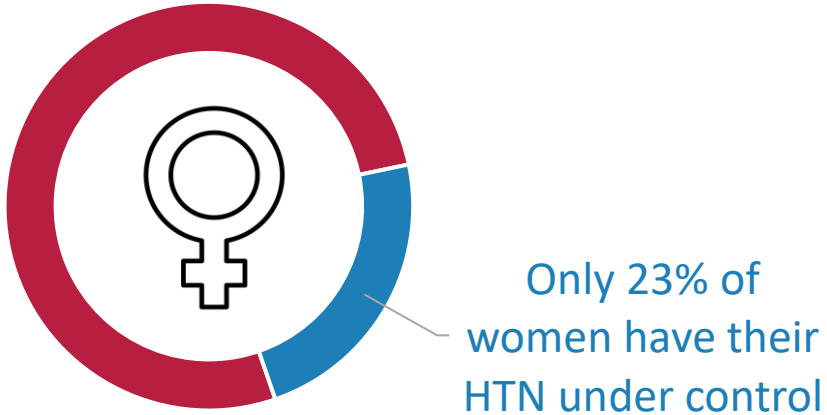
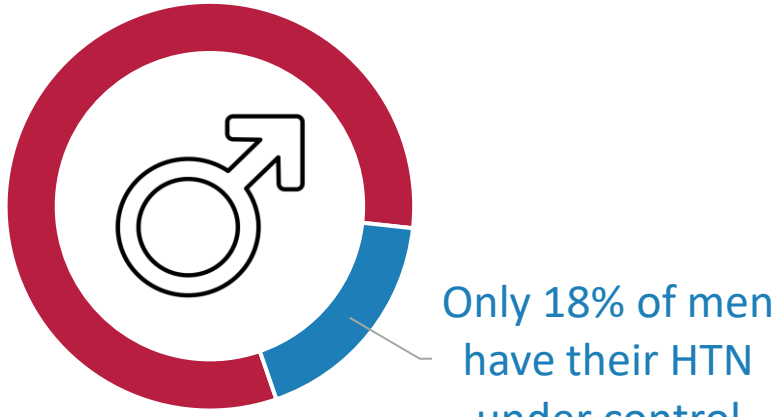
WHO hypertension guidelines: An enabler for DSD for chronic disease

Dr Taskeen Khan, WHO
Differentiated service delivery for other chronic diseases
Harare, 5 December 2023

Background

- **More people die each year from cardiovascular disease than from any other cause.**
- Hypertension – raised blood pressure – significantly increases the risk of diseases of the heart, brain, kidneys and other organs.
- **Around 1.28 billion adults aged 30–79 years worldwide have hypertension (HTN).**
- **Only 23% of women and 18% of men have it under control** – *despite there being cost-effective treatment options*.





World Health Organization

Scope and objectives of HTN guideline

There are a number of *non*pharmacological approaches to treatment or prevention of HTN involving changes in diet and activity levels.

This HTN guideline addresses issues relating to *pharmacotherapy* in adults with a confirmed diagnosis.

Its objectives include determining:

DRUG THERAPY INITIATION

BP threshold for starting drug treatment

Whether lab tests or CVD risk assessment are needed first

Which drug(s) to prescribe and in which combinations

TARGETS AND FOLLOW UP

BP target for control of HTN

Follow-up intervals

Use of nonphysician HCWs in further management of HTN

World Health Organization

The process of developing the guideline

Jan2019
Scoping review of existing literature and guidelines on HTN treatment

July 2019
First Guideline Development Group (GDG) meeting.
11 PICOs agreed.
Report of meeting.

Sept 2019
Planning proposal accepted by WHO Guidelines Review Committee (GRC)

Nov 2020
Systematic reviews completed.
Evidence-to-decision tables drafted

Feb 2021
GDG meets virtually and approves recommendations unanimously.

March 2021
Write up and final GDG input

April 2021
External review

May - June 2021
Submission to and clearance by GRC

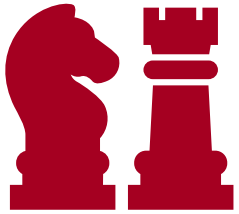
August 2021
Launch of the WHO Guideline for pharmacological treatment of hypertension in adults.

September 2021 onwards
Dissemination of the Guideline

World Health Organization

Game changer

‘The guideline provides the core element that is primary to good clinical practice guidelines - a balanced evidence-based review of the available data that provides the scientific underpinning for clinical recommendations. It also addresses the second most important element of a guideline-feasibility of implementation.’ *Professor Paul Whelton*



R1: Blood pressure threshold

1. RECOMMENDATION ON BLOOD PRESSURE THRESHOLD FOR INITIATION OF PHARMACOLOGICAL TREATMENT
WHO recommends initiation of pharmacological antihypertensive treatment of individuals with a confirmed diagnosis of hypertension and systolic blood pressure of ≥140 mmHg or diastolic blood pressure of ≥90 mmHg.
Strong recommendation, moderate- to 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- to high-certainty evidence
WHO suggests pharmacological antihypertensive treatment of individuals without cardiovascular disease but with high cardiovascular risk, diabetes mellitus, or chronic kidney disease, and systolic blood pressure of 130–139 mmHg.
Conditional recommendation, moderate- to high-certainty evidence
Implementation remarks: • Initiation of pharmacological hypertension (HTN) treatment should start no later than four weeks following diagnosis of HTN. If blood pressure level is high (e.g. systolic ≥160 mmHg or diastolic ≥100 mmHg) or there is accompanying evidence of end organ damage, initiation of treatment should be started without delay.

R2: Laboratory testing before and during treatment

2. RECOMMENDATION ON LABORATORY TESTING
When starting pharmacological therapy for hypertension, WHO suggests obtaining tests to screen for comorbidities and secondary hypertension, but only when testing does not delay or impede starting treatment.
Conditional recommendation, low-certainty evidence
Implementation remarks: • Suggested tests include serum electrolytes and creatinine, lipid panel, HbA1C or fasting glucose, urine dipstick, and electrocardiogram (ECG). • In low-resourced areas or non-clinical settings, where testing may not be possible because of additional costs, and lack of access to laboratories and ECG, treatment should not be delayed, and testing can be done subsequently. • Some medicines, such as long-acting dihydropyridine calcium-channel blockers (CCBs) are more suitable for initiation without testing, compared to diuretics or angiotensin-converting enzyme inhibitors (ACEi)/angiotensin-II receptor blockers (ARBs).

R3: CVD risk assessment as guide to initiation of antihypertensive medications

3. RECOMMENDATION ON CARDIOVASCULAR DISEASE RISK ASSESSMENT
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 SBP ≥140 or DBP ≥90 mmHg are high risk and indicated for pharmacological treatment; they do not require cardiovascular (CVD) risk assessment prior to initiating treatment. CVD risk assessment is most important for guiding decisions about initiating pharmacological treatment for hypertension (HTN) in those with lower SBP (130–139 mmHg). It is critical in those with HTN that other risk factors must be identified and treated appropriately to lower total cardiovascular risk. • Many CVD risk-assessment systems are available. In the absence of a calibrated equation for the local population, the choice should depend on resources available, acceptability and feasibility of application. • Whenever risk assessment may threaten timely initiation of HTN treatment and/or patient follow up, it should be postponed and included in the follow-up strategy, rather than taken as a first step to indicate treatment.

R4: Drug classes to be used as first-line agents

4. RECOMMENDATION ON DRUG CLASSES TO BE USED AS FIRST-LINE AGENTS
For adults with hypertension requiring pharmacological treatment, WHO recommends the use of drugs from any of the following three classes of pharmacological antihypertensive medications as an initial treatment: **1. thiazide and thiazide-like agents** **2. angiotensin converting-enzyme inhibitors (ACEis)/angiotensin receptor blockers (ARBs)** **3. long-acting dihydropyridine calcium channel blockers (CCBs).**
Strong recommendation, high-certainty evidence
Implementation remarks: • Long-acting antihypertensives are preferred. • Examples of indications to consider specific agents include diuretics or CCBs in patients over 65 years or those of African descent, beta-blockers in ischaemic heart disease, ACEis/ARBs in patients with severe proteinuria, diabetes mellitus, heart failure or kidney disease.

R5: Combination therapy

5. RECOMMENDATION ON COMBINATION THERAPY
For adults with hypertension requiring pharmacological treatment, WHO suggests combination therapy, preferably with a single-pill combination (to improve adherence and persistence), as an initial treatment. Antihypertensive medications used in combination therapy should be chosen from the following three drug classes: diuretics (thiazide or thiazide-like), angiotensin-converting enzyme inhibitors (ACEis)/angiotensin-receptor blockers (ARBs), and long-acting dihydropyridine calcium channel blockers (CCBs).
Conditional recommendation, moderate-certainty evidence
Implementation remarks: • Combination medication therapy may be especially valuable when the baseline BP is ≥20/10 mmHg higher than the target blood pressure. • Single-pill combination therapy improves medication-taking adherence and persistence and BP control.

R6: Target blood pressure

6. 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 systolic blood pressure treatment goal of <130 mmHg in patients with hypertension and known cardiovascular disease (CVD).
Strong recommendation, moderate-certainty evidence
WHO suggests a target systolic blood pressure treatment goal of <130 mmHg in high-risk patients with hypertension (those with high CVD risk, diabetes mellitus, chronic kidney disease).
Conditional recommendation, moderate-certainty evidence

R7: Frequency of re-assessment

7. RECOMMENDATION ON FREQUENCY OF ASSESSMENT
WHO suggests a monthly follow up after initiation or a change in antihypertensive medications until patients reach target.
Conditional recommendation, low-certainty evidence
WHO suggests a follow up every 3–6 months for patients whose blood pressure is under control.
Conditional recommendation, low-certainty evidence

R8: Administration of treatment by nonphysician professionals

8. RECOMMENDATION ON TREATMENT BY NONPHYSICIAN PROFESSIONALS
WHO suggests that pharmacological treatment of hypertension can be provided by nonphysician professionals such as pharmacists and nurses, as long as the following conditions are met: proper training, prescribing authority, specific management protocols and physician oversight.
Conditional recommendation, low-certainty evidence
Implementation remarks: • Community health care workers (HCWs) may assist in tasks such as education, delivery of medications, blood pressure (BP) measurement and monitoring through an established collaborative care model. The scope of hypertension care practised by community HCWs depends on local regulations and currently varies by country. • Telemonitoring and community or home-based self-care are encouraged to enhance the control of BP as a part of an integrated management system, when deemed appropriate by the treating medical team and found feasible and affordable by patients. • Physician oversight can be done through innovative methods such as telemonitoring or similar to ensure access to treatment is not delayed.

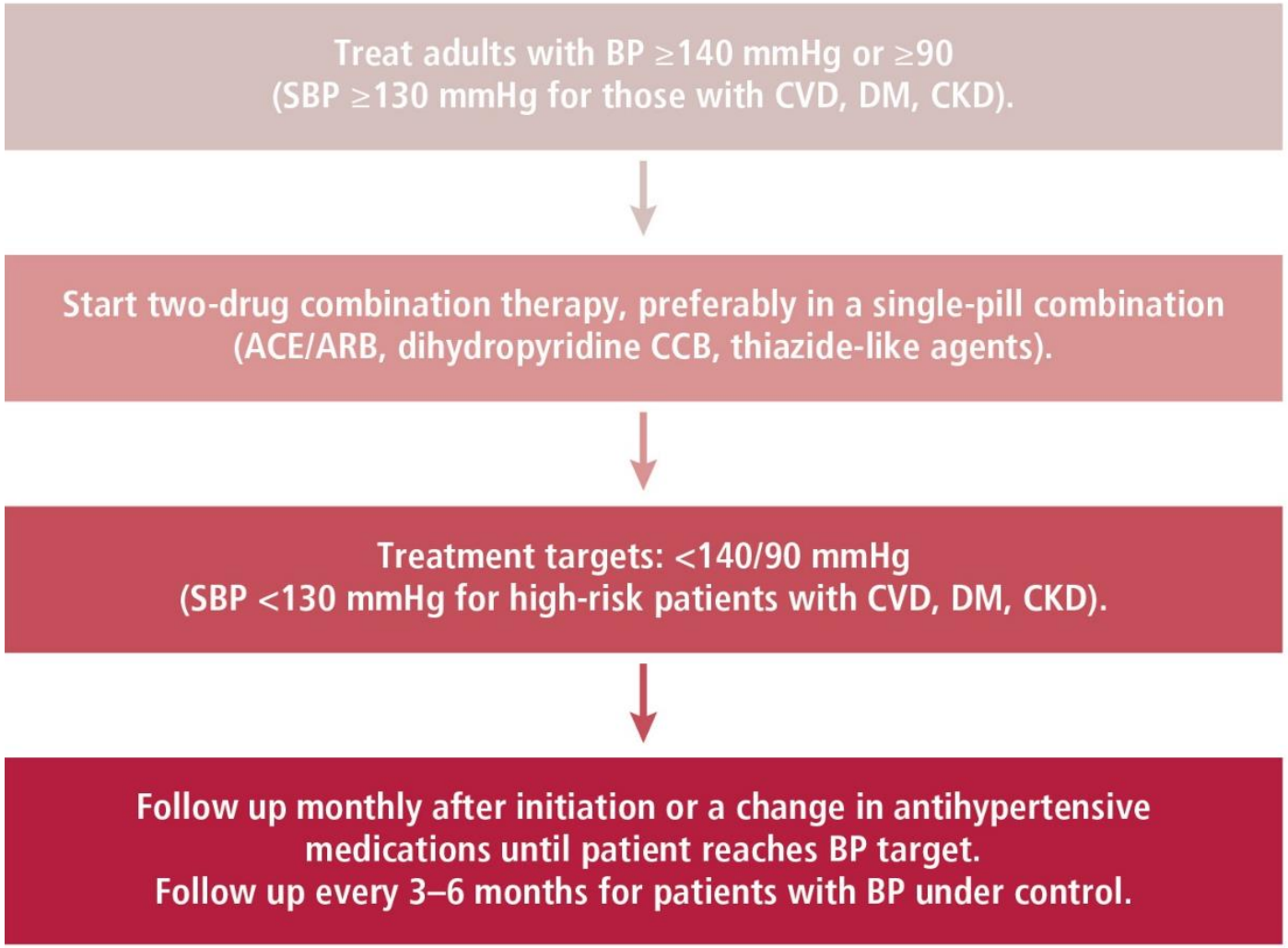
Benefits of algorithms

The guideline emphasizes adaptation, dissemination, and use of a standardized set of simple clinical-management protocols, which should be drug- and dose-specific, and include a core set of medications. The simpler the protocols and management tools, the more likely they are to be used correctly, and the higher the likelihood that a programme will achieve its goals.

The use of a standardized algorithm is critical to success because it:

- enables task-sharing, with the entire health care team able to support patients
- increases ease of logistics in terms of drug inventory, drug forecasting, and quality monitoring
- enables large reductions in cost of medication
- enables evaluation of impact
- simplifies implementation of changes to protocols, if needed.

Recommended patient-care pathway: single-pill combination



- Pharmacological treatment to be initiated when:
  - A diagnosis of HTN has been made
  - BP level is high or there is accompanying evidence of end organ damage
- Patient should be counselled about starting medication
- Basic lab testing and CVD risk assessment to take place only if it does not delay treatment.
- Consider using diuretics or CCB in patients 65 years or older, or those of African or Afro-Caribbean descent, beta-blockers (BBs) post MI, ACEis/ARBs in those with diabetes, heart failure or CKD.

World Health Organization

Recommended patient-care pathway: *not* using single-pill combination

Treat adults with BP ≥140 mmHg or ≥90
(SBP ≥130 mmHg for those with CVD, DM, CKD).

↓

Start with medications from any of the following three classes of pharmacological antihypertensive medications as an initial treatment:
1) thiazide and thiazide-like agents, 2) ACEi/ARB, and 3) long-acting dihydropyridine CCB.

↓

Treatment targets: <140/90 mmHg
(SBP <130 mmHg for high-risk patients with CVD, DM, CKD).

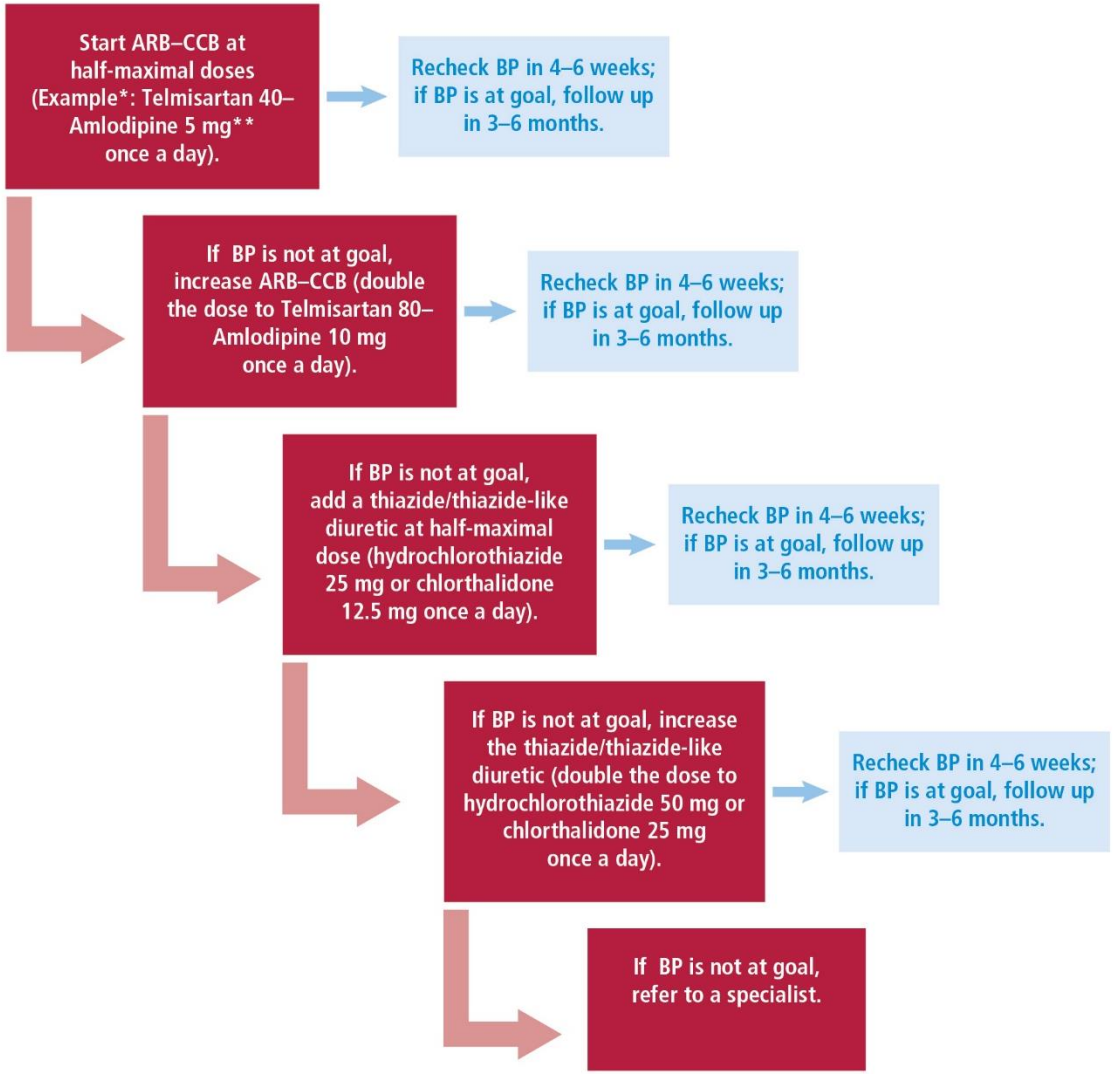
↓

Follow up monthly after initiation or a change in antihypertensive medications until patient reaches target.
Follow up every 3–6 months for patients with BP under control.

- Pharmacological treatment to be initiated when:
  - A diagnosis of HTN has been made
  - BP level is high or there is accompanying evidence of end organ damage
- Patient should be counselled about starting medication
- Basic lab testing and CVD risk assessment to take place only if it does not delay treatment.
- Consider using diuretics or CCB in patients 65 years or older, or those of African or Afro-Caribbean descent, beta-blockers (BBs) post MI, ACEis/ARBs in those with diabetes, heart failure or CKD.

World Health Organization

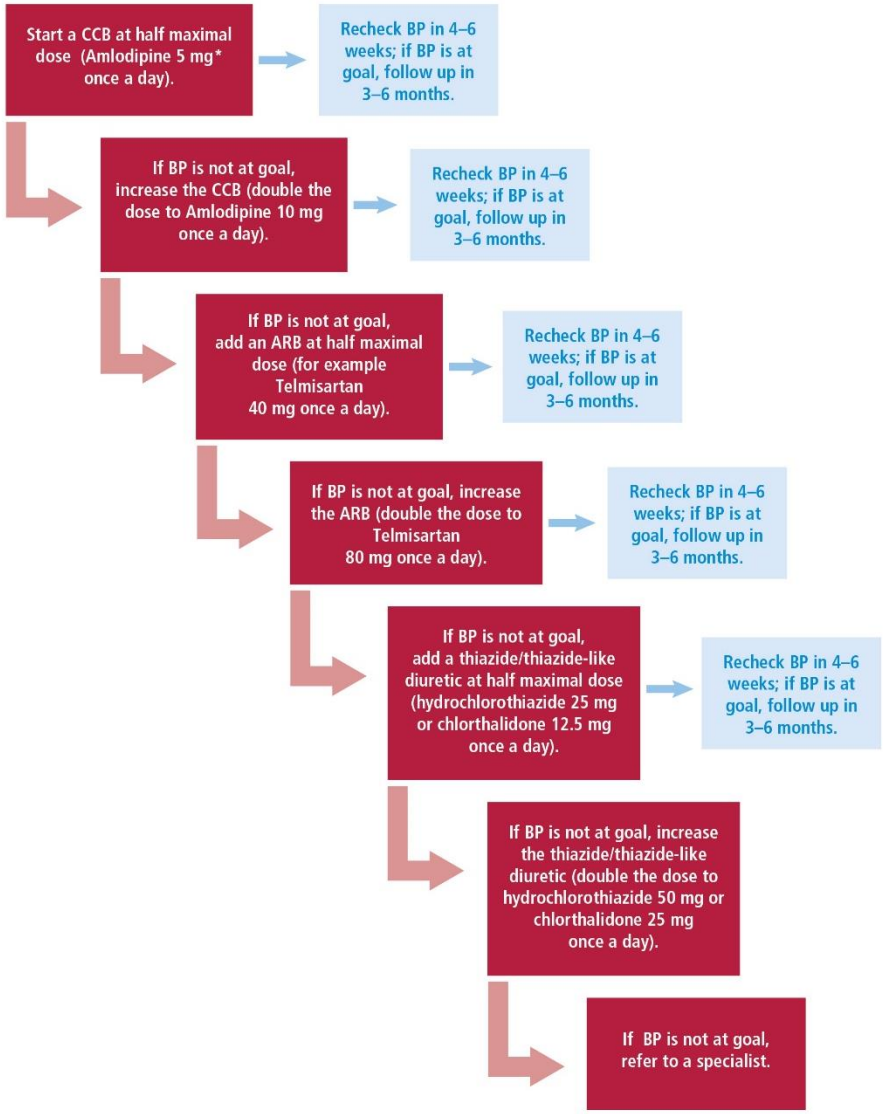
Protocol 1: Initiation of treatment with single-pill combination



- Beginning treatment with two antihypertensive drugs from different classes is recommended when baseline BP is ≥20/10 mmHg above goal, and should be considered when baseline BP is ≥140/90 mmHg.
- Drugs affecting the renin–angiotensin system (ACEis, ARBs, and aliskiren) have been associated with serious fetal toxicity, including renal and cardiac abnormalities and death; they are contraindicated for use during pregnancy.

World Health Organization

Protocol 2: Initiation of treatment *not* using a single-pill combination



- A CCB, rather than a thiazide-type diuretic or ACEi/ARB, was selected as first-line medication if one agent is used, to avoid the need for electrolyte measurements or to alleviate concerns regarding potential change in glomerular filtration rate.
- Drugs affecting the renin–angiotensin system (ACEis, ARBs, and aliskiren) have been associated with serious fetal toxicity, including renal and cardiac abnormalities and death; they are contraindicated for use during pregnancy.

World Health Organization

Effects of a guideline on the health system

Healthcare workers: both physicians and non-physicians, especially those working in primary care, will use algorithms in order to deliver universal and quality, person-centred care.	Access to medicines: procurement and supply chain effects	BP devices: ensure availability of functioning, adequate quality and maintained automated devices	Laboratory testing: simplify diagnostic choice, supply, reduce costs, and facilitate programmatic simplification and decentralization	People with hypertension: effective and faster blood pressure control and to reduce their morbidity and mortality

Thank you