



Improving hypertension control in 3 million people



Country experiences of programme
development and implementation



World Health
Organization



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development and implementation**

Improving hypertension control in 3 million people: country experiences of programme development and implementation

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Foreword

Hypertension – or elevated blood pressure – is a serious medical condition that significantly increases the risk of heart attack, stroke, kidney failure and blindness. It is the leading cause of premature death worldwide. Of the estimated 1.13 billion people who have hypertension, fewer than one in five has it under control. The main contributors to the high and rising prevalence of hypertension in low- and middle-income countries are unhealthy diets – especially excess sodium and also insufficient potassium – physical inactivity, and the consumption of alcohol.

To combat global mortality from noncommunicable diseases, at the Sixty-sixth World Health Assembly in 2013 Member States adopted resolution WHA66.10 and set global targets that include achieving a 25% relative reduction in the prevalence of raised blood pressure by 2025. The World Health Organization (WHO) is supporting countries to meet the global target and to reduce hypertension as part of WHO's Thirteenth General Programme of Work (2019–2023), which focuses on measurable impacts on people's health at the country level.

To support governments in strengthening the prevention and control of cardiovascular disease, WHO and the United States Centers for Disease Control and Prevention (CDC) launched the Global Hearts Initiative in September 2016, which includes the HEARTS technical package. In September 2017, WHO started a partnership with Resolve to Save Lives, an initiative of Vital Strategies, to support national governments to implement the Global Hearts Initiative. Other partners contributing to the global initiative are: the CDC Foundation, the Global Health Advocacy Incubator, the Johns Hopkins Bloomberg School of Public Health, the Pan American Health Organization (PAHO) and the US CDC. Over the past three years, there has been substantial progress demonstrated across low- and middle-income countries.

Hypertension control is a pathfinder for universal health coverage. This case series reports on country programmes that cover 3 million people, deliver protocol-based hypertension treatment through person-centred models of care, and provide state- and country-level information on improved hypertension control rates. These programmes demonstrate the feasibility and effectiveness of standardized hypertension control programmes. We hope that this case series will set a new standard for scalable public health hypertension control and broader primary care programmes and will be an impetus for the urgently needed advances in this field.

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Abbreviations

BP	blood pressure
ARB	angiotensin-receptor blocker
ACE	angiotensin-converting enzyme
CCB	calcium channel blocker
CPG	clinical practice guideline
CVHO	cardiovascular health officer
DoH	department of health
DoPH	department of public health
FDC	fixed-dose combined
HTN	hypertension
ICMR	Indian Council of Medical Research
IHCI	Indian Hypertension Control Initiative
MoH	ministry of health
MoPH	ministry of public health
NCD	noncommunicable disease
PHC	primary health care
RESOLVE	Resolve to Save Lives
PAHO	Pan American Health Organization
STS	senior treatment supervisor
WHO	World Health Organization

Executive summary

An estimated 1.13 billion people globally have hypertension, of whom two-thirds are living in low- and middle-income countries. The World Health Organization (WHO) Global Hearts Initiative supports governments to strengthen prevention and control of cardiovascular diseases (CVDs) with high-impact and evidence-based interventions through five technical packages. The MPOWER package focuses on tobacco control, the ACTIVE package on increasing physical activity, the SHAKE package on salt reduction, and the REPLACE package on elimination of industrially produced trans fats from the global food supply. On the management side, the HEARTS technical package is aimed at strengthening the management of CVDs in primary health care. Details of HEARTS modules and other resources are provided in Annex 1.

The WHO, Resolve to Save Lives (RESOLVE) – an initiative of Vital Strategies – and other partners are working with national and subnational governments to support their work to improve the control of hypertension (HTN) using the HEARTS technical package. The aim of the partnership is to prevent millions of deaths from CVD by reducing salt consumption, eliminating industrially produced trans fats, and controlling hypertension. One of the main strategies is implementing the HEARTS technical package, which provides proven, affordable and scalable solutions to improve control of hypertension at the primary care level. Five components are necessary for a successful hypertension control programme: drug- and dose-specific treatment protocols; access to quality-assured medications and blood pressure (BP) monitors; team-based care; patient-centred care delivered in the community, and information systems to enable quality improvement.

This case series aims to showcase the experience of 18 countries that have adopted the HEARTS technical package for scaling up hypertension control. Countries included are: Argentina, Chile, Colombia, Cuba, Dominican Republic, Ecuador, Ethiopia, India, Mexico, Nigeria, Panama, Peru, Philippines, Saint Lucia, Thailand, Trinidad and Tobago, Turkey and Vietnam. National and subnational ministries of health are developing and implementing programmes with the support of WHO and RESOLVE. In Latin America and the Caribbean, a programme led by the ministries of health and supported by Pan American Health Organization (PAHO) and other partners is active in 11 countries. HEARTS in the Americas has been supported technically and financially by the United States Centers for Disease Control and Prevention (CDC) and RESOLVE, along with the World Hypertension League, World Heart Federation, Inter-American Society of Cardiology, Latin-American Society of Hypertension, and several universities across the Americas.

Country case series

The country cases describe the development, implementation and status, as of June 2020, of the hypertension control programmes, based on the periodic reports and additional information provided by the focal person in each country. The information is presented using domains aligned to the elements of the HEARTS technical package.

- **Programme launch:** This section indicates the engagement of multiple partners, led by the national ministries of health, facilitated by WHO and RESOLVE. Engaging national institutions and professional agencies is important in terms of getting their buy-in and ensuring that all parties are on board. States within India became involved through a national-level process, described separately. In PAHO countries, the HEARTS programme builds on previously successful projects and programmes to optimize resources and establish the necessary synergies to make the initiative work.
- **Consensus protocol:** An evidence-based drug- and dose-specific protocol helps programme delivery and the procurement of medicines. A standard hypertension treatment protocol, developed through consensus workshops facilitated by the national (or subnational) ministries of health, academia, scientific societies, RESOLVE and the WHO is presented. The country cases indicate the availability of the protocol, and the full protocols for all countries are presented in Annex 2.
- **Service delivery:** This section presents the service delivery model adopted in each country: the level of health care where services are provided, the cadre of providers and their roles, and the type of health facility enrolling people on treatment.
- **Medicines and technology:** An uninterrupted supply of medicines and the availability of BP measuring devices are critical for the success of the programme. They are primarily provided by the national and subnational governments. The programme has raised demand above the routine level, and the section provides some indication of the additional quantities procured in some countries.
- **Capacity building:** This section presents the methods and approaches for human resource development for hypertension control in countries. This is an ongoing activity, and having a protocol and service delivery model helps to focus on the competencies for delivering the programme. Some countries, such as India and Turkey, developed and implemented a training package suitable for multiple health workers (doctors, nurses, midwives, pharmacists), promoting multidisciplinary care.
- **Monitoring:** This section covers patient and programme monitoring, including the reporting systems in countries. Reporting systems are essential for monitoring the programme, including the outcome of treatment. It also includes the programme review by partners, and facilitatory field visits by WHO and RESOLVE.
- **Programme expansion:** In many countries there was an expansion of the programme involving an increase in the number of health facilities and geographical coverage. The HEARTS technical

package in the Americas is expanding steadily and the projected numbers are presented in the PAHO country cases.

- **Number of people enrolled:** The increasing number of people with hypertension enrolled from the inception of the programme up until the end of June 2020 is presented. Nigeria and Philippines have just started the programme, and hence the number of people is not yet listed. The number of people on treatment may be much higher in some countries, but for this report only the number enrolled from the programme inception up until June 2020 is included.
- **Hypertension control rate:** The indicator used is the 6-month control rate of hypertension, as given in the *Systems for monitoring* module of the HEARTS technical package. Six-month hypertension control rate indicates the proportion of people on treatment with controlled blood pressure (SBP <140 and DBP <90 mmHg) at six months from the initiation of treatment among all people put on treatment. Some countries have reported a 3–6-month control rate and others have used different time frames. Additional indicators, such as people lost to follow up and stock-out of medicines, are important but were not included in this first report.

Enabling factors and challenges

Preliminary observations of enabling factors and challenges are presented, based on the reports received. More formal evaluation and implementation research is underway in many countries and will add to the lessons learned.

Many factors emerged as prerequisites for a sustainable programme. Engagement of ministries of health, local government institutions and scientific communities was a critical step for ensuring the mandate and leadership. Availability of a consensus treatment protocol and effective monitoring systems were found to be essential. The support of partners and the availability of guidance through the HEARTS technical package facilitated the programme. Provision of catalytic funds helped to address critical gaps and to scale up the programme rapidly.

Primary health care capacity was a defining factor and varied widely between countries. While implementation has begun in all countries, speed of adaptation and scale up has varied, reflecting the readiness of countries' primary health care systems. Ensuring the availability of drugs specified in the agreed protocol was a challenge, especially as programme growth resulted in a very high demand for medicines. Limitations in procurement systems for medicines and BP measuring devices was a major bottleneck. Hypertension and other noncommunicable diseases (NCDs) are often not part of the standard health information system indicator set in many countries. Six-month hypertension control rates can only be calculated from longitudinal follow up of individual patients, which ideally requires an electronic system or a well-managed paper-based system. This was not

Country cases

the situation in most of the settings and has to be addressed as a priority. Availability of data at facility level also provides important feedback for health workers, thereby supporting improvement in the quality of clinical practice. Nevertheless, as these obstacles were overcome, valuable lessons were drawn from this short experience that will be useful as countries plan to scale up hypertension control.

Steady progress in enrolment and control rates was affected by the COVID-19 pandemic, but the situation also offered a means to bring innovations to the service delivery model. Countries have shown adaptation through telemedicine, prolonged supply of medicines and step-down care.

The way forward

This case series brings out the programmatic experience of protocol-based treatment of more than 3 million (3 129 002) persons from 18 countries around the world over a remarkably short period. The wide variety of countries represented indicates the feasibility of the programme in different settings. Health system changes were introduced, and focus was set on providing quality care, evidenced by the monitoring of hypertension control rates. Team-based care and patient-centred health services played a pivotal role in the successful implementation of the programme. Even more encouraging is the fact that after the initial implementation phase many countries are moving towards an expansion of services and an increase in the population coverage. The vision in the Americas is that by the year 2025, HEARTS will be the institutionalized model of care for cardiovascular risk management in primary health care, with special emphasis on the control of hypertension and secondary prevention.

With the COVID-19 pandemic, many countries have redirected their health priorities and resources towards a pandemic response, compromising access to and availability of primary care services, including services for hypertension and CVD management. This situation underscores the urgent need to adapt and strengthen primary care services for CVD management using the HEARTS technical package, as part of the current solution and into the post-pandemic reconstruction phase.

This is the first report of the programme, and continued support to the countries at this stage will be crucial until the programme stabilizes through government budgetary support and integration into the national health systems. Regular documentation and periodic reporting will help to disseminate the learnings and will help to scale up hypertension control programmes.

ARGENTINA

Programme launch



- **April 2019:** The national Ministry of Health (MoH) and the ministry of health of La Rioja province launched the programme, and Salta and Tierra del Fuego provinces followed suit.
- The Argentine Societies of Hypertension and Cardiology are engaged.
- Technical cooperation is provided by PAHO.

Consensus protocol



- The protocol was prepared by the MoH and agreed by all stakeholders within the framework of the National Commission for the Prevention of Cardiovascular Diseases. It is included in the National Plan for the Prevention and Control of Hypertension.



Protocol available at larger size in Annex 2.

Service delivery



- In the community, screening is done during home visits by community health workers, who monitor and educate patients.
- In health centres, screening and detection are carried out by nurses and nursing assistants, and the diagnosis is made by physicians.
- Blood pressure (BP) measurement is repeated on the second visit by the nursing staff and, together with the doctor, they confirm the diagnosis and begin treatment.
- Nursing staff can also intensify the medication according to the protocol, with prior authorization from the doctor.

Medicines and technology



- Medicines are purchased centrally by the MoH through the Remediar programme.
- The inclusion of fixed-dose combination medicines has been proposed.
- The social security subsector applies discounts to pharmacy purchases in the case of hypertension medications (patients pay only **30%** of the cost out of pocket).
- BP monitors used: validated automated sphygmomanometer (**100%**).

Capacity building



- **July 2019:** A national train-the-trainer workshop was held.
- PAHO Virtual Campus courses were provided for primary care teams: Implementation of the HEARTS technical package; Hypertension management; Secondary prevention of cardiovascular diseases.

Monitoring



- Patient data is entered directly into a health centre database, which then feeds into a provincial database.
- **Oct 2018:** Technical cooperation field visits were conducted by PAHO and international consultants.

Expansion of programme

Total number of health facilities

13

2019

50

2021 projected

Number of people enrolled

Total number of people on HTN management

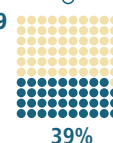
5602

Dec 2019

Hypertension control rate

6-month HTN control rate

April 2019



Dec 2019



Patient receiving medication.



CHILE

Programme launch



- The programme is led by the Ministry of Health (MoH), with the participation of the Faculty of Medicine, University of Chile, and Chilean scientific associations.
- Technical assistance is provided by PAHO.
- **Nov 2016:** The programme was launched in two family health centres in Santiago.

Consensus protocol



- Two protocols were developed by the MoH, with input from scientific societies and academia, based on:
 - enalapril + amlodipine + hydrochlorothiazide
 - losartan + amlodipine + hydrochlorothiazide



Protocol available at larger size in Annex 2.

Service delivery



- Screening and detection is carried out by physicians, nurses, and nursing assistants. Midwives detect women with hypertension during pregnancy checks and postpartum.
- Diagnosis is done solely by physicians based on two visits after detection.
- Nutritionists support patients in making changes to their diet – reducing sodium intake and, in the case of obese patients, total calories.

Medicines and technology



- Purchase of medicines is through the Central Supply, a public body under the MoH.
- Amlodipine (5 mg and 10 mg) is now widely available.
- Blood pressure (BP) monitors used: aneroid sphygmomanometer (5%), non-validated automated (20%) and validated automated (75%).

Capacity building



- HEARTS train-the-trainer programme and virtual course are conducted for health personnel.
- PAHO Virtual Campus courses were provided for primary care teams: Implementation of the HEARTS technical package; Hypertension management; Secondary prevention of cardiovascular diseases.

Monitoring



- Patient data is stored in an electronic clinical file. Data is extracted and an Excel file is created, which is sent to the municipal Department of Health, and on to the Primary Care Directorate of the Health Service and the MoH Department of Statistics.
- **Oct 2016, May 2017, Sept 2018:** Technical cooperation visits were conducted by the PAHO team and international PAHO consultants.
- PAHO office in Chile provides technical support. At the local level, the cardiovascular programme lead provides support to the programme.

Expansion of programme

Total number of health facilities

2
Nov 2016

85
June 2020

110
2021 projected

Number of people enrolled

Total number of people on HTN management

185 759
Dec 2019

Hypertension control rate

6-month HTN control rate

Nov 2016
64%

Dec 2019
69%

Training activity on BP measurement technique.



COLOMBIA

Programme launch



- The main actors in Colombia's health system are the health insurer, its network of health care providers and the local territorial health authority. Technical cooperation is provided by PAHO.
- Implementation of HEARTS started in two health centres in the city of Cali and expanded to 11 more primary care health centres.
- **May 2017:** The launch of the PAHO CVD Risk Reduction through hypertension control and secondary prevention programme, which became HEARTS in the Americas.

Consensus protocol



- Clinical guidelines on hypertension are used, with each health service designing programmes and interventions appropriate to its territory.
- **May 2017:** An initial protocol was developed. Protocol consensus is an ongoing process.



Protocol available at larger size in Annex 2.

Service delivery



- The implementation of HEARTS has been conducted through the Health Care Integrated Routes (RIAS), specifically the Hypertension Integrated Route, which targets all people with cardiovascular and metabolic diseases or at risk of developing either disease.
- Screening is carried out on those attending a primary care centre, and through home visits and community activities.
- Screening is conducted by nurses and nursing assistants.
- The diagnosis of hypertension is made by physicians.

Medicines and technology



- Provision of medicines and technology is ensured through the health insurance mechanism. The system has a defined list of antihypertensive medications provided through the insurance schemes.
- Fixed-dose combination antihypertensive medicines are not currently included in the national list of essential medicines.
- The Ministry of Health does not recommend a specific blood pressure monitor, but those used must comply with safety requirements defined in Decree 4725 (2005).

Capacity building



- **Jun 2019:** A HEARTS train-the-trainer programme was conducted.
- PAHO Virtual Campus courses were provided for primary care teams: Implementation of the HEARTS technical package; Hypertension management; Secondary prevention of cardiovascular diseases.

Monitoring



- The recording of data is done by the insurer, and the follow up should be conducted by the insurer.
- Data is not currently available in real time; there may be a delay of up to a year. There is no electronic medical history in the country.
- **Mar 2017, Apr 2018:** Technical cooperation field visits were made by the PAHO team and international PAHO consultants.

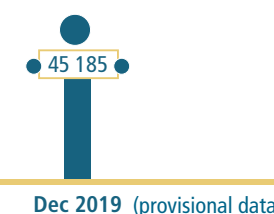
Expansion of programme

Total number of health facilities



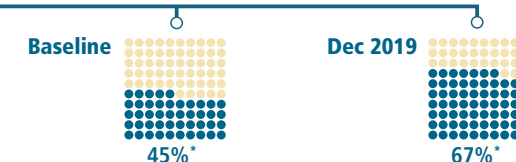
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



*Provisional data; baseline dates vary.

Participants at meeting on HEARTS methodology with Territorial Bureau of Health, Valle del Cauca.



CUBA

Programme launch

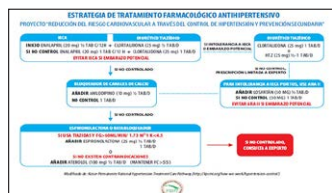


- Central coordination was carried out by the National Technical Advisory Commission for Arterial Hypertension in the Ministry of Public Health (MoPH), including representatives from the departments of noncommunicable diseases, family medicine, hospitals, nursing, teaching, informatics, medicines and technologies, pharmacy, statistics and health promotion.
- Sept 2016:** The programme was launched in Matanzas province.

Consensus protocol



- 2017:** A standardized treatment protocol for use in primary health care was approved by the MoPH and the National Technical Advisory Committee and included in national guidelines.
- 2019:** Approval was given for the protocol to include fixed-dose combination (FDC) medicines.



Protocol available at larger size in Annex 2.

Service delivery



- Six municipalities in different provinces were selected to initiate HEARTS.
- Community care is given by Basic Health Teams in close collaboration with secondary health care. Community pharmacies are actively involved. Diagnosis is done solely by physicians after three visits.

Medicines and technology



- Nationally produced generic antihypertensive medicines are available and distributed to all patients enrolled in the prioritized control card programme at a modest price or with an exemption from payment.
- The MoPH approved development of FDC medicines as a priority for the national pharmaceutical industry.
- Blood pressure monitors used: aneroid sphygmomanometer (5%), non-validated automated (80%) and validated automated (15%).

Capacity building



- July 2017:** Introduction and training workshops were held.
- July 2018:** National HEARTS train-the-trainer programme was run.
- The Hypertension Management Training Certificate is ongoing.

Monitoring



- Primary data is recorded manually by the Basic Health Teams. All information from participating centres is digitized.
- Implementation is overseen by a committee involving government and the academic sector.
- Medical care is supervised by the Vice-Ministry of Medical Assistance, with the participation of provincial, municipal and local medical assistance directorates.
- HEARTS indicators are reported to PAHO every six months.
- Feb 2017, Apr 2018, Dec 2019:** Technical cooperation field visits were conducted by the PAHO team and international PAHO consultants.

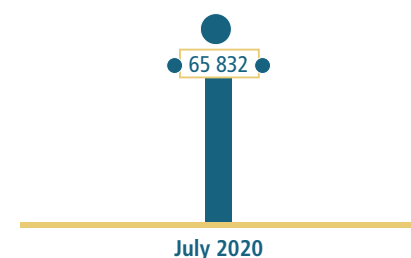
Expansion of programme

Total number of health facilities



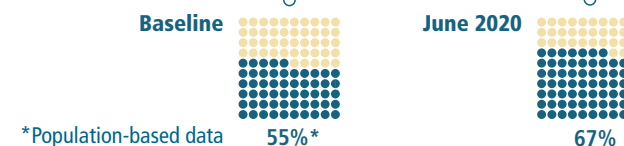
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



Cuba HEARTS was awarded the 2020 World Hypertension League Award.

Community health promotion activity.



Nurse checking patient's blood pressure.



DOMINICAN REPUBLIC

Programme launch



- The HEARTS–Dominican Republic National Committee was formed from the Ministry of Public Health (MoPH), the National Health Service (SNS), and representatives of the regional health services, the Autonomous University of Santo Domingo and the National Health Insurance.

- **Oct 2019:** The programme was launched.

Consensus protocol



- The consensus protocol was developed by the MoPH in conjunction with the SNS and the Dominican Society of Cardiology.

Protocol available at larger size in Annex 2.

Service delivery



- Screening and detection is carried out by physicians, nurses, nursing assistants and community health workers.
- Diagnosis is done solely by physicians after three visits.

Medicines and technology



- Medicines and supplies are purchased and distributed on a regional basis by PROMESE/CAL using the SUGEMI management system.
- The intention is for hydrochlorothiazide (12.5 mg) and amlodipine (2.5 mg) to be included in the centralized procurement system.
- As of June 2020, **76%** of the Dominican population is enrolled in the Family Health Insurance system.
- Blood pressure (BP) monitor used: validated automated sphygmomanometer (**95%**).

Capacity building



- The HEARTS train-the-trainer programme is carried out with health personnel.
- PAHO Virtual Campus courses were provided for primary care teams: Implementation of the HEARTS technical package; Hypertension management; Secondary prevention of cardiovascular diseases.

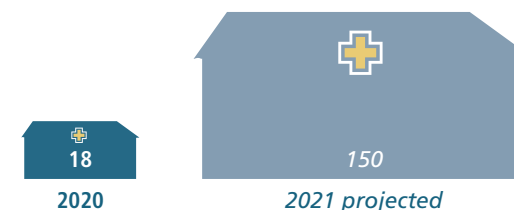
Monitoring



- Patient data is collected manually and entered into the digital National Health Information System with a unique identifier.
- WHO HEARTS indicators are reported to PAHO every six months.
- **Feb 2019, Oct 2019:** Technical cooperation field visits were made by the PAHO team and international PAHO consultants.
- A HEARTS data module has been created within the national health information system for the control of hypertension and diabetes.

Expansion of programme

Total number of health facilities



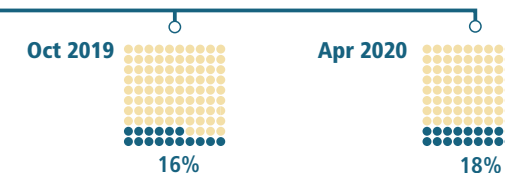
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



Accurate blood pressure measurement technique with digital manometer, being carried out under the supervision of HEARTS coordinator.



ECUADOR

Programme launch



- The major stakeholders of the HEARTS initiative are the Ministry of Public Health (MoPH), Cardiology Society, Nephrology Society, Family Medicine Society, Municipality of Quito, Ecuadorian Institute of Social Security, PAHO Ecuador Country Office and PAHO Regional Office.
- **Aug 2019:** The programme was launched nationally.

Consensus protocol



- Two workshops were held with experts in blood pressure (BP) management from the MoPH and scientific societies, supported by a regional PAHO consultant, in order to devise a standardized treatment protocol.

Protocol available at larger size in Annex 2.



Service delivery



- Screening takes place during:
 - medical consultation
 - home visits
 - community activities.
- Screening and detection is carried out by physicians, nurses, nursing assistants and primary care technicians.
- Diagnosis is done solely by physicians after two visits.

Medicines and technology



- Purchasing is decentralized, following approval by the National Directorate of Medicines and Medical Devices.
- Fixed-dose combination medicines have been submitted for approval by the national essential medications list (CNMB).
- BP monitors used: aneroid sphygmomanometer (5%), non-validated automated (15%) and validated automated (80%).

Capacity building



- **Aug 2019:** 110 participants in HEARTS train-the-trainer workshop.
- Total number of certificates issued (May 2020):
 - HEARTS Implementation virtual course: **35 225**.
 - Virtual course on hypertension management for primary care teams: **20 664**
 - Virtual course on CVD secondary prevention: **3448**.

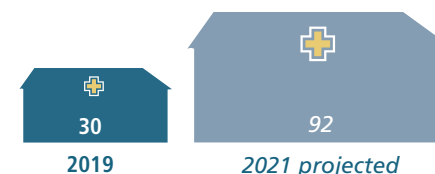
Monitoring



- Patient data is entered directly into an Excel database at the health centre, zone and district levels; developments in the Health Care Registry Platform (PRAS) during 2020 enable the direct registration of hypertensive patients.
- The PAHO country office health services focal point works closely with the MoPH.
- WHO HEARTS indicators are reported to PAHO every six months through progress webinars.
- **Oct 2018, Mar 2020:** Technical cooperation field visits were made by the PAHO team and international PAHO consultants.

Expansion of programme

Total number of health facilities



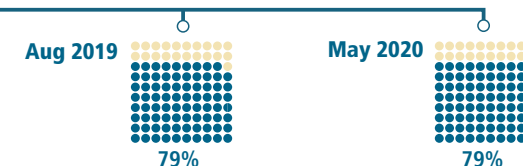
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



HEARTS train-the-trainer workshop, August 2019.



ETHIOPIA

Programme launch



- Project coordination mechanism is led jointly by the Ministry of Health (MoH) and WHO, with field implementation by RESOLVE.
- **20 July 2018:** The programme was endorsed by His Excellency State Minister of Health Dr Kebede Worku.
- **31 July 2019:** The programme was launched in **50** primary health care (PHC) sites and **40** school health sites, across **5** regions and **2** city administrations.

Consensus protocol



- **June 2018:** The consensus protocol based on the HEARTS Technical package was approved.
- Three drugs are approved for use:
 - amlodipine, hydrochlorothiazide, lisinopril.



Protocol available at larger size in Annex 2.

Service delivery



- People are enrolled in primary health centres.
- Health extension workers screen people in their homes and link those with suspected high blood pressure (BP) to PHC centres.
- Opportunistic screening is also conducted.
- Regular appointments and follow up are available at health centres.

Medicines and technology



- The programme started with a one-time procurement by RESOLVE of hypertension (HTN) medicines: **7 million** tablets of amlodipine.
- The Ethiopian Pharmaceutical Supply Agency (EPSA) was engaged to provide medicines.
- **1200** digital BP monitors were provided by RESOLVE and distributed to health facilities and for use by health extension workers.

Capacity building



- **Feb 2019:** Training on protocols was carried out.
- **July 2019:** **8** regional coordinators were recruited.
- **Feb 2020:** HTN cascade training was provided to **243** trainees.

Monitoring



- Paper-based patient and facility-level data recording is in place in health facilities.
- Data compilation using mobile application has been approved by the MoH, and will facilitate data collection through a real-time link to the government DHIS-2 system.
- **June 2020:** The first supportive supervision by the MoH, WHO and RESOLVE was conducted.

Expansion of programme

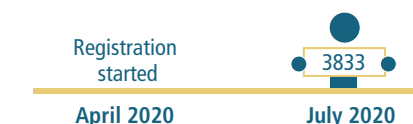
Total number of health facilities



200 health extension workers.

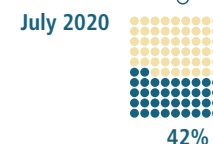
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

HTN control rate



HTN screening by health extension worker.



“The simplicity of the hypertension protocols will go with our task-shifting strategy and the Ministry would like the health system approach of HEARTS.”

Dr Kebede Worku
Former State Minister of Health, Ethiopia

INDIA – India Hypertension Control Initiative (IHCI)

Targeting hypertension

- To address the high burden of mortality due to noncommunicable diseases (NCDs), the Government of India (GoI) adopted the “25 by 25” goal, which aims to reduce premature mortality due to NCDs by 25% by 2025. One of the nine targets includes reducing the prevalence of raised blood pressure by 25% by 2025.
- To achieve the GoI target, the India Hypertension Control Initiative (IHCI) was launched in November 2017 as a multi-partner initiative with the GoI, Ministry of Health and Family Welfare (MoHFW), Indian Council of Medical Research (ICMR), state governments, WHO Country Office for India and RESOLVE (technical partner).
- IHCI contributes to improved blood pressure control by strengthening hypertension (HTN) treatment and follow up as part of the of National Programme for Prevention and Control of Cancer, Diabetes, CVD, and Stroke.
- **Programme Steering Group (PSG):** Chaired by the GoI Secretary of Health, the PSG provides overall leadership, guidance, coordination and review of the IHCI implementation, and is comprised of heads of the partner institutions or their nominees.
- **Technical Advisory Group (TAG):** Chaired by the Director General, ICMR and co-chaired by WHO Representative for India, the TAG is comprised of the project leads from the partner agencies or their nominees. It provides overall monitoring and supervision to ensure IHCI's seamless implementation and scale up.
- The ICMR, Director General of Health Services, MoHFW and WHO Country Office for India provide assistance to the state governments at every stage of the programme.
- ICMR and WHO provide support in terms of human resources, capacity building, programme design, monitoring and reporting, and research.
- ICMR, WHO and RESOLVE jointly provide supportive supervision. The team is also engaged in development and deployment of the SIMPLE app for monitoring the programme and reporting outcomes such as HTN control rates.

IHCI overview

- IHCI started in 2018 in five states (Punjab, Kerala, Madhya Pradesh, Maharashtra and Telangana) and 25 districts. The major activities are:
 - capacity building at state and district level through enhanced personnel support
 - the training of health care providers
 - support for development of HTN management protocols
 - supervisory monitoring of implementation
 - an uninterrupted medicine supply
 - task sharing
 - decentralization of services
 - a strengthened information system to allow patient tracking and follow up on control of HTN and complications.

HTN protocols

- A crucial requirement was the adoption of a standardized HTN management protocol. Consensus workshops to finalize details of implementation and agreement on treatment protocols were held in all five states, attended by officials from the state health department, district NCD nodal officers, district hospital medical officers, specialists from medical colleges, and external invited experts. All states subsequently developed their own protocol.

Information system

- A standardized recording and reporting format was introduced. A digital information system (SIMPLE app) is deployed in Punjab and Maharashtra.
- Telemedicine services were piloted in June 2020 using the SIMPLE app.

IHCI scale up

- **In July 2019**, as recommended by the PSG, IHCI was scaled up.
- **Scale-up:** Chhattisgarh, Karnataka and Chennai Corporation have rolled out IHCI. Preparatory activities have taken place in Andhra Pradesh, Bihar, Jharkhand, Uttar Pradesh, Goa and West Bengal.
- **WHO-IHCI personnel:** Dedicated IHCI focal point at the WHO Country Office for India, two national consultants, 30 cardiovascular health officers (CVHOs) and 57 senior treatment supervisors (STs) support IHCI implementation at national, state and district level.
- **Monitoring:** Regular supportive supervision visits to health facilities and on-site capacity building are carried out by CVHOs and STs to ensure quality services to patients and that the programme requirements are met by strengthening the medicine supply chain and cohort monitoring.
- **Reports:** Monthly, quarterly and annual reports are generated by ICMR and WHO, and shared with district, state, GoI Ministry of Health and Family Welfare, and partners to improve the programme. Review meetings are periodically conducted.
- A total of **867 076** patients in 41 districts had registered under IHCI by August 2020.
- The 3–6-month HTN control rate ranged from 24% to 63% across the five states in 2019 Q4.

Case series

- Detailed reports from five states (Punjab, Kerala, Madhya Pradesh, Maharashtra and Telangana) are presented here. Work is ongoing with expansion in these and other states. Although there are challenges in following up patients and documentation, rapid enrolment and improved hypertension control rates are a pointer in the right direction for India.

INDIA – Kerala

Programme launch



- Nov 2017: The state government worked with ICMR, WHO and RESOLVE to implement the India Hypertension Control Initiative (IHCI), led by the Ministry of Health, Government of India.
- Apr 2018: The IHCI was launched in four districts, later expanded to nine.

Consensus protocol



- Sept 2017: A consensus workshop was held to develop the hypertension (HTN) protocol.
- The protocol followed was amlodipine, telmisartan, chlorthalidone, with dose increases.



Protocol available at larger size in Annex 2.

Service delivery



- Patients are enrolled through noncommunicable disease (NCD) clinics, community health centres, primary health centres, and family health centres.
- Patient records are maintained manually through treatment cards and registers.

Medicines and technology



- Medicines and blood pressure (BP) monitors are procured through a centralized purchasing system: Kerala Medical Service Corporation Ltd.
- Total medicines procured as of June 2020:
CCB: **74.0 million** ARB: **43.0 million** diuretics: **3.3 million**
- No stock-out was reported from April 2019 to March 2020.
- 64** BP monitors were provided and distributed.

Capacity building



- Cardiovascular health officers (CVHOs) and senior treatment supervisors (STs) were recruited, and cascade training of health staff was carried out.
- Total number of staff trained by June 2020:
CVHOs: **4** STs: **11** medical officers: **206**
nurses: **186** pharmacists: **136** auxiliary nurse midwives: **618**

Monitoring



- Monthly and quarterly reports are prepared and sent to the national level.
- On-site capacity building and supportive supervision is conducted by CVHOs, STs and IHCI partners: WHO, ICMR.
- Four state-level review meetings have been conducted. District programme reviews are held monthly.

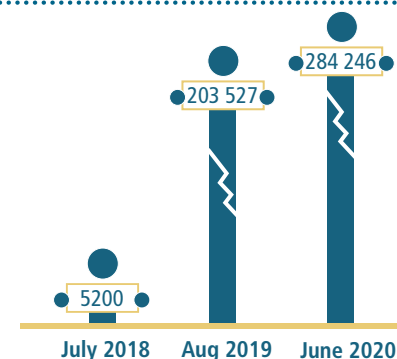
Expansion of programme

Total number of health facilities



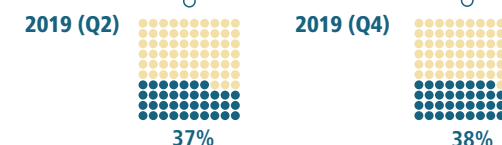
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

3–6-month HTN control rate



“ The NCD control programme had spread its roots in Kerala state by 2010, but after the introduction of the IHCI a structured evaluation materialized. The state now has more than 300 000 registrations under IHCI, and for the first time the control rates, default rates of the disease and drug forecasting can be estimated. ”

Dr Bipin Gopal, State NCD Nodal Officer, Kerala state

Staff nurse measuring BP of an IHCI-registered patient.



INDIA – Madhya Pradesh

Programme launch



- July 2017: The state government worked with ICMR, WHO and RESOLVE to implement the India Hypertension Control Initiative (IHCI), led by the Ministry of Health, Government of India.
- April 2018: The IHCI was launched in three districts, later expanded to 15.

Consensus protocol



- 18 Sept 2017: A consensus workshop was held to develop the HTN protocol.
- The protocol followed was amlodipine, telmisartan, chlorthalidone, with dose increases.



Protocol available at larger size in Annex 2.

Service delivery



- Patients are enrolled through NCD clinics, primary health centres, and health and wellness centres (subcentres).
- Patient records are maintained manually through treatment cards and registers.

Medicines and technology



- Medicines and blood pressure (BP) monitors are procured through a centralized purchasing system: Madhya Pradesh Public Health Services Corporation (MPPHSC).
- Total medicines procured as of June 2020:
CCB: **59.4 million** ARB: **15.7 million** diuretics: **2.5 million**
- No stock-out was reported from April 2019 to March 2020.
- 54** BP monitors were provided and distributed.

Capacity building



- Cardiovascular health officers (CVHOs) and senior treatment supervisors (STs) were recruited. Cascade training of health staff was carried out before implementation.
- Total number of staff trained by June 2020:
 - CVHOs: **3** STs: **11** medical officers: **339**
 - nurses: **458** pharmacists: **253** auxiliary nurse midwives: **322**
 - accredited social health activists: **1443**

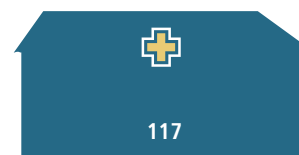
Monitoring



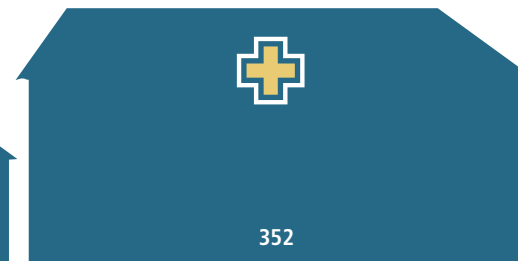
- Monthly and quarterly reports are prepared and sent to the national level.
- On-site capacity building and supportive supervision is conducted by CVHOs, STs and IHCI partners: WHO, ICMR.
- Five state-level review meetings have been conducted. District programme reviews are held monthly.

Expansion of programme

Total number of health facilities



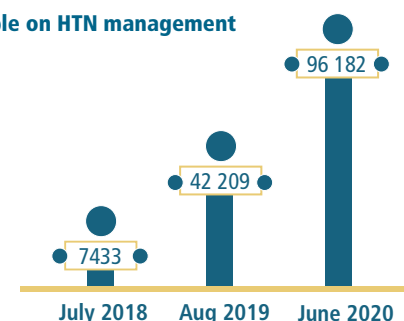
Jan 2019



June 2020

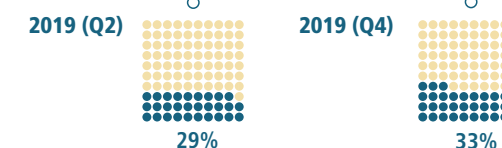
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

3–6-month HTN control rate



“The WHO–IHCI team has been making unprecedented contributions to the identification, monitoring and close follow up of hypertension and diabetes patients in Madhya Pradesh state since April 2018. ... IHCI consistently demonstrates commitment to reducing health disparities for hypertension and diabetes while adopting new approaches. NHM–MP offers heartfelt thanks to team WHO–IHCI.”

Dr Saloni Sidana IAS,
Additional MD NHM,
Madhya Pradesh state

Opportunistic screening in a district hospital by an NCD staff nurse.



INDIA – Maharashtra

Programme launch



- **Jan 2018:** The state government worked with ICMR, WHO and RESOLVE to implement the India Hypertension Control Initiative (IHCI), led by the Ministry of Health, Government of India.
- **Nov 2018:** The IHCI was launched in four districts, later expanded to 11.

Consensus protocol



- **16 Mar 2018:** A consensus protocol was approved.
- The protocol followed was amlodipine/telmisartan/chlorthalidone with dose increases.



Protocol available at larger size in Annex 2.

Service delivery



- Patients are enrolled through noncommunicable disease (NCD) clinics, community health centres, primary health centers, and health and wellness centers (subcenters).
- Patient records are maintained in the SIMPLE app. Teleconsultation is also provided through the SIMPLE app.

Medicines and technology



- Medicines and blood pressure (BP) monitors are procured through a centralized purchasing system: Maharashtra e-Aushadhi through Haffkine's Bio-Pharmaceutical Ltd.
- Start-up medicines for the initial three months was provided by RESOLVE. Later supplies were procured by the state government.
- Total number of medicines procured as of June 2020:
CCB: **39.6 million** ARB: **23.0 million** diuretics **1.8 million**
- No stock-out was reported from April 2019 to March 2020.
- **95** BP monitors were provided and distributed.

Capacity building



- Cardiovascular health officers (CVHOs) and senior treatment supervisors (STs) were recruited and trained.
- Total number of staff trained by June 2020:
CVHO: **5** STs: **11** medical officers: **671** nurses: **614**
pharmacists: **327** supervisors: **540** auxiliary nurse midwives: **2184**

Monitoring



- Monthly and quarterly reports are prepared and sent to the national level.
- On-site capacity building and supportive supervision is conducted by CVHOs, STs and IHCI partners: WHO, ICMR.
- Six state-level review meetings have been conducted. District programme reviews are held monthly.

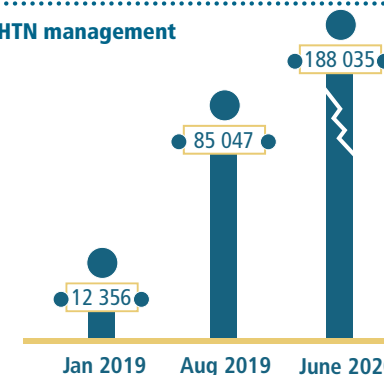
Expansion of programme

Total number of health facilities



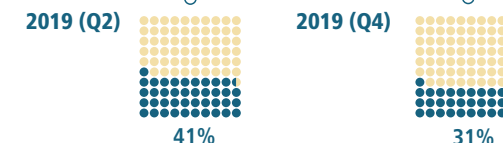
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

3–6-month HTN control rate



“ The IHCI team has strengthened the national programme on NCDs in Maharashtra by using a digital mode of patient recording. This has led us to know the hypertension control status of nearly 25% of estimated hypertensive patients enrolled under IHCI in four districts. We are encouraged to expand the IHCI programme to other districts in our state. ”

Dr Sadhana M Tayade
Director Health Services,
Public Health Department,
Government of Maharashtra

NCD staff nurse entering a patient's details into the SIMPLE app.



INDIA – Punjab

Programme launch



- **July 2017:** The state government worked with ICMR, WHO and RESOLVE to implement the India Hypertension Control Initiative (IHCI), led by the Ministry of Health, Government of India.
- **Jan 2018:** The IHCI was launched in five districts, later expanded to 10.

Consensus protocol



- **8 Sept 2017:** The consensus protocol was approved.
- The protocol followed was amlodipine/telmisartan/chlorthalidone, with dose increases.



Protocol available at larger size in Annex 2.

Service delivery



- Patients are enrolled through community health centres, primary health centres, health and wellness centres (subcentres).
- Patient records are maintained in the SIMPLE app. Teleconsultation is also provided through the SIMPLE app.

Medicines and technology



- Medicines and blood pressure (BP) monitors are procured through a centralized purchasing system: e-Aushadhi /Punjab Health System Corporation (PHSC).
- Total medicines procured as of June 2020:
CCB: **49.7 million** ARB: **13.1 million** diuretics: **2.1 million**
- No stock-out was reported from April 2019 to March 2020.
- **79** BP monitors were provided and distributed.

Capacity building



- Cardiovascular health officers (CVHOs) and senior treatment supervisors (STs) were recruited and trained.
- Total number of staff trained by June 2020:
CVHO: **4** STs: **8** medical officers: **399** nurses: **594**
pharmacists: **196** supervisors: **265**
auxiliary nurse midwife: **1273**
community health officers: **343**

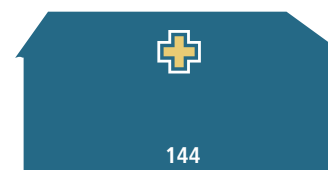
Monitoring



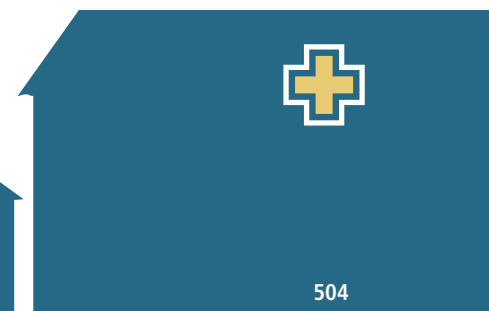
- Monthly and quarterly reports are prepared and sent to the national level.
- On-site capacity building and supportive supervision is conducted by CVHOs, STs & IHCI partners: WHO, ICMR.
- Five state-level review meetings have been conducted. District programme reviews are held monthly.

Expansion of programme

Total number of health facilities



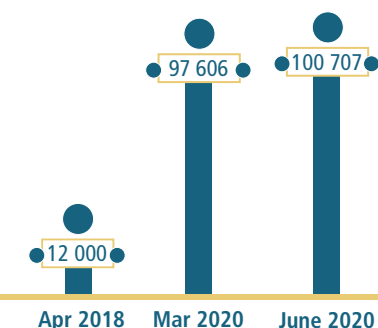
Aug 2018



June 2020

Number of people enrolled

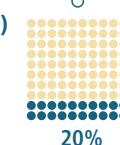
Total number of people on HTN management



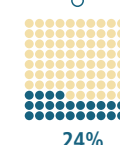
Hypertension control rate

3–6-month HTN control rate

2019 (Q2)



2019 (Q4)



Medical officer conducting BP measurement and retrieving the HTN follow-up patient details in the SIMPLE app.

“ IHCI project in the state of Punjab is doing excellent work. The project has developed a state-specific protocol for HT treatment, and a mobile-phone-based SIMPLE app enabling monitoring with real-time data. ”

Dr Sandeep Singh Gill
NCD Nodal, Punjab state



INDIA – Telangana

Programme launch



- July 2017:** The state government worked with ICMR, WHO and RESOLVE to implement the India Hypertension Control Initiative (IHCI), led by the Ministry of Health, Government of India.
- Nov 2018:** The IHCI was launched in 10 districts, later expanded to 20.

Consensus protocol



- 23 Sept 2017:** The consensus protocol was approved.
- The protocol followed was amlodipine/telmisartan/chlorthalidone, with dose increases.



Protocol available at larger size in Annex 2.

Service delivery



- Patients are enrolled through general hospitals, community health centres, primary health centres, and health and wellness centres (subcentres).
- Patient records are maintained manually through treatment cards and registers.
- Medicine distribution and follow up is decentralized to subcentres.

Medicines and technology



- Medicines and blood pressure (BP) monitors are procured through a centralized purchasing system: Telangana State Medical Supplies & Infrastructure Development Corp.
- Total medicines procured as of June 2020:
CCB: **38.4 million** ARB: **10.1 million** diuretics: **1.6 million**
- No stock-out was reported in April 2019 to March 2020.
- 100** BP monitors were provided and distributed.

Capacity building



- Cardiovascular health officers (CVHOs) and senior treatment supervisors (STs) were recruited, and cascade training for health staff was carried out.
- Total number of staff trained by June 2020:
CVHO: **4** STS: **16** medical officers: **285** nurses: **188**
pharmacists: **167** auxiliary nurse midwives: **1443**

Monitoring



- Monthly and quarterly reports are prepared and sent to the national level.
- On-site capacity building and supportive supervision is conducted by CVHOs, STs and IHCI partners: WHO, ICMR.
- Eight state-level review meetings have been conducted. District programme reviews are held monthly.

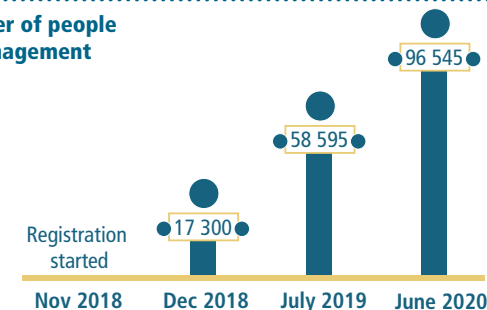
Expansion of programme

Total number of health facilities



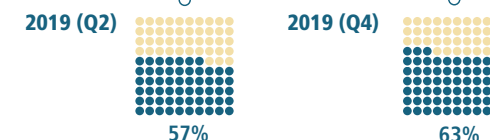
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

3–6-month HTN control rate



WHO–IHCI technically supported and strengthened the service delivery by introducing standardized treatment protocols, indenting of medicines and equitable distribution mechanisms, making services more patient-centric with the introduction of decentralization. Recording and reporting has been improved with the introduction of treatment cards and registers. Due to the collective efforts of team IHCI and the state government, the follow-up rates of patients have increased. //

Dr G Srinivasa Rao
Director of Public Health & Family Welfare,
Telangana state



Patient having blood pressure measured in a clinic.

MEXICO

Programme launch



- The programme stakeholders were led by the National Center for Preventive Programs and Disease Control (CENAPRECE) of the Federal Secretary of Health, state secretaries of health of the Chiapas and Sonora states, National Institute of Cardiology and Experts in Arterial Hypertension.
- **Feb 2020:** The programme was launched.

Consensus protocol



- A protocol development exercise was held in Mexico City with technical assistance from PAHO.
- An acceptable protocol for Chiapas and Sonora was agreed by the state teams, the CENAPRECE Health Programme for Adults and the Elderly, PAHO and international experts.



Protocol available at larger size in Annex 2.

Service delivery



- Screening and detection take place through:
 - medical consultation
 - community activities.

Medicines and technology



- Purchase of medicines is centralized under the Institute of Health for Welfare.
- **Mar 2020:** The 13th update of the catalogue of medicines was published in the Federation Official Gazette by the General Health Council, and included 16 new hypertension medicines.
- Types of BP monitors used are: aneroid sphygmomanometer (92%), non-validated automated (5%), mercury (3%).

Capacity building



- **893** health professionals have received the certificate from the PAHO–HEARTS implementation virtual course.
- **Feb 2020:** A national train-the-trainer workshop was held.

Monitoring



- The data of patients with NCDs who come to the health centres is entered in the Registration and Control Card for Chronic Diseases.
- The patient national information system provides a unique identifier that enables the collection of data at both health unit and jurisdictional levels for the centralized information system.
- **Feb 2020:** Technical cooperation field visits were made by the PAHO team and international PAHO consultants.

Expansion of programme

Total number of health facilities



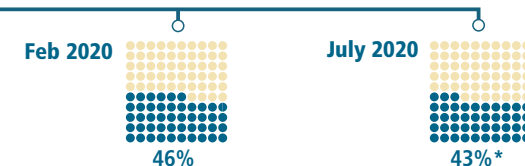
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

3-month HTN control rate



*Implementation started in March 2020. Service provision was severely affected by the pandemic.

Launch of national HEARTS programme by MoH in Mexico City.



NIGERIA

Programme launch



- **Feb 2018:** Preparatory work and development of the proposal was started by the Federal Ministry of Health (FMOH) and WHO Country Office for Nigeria.
- **Jan 2019:** The proposal was approved.
- **Aug 2019:** The National Hypertension Control Initiative was launched.
- **Dec 2019:** An advocacy visit was made to Ogun state.
- **Jan 2020:** An advocacy visit was made to Kano state.
- **Sept 2020:** Inauguration of state steering committees was scheduled.

Consensus protocol



- **Aug 2019:** A consensus conference was held and the hypertension (HTN) protocol was approved.



Protocol available at larger size in Annex 2.

Service delivery



- 24 Health facilities were identified in both states.
- **June 2020:** A one-day training and a baseline assessment were conducted in selected facilities.
- **Sept 2020:** The launch and service delivery was scheduled to commence in Kano and Ogun states.

Medicines and technology

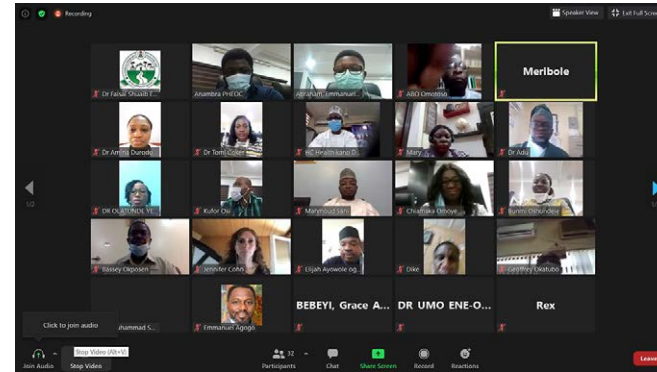


- **2.1 million** medicines are under procurement through RESOLVE:
- amlodipine, hydrochlorothiazide, losartan, telmisartan, lisinopril.
- **500** blood pressure monitors procured, with **100** supplementary cuffs.

Capacity building



- **June 2020:** Three staff were hired at national and state levels.
- **July 2020:** National training of trainers was conducted.
- **July 2020:** A national steering committee was inaugurated by the Permanent Secretary, FMOH.
- **Sept 2020:** Step-down trainings were scheduled in Kano and Ogun states.



Top left:
Inauguration of the NCHI
National Steering committee,
July 2020.

Middle left:
Members of the NCHI Kano State
steering committee during its
launch, September 2020.

Bottom left:
Baseline facility assessment.



“ I believe this initiative will strengthen the primary healthcare system to better cater for the growing health needs of residents in Kano and Ogun states. ”

Permanent Secretary, FMOH,
during inauguration of the
National Steering Committee

PANAMA

Programme launch



- The main stakeholders are convened and led by the Ministry of Health and Panama's Social Security Fund and include public hospitals Santo Tomas and Metropolitan Complex Dr Arnulfo Arias Madrid, Panamanian Society of Cardiology, and the University of Panama. Technical cooperation was provided by PAHO.
- **Nov 2018:** The programme was launched.

Consensus protocol



- **June 2019:** Consensus meetings were held, led by the MoH with the participation of the Panamanian Society of Cardiology.
- **24 June 2019:** The General Directorate of Health adopted the protocol through Ministerial Resolution Number 490.



Protocol available at larger size in Annex 2.

Service delivery



- Screening is carried out at primary care centres on patients and their supporters, and through home visits or community activities. Screening is also carried out through a national health census.
- Screening is conducted by nurses, nursing assistants, pharmacists, community health workers and other allied health workers.
- Physicians diagnose hypertension after two visits.

Medicines and technology



- Medicines are mostly purchased at national level, but health regions and facilities are also able to purchase medicines. After the adoption of the HEARTS technical package, two changes were introduced:
 - Acquisition of medicines is based on the HEARTS standardized treatment protocol.
 - The quantity of medicines purchased is based on the estimated number of hypertensive patients to be expected.
- Fixed-dose antihypertensive medicines are being included in the national drug formulary or the national list of essential medicines.
- Blood pressure (BP) monitor used: aneroid sphygmomanometer (30%); validated automated (70%).

Capacity building



- **July 2019:** The HEARTS train-the-trainer programme was conducted for MoH personnel, and similar programmes were held in at least five regions.
- PAHO Virtual Campus courses were provided for primary care teams.

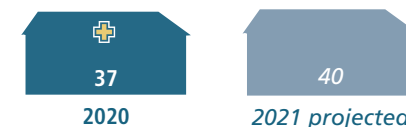
Monitoring



- Patient data is recorded manually, entered into a health centre database and then into a national health information system.
- **Nov 2018, 2019:** Field visits were made by the PAHO team and international PAHO consultants.

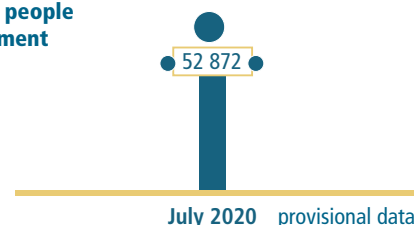
Expansion of programme

Total number of health facilities



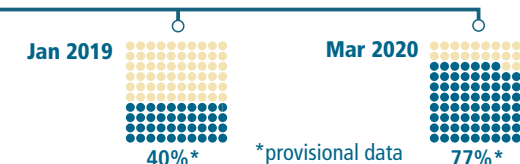
Number of people enrolled

Total number of people on HTN management

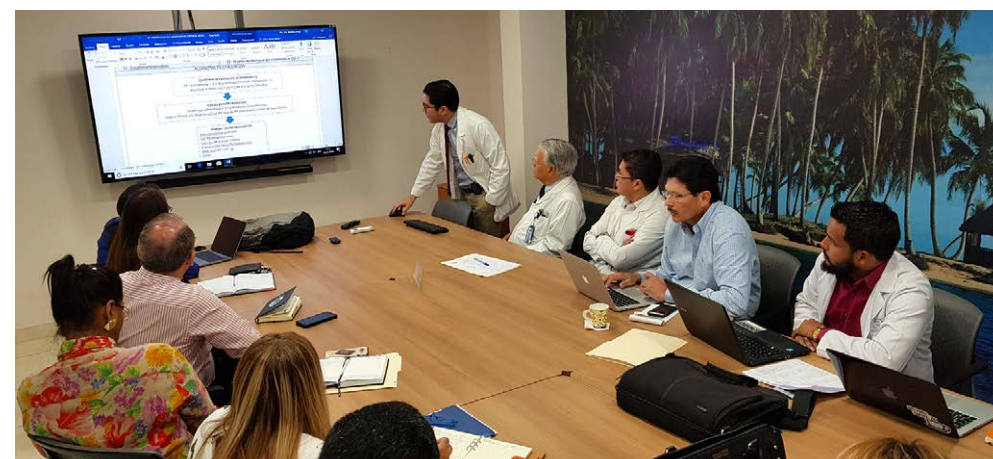


Hypertension control rate

6-month HTN control rate



Building the standardized treatment protocol.



PERU

Programme launch



- Stakeholders are convened and led by the Ministry of Health (MoH) and include Universidad Nacional Mayor de San Marcos, Peruvian Cardiology Association, Peruvian Hypertension Association and Pan American Health Organization (PAHO).
- **Sept 2019:** The programme was launched.

Consensus protocol



- A consensus protocol process was led by the MoH and developed with the Peruvian Cardiology Association, Peruvian Hypertension Association, Peruvian Family and Community Medicine Association, Peruvian Neurology Association, in addition to the Directorate of Medicines, Supplies and Drugs and the National Center for Supply of Strategic Health Resources.



Protocol available at larger size in Annex 2.

Service delivery



- Screening and detection take place through:
 - medical consultation
 - home visits
 - community activities.
- Blood pressure (BP) screening is performed on everyone who comes to primary health care facilities, as specified in the Clinical Practice Guideline for Diagnosis, Treatment and Control of Hypertensive Disease, Ministerial Resolution 0312015/MINSA.
- Diagnosis is done solely by physicians, with two visits needed for confirmation.

Medicines and technology



- Medicines are procured through both national and regional systems.
- Fixed-dose combined medicines are being incorporated into the National Medicines Petition List (PNUME).
- Types of BP monitors used: validated and non-validated automated sphygmomanometers.

Capacity building



- The HEARTS train-the-trainer programme was provided by the MoH.
- PAHO Virtual Campus courses were provided for primary care teams: Implementation of the HEARTS technical package; Hypertension management; Secondary prevention of cardiovascular diseases.

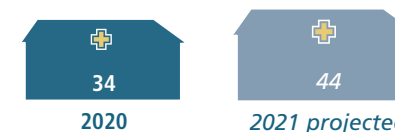
Monitoring



- Data is recorded manually and entered using a unique identifier into a national electronic information system.
- The programme is supported by the MoH. PAHO provides technical assistance.

Expansion of programme

Total number of health facilities



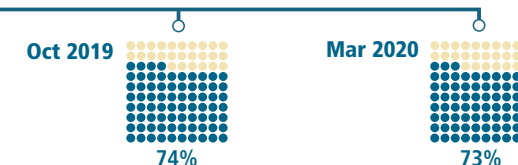
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



Patient having BP monitored.



“This initiative will mean essential support for the country's public health. CVDs are increasing, not only in adults but also in children; for this reason, we seek to prevent ... damage before [having to] provide treatment.”

Zulema Tomás Gonzáles
Minister of Health, Peru

PHILIPPINES

Programme launch



- **Nov 2018:** Initial coordination meetings were held between the Department of Health (DoH), Food and Nutrition Research Institute, Imagine Law and Global Health Advocacy Incubators.
- **June 2019:** The programme was launched by DoH partners, local health personnel and officials of the Philippine Society of Hypertension (PSH).

Consensus protocol



- The Philippine Hypertension Guideline was developed by the PSH in 2012, based on clinical practice guidelines.
- An algorithm with step-up care approach with monotherapy as first-line treatment was developed with DoH and PSH.



Protocol available at larger size in Annex 2.

Service delivery



- **Jan 2020:** Coordination activities started in three regions: Region II – Cagayan Valley, Region VI – Western Visayas, Region XI – Davao Region.
- **Mar 2020:** An electronic patient registry (Eregistry) was developed and pre-tested in Excel format using macros.
- **Aug 2020:** The roll-out of the patient registry in Central Visayas was planned.

Medicines and technology



- **Nov 2019 – Feb 2020:** Discussions were held with the Philippine Health Insurance Corporation on provision of antihypertensive drugs in the primary care benefit (PCB) package. Drugs are included in the expanded PCB (ePCB) package.
- **May 2020:** Blood pressure monitors were procured.

Capacity building



- **Oct 2018 onwards:** Nine personnel were hired.
- **Nov 2019 – Mar 2020:** Train-the-trainer sessions were conducted in each region.
- **Feb – Mar 2020:** Nine cascade trainings were conducted.
 - A total of **513** personnel were trained, including regional NCD team members, the Provincial DoH Representative and technical staff.

Monitoring



- **Feb 2020:** Strategic planning was conducted with DoH, during which strategies, activities, timelines and targets were aligned.
- A project monitoring framework was subsequently developed. Electronic reporting forms will consolidate data from Eregistry (municipal to national level) and be used to develop programme indicators.



Top: Pre-testing of the Healthy Hearts communication materials.



Left: Orientation on the Healthy Hearts Project for key personnel.



Bottom: Role play during a Healthy Hearts cascade training.

“The Healthy Hearts Project has capacitated our Barangay Health Workers to take part in the fight to control hypertension. It is our BHWs who are currently sacrificing their safety and health to ensure that persons with hypertension are given appropriate services amidst the COVID-19 pandemic.”

John Richard L. Lapascua, RN,
Senior Health Program Officer, DoH,
Western Visayas Center for Health
Development

SAINT LUCIA

Programme launch



- The main stakeholders are led by the Ministry of Health Department of Health and Wellness through steering and technical committees. Other agencies engaged include St Lucia Diabetes & Hypertension Association and Caribbean College of Family Physicians (St Lucia Chapter).

- Jan 2020:** The programme was launched.

Consensus protocol



- Oct 2019:** A consensus protocol was developed with the participation of all stakeholders and was approved by the Department of Health and Wellness.



Protocol available at larger size in Annex 2.

Service delivery



- Screening and detection mostly take place at primary care health centres, carried out by nurses, nursing assistants, and community health aids.
- Health screening is also performed by nursing staff in workplaces and at (monthly) health fairs.
- Diagnosis of hypertension (HTN) is done solely by physicians. Two visits are needed for confirmation of diagnosis.
- The private sector has been involved from the outset. Both cardiologists on the island are employed by the private sector.

Medicines and technology



- Medicines are ordered centrally, mostly from OES Pharmaceutical Procurement Services.
- A fixed-dose combination of CCB with telmisartan (preferred ARB) is now available.
- Blood pressure (BP) monitors used: validated automated sphygmomanometer (100%).

Capacity building



- Oct 2019:** A HEARTS train-the-trainer programme was conducted for MoH personnel.
- A PAHO Virtual Campus course on the implementation of the HEARTS technical package was provided for primary care teams.

Monitoring



- Records are taken manually and later entered with a unique identifier into a national electronic database.
- All centres use electronic health records. Work is ongoing to improve the monitoring and evaluation process by generating monthly reports for the facility staff and HEARTS coordinators.
- The programme is supported by the Permanent Secretary, Chief Medical Officer, Senior Medical Officer/NCD Focal Point, and the Principal Nursing Officer.
- Oct 2019:** Technical cooperation field visits were made by the PAHO team and international PAHO consultants.

Expansion of programme

Total number of health facilities



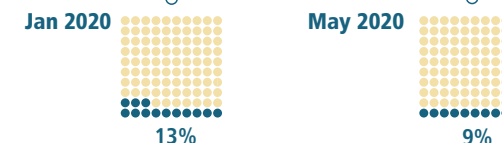
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



National HEARTS train-the-trainer workshop, October 2019.



THAILAND

HTN management

- **2002:** Hypertension (HTN) management services were included in the roll-out of Thailand's universal health coverage in recognition of the rising burden of noncommunicable diseases (NCDs).
- Screening, diagnosis treatment and laboratory monitoring for HTN is offered free of charge to everyone within the primary health care system and is fully covered by one of the three insurance schemes.

Partnership with WHO and RESOLVE

- **Oct 2017:** The Ministry of Public Health entered into a partnership with WHO and RESOLVE to further improve HTN control in Thailand, aligned to the HEARTS technical package.
- A national Strategic Technical Advisory Group on HTN care was established. It meets quarterly to guide the HTN management programme.
- Other activities supported by the partnership include:
 - **Monitoring:** Health facilities are surveyed for adherence to treatment guidelines.
 - **Raising of public awareness:** Campaigns are conducted through social media.
 - **Operations research:** Studies are conducted to improve hospital-based screening and diagnosis rates.
 - **Capacity building:** Field visits and workshops are conducted to improve data quality, analysis and reporting.

Treatment protocol

- **June 2020:** A simplified treatment protocol was developed for piloting in Lampang province.

Service delivery

- Blood pressure is measured for all outpatients at every visit.
- Care is decentralized and given close to the community.
- Team-based care is provided, with nurses as clinic managers.



Patient having blood pressure measured at a clinic.

Medicines

- Patients are given a three-month medicine supply in blister packs.
- **Feb 2020:** An application was submitted for fixed-dose combined pills for HTN treatment to the Subcommittee for Development of National List of Essential Medicine.

Technology

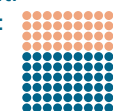
- Electronic health records are maintained.
- Every person treated is given a unique patient ID number.



Patient details being recorded electronically.

Scale of treatment

- **2018–20:** The number of people on HTN treatment increased substantially.
- **Jan 2018–June 2020:** 1.7 million people were enrolled on HTN treatment.
- **Aug 2020:**



59% of people on treatment had hypertension controlled as of last visit.

- More information is available in: *Hypertension care in Thailand: best practices and challenges, 2019*

“Hypertension affect[s] one out of every four Thai adults. Thailand's strong primary health care system is continuously striving to improve access to screening, treatment and control of hypertension.”

Dr Suwannachai Wattanayingcharoenchai
Director-General of Department of Disease Control,
Ministry of Public Health, Thailand

TRINIDAD AND TOBAGO

Programme launch



- The NCD Oversight Subcommittee is chaired by the Advisor for Health Promotion and Public Health of the Ministry of Health (MoH) and includes the regional health authorities, University of the West Indies, PAHO and the TT NCD Alliance.
- **Aug 2019:** The programme was launched.

Consensus protocol



- **Nov 2018:** Participants drafted a treatment protocol during a Master Trainers course run by the PAHO team. The HEARTS Oversight Subcommittee further developed the draft protocol, based on guidance from the HEARTS Evidence-based treatment protocols technical module. A national consultation was held with representatives from the public and private sectors and a final protocol was approved by the MoH.



Protocol available at larger size in Annex 2.

Service delivery



- Everyone presenting at a health centre has their blood pressure (BP) measured as part of baseline screening.
- Additional screening is conducted through community outreaches, workplace, and staff health screening programmes.
- Diagnosis is generally made with two readings at least 6 hours apart, although diagnosis can be made on the first visit, depending on the degree of elevation and the symptoms. Follow up is done one month after initiating treatment.
- The manual method of recording data is most common, but HEARTS sites have begun implementing Excel-based electronic registries. All data is subsequently entered in a national electronic database using a unique identifier.

Medicines and technology



- Procurement is centralized.
- BP monitors used: non-validated automated sphygmomanometer (16%); validated automated (30%); no information (54%).

Capacity building



- HEARTS Implementation virtual course: **103** enrolled, **27** obtained certificates.
- **Nov 2018:** Master Trainers course held.
- **July 2019:** National train-the-trainer programme: **105** participants

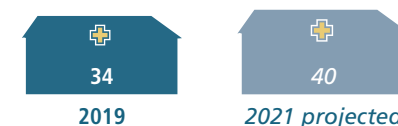
Monitoring



- **July 2017, Nov 2018, July 2019:** Technical cooperation field visits made by PAHO team and international PAHO consultants.

Expansion of programme

Total number of health facilities



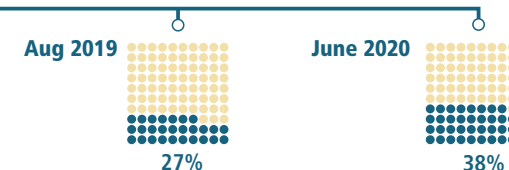
Number of people enrolled

Total number of people on HTN management



Hypertension control rate

6-month HTN control rate



Staff members walk the talk by exercising together at Sangre Grande Enhanced Health Centre on-site gym.

TURKEY

Programme launch

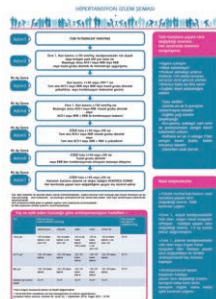


- The Ministry of Health established a national steering group.
- Jan 2018:** Preparatory work started. Three provinces (Çankırı; Erzincan; Uşak) were selected from east, central, and west Turkey.
- May 2018:** The programme was launched.
- February 2019:** 12-month implementation began.

Consensus protocol



- A national protocol was developed, adapted from the HEARTS protocol but based on national clinical practice guidelines (CPG) already established.
- Sept 2019:** The protocol was reviewed at a national consensus meeting supported by WHO and RESOLVE.



Protocol available at larger size in Annex 2.

Service delivery



- Patients are enrolled in family health centres (FHCs).
- The programme included **85** FHCs and their **254** family medicine units (FMUs).
- HEARTS tools were translated into Turkish.

Medicines and technology



- Medicines in the CPG are included in the national medicines list and are fully reimbursable.
- Medicines and blood pressure monitors were already available throughout the national health service and were therefore not an additional feature of this project.

Capacity building



- Training was organized, based on the HTN protocol.
- Feb 2018:** 24 trainers were trained.
- Dec 2018:** A national consultant was recruited.
- By Feb 2019:** **241** doctors, **228** nurses, **120** pharmacists and **113** village health unit midwives were trained.
- Education materials were developed for patients.

Monitoring

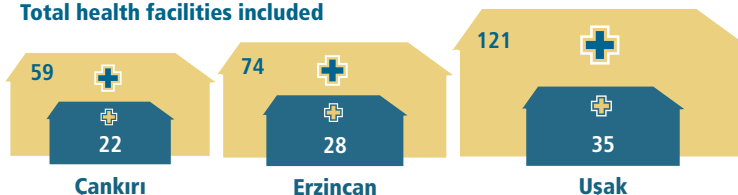


- Regular supervision by district managers was supported by periodic visits by national and international teams to review progress.
- Evaluation was through pre-/post-implementation audit of clinical records (quantitative) and focus groups (qualitative).
- National software for the FMUs was adapted for HTN monitoring according to HEARTS indicators and tested in parallel.

Coverage of programme

- family health centres
- family medicine units

Total health facilities included



Number of people enrolled

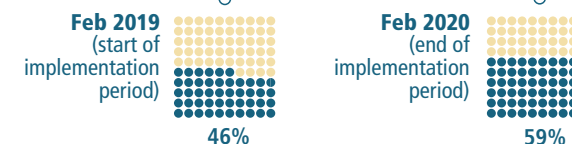
Total number of people on HTN management

154 155

Feb 2020

Hypertension control rate

12-month HTN control rate among people on treatment



Nurse checking patient's blood pressure.



It has been observed that the interventions implemented within the framework of the project are effective and will be more effective provided that additional measures are taken to increase the recording of blood pressure. //

Dr Banu Ekinci
Head of Department of Chronic Disease and Elderly Health, General Directorate of Public Health, Ministry of Health

VIET NAM

Programme launch



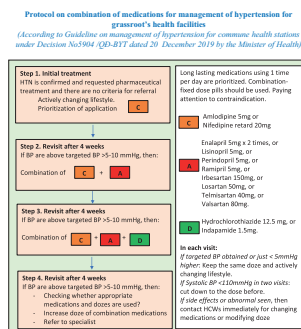
- Apr 2018:** A meeting was held in Viet Nam of RESOLVE, WHO, the Viet Nam Ministry of Health (MoH), the National Heart Institute and National Institute for Nutrition.
- July 2018:** The programme was launched in **27** provinces.

Consensus protocol



- Aug 2018:** An interim protocol was developed.
- Dec 2019:** A national protocol was adopted, with CCB as first-line drug.

Protocol available at larger size in Annex 2.



Service delivery



- Screening for hypertension and management of hypertension (HTN) is carried out in commune health stations.

Medicines and technology



- Medicines are procured at provincial level.
- Medicines used: CCB; ACE inhibitor/ARB; thiazide-like diuretic.
- More than **2200** digital blood pressure monitors were procured and distributed to the commune health stations.

Capacity building



- Training materials were developed with local adaptations.
- A total of **2067** health care workers, from central to village level, were trained over two years.

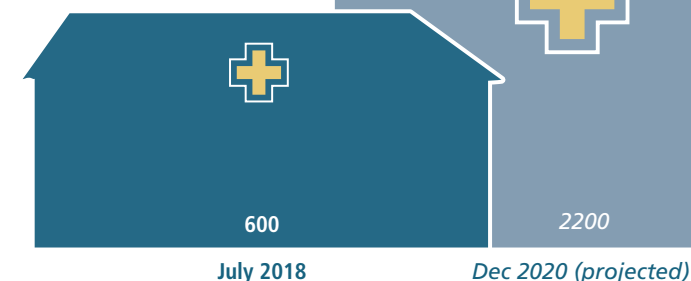
Monitoring



- The National Institute of Hygiene and Epidemiology was selected as lead agency for the national monitoring system.
- Oct 2018:** An Excel format for reporting on HTN management at commune, district and province levels was introduced. Monthly reports are submitted and monitoring visits carried out regularly.
- Apr 2019:** A mid-term review was carried out by RESOLVE.
- Jan 2020:** National electronic registration and a new format for monthly online reporting were introduced.

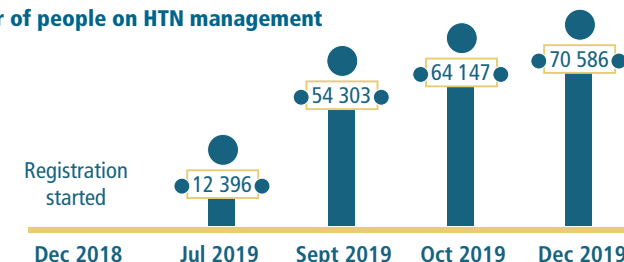
Expansion of programme

Total health facilities included

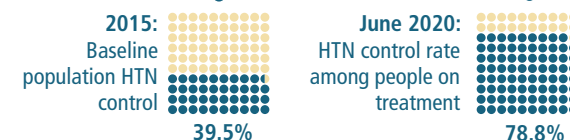


Number of people enrolled

Total number of people on HTN management



Hypertension control rate



HTN screening at Thanh Hung commune.

Diagnosis and treatment of NCDs in CHSs should be changed from examination and prescription for five to seven days per visit to long-term management, starting with hypertension. //

Dr Do Xuan Tuyen,
Vice Minister of Health



Annex 1

Resources

Global Hearts Initiative, working together to promote cardiovascular health [website]

(https://www.who.int/cardiovascular_diseases/global-hearts/en/).

HEARTS technical package [website]

(https://www.who.int/cardiovascular_diseases/hearts/en/).

HEARTS technical package for cardiovascular disease management in primary health care: evidence-based treatment protocols. Geneva: World Health Organization; 2018 (WHO/NMH/NVI/18.2; (<https://apps.who.int/iris/bitstream/handle/10665/260421/WHO-NMH-NVI-18.2-eng.pdf;jsessionid=4945E45C45988B2E2F5C72C5DDCB1394?sequence=1>)).

HEARTS Technical package for cardiovascular disease management in primary health care: systems for monitoring. Geneva: World Health Organization; 2018 (WHO/NMH/NVI/18.5 Version 1.1; <http://apps.who.int/iris/bitstream/10665/260423/1/WHO-NMH-NVI-18.5-eng.pdf?ua=1>).

WHO package of essential noncommunicable (PEN) disease interventions for primary health care. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO ([https://www.who.int/publications/i/item/who-package-of-essential-noncommunicable-\(pen\)-disease-interventions-for-primary-health-care](https://www.who.int/publications/i/item/who-package-of-essential-noncommunicable-(pen)-disease-interventions-for-primary-health-care)).

Resolve to Save Lives [website]

(<https://resolvetosavelives.org/cardiovascular-health/hypertension>).

Fundamentals for implementing a hypertension program in resource-constrained settings [website]

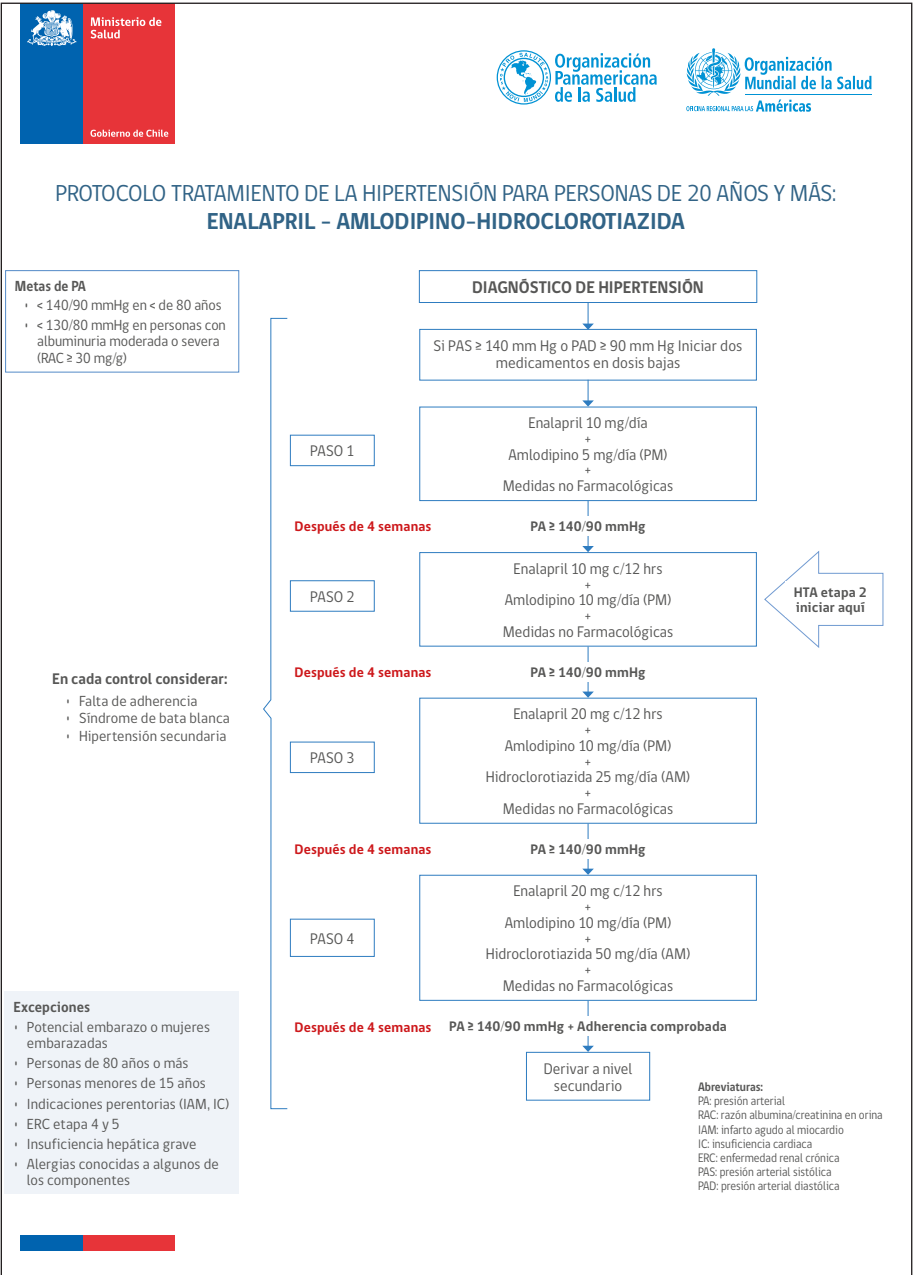
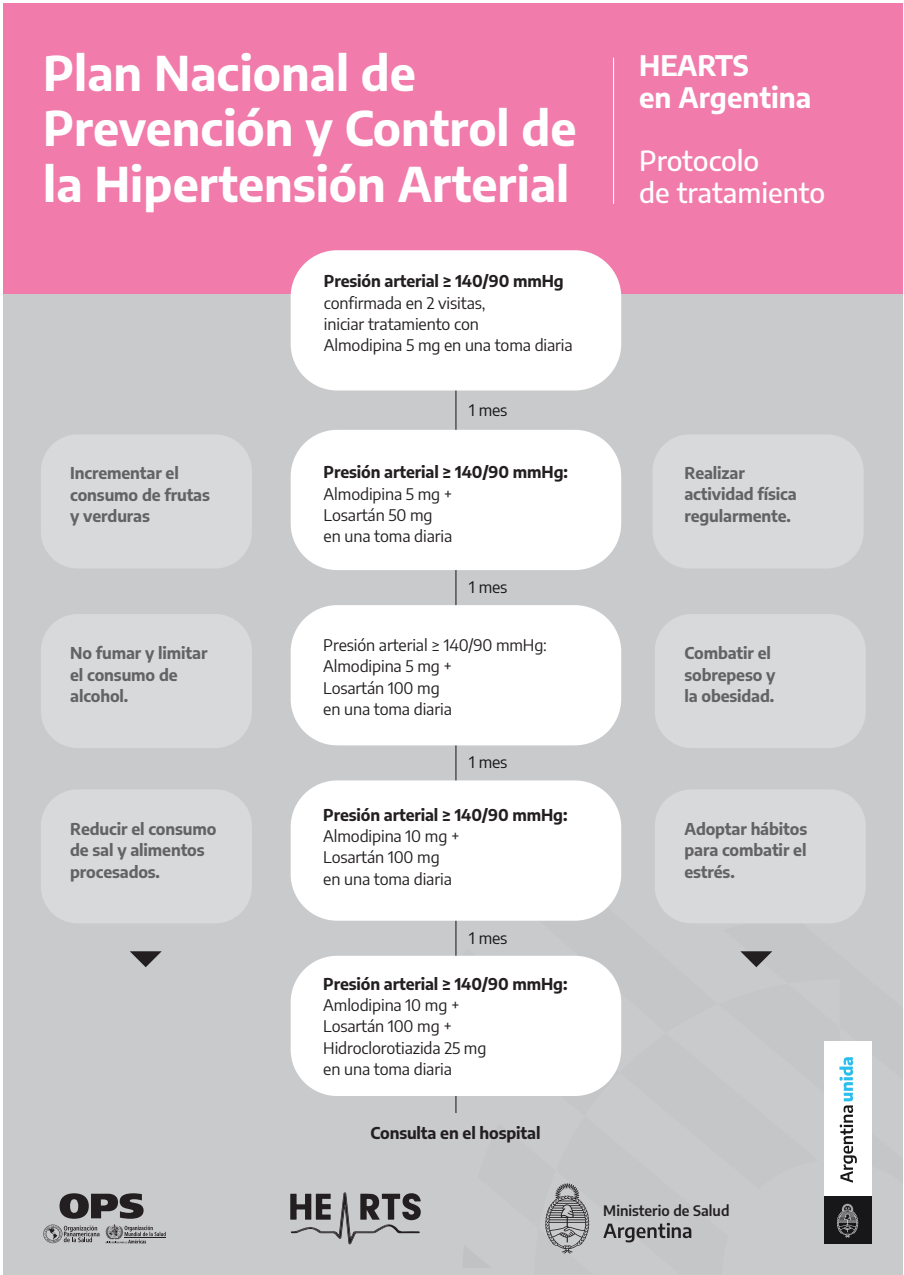
(<https://globalhypertensionathopkins.org/courses>).

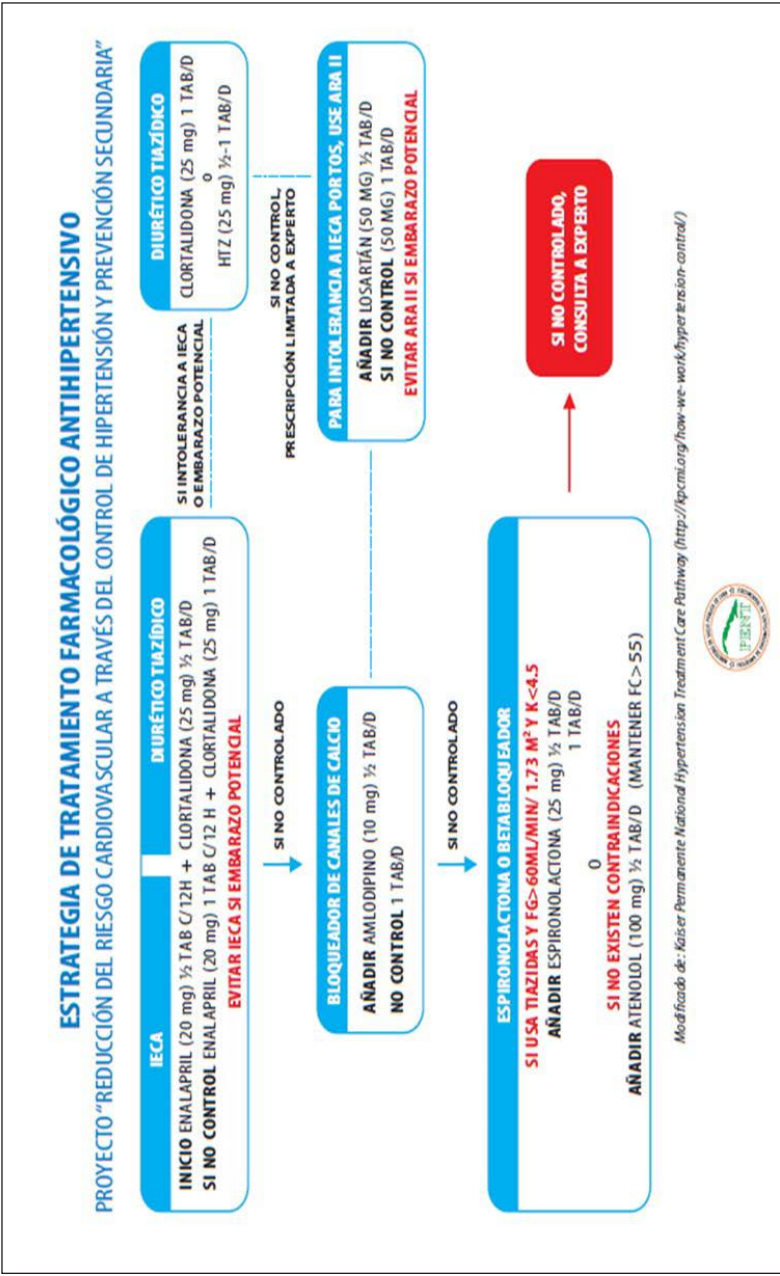
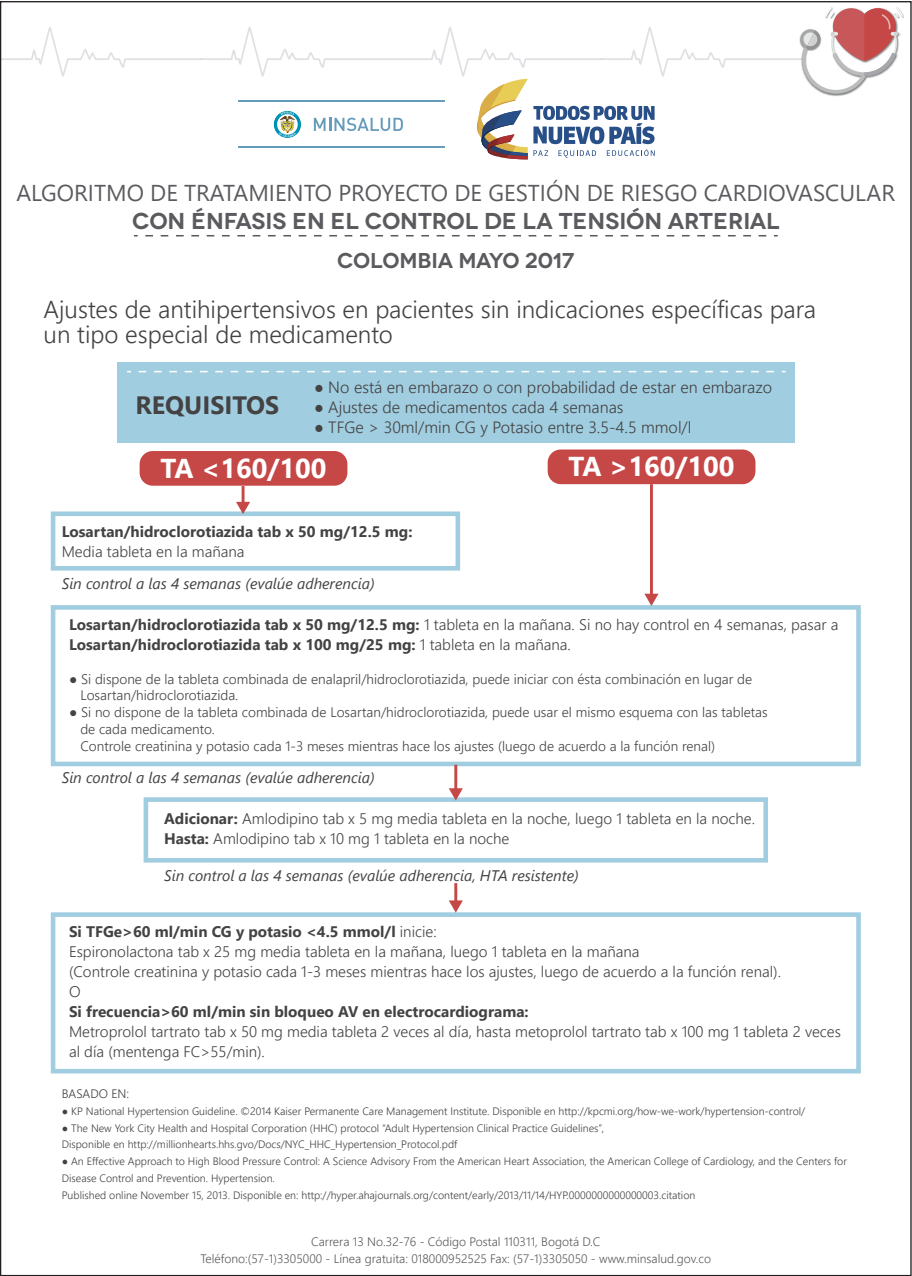
HEARTS in the Americas [website]

(<https://www.paho.org/en/hearts-americas>).

Annex 2

Hypertension treatment protocols





MINISTERIO DE
SALUD PÚBLICA

Organización
Panamericana
de la Salud

Organización
Mundial de la Salud
REGIONAL AMÉRICA LATINA Y EL CARIBE

ESQUEMA DE TRATAMIENTO FARMACOLÓGICO HTA NO COMPLICADA

Paso 1

IECA o ARA + DIURETICO

Si a las 4 semanas Presión arterial Persiste igual o mayor de 140/90mmhg

Paso 2

IECA o ARA + DIURETICO + ANTAGONISTA DE LOS CANALES DE CALCIO

Si a las 4 semanas Presión arterial Persiste igual o mayor de 140/90mmhg

Paso 3

AUMENTAR LA DOSIS DE IECA o ARA + DIURETICO + ANTAGONISTA DE LOS CANALES DE CALCIO

Si a las 4 semanas Presión arterial Persiste igual o mayor de 140/90mmhg

Paso 4

IECA o ARA + DIURETICO + AUMENTAR LA DOSIS DE ANTAGONISTA DE LOS CANALES DE CALCIO

Si a las 4 semanas Presión arterial Persiste igual o mayor de 140/90mmhg

Paso 5

IECA o ARA + AUMENTAR LA DOSIS DE DIURETICO + ANTAGONISTA DE LOS CANALES DE CALCIO

Si a las 4 semanas Presión arterial Persiste igual o mayor de 140/90mmhg

SI A LAS 4 SEMANAS PRESIÓN ARTERIAL PERSISTE IGUAL O MAYOR DE 140/90MMHG REFIERA A UN ESPECIALISTA EN HIPERTENSION

PROTOCOLO DE TRATAMIENTO DE LA HIPERTENSIÓN

Nombre del país: Ecuador

PASO 1

Medir la presión arterial (PA) a todos los adultos y en todas las consultas por un personal entrenado, siguiendo el protocolo recomendado y utilizando manómetros validados.

PASO 2

Si la PA es $\geq 160/100$ mmHg, iniciar tratamiento de inmediato.

Si la TA es $> 140/90$ mmHg

Losartán 50 mg VO BID

Clortalidona 12.5 mg VO QD

PASO 3 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

Losartán 50 mg VO BID

Clortalidona 25 mg VO QD

PASO 4 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

Losartán 50 mg VO BID

Clortalidona 25 mg VO QD

Amlodipino 5 mg VO QD

PASO 5 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

Losartán 50 mg VO BID

Clortalidona 25 mg VO QD

Amlodipino 10 mg VO QD

PASO 6 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

COMPROBAR que el paciente ha estado tomando los medicamentos de manera regular y correcta.

Si es así, **REMITIR** el paciente a un especialista.

Dejar de fumar, evitar la exposición pasiva al humo de tabaco.

Evitar el consumo de alcohol.

Aumentar la actividad física al equivalente a caminar a ritmo vivo durante 150 minutos por semana.

Si hay sobrepeso, perder peso.

Seguir una dieta saludable para el corazón:

- Consumir menos de una cucharadita de sal al día.
- Consumir ≥ 5 porciones de hortalizas/-fruta al día.
- Utilizar aceites saludables.

Consumir frutos secos, legumbres, cereales integrales y alimentos ricos en potasio.

Limitar el consumo de carnes rojas a una o dos veces a la semana como máximo.

Consumir pescado u otros alimentos ricos en ácidos grasos omega 3 como mínimo dos veces a la semana.

Evitar los azúcares agregados.

TRATAMIENTO NO FARMACOLÓGICO PARA TODOS LOS PACIENTES

Dejar de fumar, evitar la exposición pasiva al humo de tabaco.

Evitar el consumo de alcohol.

Aumentar la actividad física al equivalente a caminar a ritmo vivo durante 150 minutos por semana.

Si hay sobrepeso, perder peso.

Seguir una dieta saludable para el corazón:

- Consumir menos de una cucharadita de sal al día.
- Consumir ≥ 5 porciones de hortalizas/-fruta al día.
- Utilizar aceites saludables.

Consumir frutos secos, legumbres, cereales integrales y alimentos ricos en potasio.

Limitar el consumo de carnes rojas a una o dos veces a la semana como máximo.

Consumir pescado u otros alimentos ricos en ácidos grasos omega 3 como mínimo dos veces a la semana.

Evitar los azúcares agregados.

PRECAUCIONES

- Riesgo cardiovascular:
 - Estimar el riesgo cardiovascular en todos los pacientes con hipertensión.
 - Los pacientes con diabetes, enfermedad coronaria, accidente cerebrovascular o enfermedad renal crónica se consideran de alto riesgo cardiovascular.
- El objetivo de PA es de $<130/80$ mmHg en las personas de alto riesgo cardiovascular, en los pacientes con diabetes, enfermedad coronaria, accidente cerebrovascular o enfermedad renal crónica.
- Estatinas
 - Añadir estatinas en todos los pacientes de alto riesgo cardiovascular con independencia de sus niveles de colesterol o de LDL colesterol.
 - Añadir estatinas en los ≥ 40 años con riesgo cardiovascular moderado, con colesterol total ≥ 5 mmol/L (200 mg/dl) o con LDL colesterol ≥ 3 mmol/L (120 mg/dl).
 - Añadir estatinas en los ≥ 40 años con riesgo cardiovascular bajo, con colesterol total ≥ 8 mmol/L (320 mg/dl).
 - Considerar añadir estatinas en los que tienen un riesgo cardiovascular moderado.
- Aspirina: Añadir aspirina en todos los pacientes de alto riesgo cardiovascular a menos que tengan contraindicaciones específicas.
- Los pacientes con enfermedad coronaria y enfermedad cerebrovascular son tributarios de prevención secundaria según protocolo aprobado en el país.

Última actualización:

59

Ethiopia

Hypertension Protocol



Measure blood pressure of **all adults over 30 years** of age

Step 1 If BP is high (SBP 140-159 or DBP 90-99 mmHg)*
Prescribe amlodipine 5 mg.

Step 2 After 30 days, measure BP again. If still high:
Increase to amlodipine 10 mg.

Step 3 After 30 days, measure BP again. If still high:
Add hydrochlorothiazide 12.5 mg.

Step 4 After 30 days, measure BP again. If still high:
Increase to hydrochlorothiazide 25 mg.

Step 5 After 30 days, measure BP again. If still high:
Add lisinopril 20 mg.**

Step 6 After 30 days measure BP again. If still high:
Increase to lisinopril 40 mg.***

After 30 days, measure BP again. If still high:
Check if patient has been taking medications regularly and correctly. If yes, refer to higher level of care.

* CVD risk assessment should be done on all patients over 40 years of age.

If SBP ≥ 180 mmHg or DBP ≥ 110 mmHg, refer patient to a specialist after starting treatment.

If SBP 160-179 mmHg or DBP 100-109 mmHg, start treatment on the same day.

If SBP 140-159 mmHg or DBP 90-99 mmHg (elevated) and patient has two or more risk factors (family history of premature CVD, age >55 (men), age >65 (women), diabetes, high cholesterol, smoker, obesity) check BP again on a different day. If BP is still elevated, start amlodipine.

If SBP 140-159 mmHg or DBP 90-99 mmHg but patient has fewer than two risk factors, consider a three month trial of lifestyle changes before starting medications.

** 10 mg lisinopril can be considered for low weight for height patients.

*** Consider enalapril 5 and 10 mg tablets if lisinopril is not available.

Special populations

Pregnant women and women who may become pregnant
DO NOT GIVE lisinopril, enalapril nor hydrochlorothiazide to pregnant women nor to women of childbearing age who are not on effective contraception.

Diabetic patients
Treat diabetes according to protocol.

Heart attack in last 3 years
Add beta blocker to amlodipine with initial treatment.

Heart attack or stroke, ever
Begin low-dose aspirin (75 mg) and statin.

People with high CVD risk ($\geq 30\%$)
Consider statin.

Chronic kidney disease
ACE inhibitor or ARB preferred if close clinical and biochemical monitoring is possible.

Advice for lifestyle modification



Stop tobacco use, and avoid second-hand smoke and harmful use of alcohol



Increase physical activity to equivalent of brisk walk 150 min/week



Reduce salt to less than 1 tsp/day

If overweight, lose weight. Eat 5 servings of fruits and vegetables per day.

Eat nuts, legumes, whole grains and foods rich in potassium.

Eat fish at least twice per week.

Use healthy oils like sunflower, flax seed, soybean, peanut and olive.

Limit red meat to once or twice per week.

Avoid added sugar.

Limit consumption of fried foods and foods with high amounts of saturated fats.

Avoid chips, margarines and other processed foods containing trans fat.

Reduce fat intake by changing how you cook:

- Remove the fatty part of meat.
- Boil, steam or bake instead of frying.
- Limit reuse of oil for frying.

Kerala

Hypertension Protocol



Screen **all adults over 18 years**.

High BP: **SBP > 140 or DBP > 90 mmHg**

Step 1 If BP is high
Check S. Creatinine and Urine Protein
Start on lifestyle modifications for 3 months. Review every month.
If BP is high at monthly review, start on drug treatment

Step 2 Review in 3 months. If BP is high
Start Amlodipine 5mg (CCB)

Step 3 Review in 1 month. If BP is high
Add Telmisartan 40mg (ARB)
Along with Amlodipine 5mg

Step 4 Review in 1 month. If BP is high
Intensify Telmisartan to 80mg
Along with Amlodipine 5mg

Step 5 Review in 1 month. If BP is high
Intensify Amlodipine to 10mg
Along with Telmisartan 80mg

Step 6 Review in 1 month. If BP is high
Add Chlorthalidone 12.5mg (diuretic)
Along with Amlodipine 10mg and Telmisartan 80mg

...
Review in 1 month. If BP is high
Confirm **compliance** to treatment. If confirmed, **refer** to specialist.

Blood pressure measurements

At least 2 readings at an interval of 2 minutes. If readings differ by more than 5mm Hg, take a third reading. The lower of the readings should be taken as the representative SBP and DBP.

If SBP ≥ 180 and/or DBP ≥ 110
Refer immediately to higher centre after starting treatment.

If SBP $\geq 160-179$ and/or DBP $\geq 100-109$
• Do basic investigations: ECG, S. creatinine.
• Start on lifestyle modifications.
• Start drug treatment.

If SBP $\geq 140-159$ and/or DBP $\geq 90-99$
Start on lifestyle modifications.

Measuring blood pressure

- Use a mercury sphygmomanometer or electronic digital oscillometric device that is validated using a standard protocol and calibrated regularly.
- Patient should relax for 5 minutes before measurement.
- Patient should not have had caffeine in the past hour or smoked in the past 30 minutes.
- Patient should be seated comfortably with back supported, arm at heart level, and legs uncrossed.
- Appropriate cuff size: length of bladder 80% of arm circumference, width 40% of arm circumference.

Lifestyle modification

All patients require lifetime lifestyle modification.



Change diet
Salt restricted (<5 g/day), low-fat diet.



Reduce weight
Target BMI 18.5 - 22.9 kg/m²



Regular exercise
Moderate intensity, 30 minutes, 5 days a week



Alcohol and Smoking
Avoid unhealthy intake of alcohol. Stop smoking.

Madhya Pradesh

Hypertension Protocol

Measure blood pressure of **all adults over 18 years**

High BP: **SBP \geq 140 or DBP \geq 90 mmHg**



- Step 1** If BP is high*: **Prescribe Amlodipine 5mg**
- Step 2** After 30 days, measure BP again. If still high: **Increase to Amlodipine 10mg**
- Step 3** After 30 days, measure BP again. If still high: **Add Telmisartan 40mg**
- Step 4** After 30 days, measure BP again. If still high: **Increase to Telmisartan 80mg****
- Step 5** After 30 days, measure BP again. If still high: **Add Chlorthalidone 12.5mg*****
- Step 6** After 30 days, measure BP again. If still high: **Increase to Chlorthalidone 25mg*****

*** After 30 days, measure BP again. If still high: Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
If SBP 160-179 or DBP 100-109, start treatment on the same day.
If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
- ** Get estimations done for Blood Sugar, Urea, Creatinine, and Urine Protein before increasing Telmisartan dose. If any value is abnormal refer to a specialist. If the patient cannot consult a specialist, withdraw Telmisartan and add Chlorthalidone.
- *** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of $<$ 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

Lifestyle advice for all patients



Eat 5 servings of fruits and vegetables per day.

Avoid papads, chips, chutneys, dips, and pickles.

Use healthy oils:
E.g. sunflower, mustard, or groundnut.

Limit consumption of foods containing high amounts of saturated fats.

Reduce weight if overweight. Reduce fat intake by changing how you cook:

- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying

Avoid processed foods containing trans fats.

Avoid added sugar.

IHCI India Hypertension Control Initiative

- Dispense drugs for 30 days and give appointment after 4 weeks
- Medications should be taken at the same time each day

Maharashtra

Hypertension Protocol

Measure blood pressure of **all adults over 18 years**

High BP: **SBP \geq 140 or DBP \geq 90 mmHg**



Check for compliance at each visit before titration of dose or addition of drugs

- Step 1** If BP is high*: **Prescribe Amlodipine 5 mg + adherence counseling**
- Step 2** After 30 days measure BP again. If still high: **Add Telmisartan** 40mg**
- Step 3** After 30 days measure BP again. If still high: **Increase Telmisartan to 80mg**
- Step 4** After 30 days measure BP again. If still high: **Increase Amlodipine to 10mg**
- Step 5** After 30 days measure BP again. If still high: **Add Chlorthalidone 6.25mg**
- Step 6** After 30 days measure BP again. If still high: **Increase Chlorthalidone to 12.5mg**

*** After 30 days measure BP again. If still high: Check that patient has been taking drugs regularly and correctly. If so, refer patient to a specialist.

Women who are or could become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- ACE inhibitors, angiotensin receptor blockers (ARBs), thiazide/thiazide-like diuretics and statins should not be given to pregnant women or to women of childbearing age not on highly effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for BP target of $<$ 140/90.

Heart attack in last 3 years

- Add beta blocker to Amlodipine at initial treatment.

Heart attack or stroke ever

- Begin low-dose aspirin (75 mg) and statin.

Chronic kidney disease

- ACE inhibitor or ARB preferred if close clinical and biochemical monitoring possible after specialist opinion.

- * If SBP 140-159 and/or DBP 90-99, start on lifestyle management for one month prior to initiation of medications.

- If SBP \geq 180 and/or DBP \geq 110 start treatment and refer to specialist immediately.

Recommended investigations at initiation of therapy: CBC, blood sugar, serum creatinine, electrolytes (optional). If S creatinine $>$ 1.5 mg, refer to specialist.

- ** If Telmisartan not available: replace with Enalapril 5 mg (initiation dose) and 10 mg (intensification dose).

Lifestyle advice for all patients

- Eat less than 1 tsp of salt per day: avoid papads, chips, chutneys, dips, pickles, etc.
- Exercise regularly: 2.5 hours per week
- If overweight, lose weight.
- Avoid alcohol and tobacco
- Limit intake of fried foods.
- Avoid foods with high amounts of saturated fats (e.g. cheese, ice cream, fatty meat).
- Avoid processed foods containing trans fats.
- Avoid added sugar.
- Eat 5 servings of fruits and vegetables per day.
- Use healthy oils: polyunsaturated and monounsaturated oils.
- Reduce fat intake by changing how you cook: remove the fatty part of meat; use vegetable oil; boil, steam or bake rather than fry; limit reuse of oil for frying.



India Hypertension Management Initiative: Maharashtra 1.00-9-18

Punjab

Hypertension Protocol

Measure blood pressure of **all adults over 18 years**

High BP: **SBP \geq 140 or DBP \geq 90 mmHg**



- Step 1** If BP is high:*
Prescribe Amlodipine 5mg
- Step 2** After 30 days* measure BP again. If still high:
Increase to Amlodipine 10mg
- Step 3** After 30 days* measure BP again. If still high:
Add Telmisartan 40mg
- Step 4** After 30 days* measure BP again. If still high:
Increase to Telmisartan 80mg
- Step 5** After 30 days* measure BP again. If still high:
Add Chlorthalidone 12.5mg**
- Step 6** After 30 days* measure BP again. If still high:
Increase to Chlorthalidone 25mg**
- ... After 30 days measure BP again. If still high:
Check if the patient has been taking medications regularly and correctly. If yes, refer to a specialist.

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

People with high CVD risk

- Consider aspirin and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

- * If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
- If SBP 160-179 or DBP 100-109, start treatment on the same day.
- If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.

- # Dose of anti-hypertension medications can be titrated at 15 days frequency if required.

- ** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose).

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hours/week



Reduce weight, if overweight



Reduce salt, under 1 tsp/day



Eat less fried foods

- Eat 5 servings of fruits and vegetables per day.
- Avoid papads, chips, chutneys, dips, and pickles.
- Use healthy oils like sunflower, mustard, or groundnut.
- Limit consumption of foods containing high amounts of saturated fats.
- Reduce fat intake by changing how you cook:
 - Remove the fatty part of meat
 - Use vegetable oil
 - Boil, steam, or bake instead of fry
 - Limit reuse of oil for frying
- Avoid processed foods containing trans fats.
- Avoid added sugar.

India Hypertension Management Initiative: Punjab 1.00-5-15

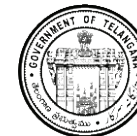
Telangana

Hypertension Protocol

Measure blood pressure of **all adults over 18 years**

High BP: **SBP \geq 140 or DBP \geq 90 mmHg**

Check for compliance at each visit before titration of dose or addition of drugs



- Step 1** If BP is high:*
Prescribe Amlodipine 5mg
- Step 2** After 30 days measure BP again. If still high:
Increase to Amlodipine 10mg
- Step 3** After 30 days measure BP again. If still high:
Add Telmisartan 40mg
- Step 4** After 30 days measure BP again. If still high:
Increase to Telmisartan 80mg
- Step 5** After 30 days measure BP again. If still high:
Add Chlorthalidone 12.5mg**
- Step 6** After 30 days measure BP again. If still high:
Increase to Chlorthalidone 25mg**

Pregnant women and women who may become pregnant

- ▲ DO NOT give Telmisartan or Chlorthalidone.
- Statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and thiazide/thiazide-like diuretics should not be given to pregnant women or to women of childbearing age not on effective contraception.
- Calcium channel blocker (CCB) can be used. If not controlled with intensification dose, refer to a specialist.

Diabetic patients

- Treat diabetes according to protocol.
- Aim for a BP target of < 140/90 mmHg.

Heart attack in last 3 years

- Add beta blocker to Amlodipine with initial treatment.

Heart attack or stroke, ever

- Begin low-dose aspirin (75mg) and statin.

Chronic kidney disease

- ACEI or ARB preferred if close clinical and biochemical monitoring is possible.

Lifestyle advice for all patients



Avoid tobacco and alcohol



Exercise 2.5 hr/week



Reduce salt, under 1 tsp/day



Eat less fried foods

- If SBP \geq 180 or DBP \geq 110, refer patient to a specialist after starting treatment.
- If SBP 160-179 or DBP 100-109, start treatment on the same day.
- If SBP 140-159 or DBP 90-99, check on a different day and if still elevated, start treatment.
- ** Hydrochlorothiazide can be used if Chlorthalidone is not available (25 mg starting dose, 50 mg intensification dose). Recommended investigations at initiation of therapy: Haemoglobin, blood sugar, urine analysis for proteinuria, serum creatinine.

Eat 5 servings of fruits and vegetables per day.
Avoid papads, chips, chutneys, dips, pickles etc
Use healthy oils:
E.g. sunflower, mustard, groundnut, etc
Limit consumption of foods containing high amounts of saturated fats.

Reduce weight if overweight.
Reduce fat intake by changing how you cook:
- Remove the fatty part of meat
- Use vegetable oil
- Boil, steam, or bake instead of fry
- Limit reuse of oil for frying
Avoid processed foods containing trans fats.
Avoid added sugar.

India Hypertension Management Initiative: Telangana 1.00-8-18

HEARTS EN LAS AMÉRICAS

PROTOCOLO DE TRATAMIENTO DE LA HIPERTENSIÓN

MÉXICO - CHIAPAS

PASO 1 Medir la presión arterial (PA) a todos los adultos y en todas las consultas por un personal entrenado, siguiendo el protocolo recomendado y utilizando manómetros validados.

PASO 2 Si la PA es $\geq 160/100$ mmHg, iniciar tratamiento de inmediato desde el paso 3. El diagnóstico se basa en el promedio de por lo menos tres mediciones realizadas en intervalos de tres a cinco min., dos semanas después de la detección inicial, con cifras iguales o superiores a de 130/80 mmHg; siendo necesario realizar una evaluación completa del paciente con historia clínica y exploración física e individualizar la conducta terapéutica a seguir.

Considerar inicio con monoterapia ÚNICAMENTE en pacientes adultos ≥ 80 años, en pacientes con fragilidad o por indicación ex profeso del médico especialista.

PASO 3 En pacientes con ≥ 140 o ≥ 90

Telmisartán 40 mg c/24 h + Nifedipino 30 mg c/ 24 h

PASO 4 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

Telmisartán 40 mg (2 tabletas) c/24 h + Nifedipino 30 mg (2 tabletas) c/ 24 h

PASO 5 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

Telmisartán 40 mg (2 tabletas) c/24 h + Nifedipino 30 mg (2 tabletas) c/ 24 h + Hidroclorotiazida 25 mg (media tableta) c/ 24 h

PASO 6 Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

Telmisartán 40 mg (2 tabletas) c/24 h + Nifedipino 30 mg (2 tabletas) c/ 24 h + Hidroclorotiazida 25 mg (una tableta) c/ 24 h

SI PERSISTE CON ≥ 140 O ≥ 90 DESPUÉS DE 4 SEMANAS REFIERA AL PACIENTE AL ESPECIALISTA COMO CASO DE HIPERTENSIÓN ARTERIAL RESISTENTE

CONSEJERÍA ESTILOS DE VIDA SALUDABLE PARA TODOS LOS PACIENTES

- Dejar de fumar, evitar la exposición pasiva al humo de tabaco.
- Evitar el consumo de alcohol.
- Aumentar la actividad física al equivalente a caminar a ritmo vivo durante 150 minutos por semana.
- Si hay sobrepeso u obesidad, perder peso.
- Seguir una dieta saludable para el corazón:
 - Consumir menos de una cucharadita de sal al día.
 - Consumir 25 porciones de hortalizas/ fruta fresca al día.
 - Utilizar aceites saludables (Olivea, cártamo o canola).
- Consumir oleaginosas sin sal (cacahuates, pistaches, semillas de calabaza o girasol, nueces, almendras), legumbres, cereales integrales.
- Limitar el consumo de carnes rojas y embutidos a una o dos veces a la semana como máximo.
- Consumir pescado u otros alimentos ricos en ácidos grasos omega 3 como mínimo dos veces a la semana.
- Evitar los azúcares agregados.

Última actualización: 19/02/20

NIGERIA

Hypertension Treatment Protocol for Primary Health Care level



Measure blood pressure of **all adults ≥ 18 years of age.**

High blood pressure: SBP ≥ 140 mmHg or DBP ≥ 90 mmHg.

- Step 1** If BP $\geq 140/90$ mmHg.*
Start amlodipine 5 mg.
- Step 2** After 1 month, measure BP again. If still high,
Treat with amlodipine 5 mg + losartan 50 mg.
- Step 3** After 1 month, measure BP again. If still high,
Treat with amlodipine 10 mg + losartan 100 mg.
- Step 4** After 1 month, measure BP again. If still high,
Treat with amlodipine 10 mg + losartan 100 mg + HCTZ 25 mg.
- Step 5** After 1 month, measure BP again. If still high,
Refer for specialist hypertension management.

Special populations

⚠ Pregnant women and women who may become pregnant
DO NOT GIVE losartan to pregnant women nor to women of childbearing age who are not on effective contraception.

If pregnant, refer to obstetric specialist



Stop tobacco use and harmful use of alcohol



Increase regular physical activity to at least 30 minutes daily.



If overweight, lose weight.



Eat a heart-healthy diet low in salt, trans fats and added sugar:

- Eat 5 servings of fruits and vegetables per day.
- Eat nuts, legumes, whole grains and foods rich in potassium.
- Eat fish at least twice per week.
- Use healthy oils like sunflower, flax seed, soybean, peanut and olive.
- Limit red meat to once or twice per week.
- Limit consumption of ultra-processed, canned and 'fast' foods.
- Avoid donuts, cookies, sweets, fizzy drinks and juice with added sugar.

*If initial BP $\geq 160/100$ mm, but $<180/110$ mmHg, start at STEP 2.

*If initial BP $\geq 180/110$ mm, give step 3 drugs and refer to the emergency unit of the nearest general hospital within 1 hour.

Notes:

- Single pill combination of amlodipine plus losartan is preferred to free combination.
- HCTZ= Hydrochlorothiazide.
- Telmisartan 40mg and 80mg if available is preferable to losartan.
- May substitute HCTZ 25mg with amiloride 2.5mg/HCTZ 25mg if HCTZ is unavailable.

PROTOCOLO DE MANEJO DE HIPERTENSIÓN ARTERIAL EN LA ATENCIÓN AMBULATORIA

Logo of the Ministry of Health and logos of partner organizations (OPS, HEARTS).

ASIA DE ATENCIÓN

PACIENTE ESTADOS

MEDICAMENTOS DE PRIMERA LÍNEA (IECA*, Calcioantagonista, diurético tiazídico/similar a tiazida)

Un fármaco a dosis bajas

Un fármaco a dosis alta ó 2 fármacos en combinación a dosis bajas

Iniciar con dos fármacos en combinación a dosis bajas

Dos fármacos en combinación a dosis altas ó tres fármacos a dosis bajas - intermedias

Tres fármacos en combinación a dosis altas **

Después de 4 semanas

Referir a MSE **

NOTA:

* ARA II solo si hay intolerancia o contraindicación a IECA (NO USAR IECA CON ARA II JUNTOS)

** USAR EL CUENTARIO PARA VERIFICAR ADHERENCIA

PASO 4-2 en adelante: EL MANEJO ES CONJUNTO CON EPS/ME/ME

USAR PASAPORTE CON VITA CRÓNICA: USO DE ALFA METIL DOPA COMO PRIMERA ELECCIÓN Y REFERIR GINECOESTÉTICA/ME/ME/ME

Fármaco

Dosis de inicio

Dosis máxima

IECAs

ARA II

DIURÉTICO TIPO TIAZÍDICO

CA-ANTAGONISTAS

ANTAGONISTA DE ALDOSTERONA

INSTRUCTIVO

1. Realice el abordaje del paciente adulto o adulto mayor hipertenso de novo o ya conocido, usando el protocolo según lo establecido en PASOS Y ESTADIOS.
2. Clasifique el ESTADO inicial según el valor de la presión arterial: E1 (Estado1) inicie con monoterapia a dosis baja; E2 (Estado2) inicie con terapia dual, teniendo en cuenta las observaciones del recuadro "NOTA".
3. Seleccione el tratamiento de inicio entre las Opciones PRIMERA, SEGUNDA o TERCERA. Tome en cuenta las características y/o antecedentes de cada paciente, por Ej:
 - A. Pacientes con hipertrofia ventricular izquierda, evite los diuréticos.
 - B. Pacientes afrodescendientes, inicie amlodipina o diurético.
 - C. Pacientes con insuficiencia venosa crónica, evite amlodipina.
4. Cada 2-3 semanas reevalúe la presión arterial, si no ha alcanzado la meta (recuadro superior a la derecha) ajuste el tratamiento siguiendo los PASOS (1,2,3...), incrementando las dosis y/o agregando otros medicamentos.
5. En todos los PASOS tenga en cuenta y aplique las recomendaciones sobre intervenciones preventivas y de seguimiento, anotadas en el recuadro "EN CADA VISITA".
6. En los casos en que se llegue al PASO3-E2 y no se ha logrado la meta, verifique la adherencia, aplique el cuestionario recomendado y considere la referencia al médico de especialidad básica (MEB).
7. Documente en el expediente los resultados señalados en el recuadro "LABORATORIOS Y GABINETES SEGÚN GUÍA INTEGRAL", los cuales deben ser viables al momento de referir al médico de especialidad básica (MEB).
8. MEB: siga los pasos establecidos en PASOS Y ESTADIOS, tomando en cuenta las observaciones plasmadas en el recuadro "NOTA".
9. MEB: al llegar al paso 5-E2, complete los estudios adicionales plasmados en el recuadro "LABORATORIOS Y GABINETES ADICIONALES" y considere la referencia al médico sub especialista (MSE).

ENFERMEDAD RENAL

ESTADIO	TFG	PROTEINURIA	RANGO (mg/dl)
G-1	≥90	A 1	<30
G-2	60-89	A 2	30-300
G-3	30-59	A 3	> 300
G-4	10-29		
G-5	<10		

LABORATORIOS Y GABINETES SEGÚN GUÍA INTEGRAL:

BHC, GLUCOSA, URINÁLISIS, CREATININA, NU, SODIO, POTASIO, ÁCIDO ÚRICO, PERFIL LIPÍDICO, REL ALBÚMICO, PROTEINURIA AL AZAR, EKG, RX TORAX PA

LABORATORIOS Y GABINETES ADICIONALES:

TSN, T4, T3, CALCIO, FOSFORO, USG RENAL, OTROS: FSH, LH Y ESTRADIOL (MUJER EN PERIMENOPAUSIA)

EPS: EQUIPO DE ATENCIÓN PRIMARIA DE SALUD (MÉDICOS GENERALES, DIFERENCIADOS, URÓLOGOS, DE CÁNCER, DE PROGRAMA Y EQUIPO MULTISPECIALIDAD)

MEB: MÉDICO ESPECIALIDAD BÁSICA (MED. FAMILIAR, MEDICINA INTERNA, GINECOLOGÍA)

MSE: MÉDICO SUBESPECIALISTA (CARDIOLOGÍA, NEFROLOGÍA)

TRH: TERAPIA DE REEMPLAZO HORMONAL

ACD: ANTICONGESTIVO ORAL

HEARTS EN LAS AMÉRICAS

PROTOCOLO DE TRATAMIENTO DE LA HIPERTENSIÓN

Nombre del país PERÚ

PASO 1

Medir la presión arterial (PA) a todos los adultos >= 18 años y en todas las atenciones un personal entrenado, siguiendo el protocolo recomendado y utilizando tensiómetros válidos.

PASO 2

Si la PA es $\geq 160/100$ mmHg, iniciar tratamiento de inmediato

Si la PA es de 140/90-159/99 mmHg. Repetir la medición de la presión arterial durante la mañana y tarde durante 2 días consecutivos.

PASO 3

Después de 4 semanas

Si la presión arterial persiste ≥ 140 y/o ≥ 90 mmHg y presenta factores de riesgo

Iniciar tratamiento con uno de los siguientes esquemas:

1) Hidroclorotiazida 12,5 mg (c/24 h) + Losartan 50 mg (c/12h)

o

2) Hidroclorotiazida 12,5 mg. (c/24 h) + Enalapril 10 mg (c/12 h)

PASO 4

Después de 4 semanas

Si la presión arterial persiste ≥ 140 y/o ≥ 90 mmHg después de un mes de tratamiento con buena adherencia

Agregar Amlodipino a los esquemas anteriores:

1) Hidroclorotiazida 12,5 mg (c/24 h) + Losartan 50 mg (c/12 h) + Amlodipino 5 mg (c/24 h)

o

2) Hidroclorotiazida 12,5 mg (c/24 h) + Enalapril 10 mg (c/12 h) + Amlodipino 5 mg (c/24 h)

PASO 5

Después de 4 semanas

Si persiste ≥ 140 o ≥ 90

COMPROBAR que el paciente ha estado tomando los medicamentos de manera regular y correcta.

Si es así, REMITIR el paciente a un especialista en cardiología.

TRATAMIENTO NO FARMACOLÓGICO PARA TODOS LOS PACIENTES

Dejar de fumar, evitar la exposición pasiva al humo de tabaco.

Evitar el consumo de alcohol.

Aumentar la actividad física al equivalente a caminar a ritmo vivo al menos 30 minutos al día o 150 minutos a la semana.

Si hay sobrepeso y obesidad, perder peso.

Seguir una dieta saludable para el corazón:

- Consumir menos de una cucharadita de sal al día.
- Consumir 5 porciones de frutas y verduras al día.
- Utilizar aceites saludables.
- Consumir frutos secos, legumbres, cereales integrales y alimentos ricos en potasio.
- Limitar el consumo de carnes rojas a una o dos veces a la semana como máximo.
- Consumir pescado u otros alimentos ricos en ácidos grasos, omega 3, como mínimo dos veces a la semana.
- Evitar los azúcares agregados.



NORMAS PARA PACIENTES ESPECÍFICOS

- ESTE PROTOCOLO ESTÁ CONTRAINDICADO EN LAS MUJERES QUE ESTÉN O PUEDAN QUEDAR EMBARAZADAS.
- Riesgos cardiovasculares:
 - Estimar el riesgo cardiovascular en todos los pacientes con hipertensión.
 - Los pacientes con diabetes, enfermedad coronaria, accidente cerebrovascular o enfermedad renal crónica se consideran de alto riesgo cardiovascular.
- El objetivo de PA es de <130/80 mmHg en las personas de alto riesgo cardiovascular, en los pacientes con diabetes, enfermedad coronaria, accidente cerebrovascular o enfermedad renal crónica.

PRECAUCIONES

- Diuréticos: pueden producir hipotensión y pueden tener efectos desfavorables en los valores de lípidos y glucosa.
- El uso de bloqueadores de los canales de calcio puede producir un edema maleolar en hasta un 10% de los pacientes, en especial con la dosis alta, si no se está utilizando un IECA o un ARA II.
- IECA:
 - Comportan un pequeño riesgo de angioedema; el riesgo es mayor en las personas afrodescendientes (esto no se observa con los ARA).
 - Los IECA (y los ARA) no deben administrarse a mujeres que estén o puedan quedarse embarazadas.
 - Riesgo de hiperpotasemia, especialmente si el paciente tiene una enfermedad renal crónica.

IECA: Inhibidor de la enzima convertidora de angiotensina.

ARA II: Antagonista de los receptores de angiotensina II

Última actualización: 03/08/2020



National Protocol for

Hypertension Management

in Primary Health Care Settings

Measure blood pressure of **all adults 20 years and over**.

High blood pressure: SBP \geq 140 or DBP \geq 90.

NOTE: Before moving to next titration step or referring the patient, make sure the patient is taking medications regularly and correctly.

Step 1 If blood pressure is high,
Prescribe amlodipine 5 mg once daily.

Step 2 After 1 month, measure BP again. If still high,
Continue amlodipine 5 mg and add losartan 50 mg once daily.^{1,2}

Step 3 After 1 month, measure BP again. If still high,
Increase amlodipine to 10 mg and losartan to 100 mg once daily.^{1,2}

Step 4 After 1 month, measure BP again. If still high,
Refer to a specialist.

Other management considerations:

- Screen and manage other CVD risk factors such as smoking, obesity, diabetes and hypercholesterolemia according to PhilPEN protocol.
- Aim for BP <130/80 for people at high risk, such as individuals with diabetes, prior heart attack, TIA/stroke, or chronic kidney disease.
- Urgent referral criteria:
BP >180/110 with severe headache, other neurologic symptoms, nausea, chest pain, shortness of breath, or other evidence of end-organ damage.

Lifestyle advice for all patients



Avoid tobacco use and harmful use of alcohol.



Increase regular physical activity to at least 2.5 hours per week.



If overweight, lose weight.



Eat a heart-healthy diet low in salt, trans-fats and added sugar:

Use calamansi juice and vinegar to season your food instead of soy sauce/toyo, patis, bagoong and ketchup.

Eat plenty of fresh whole foods including vegetables, fruit, whole grains, beans, nuts and seeds.

Limit intake of salty meats (ham, bacon, tocino, sausage, hotdogs) and salty fish (tinapa, dilis, daing, bulad/tuyo, tuloy and ginamos).

Limit consumption of processed, canned and 'fast' foods.

Avoid donuts, cookies, sweets, fizzy drinks and juice with added sugar.

- 1 Losartan should not be given to women who are or could become pregnant.
- 2 Amlodipine and losartan should be taken together.

HEARTS
IN THE AMERICAS

PREFERRED
PROTOCOL

HYPERTENSION TREATMENT PROTOCOL

Saint Lucia



THIS PROTOCOL IS CONTRAINDICATED FOR WOMEN WHO ARE OR COULD BECOME PREGNANT.

STANDARDS FOR SPECIFIC PATIENTS

- Cardiovascular risk:
 - Estimate the cardiovascular risk in all patients with hypertension.
 - Patients with diabetes, coronary heart disease, stroke or chronic kidney disease are considered high cardiovascular risk.
- The goal of BP is <130/80 mmHg in people with high cardiovascular risk, in patients with diabetes, coronary heart disease, stroke or chronic kidney disease.
- Statins
 - Add statins in all patients of high cardiovascular risk regardless of their cholesterol or LDL levels.
 - Add statins in patients \geq 40 years with moderate cardiovascular risk, with total cholesterol \geq 5 mmol / L (200 mg / dl) or with LDL cholesterol \geq 3 mmol / L (120 mg / dl).
 - Add statins in patients \geq 40 years with low cardiovascular risk, with total cholesterol \geq 5 mmol / L (200 mg / dl).
 - Consider adding statins in those with moderate cardiovascular risk.
- Aspirin: Add aspirin to all patients with high cardiovascular risk unless they have specific contraindications.
- Patients with coronary heart disease and cerebrovascular disease should receive secondary prevention treatment according to the protocol approved in the country.

PRECAUTIONS

- Diuretics: can produce hypokalemia and can have adverse effects on lipid and glucose values.
- The use of calcium channel blockers can cause malolateral edema in up to 10% of patients, especially at high doses, if an ACE inhibitor or an ARB is not being used.
- ACE inhibitor: They carry a small risk of angioedema; the risk is greater in people of African descent (not observed with ARBs).
- ACE inhibitors (and ARBs) should not be given to women who pregnant or may become pregnant.
- Risk of hyperkalemia, particularly if the patient has a chronic kidney disease.

Last updated: 20/01/20

STEP 1

Measure blood pressure (BP) for all adults and in all consultations by trained personnel, following the recommended protocol and using validated manometers.

STEP 2

If BP is \geq 160 / 100 mmHg, start treatment immediately.
If BP is 140 / 90-159 / 99 mmHg, reading verified in Office and at home if possible and if it persists START Amlodipine 5mg/Telmisartan 40mg.

STEP 3

If persists \geq 140 or \geq 90 persists
Increase to Amlodipine 10mg/Telmisartan 80mg

STEP 4

If persists \geq 140 or \geq 90 persists
Add Chlorthalidone 12.5mg

STEP 5

If persists \geq 140 or \geq 90 persists
Increase Clorthalidone to 25mg

STEP 6

If persists \geq 140 or \geq 90 persists
CONFIRM that the patient has been taking the medications regularly and correctly. If so, refer the patient to a specialist..

HEALTHY LIFESTYLE COUNSELING FOR ALL PATIENTS



Stop all tobacco use, avoid secondhand tobacco smoke.



Avoid alcohol consumption.



Increase physical activity to equivalent of brisk walk 150 minutes per week.



If overweight, lose weight.



Eat heart-healthy diet:

- Consume less than a teaspoon of salt a day;
- Eat \geq 5 servings of vegetables / fruits per day;
- Use healthy oils;
- Eat nuts, legumes, whole grains and foods rich in potassium;
- Limit red meat to once or twice a week at most;
- Eat fish or other foods rich in omega 3 fatty acids at least twice a week;
- Avoid added sugars.

This protocol is based on the recommendations of the PAHO HEARTS protocol and has been approved by the Department of Health and Wellness, Saint Lucia.

Trinidad and Tobago

HEARTS
IN THE AMERICAS

ACCEPTABLE
PROTOCOL

HYPERTENSION TREATMENT PROTOCOL

Trinidad & Tobago



DEACTIVATE TEXT ACTIVATE TEXT

THIS PROTOCOL IS CONTRAINDICATED FOR WOMEN WHO ARE OR COULD BECOME PREGNANT.

STANDARDS FOR SPECIFIC PATIENTS

- Cardiovascular risk:
 - Estimate the cardiovascular risk in all patients with hypertension.
 - Patients with diabetes, coronary heart disease, stroke or chronic kidney disease are considered high cardiovascular risk.
 - The goal of BP is <130/80 mmHg in people with high cardiovascular risk, in patients with diabetes, coronary heart disease, stroke or chronic kidney disease.
- Statins:
 - Add statins in all patients of high cardiovascular risk regardless of their cholesterol or LDL levels.
 - Add statins in patients ≥ 40 years with moderate cardiovascular risk, with total cholesterol ≥ 5 mmol / L (200 mg / dl) or with LDL cholesterol ≥ 3 mmol / L (120 mg / dl).
 - Add statins in patients ≥ 40 years with low cardiovascular risk, with total cholesterol ≥ 8 mmol / L (320 mg / dl).
 - Consider adding statins in those with moderate cardiovascular risk.
- Aspirin: Add aspirin to all patients with high cardiovascular risk unless they have specific contraindications.
- Patients with coronary heart disease and cerebrovascular disease should receive secondary prevention treatment according to the protocol approved in the country.

PRECAUTIONS

- Diuretics: can produce hypokalemia and can have adverse effects on lipid and glucose values.
- The use of calcium channel blockers can cause maleolar edema in up to 10% of patients, especially at high doses, if an ACE inhibitor or an ARB is not being used.
- ACE inhibitors: They carry a small risk of angioedema; the risk is greater in people of African descent (not observed with ARBs).
- ACE inhibitors (and ARBs) should not be given to women who pregnant or may become pregnant.
- Risk of hyperkalemia, particularly if the patient has a chronic kidney disease.

Last updated:

STEP 1

Measure blood pressure (BP) for all adults and in all consultations by trained personnel, following the recommended protocol and using validated manometers.

STEP 2

If BP is ≥160 / 100 mmHg, start treatment immediately.

If BP is >140 / 90-159 / 99 mmHg, on 2 readings start:
Lisinopril 10mg plus Amlodipine 5mg

STEP 3

After 4 weeks

Si persiste ≥140 o ≥90

ACE Lisinopril 20mg plus
CCB Amlodipine 10mg

STEP 4

After 4 weeks

If persists ≥140 or ≥90 persists

ACE Lisinopril 40mg, plus
CCB Amlodipine 10mg

STEP 5

After 4 weeks

If persists ≥140 or ≥90 persists

ACE Lisinopril 20mg, plus
CCB Amlodipine 10mg plus
Ramipril 2.5 mg or HCT 12.5mg

STEP 6

After 4 weeks

If persists ≥140 or ≥90 persists
CONFIRM that the patient has been taking the medications regularly and correctly. If so, refer the patient to a specialist.

HEALTHY LIFESTYLE COUNSELING FOR ALL PATIENTS



Stop all tobacco use, avoid secondhand tobacco smoke.



Avoid alcohol consumption.



Increase physical activity to equivalent of brisk walk 150 minutes per week.



If overweight, lose weight.



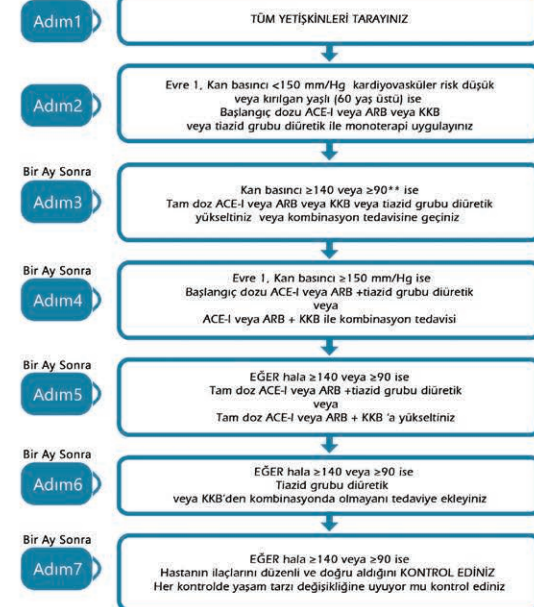
Eat heart-healthy diet:
• Consume less than a teaspoon of salt a day;
• Eat 25 servings of vegetables / fruits per day;
• Use healthy oils;
• Eat nuts, legumes, whole grains and foods rich in potassium;

• Limit red meat to once or twice a week at most;
• Eat fish or other foods rich in omega 3 fatty acids at least twice a week;
• Avoid added sugars.

This protocol is based on the recommendations of the PAHO HEARTS protocol and has been approved by the [Ministry of Health of the country] and endorsed by the following organizations [insert names].

Turkey

HİPERTANSİYON İZLEM ŞEMASI



Tüm hastalara yaşam tarzı değişikliği öneriniz. Her kontrolde önemini vurgulayınız.

- Sigara içmeyin
- Alkol tüketmeyin
- Fiziksel aktiviteyi artırın (Haftada 150 dakika tempolu yürüyüşe denk gelecek şekilde)
- Kilonuz fazla ise kilo verin
- Sağlıklı diyet alışkanlığını edinin

- Tuzu azaltın
- Günde en az 5 porsiyon sebze/meyve tüketin
- Sağlıklı yağ tüketin (zeytinyağı)
- Kuruyemiş, baklagil, tam tahıl ve potasyumdan zengin besin tüketimini artırın
- Haftada en az 2 omega 3'ten zengin besin (balık, keten tohumu) tüketin
- Şekerden uzak durun

Nasıl izleyeceksiniz

- Yüksek normal kan basıncı olan hastalara yaşam tarzı değişikliği önerin. Yıllık kontrole çağırın

- Evre 1, düşük kardiyovasküler riskli olan organ hasar bulguları olmayan hastaya yaşam tarzı değişikliği önerin, 1-3 ay içinde tekrar değerlendirin

- Evre 1, yüksek kardiyovasküler riskli olan organ hasar bulguları olan hastaya yaşam tarzı değişikliği ile birlikte antihipertansif ilaç tedavisi başlayın

- Antihipertansif tedavi başlanan hastaya yaşam tarzı değişikliği önerin, tansiyon takip kartı verin, tansiyon regüle olana kadar aylık kontrole çağırın

Not: Beta blokerler ilk seçenek tedavi olarak önerilmemektedir. Sadece koroner arter hastalığı veya atriyal fibrilasyon ya da kalp yemeziği olan hastalarda ise başlangıç antihipertansif ilaç olarak beta bloker teklifi veya kombinasyon tedavisinde düşünülmelidir. ACE inhibitörleri/ARB gebelik ve gebelik şüphesi olan kadınlarda kontraindikedir. İki RAC blokerinin birlikte kullanımı önerilmemektedir.

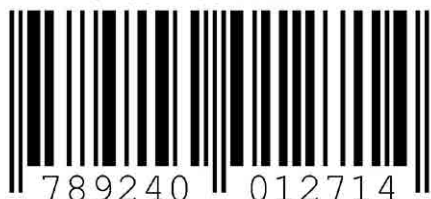
Yaş	Orta kan basıncı tedavi hedefleri (mm/Hg)					Orta diastolik kan basıncı hedefi (mm/Hg)
	Hipertansiyon	+Diüretik	+KKB	+KKB	+İmm.TİA	
18-45 yaş	130 ve toler ederse <130 130-120	130 ve toler ederse <130 130-120	140 ve altı toler ederse <130 130-120	130 ve toler ederse <130 130-120	130 ve toler ederse <130 130-120	70-79
65-79 yaş*	130-139 toler ederse	130-139 toler ederse	130-139 toler ederse	130-139 toler ederse	130-139 toler ederse	70-79
≥80 yaş*	130-139 toler ederse	130-139 toler ederse	130-139 toler ederse	130-139 toler ederse	130-139 toler ederse	70-79
Diastolik kan basıncı hedefi	70-79	70-79	70-79	70-79	70-79	

*Yaşlı kırılan hastalarda tedavi ve hedef değiştirilebilir

**2018 ESC/ESH Guidelines for the management of arterial hypertension, European Heart Journal, Volume 39, Issue 33, 1 September 2018, Pages 3021-3104

<p>Protocol on combination of medications for management of hypertension for grassroots health facilities (According to Guideline on management of hypertension for commune health stations under Decision No5904 /QĐ-BYT dated 20 December 2019 by the Minister of Health)</p>	
<p>1. The protocol on combination of medications for hypertension is an example that easily to be implemented by commune health stations that have just implemented hypertension management program.</p> <p>2. If the patients are transferred from higher levels (at stable stage with protocol that the medications are available at CHSs) then follow the protocol of the higher levels.</p> <p>3. If hypertension level 2 then starting from steps 2 (combining 2 types of medications).</p> <p>4. If there is only one type of medication then increase the dose until target treatment is met. If maximum dose used but targeted blood pressure is not yet obtained then referring patients to higher levels.</p> <p>5. Always educating and counselling patients for healthy lifestyles.</p> <p>6. If targeted blood pressure is not yet obtained then checking the utilization of medications, changing lifestyles and combination of medications.</p> <p>Targeted BP (measured at a health facility)</p> <ul style="list-style-type: none">- Systolic BP: 120 mmHg to <130 mmHg in people < 65 years old and from 130 mmHg to < 140 mmHg in people ≥ 65 years old, can be lower if possible.- Diastolic BP from 70 mmHg to <80mmHg.	<div><div><p>Step 1. Initial treatment HTN is confirmed and requested pharmaceutical treatment and there are no criteria for referral. Actively changing lifestyle. Prioritization of application</p><p>C</p></div><div><p>→</p></div><div><p>Step 2. Revisit after 4 weeks If BP are above targeted BP >5-10 mmHg, then:</p><p>Combination of C + A</p></div><div><p>→</p></div><div><p>Step 3. Revisit after 4 weeks If BP are above targeted BP >5-10 mmHg, then:</p><p>Combination of C + A + D</p></div><div><p>→</p></div><div><p>Step 4. Revisit after 4 weeks If BP are above targeted BP >5-10 mmHg, then:</p><ul style="list-style-type: none">- Checking whether appropriate medications and doses are used?- Increase dose of combination medications- Refer to specialist</div></div> <div><p>Long lasting medications using 1 time per day are prioritized. Combination-fixed dose pills should be used. Paying attention to contraindication.</p><p>C Amlodipine 5mg or Nifedipine retard 20mg</p><p>Enalapril 5mg x 2 times, or Lisinopril 5mg, or Perindopril 5mg, or Ramipril 5mg, or Irbesartan 150mg, or Losartan 50mg, or Telmisartan 40mg, or Valsartan 80mg.</p><p>A</p><p>D Hydrochlorothiazide 12.5 mg, or Indapamide 1.5mg.</p><p>In each visit: If targeted BP obtained or just < 5mmHg higher: Keep the same dose and actively changing lifestyle. If Systolic BP <110mmHg in two visits: cut down to the dose before. If side effects or abnormal seen, then contact HCWs immediately for changing medications or modifying dose</p></div>

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