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# HEARTS



IN THE AMERICAS

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## GUIDE AND ESSENTIALS FOR IMPLEMENTATION

**PAHO**  
Pan American  
Health  
Organization



World Health  
Organization  
REGIONAL OFFICE FOR THE  
Americas

**PAHO** 120<sup>th</sup>  
ANNIVERSARY





# **HEARTS in the Americas**

Guide and essentials  
for implementation

Washington, D.C., 2022

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# Abbreviations and Acronyms

CVD	—	cardiovascular disease
LMIC	—	Low and Middle Income Countries
MOH	—	ministry of health
NCD	—	noncommunicable disease
PAHO	—	Pan American Health Organization
PHC	—	primary health care
WHL	—	World Hypertension League
WHO	—	World Health Organization






# Introduction

The World Health Organization (WHO) launched the Global Hearts Initiative and its HEARTS Technical Package in 2016. Its aim is to improve clinical preventive services in primary health care (PHC) using highly effective, scalable, sustainable, and proven interventions. As the WHO Regional Office for the Americas, the Pan American Health Organization (PAHO) is developing and coordinating the HEARTS in the Americas Initiative with a clear vision: By 2025, HEARTS will be the institutionalized model for cardiovascular disease risk management, including hypertension, diabetes, and dyslipidemia in primary health care in the Americas.

The HEARTS in the Americas Initiative is entering its sixth year of implementation, having expanded from the original cohort of 4 to 22 countries implementing the HEARTS model. The accumulation of knowledge, practices, and experiences from the field and from different levels of implementation has been compiled in this new Guide and Essentials for Implementation.

This manual complements the [WHO HEARTS technical package Implementation Guide.\(1\)](#)  It expands on specific lessons learned from the systematic implementation of HEARTS in the Americas. Strategic implementation requires coordination across ministry of health (MOH) departments, stakeholders, partner agencies, scientific societies, and academic institutions. Documenting the implementation and scale-up experiences of countries in the Americas is timely to propel forward the institutionalization of the HEARTS model for cardiovascular disease (CVD) risk management, including hypertension, diabetes, and dyslipidemia in PHC in the Americas by 2025.

## Purpose

This manual is designed to be practical and user-friendly. It aims to guide implementers at national and subnational levels to navigate throughout different stages of implementation and to ensure the longtime sustainability. The manual is written for national focal points, and managers and coordinators at subregional, provincial, district, municipal level and health facilities implementing HEARTS. It is intended to answer frequently asked questions about the premises, objectives, components, and steps for implementation of the HEARTS in the Americas Initiative.

**The people who will find this manual most useful are:**

- PAHO/WHO country office focal points
- Ministry of health staff assigned to the HEARTS Initiative
- Members of the HEARTS national and local coordinating teams
- HEARTS consultants
- Local implementers of the HEARTS Initiative
- Any parties interested in the implementation of HEARTS



# What has been the progress in the implementation of the HEARTS in the Americas Initiative?



Figure 1. Implementation of HEARTS in the Americas Initiative since 2014

At the beginning of 2022, 22 countries in the Americas were implementing HEARTS in different phases of development, including the new countries that joined the initiative during the challenging years of the COVID-19 pandemic. MOHs are implementing a set of interventions using a phased approach: Formation of a national coordination team; selection of a core set of high-quality anti-hypertensive medications and a mechanism to ensure its procurement; development of a standardized, evidence-based hypertension treatment protocol and comprehensive clinical pathway; initiation of implementation of task-sharing in a team-based approach in the primary care level; and development and implementation of a registry and monitoring and evaluation system for clinical follow-up and monitoring of progress.

At its inception, the Initiative completed its proof of concept in Barbados and started a rollout in Colombia, Chile, and Cuba where preliminary results verified that the HEARTS model works, is acceptable to patients, providers, and funders, and improves the coverage of the program and the control of hypertension.(2)

Table 1: HEARTS in the Americas 2016-2021

COHORT	YEAR	COUNTRIES
1	2016	Barbados Chile Colombia Cuba
2	2018	Argentina Ecuador Panama Trinidad and Tobago
3	2019	Dominican Republic Mexico Peru Saint Lucia
4	2020	Plurinational State of Bolivia Brazil British Virgin Islands Guyana
5	2021 - 2022	Costa Rica Dominica El Salvador Guatemala Suriname The Bahamas

## What is the Global Hearts initiative?

In 2016, WHO, along with international partners, such as the United States Centers for Disease Control and Prevention, the American Heart Association, the American Stroke Association, the Centre for Chronic Disease Control, the International Diabetes Federation, the International Society of Hypertension, the International Society of Nephrology, PAHO, Resolve to Save Lives, the World Heart Federation, the World Hypertension League, and the World Stroke Organization, launched the Global Hearts Initiative. The Initiative promotes the adoption of five technical packages: **MPOWER** for tobacco control; **SHAKE** for the reduction of salt intake; **REPLACE** for the elimination of industrially-produced trans-fatty acids; **ACTIVE** for the promotion of physical activity; and **HEARTS** for cardiovascular risk management in PHC. Each package is comprised of a set of policies and recommendations that provide high-impact, evidence-based interventions and support the Initiative implementation. This package is aligned with the goals and targets of noncommunicable disease (NCDs), including the Sustainable Development Goals 2030.(3)

Table 2: Technical packages that make up the Global Hearts initiative

<b>MPOWER</b>		<b>SHAKE</b>	
Technical Package for tobacco control		Technical Package for Salt reduction	
<b>M</b>	Monitor tobacco use and prevention policies	<b>S</b>	Surveillance: measure and monitor salt use
<b>P</b>	Protect people from tobacco smoke	<b>H</b>	Harness industry: promote the reformulation of foods
<b>O</b>	Offer help to quit tobacco use	<b>A</b>	Adopt standards for labeling and marketing
<b>W</b>	Warn about the dangers of tobacco	<b>K</b>	Knowledge: educate and communicate to eat less salt
<b>E</b>	Enforce bans on tobacco advertising, promotion, and sponsorship	<b>E</b>	Environment: support settings to promote healthy eating
<b>R</b>	Raise taxes on tobacco		
<b>REPLACE</b>		<b>ACTIVE</b>	
Technical Package to eliminate industrially produced trans fat		Technical Package to increase physical activity	
<b>R E</b>	Review dietary sources of industrially produced trans fat	<b>A</b>	Active societies
<b>P</b>	Promote the replacement of industrially produced trans fat	<b>E</b>	Active environments
<b>L</b>	Legislate regulatory actions to eliminate industrially produced trans fat	<b>P</b>	Active people
<b>A</b>	Assess and monitor	<b>S</b>	Active systems
<b>C</b>	Create awareness of the negative health impact of trans fat		
<b>E</b>	Enforce compliance with policies		

## What is the HEARTS Technical Package?

The HEARTS Technical Package provides a pragmatic approach to improving cardiovascular health. It comprises seven modules and an implementation guide. This package supports MOHs to strengthen CVD management in primary care and aligns with WHO’s Package of Essential Noncommunicable Disease Interventions. (PEN).(4)

Table 3: HEARTS Technical Package modules

HEARTS Technical Package for cardiovascular risk management		What is it?	Why is it important?
H	Healthy lifestyle and counseling	Counseling on lifestyle changes, including cessation of tobacco use, dietary modification, avoiding harmful use of alcohol, and increasing physical activity; involves systematic, targeted use of information and techniques to support individual behavioral change.	Strategies to address multiple risk factors by lifestyle counseling and appropriate drug therapy are the mainstay of CVD prevention. Systematic reviews of high-intensity combined lifestyle counseling for people with known CVD risk factors have shown a reduction in weight, low-density cholesterol, glucose levels, blood pressure, and the incidence of diabetes after 12–24 months.
E	Evidence-based treatment protocols	Evidence-based treatment protocols are national or subnational protocols for CVD management developed through a collaborative, consultative process for use by health professionals at all levels. They should be clear and simple to follow and be integrated into national guidelines or recommendations for clinical management.	Standard treatment protocols improve the quality of clinical care, reduce clinical variability, and simplify treatment options, improving treatment adherence and reducing therapeutic inertia, particularly in PHC.
A	Access to essential medicines and technology	To scale up clinical CVD management in PHC, there should be equitable access – measured as price, availability, and affordability – to high – quality essential medicines, diagnostics, and basic technology for clinical management. All three aspects should be improved to implement CVD management in lower- and middle-income countries (LMICs).	Although most essential CVD medicines exist in generic form, their availability and affordability is inadequate in many LMICs, representing a significant barrier to access.  Essential technologies and medicines are often not found in public hospitals, health centers, or community pharmacies.

*continue on the next page*

HEARTS Technical Package for cardiovascular risk management		What is it?	Why is it important?
A	Access to essential medicines and technology (continued)		When medicines are available, they are either too expensive for most people, of low quality or questionable efficacy, or otherwise stocked in such small quantities that only a few people can be treated for short periods. There are similar deficits in the availability of essential technologies for diagnosis and treatment.
R	Risk-based CVD management	CVD risk stratification consists of categorizing and managing people according to their likelihood or chance for a cardiovascular event (heart attack or stroke). The level of risk is determined through simple risk-scoring tools and calculated as the combined effect of multiple risk factors, including age, gender, smoking status, blood pressure, and total cholesterol or body mass index.	Several clinical trials have shown that modification of CVD risk factors, including high blood cholesterol and blood pressure, reduces the number of clinical events and premature deaths in people with established CVD and in those at high or intermediate risk for CVD due to one or more factors.
T	Team-based care	A trained local workforce capable of initiating and sustaining CVD prevention and management programs is a critical component of care delivery.	Rapid improvement in access to health services can be achieved by a team or task-sharing approach. Training non-physician health workers to perform tasks traditionally undertaken by doctors allows expansion of care in settings with a shortage of doctors or in other settings to expand capacity.
S	Systems for monitoring	Basic demographic and clinical data are registered for follow-up care to track adherence and trends in the use of health services and to monitor and evaluate programs.	A well-functioning data system is the backbone of effective case management for CVD and other chronic diseases. This has been successfully demonstrated in tuberculosis and HIV programs in LMICs.
D	Diagnosis and management of type 2 diabetes	Diagnosis and management of type 2 diabetes is based on WHO guidance on diagnosis, classification and management of diabetes. It is aligned with the WHO Package of Essential Noncommunicable Disease Interventions in Primary Health Care (WHO-PEN).	Diabetes and hypertension have been prioritized in global and national NCD action plans because of the high burden of disease, and the availability of cost-effective interventions at primary-care level.

## What is HEARTS in the Americas?

HEARTS in the Americas is the regional adaptation of the Global Hearts Initiative, developed and operationalized, for the countries of the Americas. It is a set of complex, multilevel interventions containing several interacting components. At every level of implementation, there are individuals carrying out processes that range from policy setting to healthcare delivery at the primary care level.

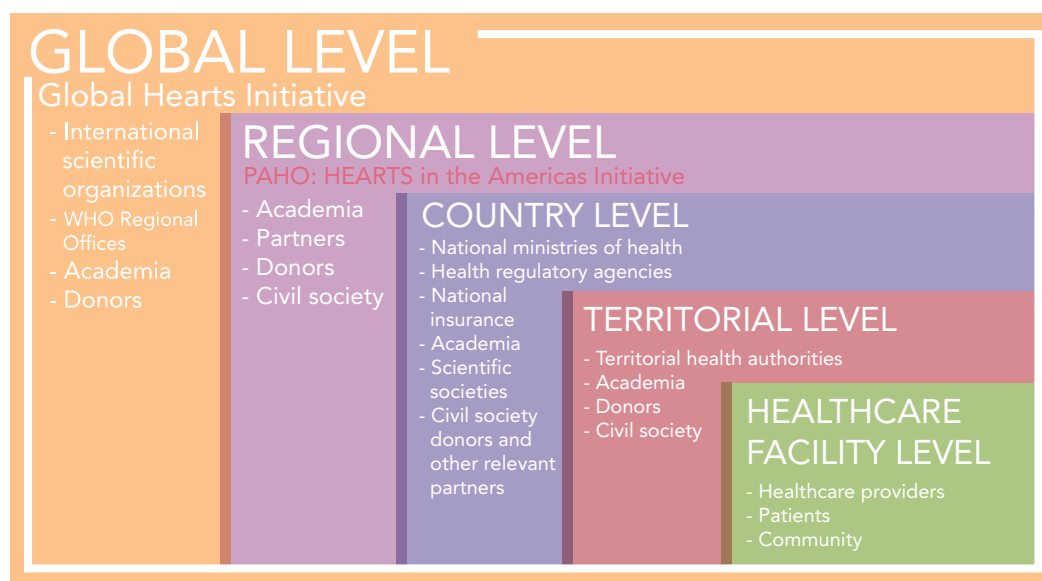


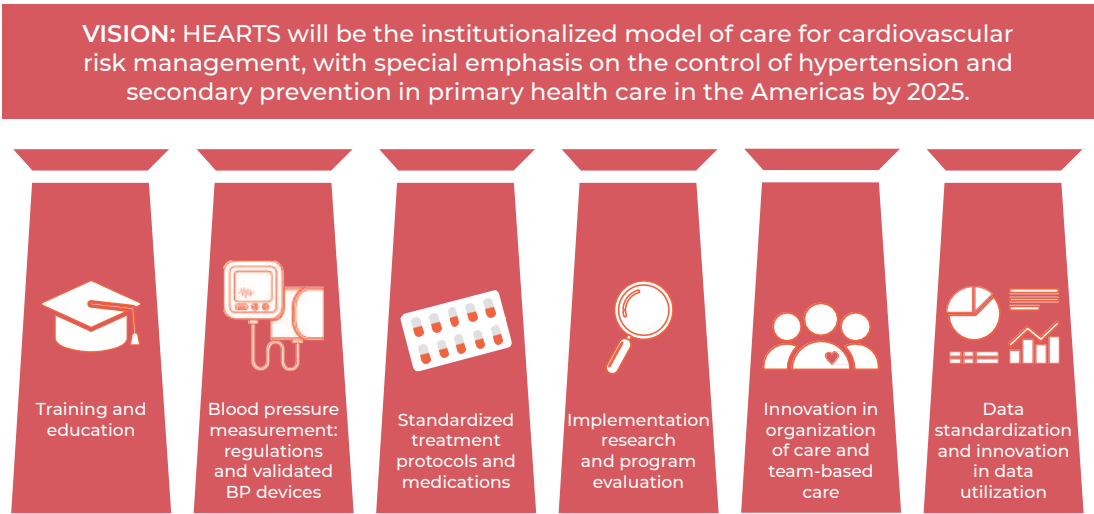
Figure 2: Overview of different levels of implementation

The HEARTS in the Americas encompasses the overall implementation strategy, which goes beyond the HEARTS Technical Package, and includes systemic clinical, managerial, public health and policy changes. The technical package is a practical set of evidence-based interventions to improve the capabilities of primary care services to respond to the CVD burden faced by countries. The interventions are grouped into modules that correspond to actionable technical pillars.

The HEARTS technical pillars are designed to support the implementation of the HEARTS Technical Package and are defined as priority lines of work that support the Initiative's vision, facilitate programmatic implementation, channel provision of technical resources, and promote innovation. These comprise training and education, blood pressure measurement, treatment protocols, organization of care, research and evaluation, and data use, as illustrated in figure 3. Once these interventions are fully implemented, they contribute to the improvement of cardiovascular risk management and population health outcomes. The number of emergent policies that allow for the implementation as well as their goals will be expanded as new evidence emerges.



Figure 3: HEARTS in the Americas technical pillars



## **What Are the Main Elements that Underlie a Successful Implementation of HEARTS?**

### **Political commitment**

The country should have the political will to improve the prevention and control of NCDs, as reflected in the global commitments to Sustainable Development Goals (SDG) and voluntary monitoring targets,(5) especially those related to strengthening and orienting health systems to address the prevention and control of NCDs and the underlying social determinants, through people-centered PHC and universal health coverage.

A guiding principle of HEARTS is that it is an initiative of the countries in the Region, led by the MOHs, and with the active participation of stakeholders and the technical cooperation of PAHO. The components of the HEARTS model are to be seamlessly and progressively integrated into already existing health systems. HEARTS is designed to promote and implement the adoption of global best practices in the prevention and control of CVDs, to improve the organization and performance of health services through better control of hypertension, and to promote CVD secondary prevention with emphasis on PHC.

HEARTS should build on what already exists and works well, using available resources, continuously improving performance and outcomes, taking advantage of the leadership, technical capabilities, and successful pre-existing projects and programs to optimize resources and establish the necessary synergies to make the Initiative work. Thus, HEARTS is not a vertical, isolated project or in parallel to the existing healthcare system. On the contrary, its sustainability depends on the institutionalization of the HEARTS interventions in the everyday practice of implementers in the health system.

## **What Are the Scenarios for which HEARTS was Designed?**

HEARTS is designed to be implemented in all health services (health posts, clinics, hospitals). However, its main scope of implementation is PHC settings.

## How Long Would It Take to See Results from Successful Implementation of HEARTS?

In the short term, by using systematically evidence-based interventions to improve and standardize cardiovascular risk management in each health center implementing HEARTS, changes should be seen in coverage and hypertension control and cardiovascular risk management including diabetes, at the primary care center level during the first six to nine months of full implementation.

Coverage is defined as the proportion of people in the catchment area (facility, municipality, district) who have been registered –and treated– as hypertensive based on the best estimate of expected prevalence in the catchment area or larger geographical unit in a specific period of time (month, quarter, year).

Control is defined as the proportion of patients registered for hypertensive treatment at the health facility whose blood pressure is controlled (SBP < 140 and DBP < 90) and for patients with CVD high-risk, including patients with diabetes whose blood pressure is controlled (SBP < 130 mmHg).

Each country can set its own targets for coverage and control and the time frame to reach them. However, clinical control of hypertension or better cardiovascular risk management, including diabetes, has a direct impact on the reduction of cardiovascular events such as acute myocardial infarction or stroke, diabetes complications and progression of chronic kidney disease. Thus, changes could potentially be observed within a year, and in the medium term on the appearance of complications such as chronic kidney disease or peripheral vascular disease.

Systematic and accurate monitoring and evaluation of the core indicators of HEARTS, as part of the routine health information system should be implemented from the inception of HEARTS and be continuously strengthened to evaluate results in the short, medium, and long term.

## What are the Theoretical Underpinnings of the HEARTS Initiative?

Developed by Wagner in 1996, the Chronic Care Model (CCM) has become a cornerstone in the improvement of care delivery for chronically ill patients. The model guides a shift from a health system based on an acute episodic model to one focused on effective care for chronic diseases. The CCM comprises the following six components: 1) community; 2) health system; 3) self-management support; 4) delivery system design; 5) decision support; and 6) clinical information systems.(6) Since its formulation, different initiatives have developed new models targeting specific weaknesses of the original CCM. In 2002, WHO presented the Innovative Care for Chronic Conditions model, which recognized the broader policy environment involving patients, their families, healthcare organizations, and communities, augmenting the components of the CCM to eight.(7)

The HEARTS Technical Package introduced in 2016, offers a practical approach to most components of the Improved Chronic Care Model (ICCM), as illustrated in Figure 4. Each element of HEARTS presents ways to operationalize the components with tangible and actionable steps. Moreover, one of HEARTS' basic premises is to shift the center of gravity of care from the very specialized/secondary level to high-quality PHC, emphasizing comprehensiveness of care based on simple and standardized treatment protocols, access to essential medications and treatments, team-based care, and system for monitoring and evaluation.

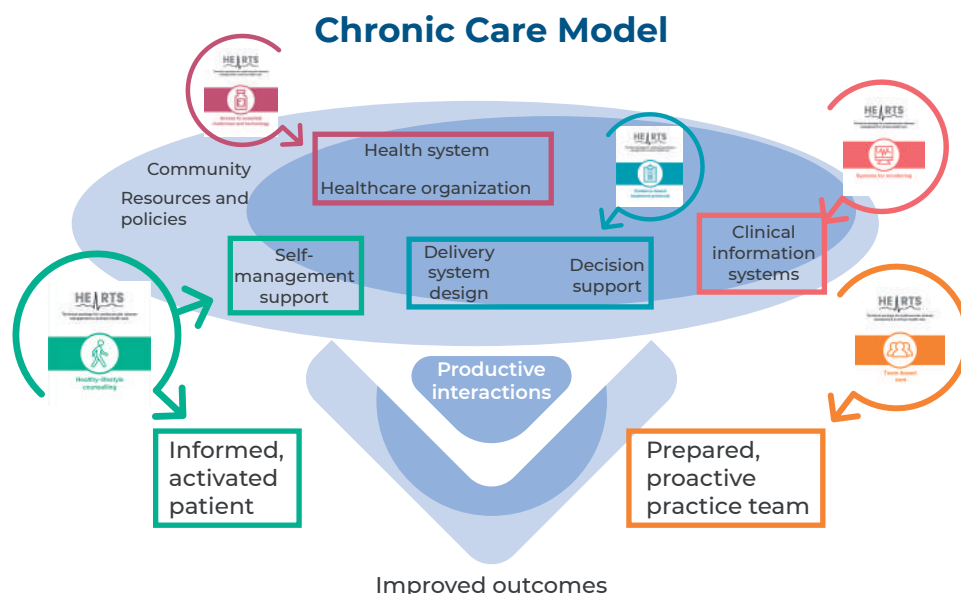


Figure 4: Correspondence of the Chronic Care Model and the HEARTS Technical Package

## What Conceptual Model Guides the Implementation of HEARTS?

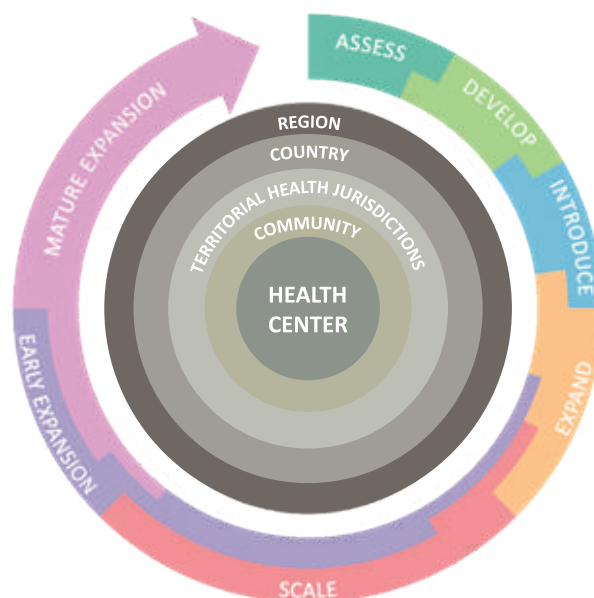


Figure 5. HEARTS Staged Model for Implementation

### Staged Model for Implementation

PAHO's implementation strategy for HEARTS, grounded in the CCM, utilizes hypertension control management as an entry point to care delivery at the countries' PHC level.

Implementation progress does not occur linearly; instead, it is an iterative, dynamic, staged, continuous quality improvement process. Every time a new country, a new jurisdiction, or a new health center starts implementing HEARTS, a new cycle begins. After every evaluation cycle, the leadership, with the active participation of a well-informed staff, should reinforce what works and modify what is not working, paying particular attention to capacity building. The basic stages are:

- 1. Assess:** The MoH conducts a local assessment of the situation in the country with emphasis on measuring gaps in hypertension awareness (diagnosis), treatment, and control, and assessing the health infrastructure, and human and financial resources to evaluate the country and local capacity to respond. This assessment provides the platform for implementing HEARTS.
- 2. Develop:** with PAHO's technical cooperation and local experts, countries develop their own implementation plan with a vision for a scale-up from inception.
- 3. Introduce:** the HEARTS model needs to be introduced at every new locality or jurisdiction.

These initial stages may be clustered under the pre-implementation phase.

The following stages of the model are: Early expansion, scaling up, and mature expansion which are designed to advance towards the institutionalization of the model.

A full description of the staged implementation model, facilitators, and barriers, can be found at the following link: [Mapping Stages, Barriers and Facilitators to the Implementation of HEARTS in the Americas Initiative in 12 Countries: A Qualitative Study.\(8\)](#) [CLICK HERE](#)

## How is the HEARTS Initiative Scaled Up?

There are many scale-up models. [WHO ExpandNet \(9\)](#) [CLICK HERE](#) defines scaling up more specifically as: “deliberate efforts to increase the impact of successfully tested health innovations to benefit more people and to foster policy and program development on a lasting basis.” The model, in affinity, with HEARTS experiences in the Region, describes two types of scaling up: vertically and horizontally.

### Vertical Scaling Up

Vertical scaling up means institutionalization through policy, political, legal, budgetary, or other systems change. An example of vertical scale-up is the hypertension protocol and clinical pathway adoption. The standardized treatment protocol is built through consensus with main national stakeholders and endorsed by the responsible entity. Then, the MOH through an accepted policy instrument recommends its adoption in the entire country, even before the entire HEARTS model is adopted in the entire country.

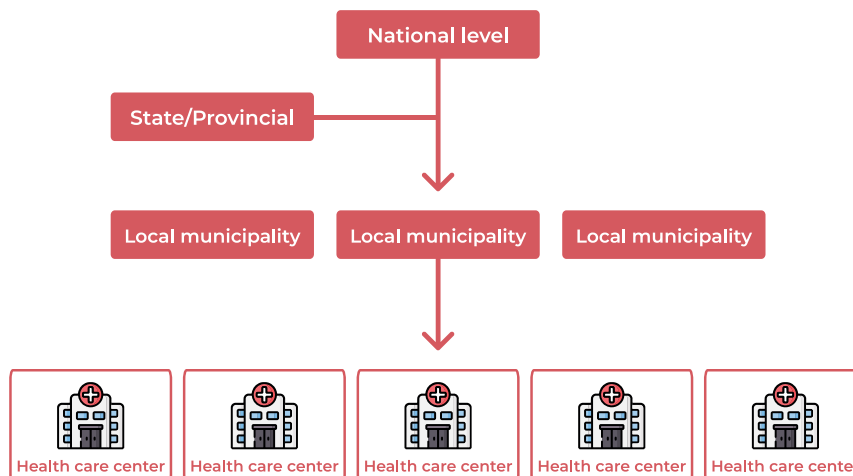


Figure 6: Vertical Scaling up

## Horizontal Scaling up

Expansion or replication is also referred to as horizontal scaling up. Innovations may be replicated in different geographical sites or extended to serve larger communities. To reach a progressively higher number of primary care centers with tools provided by HEARTS, it is necessary to have a horizontal strategy to expand from jurisdiction to jurisdiction. Relatively larger geo-administrative health areas are preferred to optimize the efforts, resources and to build political momentum.

Based on spread/scale-up models, scalable units are defined typically as an administrative unit (e.g. subdistrict or clinical ward/division) that includes key infrastructural components and relationship (architecture) that are likely encountered in the system at full scale. For example, in the Region of the Americas, the scalable unit has been a community health center, known in the different countries by different names (clinic, health post, polyclinic, among others). These community health centers are part of the public health system network, which provides basic primary care, including promotion, prevention, treatment, and rehabilitation, for a defined population and territory.

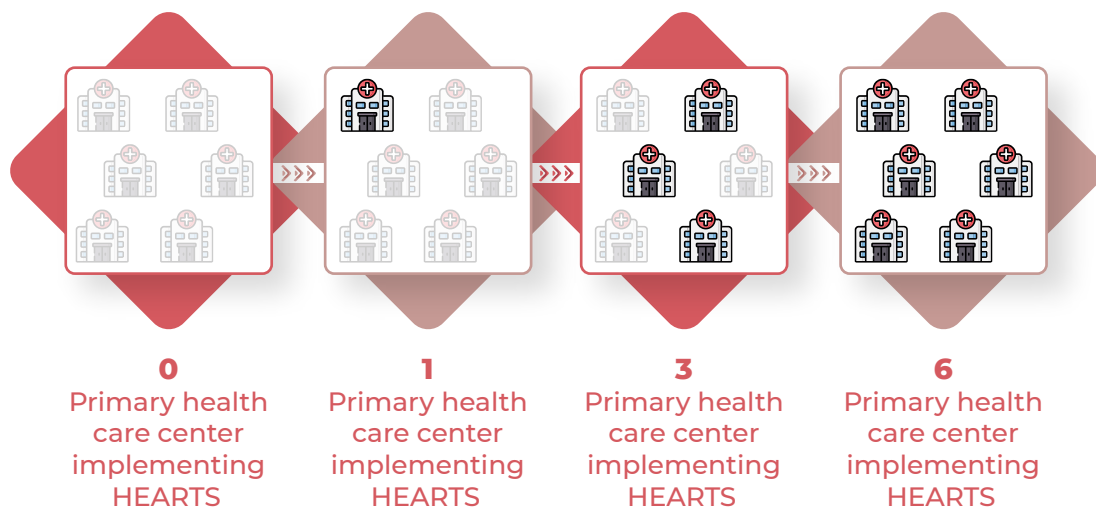


Figure 7: Horizontal Scaling Up



# Pre-implementation Phase

## Who Are the Key Stakeholders during the Initial Stages?

Successful implementation is based on a comprehensive understanding of the intended changes in program, policy, and practice and the settings in which they will be introduced. To achieve this understanding, the deployment of the HEARTS program begins at the countrywide administrative level led by MOHs, through declaration of official commitment to the HEARTS Initiative and its guiding principles. This officialized relationship places a country in the pre-implementation phase.

During this phase, the first step is the designation of a senior officer as the focal point for HEARTS by the MOH and the PAHO/WHO country office.

The national focal points need to be high ranking officers with decision making power, proven technical skills, and enough experience in the organization of care for people with non-communicable diseases. Their main roles will be to think strategically, work inter-programmatically and plan and guarantee the implementation of HEARTS phases, including pre-implementation, planning, and early and mature scale-up stages.

In each country, focal points must have the capacity to persuade different audiences inside the health sector about the advantages, added values, opportunities, and possibilities that the technical package brings.



## How to involve stakeholders in the HEARTS implementation process

Involving all relevant stakeholders in the HEARTS planning process from the beginning is a critical factor for successful implementation. Stakeholders should include decision-makers from key areas of MOHs (primary care services, NCDs, medicines and health technologies, procurement, regulatory agencies--specifically for blood pressure measurement devices). Professional societies and field thought leaders are critical in the implementation of HEARTS as they can facilitate or delay the process. Relevant societies may include cardiology, internal medicine, nephrology, family medicine, nursing, pharmacy, among others plus academic institutions, and civil society organizations that represent patients with chronic conditions.

Implementation is not easy and should be mediated by positive working relationships characterized by trust and empathy to ensure success. Shared decision-making is crucial in understanding that implementation is synonymous with innovation and change. Therefore, the second phase of the pre-implementation planning process should consist of creating participatory scenarios to meaningfully involve the MOH as head of the health sector in the country. This mandatory phase is led by the designated focal point in the PAHO country office in close collaboration with the HEARTS regional technical team, and includes the activities shown in Table 4:

Table 4: List of Activities of Pre-Implementation Phase

Activities	1. Share <a href="#">WHO HEARTS technical package implementation guide</a> <small>CLICK HERE</small> and the HEARTS in the Americas: Guide and essentials for implementation.
Meetings	2. Set a meeting with the national authorities to review all foundational materials (please see resources at the end of the note). 3. Set at least one virtual meeting with the Ministry of Health, the HEARTS regional technical team, and PAHO Country office HSS advisor 4. Invite the Ministry of Health's designated focal point and high-level decision-makers to take part in a regional or national HEARTS in the Americas meeting that may be happening during the time of pre-engagement.

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<p><b>Formal commitment to the HEARTS Initiative</b></p>	<p>5. Send an official letter from the PAHO country office to the Ministry of Health providing a summary of the HEARTS Initiative as well as how implementing the initiative will help to reduce the burden of CVD and inviting the country to join in implementing HEARTS.</p> <p>6. Organize and prepare a delegation to participate in ongoing HEARTS activities, including standing webinars and/or technical meetings. Members of this delegation may be considered candidates to constitute the national coordination team.</p> <p>7. Work with national authorities to formalize their commitment to join HEARTS through an official response to the invitation letter delineating the commitment of the Ministry of Health and PAHO, sending it to the PWR.</p>
<p><b>Confirmation</b></p>	<p>The formal memorandum from the country office to PAHO NMH and HEARTS regional program marks the formal start of the of the HEARTS pre-implementation stage.</p> <p>The official confirmation serves as an acceptance of roles and responsibilities, which allows for a fluid, systematic, continuous exchange of communication permitting the ease of implementation guidance. This includes communication for participation in webinars, monitoring of information requests, opportunities for training, planning, and any other technical topics.</p>

## How to Guarantee HEARTS Sustainability From the Outset

Successful implementation of the HEARTS model will depend on the political support and traction of the implementation. To ensure political support, the program should be anchored on a progressively high number of primary health facilities implementing the HEARTS model. This strategy will optimize the resources, involve more health care providers, increase the population covered under the model and facilitate a faster speed of adoption that will lead to the institutionalization of the model. Institutionalization will result from a joint effort of different actors in the health sector in each country. The MOH may not by itself guarantee the full implementation of HEARTS and requires the participation and support of health professionals and organizations who, from clinical, technological, regulatory, academic, civil, patient, or administrative perspectives, contribute to the deployment of the Initiative within the health system. Creating a scenario that promotes participation and effective interactions among stakeholders is necessary to guarantee that experiences and learnings from different organizations strengthen the implementation process.

## How to Form the National Coordinating Teams

The next step of implementation is the **formation of national and local coordinating teams** led by the MOH and with the participation of the main stakeholders defined by the country/territory. In the HEARTS implementation process, there are two broad categories of participants: stakeholders, who have an investment, interest, or stake in the outcome of the Initiative and/or are affected by it; and agents of change — individuals, groups, or other units that function as catalysts for change within an organization. The organization of the coordinating team consists of the following activities described in table 5:

Table 5: Activities to set up the national coordination teams

Setting up the national coordination teams	
<b>Mandate</b>	Define the mandate and operation of the coordinating teams through the recommended administrative procedures for each country. The HEARTS coordinating mechanism could be included in existing health platforms in the country focused on issues related to noncommunicable diseases.
<b>Members</b>	The national coordinating team must be comprised of a wide range of stakeholders from across the health sector: the more diverse the participants, the broader the perspectives. For that reason, the team must include governing health institutions, health providers, insurance providers, academics from universities as well as scientific organizations, nongovernmental organizations, patient representatives, regulatory agencies, and PAHO.
<b>Commitments</b>	Each member of the coordinating team must have clearly defined responsibilities. The coordinating teams must distinguish clearly between those in charge of implementation and those responsible for the evaluation, implementation research, and data management, ensuring that those selected have the competencies and skills set required for each function.
<b>Lifespan</b>	The lifespan of the coordinating team will depend on the coordinating structure used and must be subject to the implementation of the model. To the extent that the model becomes fully implemented at the institutional level, the management/coordination team will either be phased out or continue to function based on the initial purpose prior to HEARTS.
<b>Tasks</b>	<p>The members of management teams, both national and local, should familiarize themselves with the available methodological documents of HEARTS.</p> <p>In tandem, the coordination teams should arrange an initial assessment/situational analysis based on the framework of monitoring and evaluation recommended by PAHO-WHL (World Hypertension League).</p> <p>This evaluation should benefit the management team as an exercise to test its operational capacity and to define the overall strategy, the goals, and the operational plan of implementation in the short, medium, and long term as suggested by the evaluation framework. The strategy and the implementation plan resulting from the evaluation exercise must be approved by the appropriate administrative authority.</p>

## What Are the Target Settings for HEARTS implementation?

Public and private primary care health posts, clinics, and hospitals (with primary care services) are the target settings for deployment of the interventions included in the HEARTS model.

Thus, the next step in the planning of implementation consists of selecting areas for implementation, which consist of any jurisdiction with defined geo-administrative and sanitary structure.

## How to Select the Initial Implementation Sites?

Implementation must be a scalable process, starting with identifying areas/sites that are ideally suited for a successful HEARTS implementation. The criteria for selecting areas of implementation must be based on:

- Local authorities interested addressing the CVD/NCDs;
- An acceptable local epidemiological profile;
- Previous experiences deploying initiatives related to noncommunicable and/or cardiovascular diseases;
- Openness to innovation.

Selected initial sites may become models of feasibility and effectiveness of HEARTS implementation, which can greatly push expansion forward. The criteria for selection are described in table 6:

Table 6: Recommended criteria for selection of initial implementing sites

Ideal jurisdictions for beginning implementation of HEARTS	
<p>Depending on the size of the country, implementation in entire districts, service areas, or regional health areas is recommended for rapid progression, resource optimization to advance more swiftly, to optimize the resources, and to catalyze the change.</p>	
<p><b>Countries with populations between 500,000 and a million residents</b></p>	<p>Countries with a population under 500,000 residents should consider countrywide implementation early on.</p>
	<p>Countries with populations between 500,000 and a million residents should begin implementation in selected health centers across the country.</p>
<p><b>Countries with populations of over a million residents</b></p>	<p>Population of at least 100,000 (catchment area population) and a network of primary care level services/centers.</p>
	<p>Basic information on the population served with the potential to build a clinical registry.</p>
	<p>Epidemiological information on the prevalence and control of hypertension, or at least reasonable estimates to apply to this population.</p>
	<p>A referral second/third-level hospital serving patients presenting acute cardiovascular symptoms, especially stroke and coronary heart disease. The hospital should have the capacity to record incidence of cardiovascular illnesses.</p>
	<p>Motivated and trained personnel, including members of recognized technical and managerial leadership.</p>
	<p>Basic health structure to comply with objectives and accommodate training and capacity-building activities.</p>
	<p>Network of pharmacies with the potential to participate in the roles indicated in HEARTS and the ability to implement a patient registry.</p>
<p>At least one academic institution willing to participate in the project and to undertake the tasks of monitoring, research, and evaluation.</p>	

## **What is a HEARTS Installation Visit and Launch of HEARTS?**

After the pre-implementation initial activities have been put in motion, an installation and launch visit can be planned.

The purpose of the installation visit is to convene main country stakeholders and review the HEARTS Initiative vision and to present in more depth the HEARTS model and its implementation strategy. This is the opportunity to jointly with country implementors verify the country's pre-implementation planning phase and readiness to engage in full implementation. The technical teams can assess areas needing further technical cooperation. The installation must involve all national or regional stakeholders, including technical experts, academic and scientific institutions, health professionals (especially primary care physicians, nursing professionals, and professionals in other associated roles), and local leaders to reinforce the country's commitment to HEARTS and consolidate national political support.

Table 7 presents a summary of the elements and expected results of the installation visit.

## **Alternative Arrangement for COVID-19 Pandemic Conditions**

A virtual meeting with the country's highest health authorities should be organized with the teams from the PAHO country office, the team from PAHO headquarters, and the local stakeholders. The session can be a component of the virtual national training program.

Table 7: Basic elements and expected results of installation visit

Activities included in installation visits	
<b>Meetings</b>	Country office: PWR and focal point (FP)
	High-ranking national health authorities
	Meeting with national and local coordinating teams
	Field visits to primary care facilities where HEARTS will be initially implemented
	Review implementation requirements with implementation site and health system
	Identify synergies, gaps in coverage and opportunities for implementation and scale-up
<b>Expected results</b>	Presentation of national baseline assessment (a compendium of facility assessment results)
	Confirmation of functional coordinating team with defined tasks/functions/roles/responsibilities
	Selected sites prepared for implementation
	Assessment of all HEARTS components
	Setting the basis of a scale up plan
	Setting the basis of an operational plan
<b>Sustainability</b>	Estimation of preparation and first year of implementation costs
	Identification of funding sources
<b>Training</b>	All staff at initial implementation sites should be encouraged to take the HEARTS Virtual Courses on the PAHO Virtual Campus Platform.
	The National Training Workshop may be conducted jointly with the installation visit.



## What Do the Initial National Training Workshops Entail?

The national workshops aim to solidify the knowledge base and know-how of main implementers and start preparation for implementers in new areas.

The workshops bring together a broad cross-section of stakeholders to dive into the content of HEARTS pillars and HEARTS technical package and the strategies to be used to implement at the selected sites. An added value may be to train trainers that will multiply the trainings in the local jurisdictions.


The national workshop may be conducted immediately after an installation visit. Before attending, the workshop participants should be encouraged to take the virtual course on the implementation of the HEARTS Technical Package. [Hearts virtual courses.](#) [CLICK HERE](#)

Table 8: Activities included in the national workshops




Activities included in the national workshops	
1	Defining the workshop agenda. Model agendas and presentations from all national workshops that have been held may be found at: <a href="https://www.paho.org/en/hearts-americas-meetings">https://www.paho.org/en/hearts-americas-meetings</a> <a href="#">CLICK HERE</a>
2	The first set of sessions should provide a solid scientific rationale for HEARTS.
3	The second set of sessions should deal with each component of HEARTS.
4	The HEARTS Implementation Virtual Course may be utilized as top speakers present each component; a local facilitator may guide hands-on discussions with participants.
5	During the workshops, there must be time on the agenda to share the preliminary version of the standard treatment protocol with participants, discuss its content, and reach a consensus on its implementation.


## Master Training / National Training Workshop

The workshop should be designed to build capacity among health professionals to be ready to implement and integrate each module. Additionally, the cadres of trained professionals may be enabled to train others and become advocates for the adoption of HEARTS.

The first master training / train-the-trainers workshop may be included in the installation visit agenda. It has an important focus on treatment protocols and clinical pathway, with the aim to develop the preliminary version of a standardized hypertension treatment protocol using the tool designed for this purpose. [CLICK HERE](#) 

The creation and approval of a detailed, standardized and integrated treatment protocol within the clinical pathway format is a critical first step in the development of a successful large-scale hypertension program. The activities to build the first draft of the protocol and clinical pathway are:

-  Set up a panel of experts;
-  Review evidence-based protocol samples;
-  Obtain local information on access to and cost of medicines, current prescription practices, blood pressure measurement devices, cardiovascular disease risk assessment methodology, and outcome monitoring.

Implement the methodology with the technical working group and experts to define the standardized treatment protocol for hypertension control and cardiovascular disease risk management using the template of HEARTS Hypertension Clinical Pathway available at: <https://www.paho.org/en/hearts-america/hearts-america-protocols-and-medications> [CLICK HERE](#) 

## COVID-19 Pandemic Alternative Arrangement

A virtual national workshop may be organized following the same organizational steps; however, each country team should observe local pandemic conditions to see if a hybrid modality of partially in-person and virtual sessions may be accommodated.

# HEARTS in the Americas

## Capacity Building Workshop for Health Care Providers

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### Virtual Event

Day 1	
<b>Welcome Ceremony</b>	
09:00-09:05	Welcome and introductory remarks
09:05-09:15	Opening Remarks
09:15-09:30	Brief Remarks
09:30-09:50	HEARTS: The global initiative to improve the prevention and management of cardiovascular diseases in the first level of care
<b>HEARTS Train-the-Trainer National Workshop</b>	
09:50-10:05	Objectives and format of the workshop & brief introduction of consultants
10:05-10:30	HEARTS in the Americas: Implementation of HEARTS in country
10:30-10:50	Overview of HEARTS Implementation, tools and resources
10:50-11:15	Overview of cardiovascular diseases in country
11:15-11:40	The experience of country in the conduct of activities in the pre-implementation assessment phases of HEARTS
11:40-11:55	Question and answer
11:55-12:00	Closing

Day 2) 16 September 2021				
<b>Summary of the previous day</b>				
09:00-09:10	Summary of the previous day			
09:10-09:30	The standardized treatment protocol is the heart of HEARTS: Step by step treatment protocol and the selection of antihypertensive drugs in fixed dose combinations.			
09:30-9:50	Question and answer. AND INSTRUCTIONS FOR BREAKOUT ROOMS			
10:00 -12:00	<b>The Keys of Modules</b>			
<b>BREAKOUT ROOM 1</b>				
<table border="0" style="width: 100%; font-size: small;"> <tr> <td style="width: 33%; vertical-align: top; padding: 5px;"> <b>QUICK REVIEW STEP 1: MODULES E &amp; A:</b> Highlighting: What are the ideal pharmacological and public health characteristics of a hypertension treatment protocol             </td> <td style="width: 33%; vertical-align: top; padding: 5px;"> <b>STEP 2:</b> Presentation of the proposed treatment protocol for country– Lead clinical person from country             </td> <td style="width: 33%; vertical-align: top; padding: 5px;"> <b>STEP 3:</b> Review and finalization of country's treatment protocol             </td> </tr> </table>		<b>QUICK REVIEW STEP 1: MODULES E &amp; A:</b> Highlighting: What are the ideal pharmacological and public health characteristics of a hypertension treatment protocol	<b>STEP 2:</b> Presentation of the proposed treatment protocol for country– Lead clinical person from country	<b>STEP 3:</b> Review and finalization of country's treatment protocol
<b>QUICK REVIEW STEP 1: MODULES E &amp; A:</b> Highlighting: What are the ideal pharmacological and public health characteristics of a hypertension treatment protocol	<b>STEP 2:</b> Presentation of the proposed treatment protocol for country– Lead clinical person from country	<b>STEP 3:</b> Review and finalization of country's treatment protocol		
<b>BREAKOUT ROOM 2: MODULES HEALTHY LIFESTYLES, SYSTEMS FOR MONITORING</b>				
<b>Basics of Healthy Lifestyles Module</b>				
10:00–11:00	Basics of Healthy Lifestyles Module			
11:00–12:00	Basics of Systems for Monitoring			

Day 3	
<b>Summary of the previous day</b>	
09:00-09:05	Summary of the previous day
09:05-09:25	Presentation of country's protocol
09:25 – 9:40	Questions and Answers
09:40-10:05	What are the practical mechanisms to reinforce the successful implementation of a treatment protocol?
10:05-10:15	Questions and answers
10:15–11:35	The evaluation and monitoring system is the brain of HEARTS Keys to the evaluation of HEARTS Variables and indicators - Q & A
11:35–11:45	HEARTS Virtual Courses and Other Resources
11:45-12:00	CLOSING Commitments and next step from Ministry of Health
<b>CLOSING Commitments and next step from Ministry of Health</b>	

## How Does Implementation Begin?

To build upon the momentum generated by the national workshop and the installation visit, implementation may start immediately. The activities described below are actionable and potentially feasible within the first months of full implementation. Table 9 presents a description of the major activities to be carried during the first months of implementation.

Table 9: Major activities in the first round of implementation

Activities included in the first round of implementation	
1	<p>Activate the national coordination team to develop a national work plan with defined objectives and timetables</p> <p>After having developed the Strengths, Weakness, Opportunities, and Threats (SWOT) matrix during the pre-implementation phase, anticipate how main challenges/threats will be addressed</p>
2	<p>Work with the HEARTS team consultant on protocols to develop a process to establish standardized treatment protocols using the HEARTS in the Americas methodology. This process should be aligned with the overall induction process but have its own timetable and stakeholders. A full description of this process can be found in the following publication: <a href="#">Standardized treatment to improve hypertension control in primary health care: The HEARTS in the Americas Initiative. (8)</a> <a href="#">CLICK HERE</a></p>
3	<p>Ensure that health team implementers to take the HEARTS in the Americas Implementation virtual course learn about protocols for initiation of implementation</p>
4	<p>Start and continue baseline data collection; engage key staff on understanding the data and how it will be used</p>
5	<p>Schedule virtual calls or site visits by national coordinating teams to health centers in order to maintain momentum after implementation, focusing on initial participants in the initiative</p>
6	<p>Program refresher sessions on the use of health information systems if the country already has one</p>
7	<p>Schedule team-based care sessions to refine workflows pre-designed by the national coordinating team and/or allow local teams to develop their workflows based on the particularities of their health centers</p>

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Activities included in the first round of implementation	
8	Plan and implement refreshers or re-training sessions on how to improve the accuracy of blood pressure measurement
9	Plan a program of follow-up training sessions for health centers
10	Prepare presentations for regional webinars and invite participants to participate in upcoming regional webinars
11	Plan quarterly reports of main progress indicators

## Pre-implementation Checklist at a Glance

To build upon the momentum generated by the national workshop and the installation visit, implementation may start immediately. The activities described below are actionable and potentially feasible within the first months of full implementation.

Table 10: Checklist

TASK	Status of completion
Official request to join HEARTS	X
Formal acceptance	X
Coordinating team	X
Situational analysis	X
Strategic plan	X
Training of coordinating team	X
Treatment protocol and clinical pathway	X
Monitoring & Evaluation	X
Inclusion of academic partner	X
Selected localities for initial implementation	X
HEARTS virtual courses enrollment and completion	X
Training of primary care teams – National workshop – Train-the-trainers modality	X
Launch implementation	X

## Launch of HEARTS Implementation

1. The coordination team will plan a launch that solidifies the commitment of the Ministry of Health and all stakeholders.
2. An agenda to highlight the country's progress in the pre-implementation process, future plans, opportunities and challenges to advance the scaling and institutionalization of Hearts.
3. Among the activities of the launch, it would be important to have a meeting with the high authorities of the Ministry of Health, including the minister, to ratify the country's commitment and discuss the launch agenda.
4. Key MoH high-level officers should be invited to participate, including the Minister of Health, and representatives from the academic institutions, scientific societies and civil society organizations.
5. The media should be invited and media kits prepared (coordination with the PAHO Communications Focal Point).
6. A strategic selection of the site of the launch may be a prestigious university, a Ministry of Health site.



## New Tools to Support Implementation – Just Released!

The HEARTS in the Americas Initiative has just launched a set of new tools to support the implementation of HEARTS at every level of implementation and for every technical pillar.

### Standardized Treatment Protocol Enhancement Assessment [CLICK HERE](#)

A standardized protocol assessment tool has been developed based on the 2021 WHO Guideline for pharmacological treatment of hypertension in adults, and other robust evidence. This tool is aligned with the HEARTS Initiative objectives designed to support key interventions through the improvement of the standardized protocol for hypertension treatment in all countries. In addition, a new template of preferred protocol has been created to help countries in the process. This template includes all recommendations of the 2021 WHO Guidelines and the HEARTS Technical Package, and seeks to become a hypertension clinical pathway to improve all clinical management, from diagnosis to treatment based on risk profile.

### New Cardiovascular Risk Calculator Available Online

A cardiovascular risk calculator has been developed that turns the 2019 published WHO color-coded risk charts into an online electronic calculator as an update to the previous PAHO CVD calculator app (2014). The HEARTS App 2021 estimates the 10-year risk of myocardial infarction, stroke, or cardiovascular death. In addition, the app includes recommendations to ensure correct measurement of blood pressure as well as correct implementation of standardized, nonpharmacological recommendations, and standardized treatment protocols from participating countries. [Cardiovascular Risk Calculator App. CLICK HERE](#)

## HEARTS in the Americas Regulatory Pathway toward the Exclusive Use of Validated Blood Pressure Measuring Devices [CLICK HERE](#)

To achieve HEARTS in the Americas goal of exclusively using validated automated blood pressure measuring devices in PHC facilities by 2025, a guidance document has been developed to provide a practical tool for governments for the improvement of their national regulatory frameworks for blood pressure measuring devices. The guidance document provides concepts related to accuracy validation of blood pressure measuring devices, highlights key elements of regulations of premarket approval, and includes technical specification to be used for the public procurement of these devices. It can also be used to develop procurement mechanisms that will ensure exclusive availability of accuracy-validated blood pressure measuring devices in PHC facilities.





# New virtual courses

## Virtual Course on Accurate Automated Blood Pressure Measurement

PAHO, the World Hypertension League, the Lancet Commission on Hypertension Group, Hypertension Canada, and Resolve to Save Lives convened a group of experts to develop an innovative short virtual course.


The course is structured in an interactive way with a narrated video that illustrates step-by-step how to accurately measure blood pressure, as well as the factors that can alter the measurement and give misleading records.

It consists of an interactive module with an illustrated video and guide, and a narrative evaluation for training members of the healthcare team who oversee blood pressure measurement to do it correctly, so that they can make an appropriate diagnosis and start the indicated treatment according to the blood pressure record.

[CLICK HERE](#) 

## New Hypertension Control Drivers' Virtual Course

One of the strategic pillars of the program is innovation in the organization of care delivery with an emphasis on team-based care at the PHC level. Innovative solutions are needed to shift hypertension programs from the highly specialized secondary level of care to PHC. Therefore, the HEARTS Innovation Group, a multidisciplinary practitioner collective, was convened to study ideas for process change and key factors for improving blood pressure control, selecting those that were feasible to implement and designing a scorecard to derive new process measures from the key factors discovered.

The new virtual course presents eight factors for controlling hypertension, categorized into five main domains: diagnosis (blood pressure measurement accuracy and CVD risk); treatment, including a standardized treatment protocol and capacity for treatment intensification; continuity of care and follow-up; delivery system (team-based care, medication refill); and a system for performance evaluation. [CLICK HERE](#) 



# HEARTS Monitoring and Evaluation System

A novel electronic HEARTS monitoring and evaluation system focuses on strengthening healthcare facility performance through improved data entry processes and real-time data reporting, visualizations, and active use of data to drive equitable program implementation and ensure improved quality of care. It is built upon the DHIS2 platform that allows operability in areas with connection challenges.

## What Is the Monitoring and Evaluation Framework for HEARTS Based on?

The monitoring and evaluation system is based on the PAHO and World Hypertension League (WHL) evaluation framework and provides standardized definitions of process, structure, and outcome indicators for HEARTS in the Americas. In addition to all the core indicators for assessing hypertension control programs, the PAHO-WHL indicators are designed to assess alignment with global best practices as outlined by HEARTS and to supplement the HEARTS indicators. The indicators and methodology are available from:

[Monitoring and Evaluation Framework for Hypertension Control Programs - PAHO/WHO | Pan American Health Organization](#) 



# Hypertension Control Drivers and Maturity and Performance Indexes

Hypertension key (primary) drivers are system components or factors that drive or directly contribute to the achievement of a hypertension control program aim or quality goal. The following tables show HEARTS new scorecards and indexes.

The scorecard contains eight drivers and their recommendations. For each of the recommendations, there is set a goal and assigned a score accordingly. The sum of these scores, ranging from 1 to 21 defines the state of maturity of the program implementation (from level 1 to 5) at a given PHC facility, shown in Tables 11a and 11b.

**Table 11a: Hypertension control drivers, recommendations for implementation and scoring for Maturity Index**

Hypertension control drivers		Recommendations for implementation	Goals	Score (points) Total = 21
Diagnosis	1. BP measurement accuracy			3
		1.a Establish BP measurement training every six months for all staff involved with BP measurement.	≥ 90%	1
		2.a Institute standardized BP measurement protocols, including patient preparation and repeated BP measurement if the first BP reading is elevated.	≥ 90%	1
		3.a Implement the exclusive use of validated automatic BPMD for clinical practice.	≥ 90%	1
	2. CVD risk assessment			2
		2.a Assess the CVD risk in all patients with hypertension to guide BP goal and frequency of follow-up.	≥ 80%	1
2.b Use of combination BP medication, statin, aspirin (as needed) in high CVD risk patients, including those with Diabetes and CKD.		≥ 80%	1	

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Hypertension control drivers		Recommendations for implementation	Goals	Score (points) Total = 21
Treatment	3. Standardized Treatment Protocol	3.a Standardized Treatment Protocol with specific medications and doses.	Implemented	2
		3.b Established protocol using FDC medication.	Implemented	1
	4. Treatment intensification	4.a Initiate pharmacological treatment immediately after the diagnosis of HTN is confirmed.	≥ 70%	2
		4.b Medication must be added or intensified as per standard protocol if BP > 140/90 or SBP ≥130 mmHg for high-risk patients .	≥ 80%	1
		5.a Follow-up of elevated BP within 2-4 weeks if not controlled.	≥ 80%	1
	Continuity of care and follow-up	5. Continuity of care and follow-up	5.b BP visit within six months for all patients with hypertension stable and well-controlled.	≥ 80%
5.c BP visit within 3 months for all patients with hypertension and high CVD risk, including diabetes and CKD.			≥ 80%	1
6.a BP measurement by NPHW appropriately trained and certified.			≥ 90%	3
Delivery System	6. Team-based care and task-shifting	6.b Follow-up BP visits with NPHW under supervision and guided by protocol.	≥ 70%	1
		6.c Medication titration by a NPHW under supervision and guided by protocol.	≥ 70%	1
		7. Medication refill frequency	7.a Implement standard 3-month refill intervals for all BP medication prescriptions for patients stable and controlled.	Three months refill
	System for performance evaluation	8. System for performance evaluation with feedback	8.a Implement monthly performance evaluation with feedback to facilitate tracking, prevent substantial deviations and promote timely program corrections.	Monthly feedback
(Bi-monthly evaluation and feedback can be acceptable for small facilities, and evaluation every three months is the minimum acceptable).				3 (Bi-monthly = 2; every three months = 1)

## Scorecards

### *HEARTS in the Americas Maturity Index (MI)*

To guide the quality improvement process and assess the maturity of implementation at the PHC facility level, the HEARTS *Maturity Index (MI)* has been designed, which translates the key hypertension control drivers into a measurable scorecard.

Table 11b: HEARTS Maturity Index\*

Level 1	Level 2	Level 3	Level 4	Level 5
< 7	7 - 10	11 - 14	15 - 18	19 - 21

*\*The levels demonstrate implementation from lowest level (1), incipient to highest level (5) mature.*

## HEARTS in the Americas Performance Index

Program coverage and hypertension control are key performance indicators of the HEARTS in the Americas. Coverage represents a health system's capacity to detect and treat all people with hypertension within a population and, also, hypertension control corresponds to a health system's quality in meeting the standard of care. Both indicators combined – coverage and control - synthesize the level of success or effectiveness of a given system of care in improving levels of hypertension control. Therefore, to complement the maturity index, the Performance Index was created. This scorecard comprises three outcome indicators: program coverage, control among all hypertensives treated regardless of the CVD risk, and control among all hypertensives with high CVD risk treated. The average score of the three indicators constitutes the overall performance score (Table 12).(9)

Table 12: HEARTS Performance Index

Indicators	Level of performance, goal, and scores				
Coverage*	0	1	2	3	4
Control (<140/90 mmHg) among all hypertensives treated	0	1	2	3	4
Control (<130 mmHg SBP) among all hypertensives-high CVD risk treated	0	1	2	3	4
HEARTS Performance Index: Poor: Below <0.8, Incipient: 0.9 – 1.6; On Track 1.7 – 2.4; High 2.5 – 3.2; Excellent 3.3 – 4.0					
*Coverage: Proportion of people in the catchment area (clinical facility) who have been registered as hypertensive out of the best estimate of expected prevalence in the catchment area or larger geographical unit in a specific period of time.					



# Resources

All the resources and tools of the Initiative are available from the dedicated website; it is updated frequently.

## HEARTS in the Americas

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

## HEARTS technical package

<https://www.paho.org/en/hearts-americas/hearts-americas-technical-package> 

## CURSO VIRTUAL DE HEARTS EN EL CAMPUS DE SALUD PUBLICA DE LA OPS

<https://www.campusvirtualsp.org/> 

<https://mooc.campusvirtualsp.org/enrol/index.php?id=91> 



# References

1. World Health Organization. Technical package for cardiovascular disease management in primary health care: implementation guide. [Internet] 2018 Available from: <http://apps.who.int/iris/bitstream/handle/10665/275728/WHO-NMH-NVI-18.14-eng.pdf?ua=1>.
2. Valdes Gonzalez Y, Campbell NRC, Pons Barrera E, Calderon Martinez M, Perez Carrera A, Morales Rigau JM, et al. Implementation of a community-based hypertension control program in Matanzas, Cuba. *J Clin Hypertens (Greenwich)*. 2020;22(2):142-9.
3. World Health Organization. HEARTS Technical Package [Internet] 2016 Available from: <https://www.who.int/publications/i/item/heart-technical-package>.
4. World Health Organization. WHO package of essential noncommunicable (PEN) disease interventions for primary health care. 2020.
5. World Health Organization. NCD Global Monitoring Framework [Internet] 2011 Available from: <https://www.who.int/publications/i/item/ncd-surveillance-global-monitoring-framework>.
6. Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? *Eff Clin Pract*. 1998;1(1):2-4
7. Pan American Health Organization. Innovative Care for Chronic Conditions: Organizing and Delivering High Quality Care for Chronic Noncommunicable Diseases in the Americas. Washington, DC: PAHO, 2013. Available from: <https://www.paho.org/hq/dmdocuments/2013/PAHO-Innovate-Care-2013-Eng.pdf>
8. Giraldo GP, Joseph KT, Angell SY, Campbell NRC, Connell K, DiPette DJ, et al. Mapping stages, barriers and facilitators to the implementation of HEARTS in the Americas initiative in 12 countries: A qualitative study. *J Clin Hypertens (Greenwich)*. 2021;23(4):755-65.
9. World Health Organization & ExpandNet. Nine steps for developing a scaling-up strategy. 2010.
10. DiPette DJ, Goughnour K, Zuniga E, Skeete J, Ridley E, Angell S, et al. Standardized treatment to improve hypertension control in primary health care: The HEARTS in the Americas Initiative. *J Clin Hypertens (Greenwich)*. 2020.
11. Brettler JW, Giraldo GP, Aumala T, Best A, Campbell NR, Cyr S, et al. Drivers and scorecards to improve hypertension control in primary care practice: Recommendations from the HEARTS in the Americas Innovation Group. *The Lancet Regional Health: The Americas*, forthcoming. 2022.





# Bibliography

1. Al-Makki A, DiPette D, Whelton PK, Murad MH, Mustafa RA, Acharya S, et al. Hypertension Pharmacological Treatment in Adults: A World Health Organization Guideline Executive Summary. *Hypertension*. 2022;79(1):293-301.
2. Avezum A, Perel P, Oliveira GBF, Lopez-Jaramillo P, Restrepo G, Loustalot F, et al. Challenges and Opportunities to Scale Up Cardiovascular Disease Secondary Prevention in Latin America and the Caribbean. *Glob Heart*. 2018;13(2):83-91.
3. Campbell N, Ordunez P, Jaffe MG, Orias M, DiPette DJ, Patel P, et al. Implementing standardized performance indicators to improve hypertension control at both the population and healthcare organization levels. *J Clin Hypertens (Greenwich)*. 2017;19(5):456-61.
4. Campbell NRC, Gonzalez YV, Ordunez P. The burden of hypertension in Cuba. *Lancet Public Health*. 2019;4(2):e79-e80.
5. Campbell NRC, Khalsa T, Ordunez P, Rodriguez Morales YA, Zhang XH, Parati G, et al. Brief online certification course for measuring blood pressure with an automated blood pressure device. A free new resource to support World Hypertension Day Oct 17, 2020. *J Clin Hypertens (Greenwich)*. 2020;22(10):1754-6.
6. Campbell NRC, Ordunez P, DiPette DJ, Giraldo GP, Angell SY, Jaffe MG, et al. Monitoring and evaluation framework for hypertension programs. A collaboration between the Pan American Health Organization and World Hypertension League. *J Clin Hypertens (Greenwich)*. 2018;20(6):984-90.
7. Campbell NRC, Ordunez P, Giraldo G, Rodriguez Morales YA, Lombardi C, Khan T, et al. WHO HEARTS: A Global Program to Reduce Cardiovascular Disease Burden: Experience Implementing in the Americas and Opportunities in Canada. *Can J Cardiol*. 2021;37(5):744-55.
8. Campbell NRC, Schutte AE, Varghese CV, Ordunez P, Zhang XH, Khan T, et al. Sao Paulo call to action for the prevention and control of high blood pressure: 2020. *J Clin Hypertens (Greenwich)*. 2019;21(12):1744-52.
9. Colgrove P, Connell KL, Lackland DT, Ordunez P, DiPette DJ. Controlling hypertension and reducing its associated morbidity and mortality in the Caribbean: implications of race and ethnicity. *J Clin Hypertens (Greenwich)*. 2017;19(10):1010-4.
10. Collaboration NCDRF. Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. *Lancet*. 2021.

- 11.** DiPette DJ, Goughnour K, Zuniga E, Skeete J, Ridley E, Angell S, et al. Standardized treatment to improve hypertension control in primary health care: The HEARTS in the Americas Initiative. *J Clin Hypertens (Greenwich)*. 2020.
- 12.** DiPette DJ, Skeete J, Ridley E, Campbell NRC, Lopez-Jaramillo P, Kishore SP, et al. Fixed-dose combination pharmacologic therapy to improve hypertension control worldwide: Clinical perspective and policy implications. *J Clin Hypertens (Greenwich)*. 2019;21(1):4-15.
- 13.** Ebrahim S, Ordunez P, Lloyd-Sherlock P, McKee M, Martinez R, Soliz P. Improving the indicator for premature deaths from noncommunicable diseases. *Bull World Health Organ*. 2020;98(6):438-40.
- 14.** Giraldo GP, Joseph KT, Angell SY, Campbell NRC, Connell K, DiPette DJ, et al. Mapping stages, barriers and facilitators to the implementation of HEARTS in the Americas initiative in 12 countries: A qualitative study. *J Clin Hypertens (Greenwich)*. 2021;23(4):755-65.
- 15.** Jeemon P, Severin T, Amodeo C, Balabanova D, Campbell NRC, Gaita D, et al. World Heart Federation Roadmap for Hypertension - A 2021 Update. *Glob Heart*. 2021;16(1):63.
- 16.** Landrove-Rodríguez O, Morejón-Giraldoni A, Venero-Fernández S, Suárez-Medina R, Almaguer-López M, Pallarols-Mariño E, et al. Enfermedades no transmisibles: factores de riesgo y acciones para su prevención y control en Cuba [Non-communicable diseases: risk factors and actions for their prevention and control in Cuba]. *Rev Panam Salud Publica*. 2018;42:e23.
- 17.** Lloyd-Sherlock P, Ebrahim S, Martinez R, McKee M, Ordunez P. Reducing the cardiovascular disease burden for people of all ages in the Americas region: analysis of mortality data, 2000-15. *Lancet Glob Health*. 2019;7(5):e604-e12.
- 18.** Lombardi C, Sharman JE, Padwal R, Picone D, Alcolea E, Ayala R, et al. Weak and fragmented regulatory frameworks on the accuracy of blood pressure-measuring devices pose a major impediment for the implementation of HEARTS in the Americas. *J Clin Hypertens (Greenwich)*. 2020.
- 19.** Martinez R, Lloyd-Sherlock P, Soliz P, Ebrahim S, Vega E, Ordunez P, et al. Trends in premature avertable mortality from non-communicable diseases for 195 countries and territories, 1990-2017: a population-based study. *Lancet Glob Health*. 2020;8(4):e511-e23.
- 20.** Martinez R, Morsch P, Soliz P, Hommes C, Ordunez P, Vega E. Life expectancy, healthy life expectancy, and burden of disease in older people in the Americas, 1990-2019: a population-based study. *Rev Panam Salud Publica*. 2021;45:e114.

- 21.** Martinez R, Soliz P, Caixeta R, Ordunez P. Reflection on modern methods: years of life lost due to premature mortality-a versatile and comprehensive measure for monitoring non-communicable disease mortality. *Int J Epidemiol*. 2019;48(4):1367-76.
- 22.** Martinez R, Soliz P, Mujica OJ, Reveiz L, Moran A, Campbell N, et al. The slowdown in the reduction rate of premature mortality from cardiovascular diseases puts the Americas at risk of achieving SDG 3.4: A population trend analysis of 37 countries from 1990 to 2017. *J Clin Hypertens*. 2020.
- 23.** Ordunez P, Campbell NR. Smoking tobacco, the major cause of death and disability in Cuba. *Lancet Glob Health*. 2020;8(6):e752-e3.
- 24.** Ordunez P, Tajer C, Gaziano T, Rodriguez Y, Rosende A, Jaffe M. Optimizing Cardiovascular Risk Assessment and Hypertension Treatment: The HEARTS App. *Rev Panam Salud Publica*. 2022.
- 25.** Pan American Health Organization. HEARTS in the Americas [Internet] 2020 Available from: <https://www.paho.org/en/hearts-america>.
- 26.** Pan American Health Organization. HEARTS in the Americas Regulatory Pathway to the Exclusive Use of Validated Blood Pressure Measuring Devices. 2021.
- 27.** Pan American Health Organization. HEARTS in the Americas: Blood Pressure Measurement [Internet] 2022 Available from: <https://www.paho.org/en/hearts-america/hearts-america-blood-pressure-measurement>.
- 28.** Pan American Health Organization. HEARTS in the Americas: Protocols and Medications [Internet] 2022 Available from: <https://www.paho.org/en/hearts-america/hearts-america-protocols-and-medications>.
- 29.** Pan American Health Organization. HEARTS in the Americas: Publications & Resources [Internet] 2022 Available from: <https://www.paho.org/en/hearts-america/hearts-america-publications-resources>.
- 30.** Pan American Health Organization. HEARTS in the Americas: Virtual Courses [Internet] 2022 Available from: <https://www.paho.org/en/hearts-america/hearts-america-virtual-courses>.
- 31.** Patel P, Ordunez P, Connell K, Lackland D, DiPette D. An Update: Standardized Hypertension Management to Reduce Cardiovascular Disease Morbidity and Mortality Worldwide. *iMedPub Journals*. 2017;3.
- 32.** Patel P, Ordunez P, DiPette D, Escobar MC, Hassell T, Wyss F, et al. Improved Blood Pressure Control to Reduce Cardiovascular Disease Morbidity and Mortality: The Standardized Hypertension Treatment and Prevention Project. *J Clin Hypertens (Greenwich)*. 2016;18(12):1284-94.

- 33.** Picone DS, Padwal R, Campbell NRC, Boutouyrie P, Brady TM, Olsen MH, et al. How to check whether a blood pressure monitor has been properly validated for accuracy. *J Clin Hypertens (Greenwich)*. 2020;22(12):2167-74.
- 34.** Salicrup LA, Ordunez P, Engulgau MM. Hypertension control activities in Latin America and the Caribbean: opportunities for late-stage (T4) translation research. *Rev Panam Salud Publica*. 2018;42:e22.
- 35.** Sharman JE, O'Brien E, Alpert B, Schutte AE, Delles C, Hecht Olsen M, et al. Lancet Commission on Hypertension group position statement on the global improvement of accuracy standards for devices that measure blood pressure. *J Hypertens*. 2020;38(1):21-9.
- 36.** Skeete J, Connell K, Ordunez P, DiPette DJ. The American College of Cardiology/American Heart Association 2017 hypertension guideline: Implications for incorporation in Latin America, the Caribbean, and other resource-limited settings. *J Clin Hypertens (Greenwich)*. 2018;20(9):1342-9.
- 37.** Skeete J, Connell K, Ordunez P, DiPette DJ. Approaches to the Management of Hypertension in Resource-Limited Settings: Strategies to Overcome the Hypertension Crisis in the Post-COVID Era. *Integr Blood Press Control*. 2020;13:125-33.
- 38.** Valdes Gonzalez Y, Campbell NRC, Pons Barrera E, Calderon Martinez M, Perez Carrera A, Morales Rigau JM, et al. Implementation of a community-based hypertension control program in Matanzas, Cuba. *J Clin Hypertens (Greenwich)*. 2020;22(2):142-9.

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