

## New tools:

- Virtual courses
- HEARTS App
- ENLACE
- ESTIMA tool

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HEARTS in the Americas

Pan American Health Organization (PAHO/WHO)



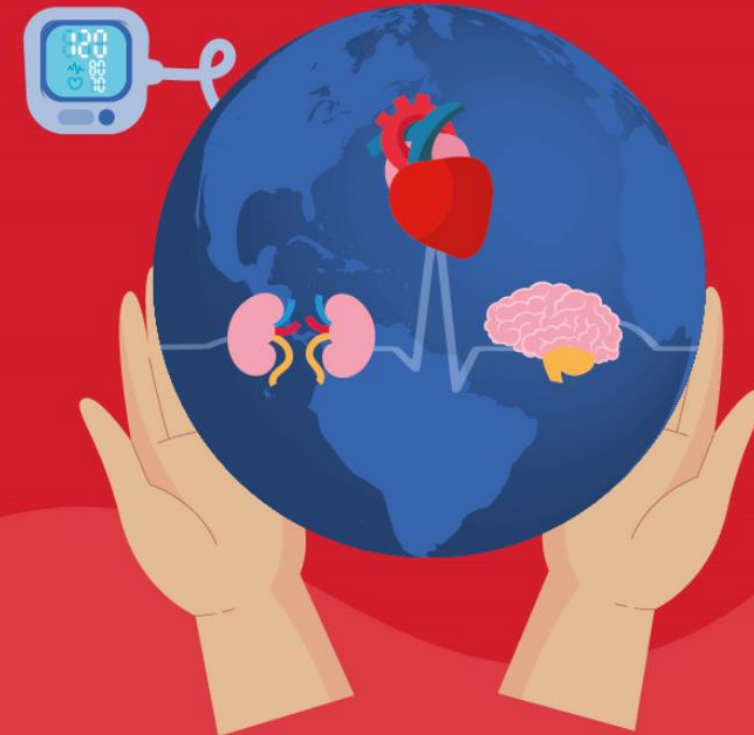
# Improving CVD Clinical Management and NCD Surveillance in the Context of COVID-19 through HEARTS Implementation:

Lessons Learned and Plan for Scale-Up

## Agenda

Date: 16-18 May 2023

Place: Saint Lucia



Government of Canada

Gouvernement du Canada



USAID FROM THE AMERICAN PEOPLE

# Why HEARTS in the Americas has been developing virtual courses?



Disparity among PHC professionals in the Region to access updated educational information on hypertension, CVD, and risk factors.



Rapid turnover of health personnel in PHC centers.



PHC physicians are responsible for assessing and providing accurate treatment approaches to patients with hypertension and CVD risk factors.



NPHCW play an important role in diagnosing hypertension and catching potential patients to receive adequate pharmacological treatment.

# HEARTS Virtual Courses

**HEARTS** Virtual Course on the Implementation of the HEARTS Technical Package in Primary Health Care

- Healthy-lifestyle counselling
- Risk based charts
- Evidence-based treatment protocols
- Team-based care
- Access to essential medicines and technology
- Systems for monitoring

**PAHO** VIRTUAL CAMPUS FOR PUBLIC HEALTH

Hypertension and Cardiovascular Risk Management in Primary Health Care

**PAHO** VIRTUAL CAMPUS FOR PUBLIC HEALTH

**HEARTS**

Virtual course on accurate automated blood pressure measurement

**PAHO** RESOLVE TO SAVE LIVES

**PAHO** BLOOD PRESSURE CONTROL DRIVERS AT PRIMARY HEALTH CARE CENTERS

**HEARTS**

Supporting Primary Health Care Teams to Use Blood Pressure Medications Effectively

**PAHO** **HEARTS**

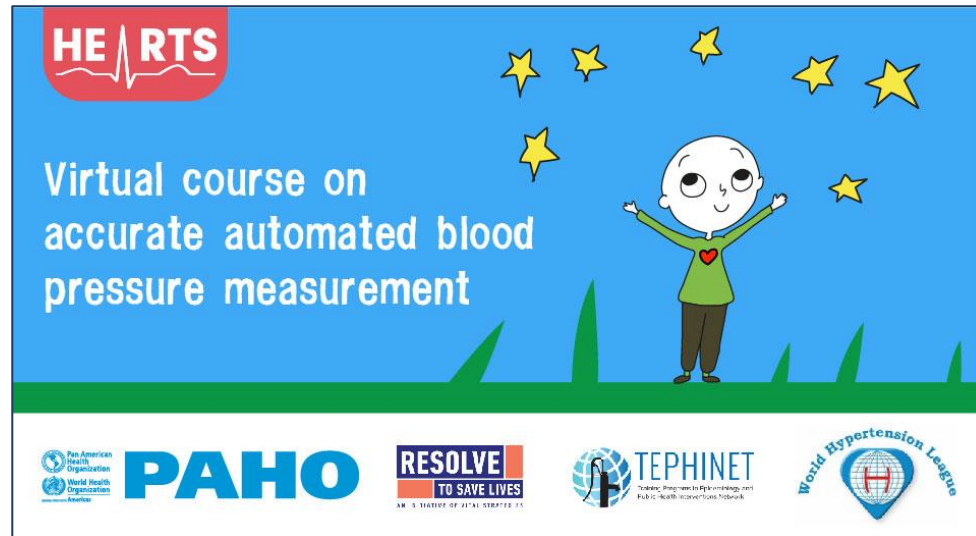
**HEARTS** HOME BLOOD PRESSURE MONITORING

Virtual course

**PAHO** RESOLVE TO SAVE LIVES



# HEARTS Virtual Courses



**HEARTS**

Virtual course on accurate automated blood pressure measurement

**PAHO** **RESOLVE TO SAVE LIVES** **TEPHINET** **World Hypertension League**

The banner features a cartoon character with arms raised against a blue sky with yellow stars. Logos for PAHO, RESOLVE TO SAVE LIVES, TEPHINET, and World Hypertension League are at the bottom.



**PAHO** **BLOOD PRESSURE CONTROL DRIVERS AT PRIMARY HEALTH CARE CENTERS** **HEARTS**

The banner shows three healthcare workers in blue scrubs and masks. Surrounding them are various icons representing different drivers of blood pressure control, such as a gear, a stethoscope, a calendar, a house, a group of people, a clipboard, and a heart with a pulse line.

# HEARTS Virtual Courses



Supporting Primary Health Care Teams to Use Blood Pressure Medications Effectively

An illustration on a red background showing a large orange heart with a magnifying glass over it. To the right is a blue blood pressure monitor displaying "120/80". Below the heart, two healthcare workers in blue scrubs are shown: one with a magnifying glass and another with a pill bottle. A red heart icon with a pulse line is above the main heart.

**PAHO** **HEARTS**  
Pan American Health Organization World Health Organization  
REGIONAL OFFICE FOR THE AMERICAS

**HEARTS** IN THE AMERICAS

## HOME BLOOD PRESSURE MONITORING

Virtual course

An illustration of a person in a red shirt sitting at a desk with a laptop. A clock on the wall shows approximately 10:10. A potted plant is on the desk. The background is a light blue cityscape.

**PAHO** **VIRTUAL CAMPUS FOR PUBLIC HEALTH** **OSVS** **STRIDE BP** **RESOLVE TO SAVE LIVES** **International Society of Hypertension** **World Hypertension League** **Hypertension CANADA**

Select country and calculate

How to get an accurate blood pressure reading

Estimate cardiovascular risk

> **Clinical pathway - Therapeutic recommendations**

Other calculations

Glomerular Filtration Estimation

Body Mass Index

Instructions for using the calculator

HEARTS in the Americas

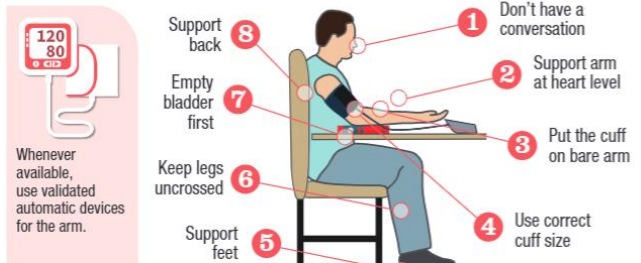
Trinidad and Tobago

Open PDF

# Hypertension Clinical

## A ACCURATE BLOOD PRESSURE MEASUREMENT

MEASURE BLOOD PRESSURE IN ALL ADULTS AND AT ALL VISITS



## B CARDIOVASCULAR RISK CALCULATOR

KNOW YOUR RISK OF HEART DISEASE AND HOW TO PREVENT IT

**CARDIOVASCULAR RISK CALCULATOR**  
Use the HEARTS App to assess your cardiovascular risk

Scan code to access the cardiovascular risk calculator

## C TREATMENT PROTOCOL

START TREATMENT IMMEDIATELY AFTER CONFIRMING HYPERTENSION

Blood Pressure  $\geq 140/90$  mmHg  
Systolic Blood Pressure  $\geq 130$  mmHg  
(Established cardiovascular disease, Diabetes, Chronic kidney disease)

| Cardiovascular risk                             | All Hypertensives | WITH established cardiovascular disease |
|---|-------------------|---|
|   |                   | WITH established cardiovascular disease |
| Blood Pressure TARGET $<140/90$ mmHg            | ✓                 |   |
| Systolic Blood Pressure TARGET $<130$ mmHg      |                   | ✓                                       |
| ASPIRIN 81 mg/daily                             |                   | ✓                                       |
| High-dose statins: ROSUVASTATIN 40 mg/daily     |                   | ✓                                       |
| Moderate-dose statins: ROSUVASTATIN 20 mg/daily |                   |   |

Avoid alcohol consumption

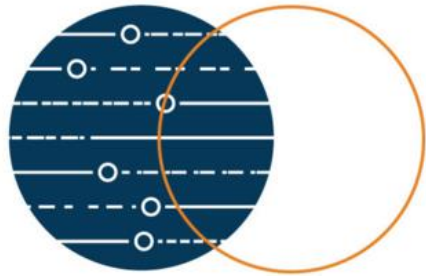
**1** ACE- Lisinophril 10mg plus (+)  
CCB - Amlodipine 5mg

**2** Patient above target after repeat measurement  
ACE - Lisinopril 20mg plus(+)



- The HEARTS app is not intended to replace clinical judgment.
- It aims to help health professionals and individuals to improve their understanding of CVD risk and the importance of addressing modifiable risk factors and to support proven interventions.
- The optimization of this tool depends on using it properly and ensuring consistent implementation of the given recommendations.
- The HEARTS app is an important tool that can help improve the efficiency of interventions and the quality of care in PHC.





# enlace

Linking **DATA** to **ACTION**



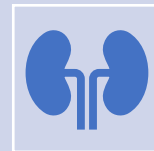
PAHO data portal on noncommunicable diseases, mental health, injuries and risk factors that bring data on a comprehensive set of indicators.



Users can explore data and share insights to support the efforts to reduce NCDs and improve the well-being of people in the Region of the Americas.



The data disseminated is provided by the PAHO Member States or obtained from official national sources.



Measures of morbidity and mortality are estimated by the WHO or PAHO technical units.





# Burden of Diabetes mellitus: level by country

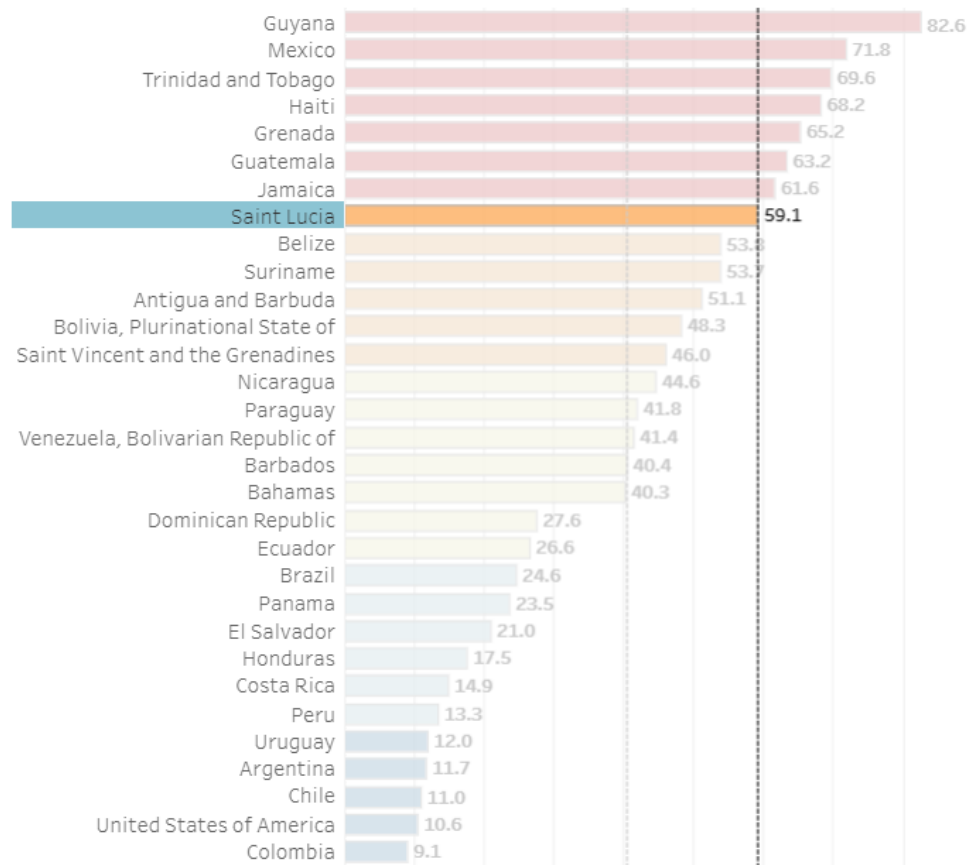
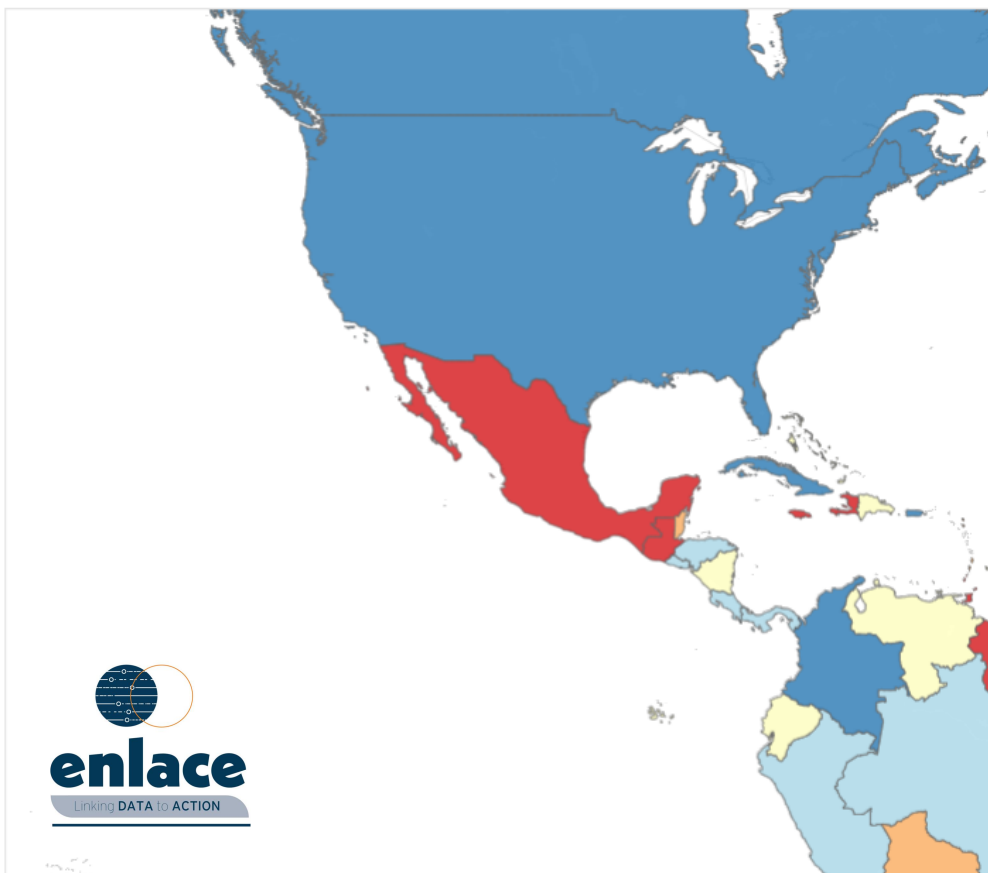
Rates per 100,000 population



Hover for info

Measure:  | Age group:  | Sex:  | Year:

Quintiles: ■ Quintile 1: 0 to 20% ■ Quintile 2: 20 to 40% ■ Quintile 3: 40 to 60% ■ Quintile 4: 60 to 80% ■ Quintile 5: 80 to 100%



## HTN:CVD EstimaTool

Use the selectors below to set specific scenarios

### 1.- Location or population group

Location name

LATIN AMERICA AND THE CARIBBEAN

Total population

656,098,097

### 2.- Programmatic intervention

Scale up population hypertension control (%)

from baseline:

28.7

to target:

50.4

by scaling up:

Diagnosis (Awareness) among people with hypertension (%)

from baseline:

63.2

to target:

80.0

Treatment among those aware of the condition (%)

from baseline:

85.0

to target:

90.0

Hypertension control among those treated (%)

from baseline:

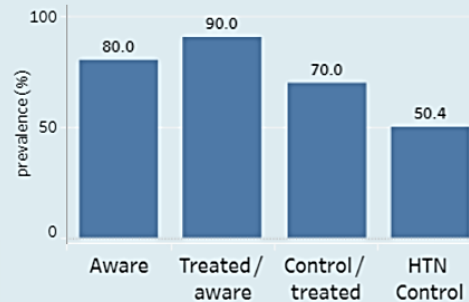
53.4

to target:

70.0

### Hypertension treatment cascade indicator targets

Interaction: hover over the chart to update results



### 3.- Number of years to reach the target?

5

Expected ischemic heart disease (IHD) and stroke deaths averted by scaling up the population hypertension (HTN) control based on data from 36 countries of the Region of the Americas, 1990-2019

### Ischemic heart disease

51.2

deaths per 100K pop  
could be averted

335,727

absolute deaths  
could be averted

### Stroke

19.7

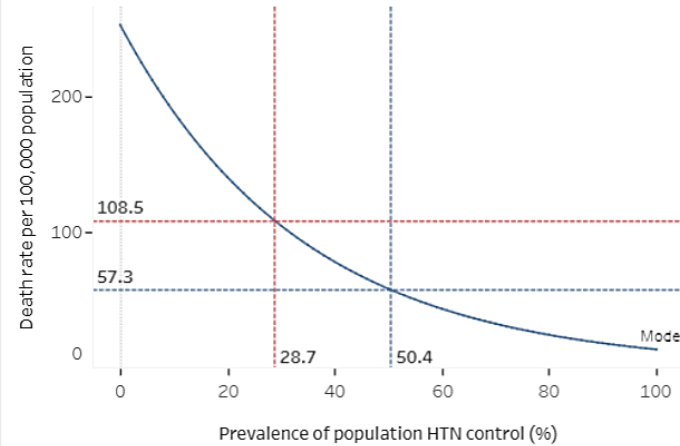
deaths per 100K pop  
could be averted

129,404

absolute deaths  
could be averted

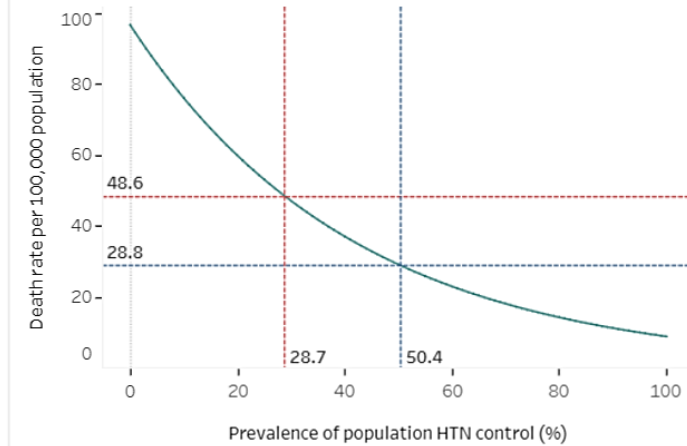
### Predictive model for ischemic heart disease mortality

Expected mortality rate for the level of population HTN control

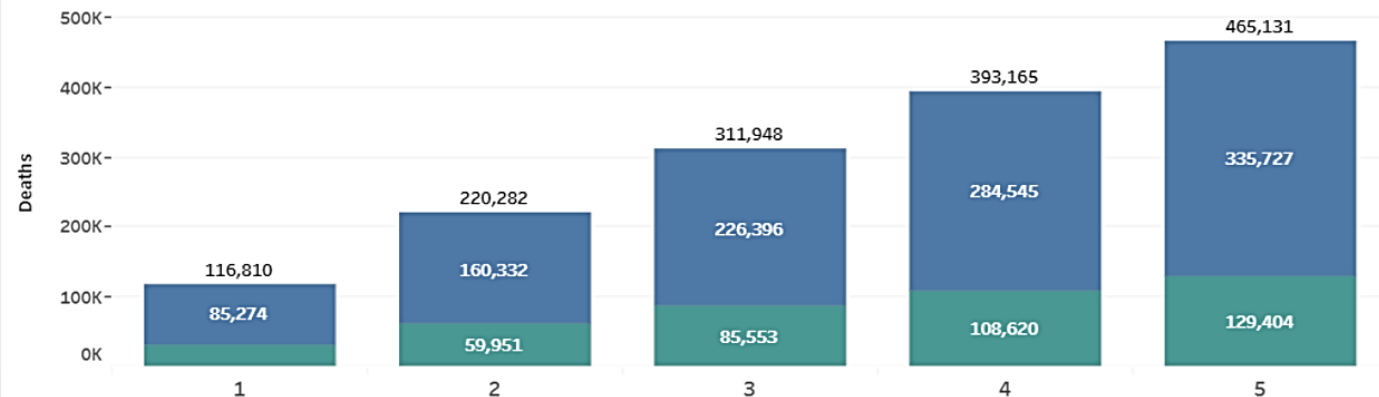


### Predictive model for stroke mortality

Expected mortality rate for the level of population HTN control



### Cumulative deaths averted from ischemic heart disease and stroke over years



### Summary of results

## HTN:CVD EstimaToo

Use the selectors below to set specific scenarios

### 1.- Location or population group

Location name

Trinidad and Tobago

Total population

1,525,663

### 2.- Programmatic intervention

Scale up population hypertension control (%)

from baseline:

20.9

to target:

50.4

by scaling up:

Diagnosis (Awareness) among people with hypertension (%)

from baseline:

60.0

to target:

80.0

Treatment among those aware of the condition (%)

from baseline:

77.8

to target:

90.0

Hypertension control among those treated (%)

from baseline:

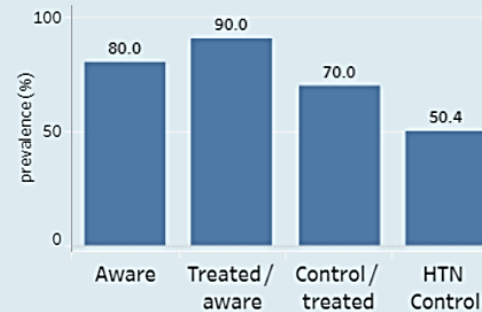
44.8

to target:

70.0

### Hypertension treatment cascade indicator targets

Interaction: hover over the chart to update results



### 3.- Number of years to reach the target?

5

Expected ischemic heart disease (IHD) and stroke deaths averted by scaling up the population hypertension (HTN) control based on data from 36 countries of the Region of the Americas, 1990-2019

### Ischemic heart disease

79.1

deaths per 100K pop could be averted

1,207

absolute deaths could be averted

### Stroke

29.7

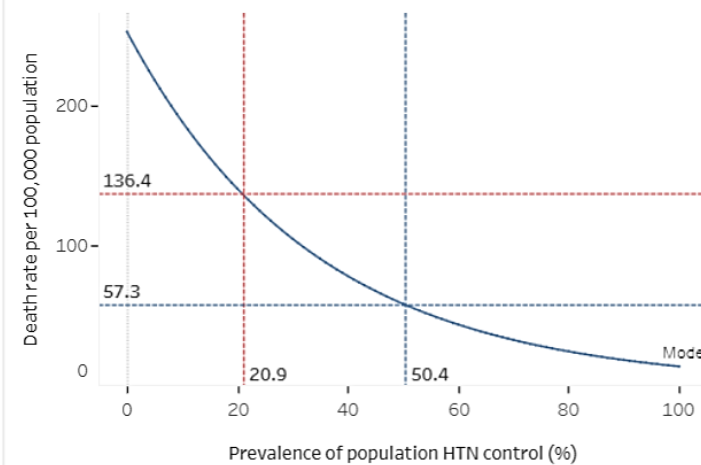
deaths per 100K pop could be averted

454

absolute deaths could be averted

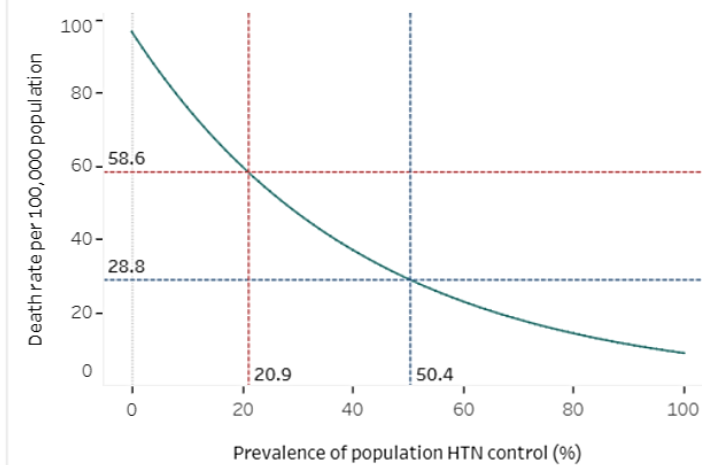
### Predictive model for ischemic heart disease mortality

Expected mortality rate for the level of population HTN control

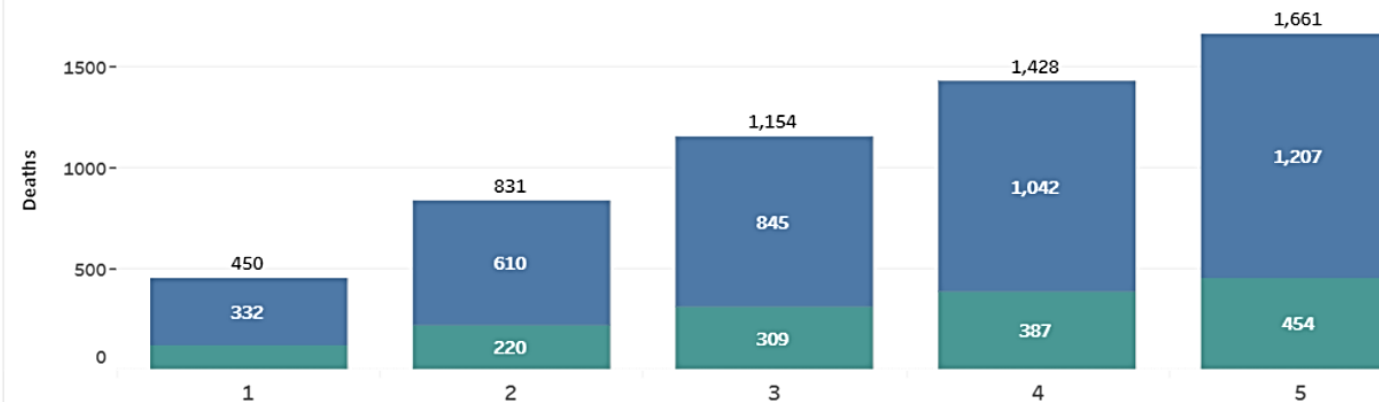


### Predictive model for stroke mortality

Expected mortality rate for the level of population HTN control



### Cumulative deaths averted from ischemic heart disease and stroke over years



### Summary of results

# HTN:CVD EstimaTool

Use the selectors below to set specific scenarios

## 1.- Location or population group

Location name

Trinidad and Tobago

Total population

1,525,663

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Scale up population hypertension control (%)

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20.9

to target:

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by scaling up:

Diagnosis (Awareness) among people with hypertension (%)

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77.8

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90.0

Hypertension control among those treated (%)

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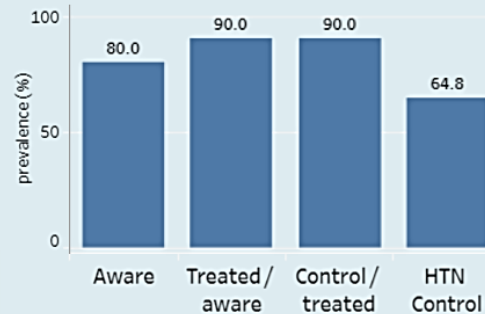
44.8

to target:

90.0

### Hypertension treatment cascade indicator targets

Interaction: hover over the chart to update results



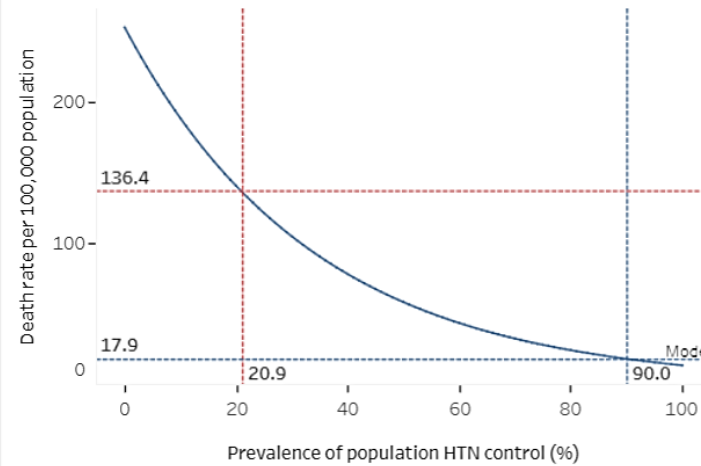
## 3.- Number of years to reach the target?

5

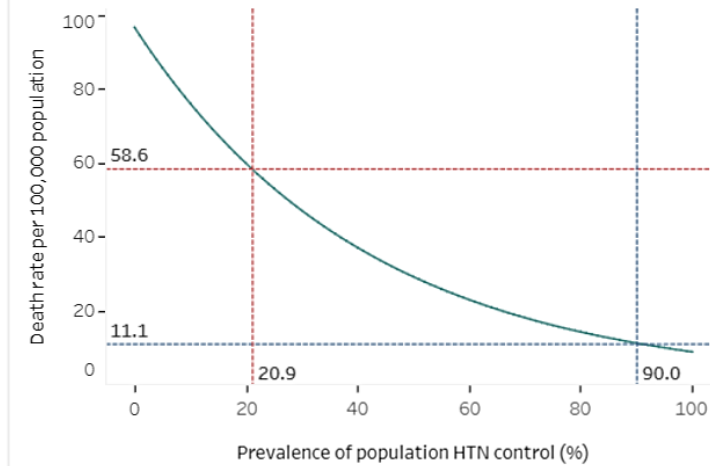
Expected ischemic heart disease (IHD) and stroke deaths averted by scaling up the population hypertension (HTN) control based on data from 36 countries of the Region of the Americas, 1990-2019



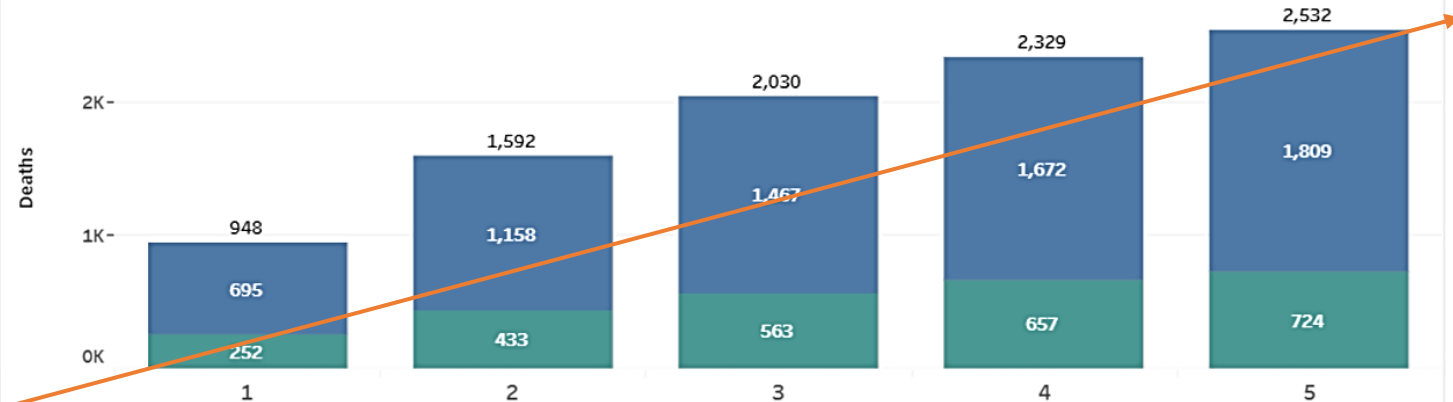
Predictive model for **ischemic heart disease** mortality  
Expected mortality rate for the level of population HTN control



Predictive model for **stroke** mortality  
Expected mortality rate for the level of population HTN control

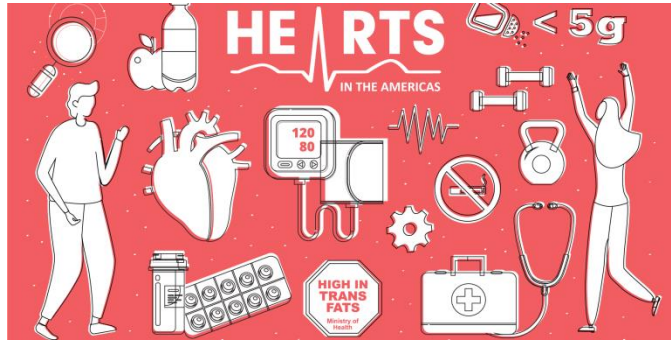


### Cumulative deaths averted from **ischemic heart disease** and **stroke** over years



### Summary of results





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

Original research



## Association between population hypertension control and ischemic heart disease and stroke mortality in 36 countries of the Americas, 1990-2019: an ecological study

Ramon Martinez<sup>1</sup>, Patricia Soliz<sup>2</sup>, Norm R. C. Campbell<sup>3</sup>, Daniel T. Lackland<sup>4</sup>, Paul K. Whelton<sup>5</sup>, Pedro Ordunez<sup>6</sup>

**Suggested citation** Martinez R, Soliz P, Campbell NRC, Lackland DT, Whelton PK, Ordunez P. Association between population hypertension control and ischemic heart disease and stroke mortality in 36 countries of the Americas, 1990-2019: an ecological study. Rev Panam Salud Publica. 2022;46:e143. <https://doi.org/10.26633/RPSP.2022.143>

**ABSTRACT** **Objective.** To quantify the association between the prevalence of population hypertension control and ischemic heart disease (IHD) and stroke mortality in 36 countries of the Americas from 1990 to 2019. **Methods.** This ecological study uses the prevalence of hypertension, awareness, treatment, and control from the NCD-RisC and IHD and stroke mortality from the Global Burden of Disease Study 2019. Regression analysis was used to assess time trends and the association between population hypertension control and mortality. **Results.** Between 1990 and 2019, age-standardized death rates due to IHD and stroke declined annually by 2.2% (95% confidence intervals: -2.4 to -2.1) and 1.8% (-1.9 to -1.6), respectively. The annual reduction rate in IHD and stroke mortality decelerated to -1% (-1.2 to -0.8) during 2000-2019. From 1990 to 2019, the prevalence of hypertension controlled to a systolic/diastolic blood pressure  $\leq 140/90$  mmHg increased by 3.2% (3.1 to 3.2) annually. Population hypertension control showed an inverse association with IHD and stroke mortality, respectively, regionwide and in all but 3 out of 36 countries. Regionwide, for every 1% increase in population hypertension control, our data predicted a reduction of 2.9% (-2.94 to -2.85) in IHD deaths per 100 000 population, equivalent to an averted 25 639 deaths (2.5 deaths per 100 000 population) and 2.37% (-2.41 to -2.33) in stroke deaths per 100 000 population, equivalent to an averted 9 650 deaths (1 death per 100 000 population). **Conclusion.** There is a strong ecological negative association between IHD and stroke mortality and population hypertension control. Countries with the best performance in hypertension control showed better progress in reducing CVD mortality. Prediction models have implications for hypertension management in most populations in the Region of the Americas and other parts of the world.

**Keywords** Hypertension; cardiovascular diseases; mortality; noncommunicable diseases; Americas

In 2019, ischemic heart disease (IHD) and stroke were the first- and the second-leading causes of death, and the first- and the fourth-leading causes of disability-adjusted life years

(DALYs), respectively, in the Region of the Americas (1,2). However, although age-standardized death and DALY rates for cardiovascular disease (CVD) decreased substantially between

<sup>1</sup> Pan American Health Organization, Washington, D.C., United States of America. ORCID 0000-0003-0641-0206; <sup>2</sup> Ramon Martinez, [ramonm@paho.org](mailto:ramonm@paho.org); <sup>3</sup> Pan American Health Organization, Washington, D.C., United States of America. ORCID 0000-0001-5788-225X; <sup>4</sup> University of Calgary, Calgary, Canada. ORCID 0000-0002-1093-4742

<sup>5</sup> The Medical University of South Carolina, Charleston, United States of America. ORCID 0000-0001-5733-6283; <sup>6</sup> Tulane University, New Orleans, United States of America. ORCID 0000-0002-2225-363X

<sup>7</sup> Pan American Health Organization, Washington, D.C., United States of America. ORCID 0000-0002-9871-6845

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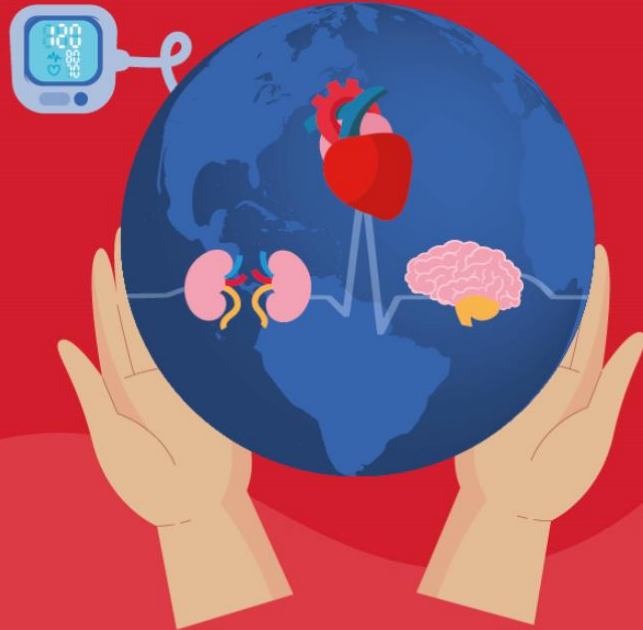
# Improving CVD Clinical Management and NCD Surveillance in the Context of COVID-19 through HEARTS Implementation:

Lessons Learned and Plan for Scale-Up

Agenda

Date: 16-18 May 2023

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*Thanks for your attention*

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