

VALID-BP project



Dr. Dean Picone

No disclosures.

This presentation was supported by Grant or Cooperative Agreement number NU2GGH001873 funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention, the Department of Health and Human Services, The Task Force for Global Health, Inc. or TEPHINET.

1. Background

2. VALID-BP project

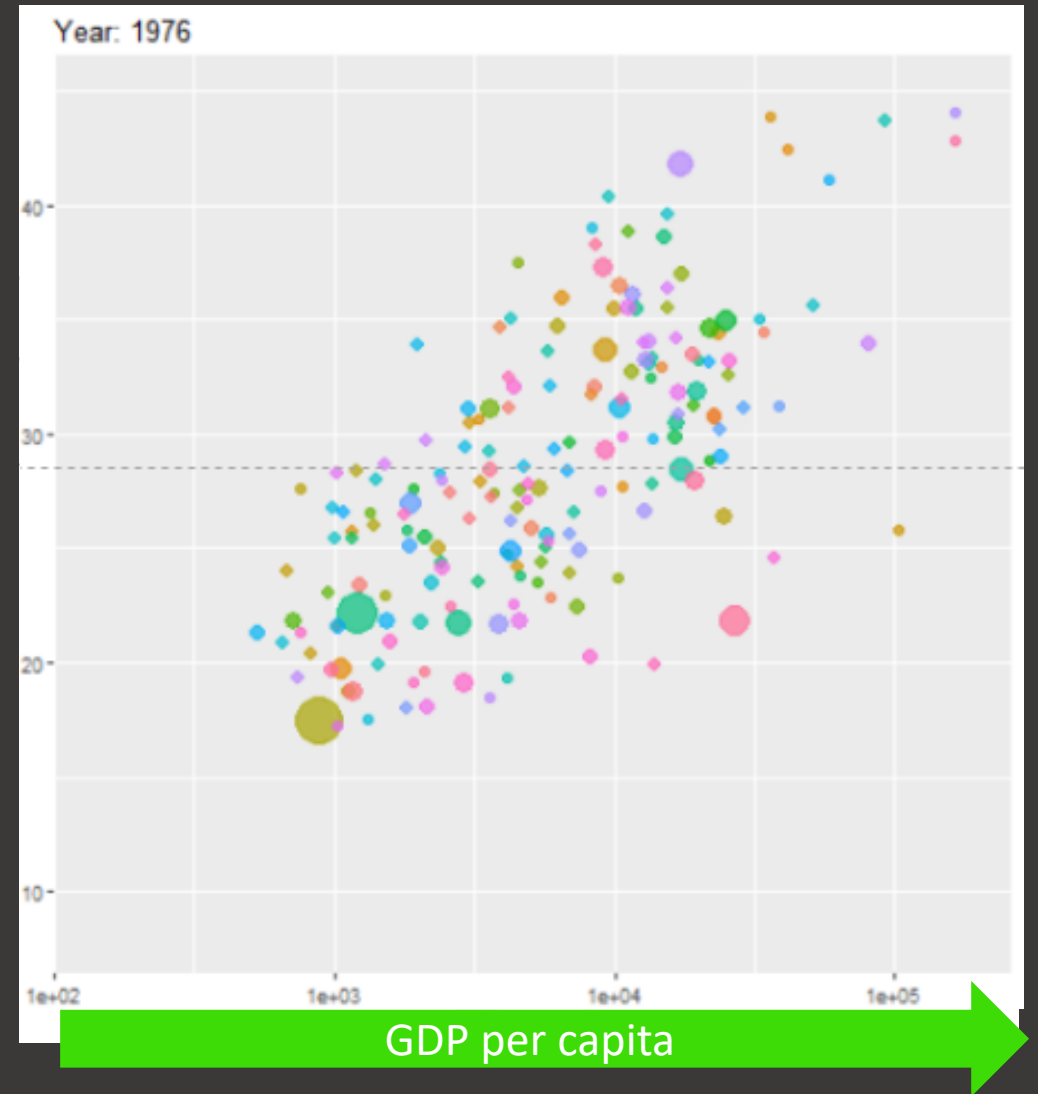
3. Practical resources

Background

High blood pressure is a leading risk factor for death and disability

~10 million deaths per year¹

Prevalence of raised blood pressure (%)



1. Forouzanfar et al. *JAMA*. 2017;317(2):165-82.

THE LANCET



50
YEARS
1966/2016



The mark "CDC" is owned by the US Dept of Health and Human Services and is used with permission. Use of this logo is not an endorsement by WHO or CDC of any particular product, service, or technology.

A call to action and a lifecourse strategy to address the global burden of raised blood pressure on current and future generations: the *Lancet* Commission on hypertension

Prevention: lifestyle and environmental changes



Creating a healthy environment through strategies that accelerate socioeconomic improvements and implementation of accepted health-promoting policies

Health-promoting environment



Universal understanding of unhealthy and healthy lifestyles and blood pressure through endorsed, early, and sustained education using new technologies

Healthy behaviours



Universal access to measurement of blood pressure through inexpensive blood pressure monitors (linked to establishment of global blood pressure surveillance)

Measurement access

Blood pressure diagnosis and evaluation



Better quality of blood pressure measurements through endorsed protocols and certified and validated blood pressure monitors

Measurement quality



Better identification of people at high risk to optimise treatment approaches through endorsed education of patients and health-care professionals (linked to stratified treatment approaches)



Measurement quality

Better quality of blood pressure measurements through endorsed protocols and certified and validated blood pressure monitors

Aim: to identify key actions to improve the global management of blood pressure



Workforce expansion

Task sharing and the use of endorsed education of community health workers (linked to health-care system accountability)



Medication access

Universal access to affordable, high-quality, and effective antihypertensive drugs through collaboration between all major stakeholders



Standardised treatment

Treatment approaches stratified according to age, cardiovascular risk, social, cultural, and ethnic differences through endorsed education of health-care professionals and initiation of new research

Blood pressure and health-care systems



Health-system strengthening

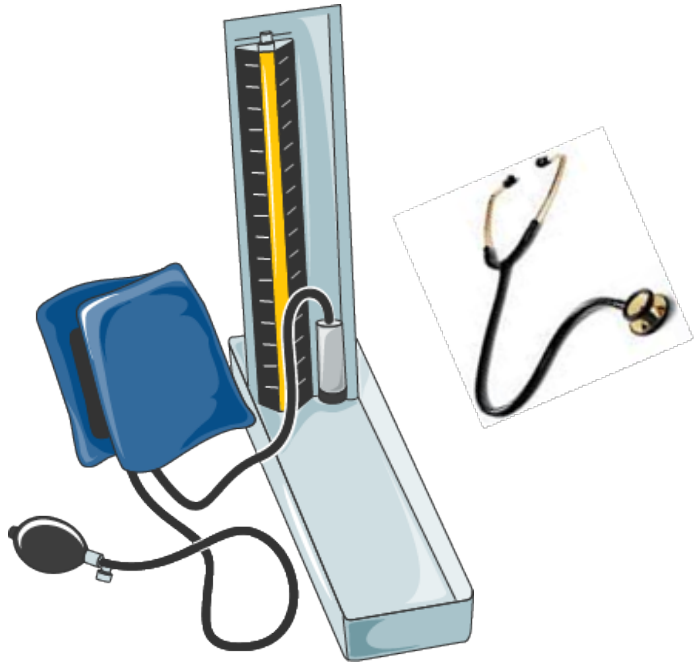
Promote and ensure capacity and accountability of the health system to conduct surveillance and monitoring, and respond appropriately to blood pressure levels

What is validation and why is it important?

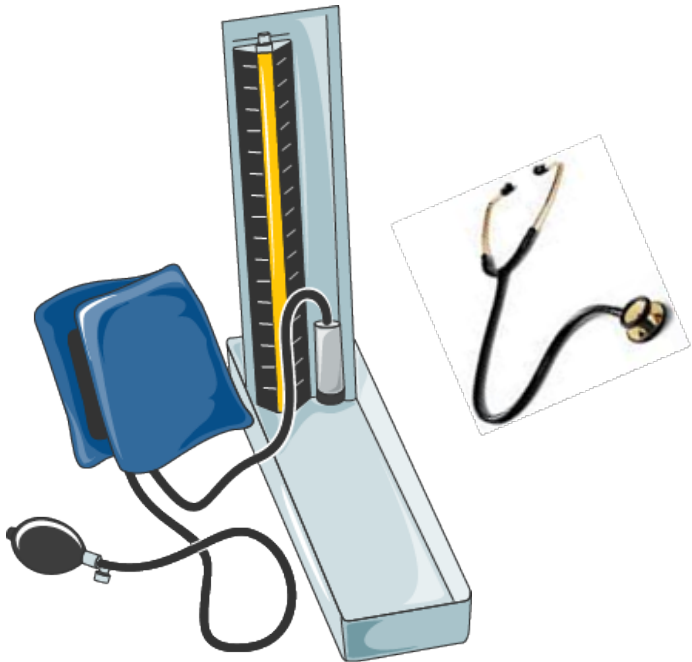
**Blood pressure measurement is one
of the most important tests in all of
clinical medicine....**

but still one of the most inaccurate

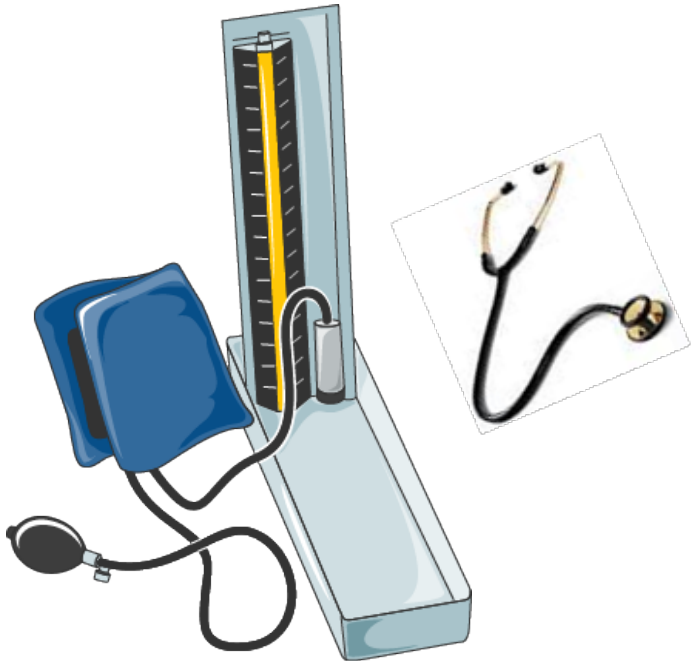
Automated devices increasingly recommended (where possible)



Automatic devices use algorithms to estimate systolic and diastolic BP



Validation



Validation



Follow a specific, internationally accepted protocol



Testing independent of the manufacturer of the monitor



Specific accuracy criteria must be met



Publish results in peer-reviewed journal



A monitor meeting the accuracy criteria is ***“validated”***

Validation is crucial because...

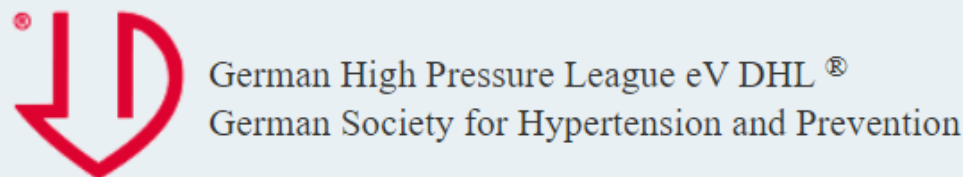
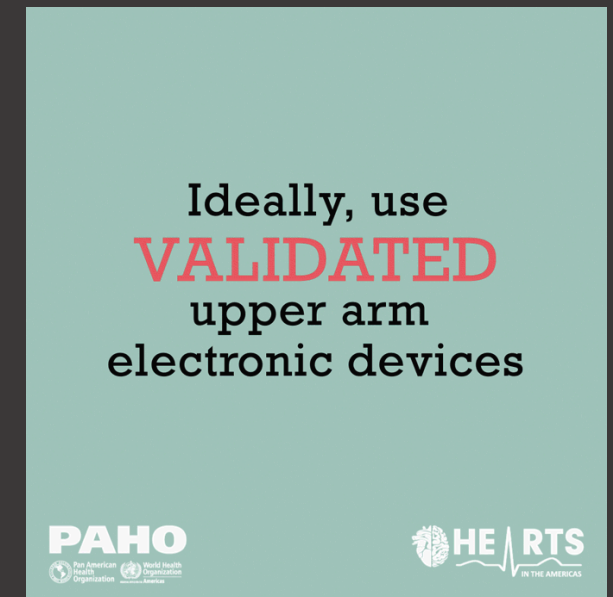
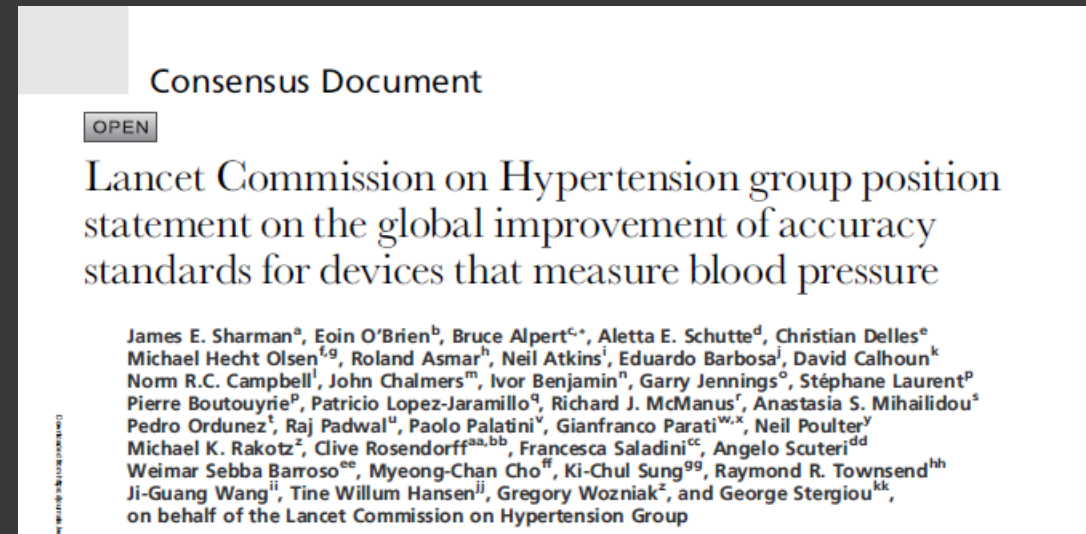
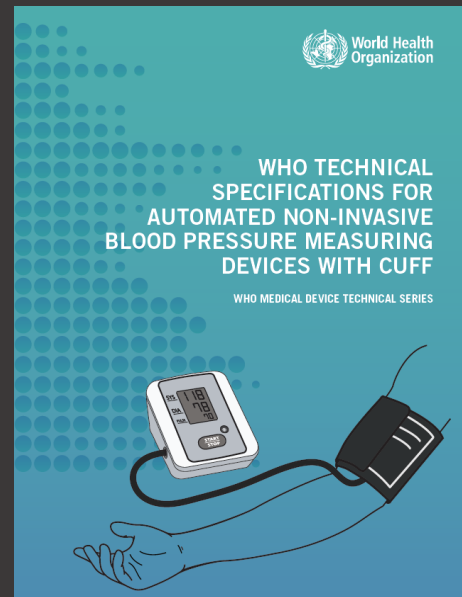
Non-validated devices are more likely to be inaccurate¹⁻³



Inaccurate measurement can lead to inappropriate management of BP

1. Akpolat et al. Blood Press Monit. 2009;14(1):26-31.
2. Jung et al. Blood Press Monit. 2015;20(4):215-20.
3. Hodgkinson et al. Br J Gen Pract. 2020.

Worldwide international organisations and hypertension societies recommend use of validated BP devices

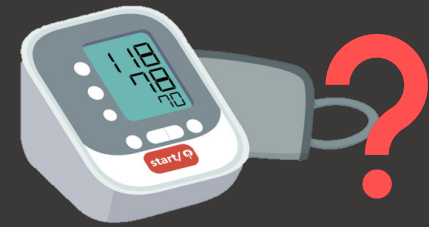
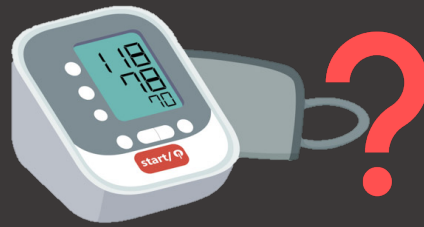


Non-Profit Organization
The Japanese Society of Hypertension

PROBLEM!

Nonvalidated devices are
highly prevalent worldwide

PROBLEMA!



Steps to improve this problem

Lancet Commission on Hypertension group position statement on the global improvement of accuracy standards for devices that measure blood pressure

James E. Sharman^a, Eoin O'Brien^b, Bruce Alpert^{c,*}, Aletta E. Schutte^d, Christian Delles^e, Michael Hecht Olsen^{f,g}, Roland Asmar^h, Neil Atkinsⁱ, Eduardo Barbosa^j, David Calhoun^k, Norm R.C. Campbell^l, John Chalmers^m, Ivor Benjaminⁿ, Garry Jennings^o, Stéphane Laurent^p, Pierre Boutouyrie^q, Patricio Lopez-Jaramillo^r, Richard J. McManus^s, Anastasia S. Mihailidou^t, Pedro Ordunez^u, Raj Padwal^v, Paolo Palatini^w, Gianfranco Parati^{w,x}, Neil Poulter^y, Michael K. Rakotz^z, Clive Rosendorff^{aa,bb}, Francesca Saladini^{cc}, Angelo Scuteri^{dd}, Weimar Sebba Barroso^{ee}, Myeong-Chan Cho^{ff}, Ki-Chul Sung^{gg}, Raymond R. Townsend^{hh}, Ji-Guang Wangⁱⁱ, Tine Willum Hansen^{jj}, Gregory Wozniak^z, and George Stergiou^{kk}, on behalf of the Lancet Commission on Hypertension Group



Prof James Sharman

<https://journals.lww.com/jhypertension/Fulltext/2020/01000/Lancet-Commission-on-Hypertension-group-position.4.aspx>

Declaración de posición del Grupo de la Comisión Lancet de Hipertensión con respecto a la mejora mundial de las normas de exactitud para los dispositivos de medición de la presión arterial*

James E. Sharman,¹ Eoin O'Brien,² Bruce Alpert,³ Aletta E. Schutte,⁴ Christian Delles,⁵ Michael Hecht Olsen,⁶ Roland Asmar,⁷ Neil Atkins,⁸ Eduardo Barbosa,⁹ David Calhoun,¹⁰ Norm R.C. Campbell,¹¹ John Chalmers,¹² Ivor Benjamin,¹³ Garry Jennings,¹⁴ Stéphane Laurent,¹⁵ Pierre Boutouyrie,¹⁵ Patricio Lopez-Jaramillo,¹⁶ Richard J. McManus,¹⁷ Anastasia S. Mihailidou,¹⁸ Pedro Ordunez,¹⁹ Raj Padwal,²⁰ Paolo Palatini,²¹ Gianfranco Parati,²² Neil Poulter,²³ Michael K. Rakotz,²⁴ Clive Rosendorff,²⁵ Francesca Saladini,²⁶ Angelo Scuteri,²⁷ Weimar Sebba Barroso,²⁸ Myeong-Chan Cho,²⁹ Ki-Chul Sung,³⁰ Raymond R. Townsend,³¹ Ji-Guang Wang,³² Tine Willum Hansen,³³ Gregory Wozniak²⁴ y George Stergiou³⁴, en nombre del Grupo de la Comisión Lancet de Hipertensión.

Forma de citar Sharman JE, O'Brien E, Alpert B, Schutte AE, Delles C, Hecht M et al. Declaración de posición del Grupo de la Comisión Lancet de Hipertensión con respecto a la mejora mundial de las normas de exactitud para los dispositivos de medición de la presión arterial. Rev Panam Salud Publica. 2020;44:e21. <https://doi.org/10.26633/RPSP.2020.21>

<https://iris.paho.org/handle/10665.2/51862>

“The aim of this article is both to summarize the current situation regarding the regulatory requirements and accuracy standards for BP measuring devices...”

Lancet Commission on Hypertension group position statement on the global improvement of accuracy standards for devices that measure blood pressure

James E. Sharman^a, Eoin O'Brien^b, Bruce Alpert^{c,*}, Aletta E. Schutte^d, Christian Delles^e, Michael Hecht Olsen^{f,g}, Roland Asmar^h, Neil Atkinsⁱ, Eduardo Barbosa^j, David Calhoun^k, Norm R.C. Campbell^l, John Chalmers^m, Ivor Benjaminⁿ, Garry Jennings^o, Stéphane Laurent^p, Pierre Boutouyrie^q, Patricio Lopez-Jaramillo^r, Richard J. McManus^s, Anastasia S. Mihailidou^t, Pedro Ordunez^u, Raj Padwal^v, Paolo Palatini^w, Gianfranco Parati^{w,x}, Neil Poulter^y, Michael K. Rakotz^z, Clive Rosendorff^{aa,bb}, Francesca Saladini^{cc}, Angelo Scuteri^{dd}, Weimar Sebba Barroso^{ee}, Myeong-Chan Cho^{ff}, Ki-Chul Sung^{gg}, Raymond R. Townsend^{hh}, Ji-Guang Wangⁱⁱ, Tine Willum Hansen^{jj}, Gregory Wozniak^z, and George Stergiou^{kk}, on behalf of the Lancet Commission on Hypertension Group

<https://journals.lww.com/jhypertension/Fulltext/2020/01000/Lancet-Commission-on-Hypertension-group-position.4.aspx>

Declaración de posición del Grupo de la Comisión Lancet de Hipertensión con respecto a la mejora mundial de las normas de exactitud para los dispositivos de medición de la presión arterial*

James E. Sharman,¹ Eoin O'Brien,² Bruce Alpert,³ Aletta E. Schutte,⁴ Christian Delles,⁵ Michael Hecht Olsen,⁶ Roland Asmar,⁷ Neil Atkins,⁸ Eduardo Barbosa,⁹ David Calhoun,¹⁰ Norm R.C. Campbell,¹¹ John Chalmers,¹² Ivor Benjamin,¹³ Garry Jennings,¹⁴ Stéphane Laurent,¹⁵ Pierre Boutouyrie,¹⁶ Patricio Lopez-Jaramillo,¹⁶ Richard J. McManus,¹⁷ Anastasia S. Mihailidou,¹⁸ Pedro Ordunez,¹⁹ Raj Padwal,²⁰ Paolo Palatini,²¹ Gianfranco Parati,²² Neil Poulter,²³ Michael K. Rakotz,²⁴ Clive Rosendorff,²⁵ Francesca Saladini,²⁶ Angelo Scuteri,²⁷ Weimar Sebba Barroso,²⁸ Myeong-Chan Cho,²⁹ Ki-Chul Sung,³⁰ Raymond R. Townsend,³¹ Ji-Guang Wang,³² Tine Willum Hansen,³³ Gregory Wozniak²⁴ y George Stergiou³⁴, en nombre del Grupo de la Comisión Lancet de Hipertensión.

Forma de citar Sharman JE, O'Brien E, Alpert B, Schutte AE, Delles C, Hecht M et al. Declaración de posición del Grupo de la Comisión Lancet de Hipertensión con respecto a la mejora mundial de las normas de exactitud para los dispositivos de medición de la presión arterial. Rev Panam Salud Publica. 2020;44:e21. <https://doi.org/10.26633/RPSP.2020.21>

<https://iris.paho.org/handle/10665.2/51862>

Proposed Actions

1. Regulatory requirement for mandatory independent validation of BP devices according to the universally-accepted ISO Standard.
2. Development of validation standards for new BP technologies
3. Online lists of accurate devices that are accessible to consumers and health professionals

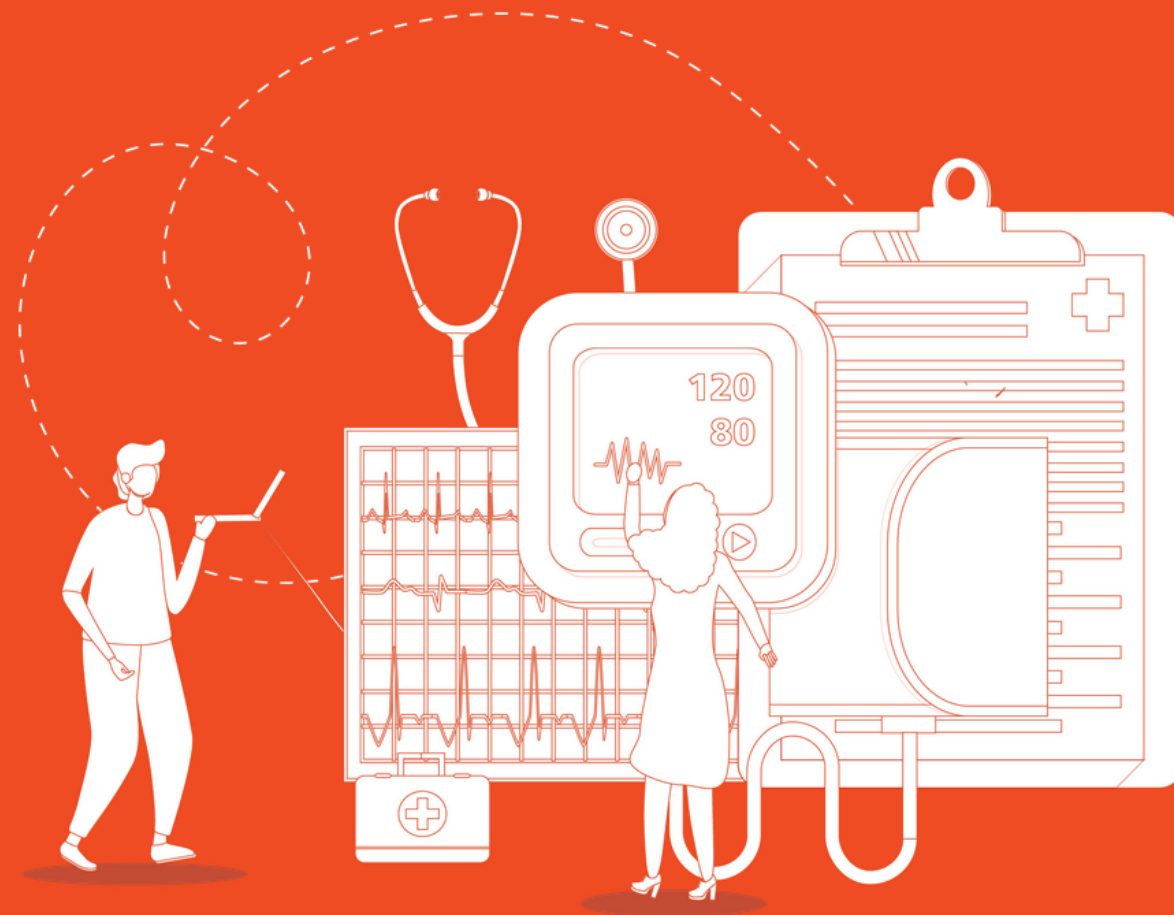
VALID-BP project: overarching purpose

Increase the availability of validated blood pressure devices globally through advocacy and education

Practical resources

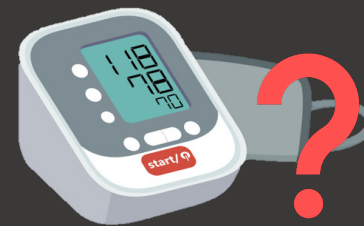
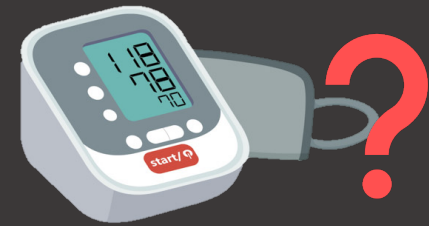
HEARTS in the Americas: Blood Pressure Measurement

Accurate blood pressure measurement is key for the effective diagnosis, prevention and control of hypertension. That can be achieved with the use of clinically validated automated devices, use of a correct protocol measurement and proper patient preparation. This page features infographics on measurement protocols, a list of virtual resources for finding validated monitors, WHO technical specifications for automatic monitors, and related literature.





Hard to tell the difference



Relevant to anyone seeking to purchase a home, clinic or ambulatory BP monitor, including:

- individual consumers for use personally
- those procuring monitors for use in health care systems
- retailers looking to stock only validated BP monitors

How to check that a **blood pressure monitor** has been properly tested for accuracy



Why do I need to use an accurate monitor?

Inaccurate blood pressure measurement could lead to incorrect diagnosis and inappropriate treatment.

The chance to reduce the risk of heart attack or stroke could also be missed.



Many inaccurate monitors exist

Over 3000 blood pressure monitors are available but less than 15% of these have been properly tested for accuracy.



ONLY USE MONITORS THAT ARE RECOMMENDED BY THE (FREE) REGISTRIES BELOW

Choose a registry from your country or a general registry

Country-specific registries

Click the relevant country and follow their instructions.

- [Britain](#)
- [Ireland](#)
- [Canada](#)
- [Germany](#)
- [Japan](#)
- [United States of America](#)

General registries

[STRIDE BP](#) is a registry of validated blood pressure monitors. Follow the detailed instructions on how to search this registry on page 2.

[Medaval](#) lists both validated and non-validated blood pressure monitors. Follow the detailed instructions on how to search this registry on page 3.

How to check that a **blood pressure monitor** has been **properly tested for accuracy** using the **STRIDE BP registry**



STEP BY STEP GUIDE

01 TYPE www.stridebp.org/bp-monitors into your web browser.



02 SEARCH by typing the precise model of the monitor into the search box.



Alternatively, enter the monitor manufacturer name and scroll through the results until you find the model of the monitor listed.

If the monitor is listed under the 'Device Description', then it has been validated.



If "No results found" under 'Device Description' then the monitor is **not recommended to be used**.

Don't be tempted by brands or prices or reviews

Tip: The search function is **very sensitive**. Any minor errors in the manufacturer name or model of the monitor will mean the monitor is **not found, even if it is validated**.



Tip: If the manufacturer name or monitor model cannot be found, **the monitor is unlikely to be validated**

How to check that a **blood pressure monitor** has been **properly tested for accuracy** using the **Medaval registry**

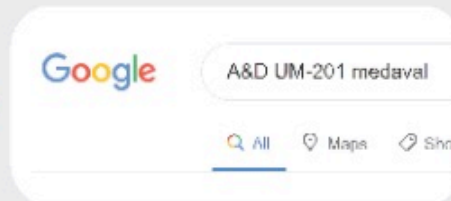


STEP BY STEP GUIDE

01 SEARCH

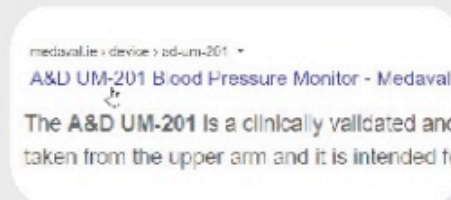
Google* the make and model of the blood pressure monitor, together with the word "Medaval".

*or any other search engine



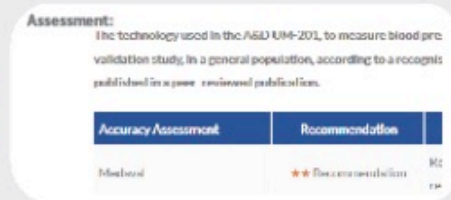
02 LOOK

Look for and click on the link with the Medaval evaluation of the monitor. Ignore any other advertising material that may come up in the first few hits.



03 CHECK

Scroll down to the accuracy assessment report. Look for the Medaval assessment and Recommendation.



Don't be tempted by brands or prices or reviews

Tip: If the manufacturer name or monitor model cannot be found, **the monitor is unlikely to be validated**



Tip: Different star ratings are used by Medaval, but **any properly validated monitor will be recommended**, irrespective of the number of stars.

Table 2. Practical guides on how to check if a BP monitor has been properly tested for accuracy in different languages.

How to chec

Language	Weblink
Afrikaans	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Afrikaans_final.pdf
Arabic	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Arabic_final.pdf
Chinese (simplified)	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Chinese_simplified.pdf
Chinese (traditional)	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Chinese_traditional.pdf
Danish	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Danish_final.pdf
Dutch	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Dutch_final.pdf
English	https://www.menzies.utas.edu.au/_data/assets/pdf_file/0016/1320406/Blood-pressure-devices.pdf
French	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/French.pdf
German	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/German_final.pdf
Italian	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Italian_final.pdf
Korean	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Korean_final.pdf
Portuguese	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Portugese_final.pdf
Setswana	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Setswana_final.pdf
Spanish	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Spanish_final.pdf
Vietnamese	https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Vietnamese_final.pdf

Dean S. Pico

MD, PhD⁴, T

Cintia Lomb

Mokwatsi Ph

MD, PhD¹³, J

PhD¹⁶, James

BP) Collabor

or has been validated

on how to check if a

his work is aligned

portance of accurate

: of BP (AIM-BP)

f the Lancet

nt of accuracy

ical specifications for

Under review at *Journal of Clinical Hypertension*

Plan for open access

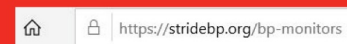
Translation to Spanish/Portugese

Cómo verificar que la **precisión** de un **monitor de presión arterial** se haya **evaluado correctamente** utilizando el **registro STRIDE BP**



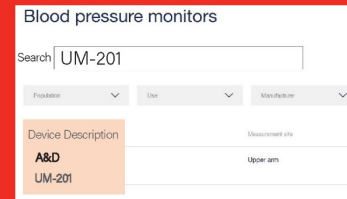
GUÍA PASO POR PASO

01 ESCRIBA www.stridebp.org/bp-monitors en su navegador web.

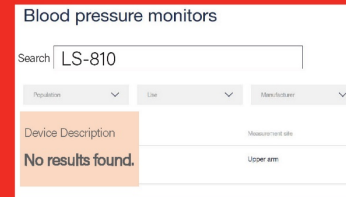


02 BUSQUE escribiendo el modelo exacto del monitor en el cuadro de búsqueda.

Alternativamente, ingrese el nombre del fabricante del monitor y desplácese hasta que encuentre el modelo del monitor en la lista.



Si el monitor aparece bajo la lista de "Descripción del dispositivo", entonces este **se ha validado**.



Si "**no se encontraron resultados**" bajo 'Descripción del dispositivo', entonces **no se recomienda utilizar el monitor**.

No te dejes tentar por marcas, precios o reseñas

Consejo: La función de búsqueda es **muy sensible**. Cualquier error menor en el nombre del fabricante del monitor o en el nombre del modelo conllevará a que no se encuentre el monitor, **incluso si está validado**.



Consejo: Si no se puede encontrar el nombre del fabricante o el modelo del monitor, **es poco probable que el monitor haya sido validado**

Como verificar se um aparelho de medir a pressão arterial foi testado corretamente quanto à precisão usando o **registro Medaval**

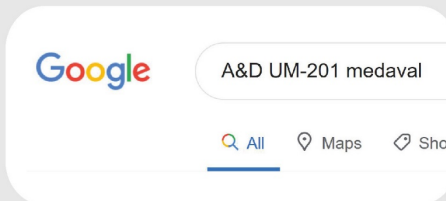


GUIA PASSO A PASSO

01 PROCURE

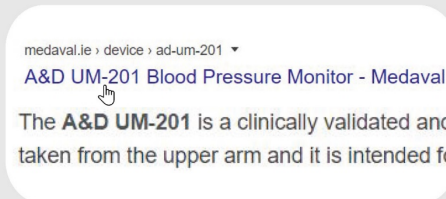
Busque em Google * a marca e o modelo do aparelho, juntamente com a palavra "Medaval".

*ou qualquer outro mecanismo de busca



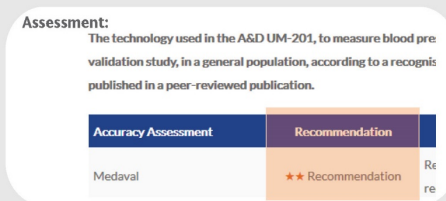
02 VEJA

Procure e clique no link com a avaliação Medaval do monitor. Ignore qualquer outro material publicitário que possa aparecer nos primeiros resultados.



03 VERIFIQUE

Role para baixo até o relatório de avaliação de precisão. Procure a avaliação e a recomendação de Medaval.



Não fique tentado/a por marcas, preços ou comentários.

Dica: se o nome do fabricante ou o modelo não podem ser encontrados, **é pouco provável que o monitor tenha sido validado.**



Dica: Medaval usa uma classificação por estrelas, mas qualquer aparelho validado corretamente será recomendado, independentemente do número de estrelas.

Download the resources

Spanish



https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Spanish_final.pdf

Portuguese



https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Portugese_final.pdf

English



<https://www.menzies.utas.edu.au/documents/pdfs/Blood-pressure-devices.pdf>

Steps for using a QR code

- 1- make sure your smartphone is connected to internet
- 2- open the camera on your phone and point at the QR code
- 3- follow the link to the practical resource



We would be grateful for your feedback:

What works well?

What could be improved?

What other information or resources
do you need?

dean.picone@utas.edu.au

Thank you!

Spanish



https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Spanish_final.pdf

Portuguese



https://www.menzies.utas.edu.au/documents/pdfs/blood-pressure-devices/Portuguese_final.pdf