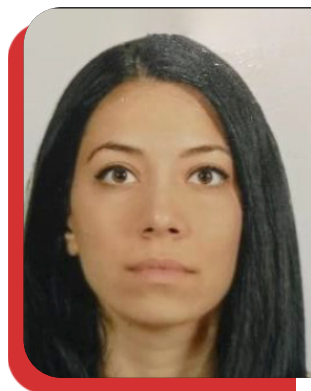
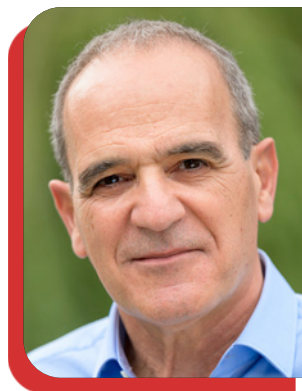


BLOOD PRESSURE DEVICES

An urgent need for more automated blood pressure monitors validated in children

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Blood pressure measurement in children

In the last issue of the International Society of Hypertension (ISH) Hypertension News (May 2026), we included an important article on pediatric hypertension prepared by Joseph Flynn and Ruan Kruger. This aimed to inform ISH members and friends about an ISH Position Paper published in the Journal of Hypertension in April entitled “Practical approach to evaluate and manage hypertension in youth”.¹ We highlighted this major ISH publication on the cover page of the Hypertension News with a nice photo of a child whose blood pressure (BP) was taken using an automated device (**Figure 1**). And we added a strong statement: “Paediatric hypertension: why it can no longer be ignored”.

The reason for writing this article is shown in Figure 1 and is about using automated cuff BP monitors in children. Children are regarded a special population for validating the accuracy of automated cuff BP monitors.^{2,3} This means that an automated BP monitor which is accurate in adults, may not be accurate in children and separate validation in this population is required.^{2,3}

As in adults, in children white-coat and masked hypertension are common, and out-of-office BP monitoring (ambulatory or home) is necessary for all diagnostic and treatment decisions.^{4,5} However,

both methods are applied using automated BP monitors, which must be properly validated specifically in children. Moreover, the photo in **Figure 1** rightly shows the BP taken by a healthcare professional using an automated device, because these devices are primarily used today in many clinics around the world. So, the question is, how many automated cuff BP monitors for office, home, and ambulatory use have been successfully validated in children? More importantly, how many of them are currently available on the market?

Figure 1.
ISH Hypertension
News cover page,
May 2026.



Validated blood pressure monitors in children

STRIDE BP (www.stridebp.org) is a global non-profit organisation providing guidance on BP measurement methodology and technology. It operates in collaboration with the ISH, European Society of Hypertension, World Hypertension League, Chinese Hypertension League, and French Society of Hypertension. The World Health Organization recommends STRIDE BP,^{6,7} as the only scientific organisation which is global (not regional) presenting information in English, Chinese, French, and Spanish.

STRIDE BP performs periodic systematic PubMed searches for validation studies of automated BP devices and provides regularly updated lists of recommended devices for office, home, and ambulatory use in adults, children, and pregnant women (**Figure 2**). To date, the website of STRIDE BP has reached >1,100,000 views from 220 countries.

Figure 2. STRIDE BP updated lists of validated cuff BP monitors for office, home, and ambulatory use in adults, children, and pregnant women. (<https://www.stridebp.org/bp-monitors>)

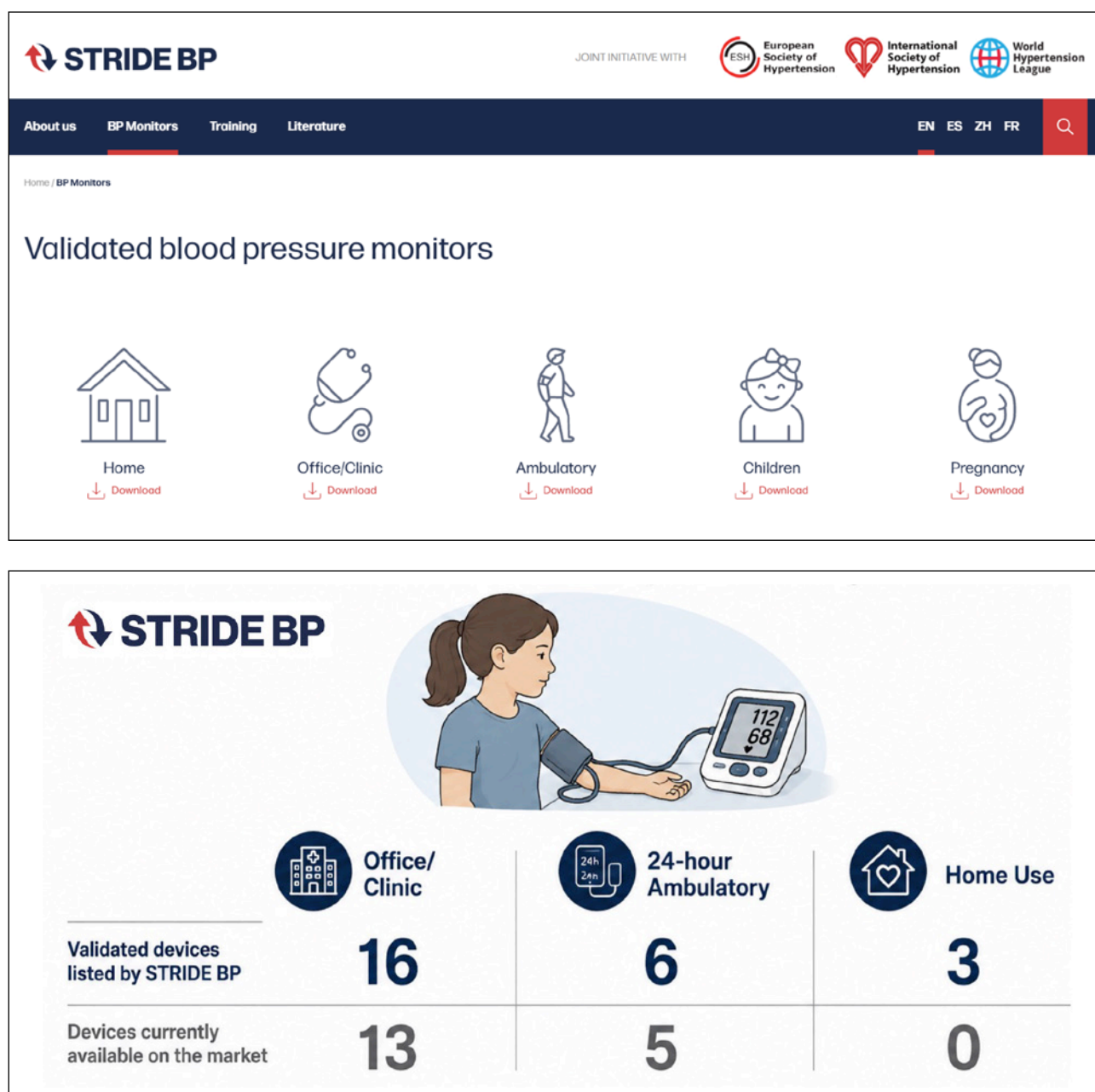


Figure 3. Validated blood pressure devices in children and availability on the market.

In July, STRIDE BP published in Hypertension [8] a systematic review of validation studies of automated cuff BP monitors in children (all the PubMed published studies). Of 628 studies in the STRIDE BP platform, 51 included children. Overall, only 25 BP devices have been successfully validated in children (including office, ambulatory, and home monitors), and only 18 are currently available on the market (**Figure 3**).

This paper also presented a meta-analysis of 20 successful validation studies in children (N=1,476) and showed that those which are properly validated are as accurate as in adults, with pooled systolic BP difference versus reference auscultatory BP at 0.6 mmHg (95% CI -0.2, 1.4) and diastolic -0.3 (-1.2, 0.6)].⁸ Thus, high BP in children detected by a properly validated automated device does not require confirmation with manual auscultatory measurement, as pediatric guidelines suggest.^{4,5} After all, the confirmation of the diagnosis needs out-of-office BP monitoring (ambulatory or home) which requires the use of automated devices.

Conclusions

- In children, only upper-arm cuff BP devices that have been properly validated in this population should be used for the diagnosis and management of hypertension. The use of non-validated devices or inappropriate cuff sizes can lead to inaccurate BP measurements, misdiagnosis, and inappropriate treatment.
- There is a severe shortage of properly validated automated devices for office, ambulatory, and home BP measurement in children, and even fewer devices are commercially available. Manufacturers and investigators should invest time and resources in validating more automated BP devices in children, thereby improving the diagnosis and management of hypertension in this special population.

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