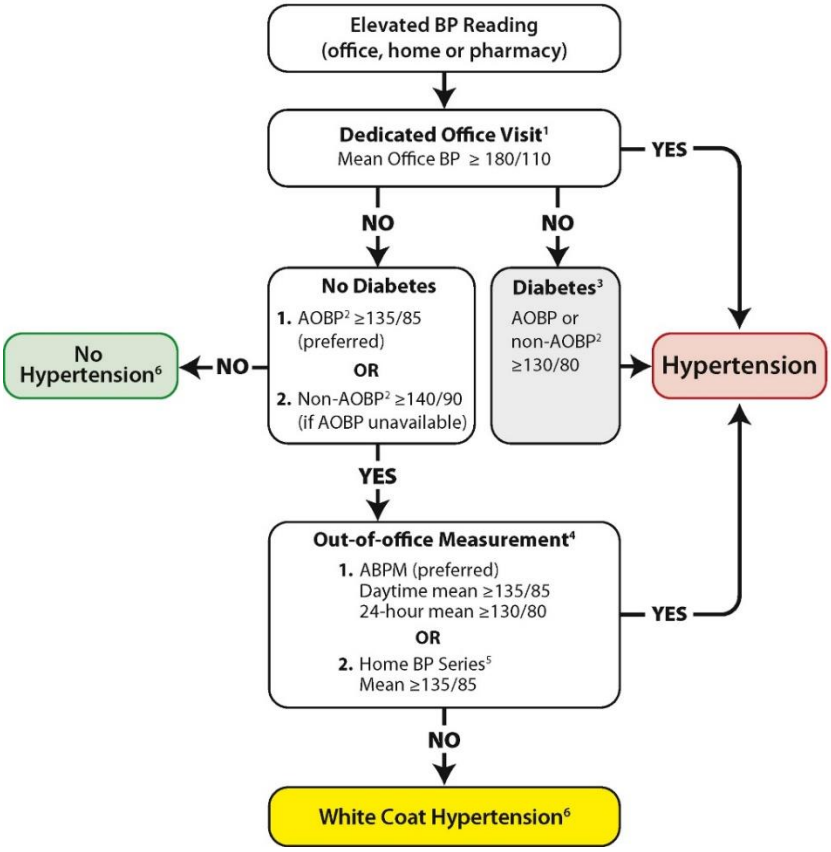
CorHealth Ontario

Hypertension Management Program

Hypertension Canada's 2018 Diagnostic Algorithm

Hypertension Diagnostic Algorithm for Adults



Notes:

1. If AOBP is used, use the mean calculated and displayed by the device. If non-AOBP (see note 2) is used, take at least three readings, discard the first and calculate the mean of the remaining measurements. A history and physical exam should be performed and diagnostic tests ordered.
2. **AOBP** = Automated Office BP. This is performed with the patient unattended in a private area.
   Non-AOBP = Non-automated measurement performed using an electronic upper arm device with the provider in the room.
3. Diagnostic thresholds for AOBP, ABPM, and home BP in patients with diabetes have yet to be established (and may be lower than 130/80 mmHg).
4. Serial office measurements over 3-5 visits can be used if ABPM or home measurement not available.
5. Home BP Series: Two readings taken each morning and evening for 7 days (28 total). Discard first day readings and average the last 6 days.
6. Annual BP measurement is recommended to detect progression to hypertension.

ABPM: Ambulatory Blood Pressure Measurement
AOBP: Automated Office Blood Pressure

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Hypertension Management Program
Accurate Blood Pressure Measurement

2018 Hypertension Canada Guidelines – Accurate measurement of blood pressure (BP):

1. HCPs who have been specifically trained to measure BP accurately should assess BP in all adult patients, at all appropriate visits to determine cardiovascular risk and monitor anti-hypertensive treatment.
2. Measurement [of BP] using electronic (oscillometric) upper arm devices is preferred over auscultation, Automated Office Blood Pressure (AOBP) is the preferred method of performing in-office BP measures.
3. ***NEW*** In patients with large arm circumference when standard upper arm measurement methods cannot be used, validated wrist devices (utilized with the arm and wrist supported at hear level) may be used for BP estimation

Manual vs. Automated BP Measures: Did you Know?

First seen in the 2015 CHEP guidelines, electronic upper arm (oscillometric) measurement continues to be the recommended approach for in office BP, here's why:

Background (taken from The 2015 CHEP Diagnosis and Assessment Recommendations)

Accurate measurement of BP is critical for hypertension diagnosis and management.[45] Different BP measurement methods exist, including office BP measurement (using auscultatory [mercury, aneroid] or oscillometric techniques), automated office BP (oscillometric technique), ambulatory BP monitoring, and home BP monitoring. Traditionally, health professionals have measured office BP measurement using auscultatory methods. When auscultatory (also known as manual) office BP measurement is properly performed using standardized criteria (also called "research-quality office BP measurement") it can predict target organ damage, and correlates well with ambulatory measurements.[46, 47, 48] However, many studies have shown that in routine clinical practice standardized office BP measurement is not commonly performed.[32, 49, 50, 51, 52, 53, 54, 55,56] Furthermore, it has also been shown that educational programs to improve the quality of manual office BP measurement have not been successful.[50, 57, 58, 59, 60, 61, 62] To this end, results from several studies have demonstrated that routine manual BP readings (SBP/DBP) are on average 9/6 mm Hg higher compared with the corresponding research-quality manual BP measurements.[63] This can lead to significant misclassification of hypertensive status and inappropriate treatment.[64]

Therefore, **auscultatory office BP measurement is discouraged** and the use of validated electronic oscillometric upper arm devices is preferred, because they have been shown to overcome errors associated with auscultation.[46, 65, 66, 67, 68]

Automated office BP is a specific type of office BP measurement performed using fully automated devices. Multiple BP readings (3-6 readings, depending on the device) are taken automatically and averaged without patient-health care professional interaction (patient rests alone in a quiet room). Thus, a more standardized BP measurement is obtained, which is more reproducible than routine manual BP measurement.[69, 70, 71]

Automated office BP has been **shown to be lower** than routine manual office BP measurement (8-20 mm Hg difference for SBP, and 3-13 mm Hg for DBP),[65, 71] **shows less digit preference**, **is more consistent from visit to visit**, **eliminates white coat effect, is associated with less masked hypertension, and is more strongly associated with target organ damage compared with routine manual office BP measurement**.[65, 67, 68, 70, 72, 73, 74, 75]
Importantly, automated office BP highly correlates with awake ambulatory BP monitoring, much stronger than routine manual BP,[68, 70, 72, 76, 77, 78, 79] and produces **mean BP values comparable with awake ambulatory BP** monitoring values.[70]