

# High Blood Pressure: Silent but Deadly

By: Saurin Gandhi November 2, 2015

## Introduction

Hypertension (high blood pressure) is the most common condition seen in primary care and leads to heart attacks, strokes, renal failure, and death if not detected early and treated appropriately. It is the most common reason for office visits, approximately 30% of the population has hypertension, with 8% undiagnosed. The 2005-2008 NHANES survey showed only half the patients with hypertension had their blood pressure under control. The ones that did not was due to numerous reasons including poor access to healthcare, not taking prescribed medications, and not following up with their doctor. This is worrisome as hypertension is the most common risk factor for heart attack and stroke and does not show signs or symptoms until it is too late (considered a 'silent' killer).

## Diagnosis

### • Definitions

**Children and Adolescents:** The diagnosis of hypertension in this population occurs based on percentiles according to age, height, and sex.

Hypertension is defined as systolic or diastolic blood pressure  $\geq 95^{\text{th}}$  percentile. It is further classified as stage 1, which is  $95^{\text{th}}$ - $99^{\text{th}}$  percentile + 5mmHg, and stage 2, which is  $>99^{\text{th}}$  percentile + 5mmHg.

- **Adults:** The diagnosis of hypertension in adults has to do with quantification of the numbers. In a 30-59 year old, that individual is considered hypertensive when their diastolic blood pressure is  $>90$ . In a 60 year old or even older, it is considered hypertension if their systolic blood pressure  $>150$  or diastolic  $>90$ .

### • Screening (USPSTF)

- **Children to Adolescents:** Screen blood pressure at every well child visit beginning at age 3.
- **Adults:** Screen blood pressure every 2 years for patients within the normal range  $<120/80$ , and every year for prehypertensive patients (120-139/80-89).

### • Measurement

- In the absence of end-organ damage, mild hypertension should be diagnosed by 2 blood pressure measurements in both arms at 3 separate clinic visits at least 1 week apart.
- In those who are believed to have white coat hypertension, those appearing to not respond to prescribed antihypertensive medications, and confirm at-home blood pressure measurements, ambulatory blood pressure monitoring may be indicated (measures blood pressure every 15-20 minutes during the day and every 30-60 minutes during the night).

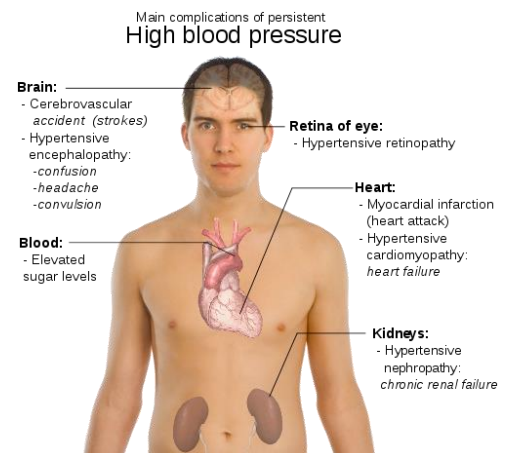


## Signs and Symptoms

- Although it is a gradual process, over time high blood pressure can cause acute symptoms. If you are a known hypertensive and you develop any new symptoms such as vision changes, headaches, chest pain, changes in urination, abdominal pain, shortness of breath, or any other new or worrisome symptoms, seek medical care right away.

## Causes

- There are hundreds of causes of hypertension but we can classify them into groups. Hypertension that is not true hypertension occurs when your blood pressure elevates when you are at the doctor's office but is not the case at home. This is called white coat hypertension. The opposite, when your blood pressure is high at home but low when you come to the doctor's office is called masked hypertension and is the most worrisome because it is less likely to be investigated. Many different medications can cause high blood pressure and these include oral contraceptives, antiinflammatories (NSAIDs), antidepressants, glucocorticoids, decongestants, weight loss medications, erythropoietin, and stimulants. Illicit drugs may also cause hypertension (methamphetamines, cocaine). There are many risk factors that are related to hypertension and these include: age, obesity, smoking, family history, race (African Americans), high sodium diet ( $>3000$  mg/day), excessive alcohol



consumption, physical inactivity, diabetes, dyslipidemia, and too little vitamin D. Many disorders may cause high blood pressure and these are not limited to: primary renal disease (acute or chronic), renovascular disease (fibromuscular dysplasia in young, atherosclerosis in old), primary aldosteronism, obstructive sleep apnea, pheochromocytoma, Cushing's syndrome (cortisol), and coarctation of aorta.

## Treatment

- **Lifestyle Modifications**

- For all patients with hypertension, lifestyle modifications should be implemented.
  - Dietary salt restriction, weight loss, DASH diet (high in vegetables, fruits, low-fat dairy, whole grains, poultry, fish, nuts, low in sweets, sugar-sweetened beverages, and red meats), exercise (3-4x per week lasting 40 minutes), limited alcohol intake (women <2, men <3 drinks/day), patient education.
- These modifications were shown in the PREMIER trial that at 18 months, there was a lower prevalence of hypertension (22 vs 32%).

- **Drug Treatment**

- The main objective of hypertension treatment is to attain and maintain goal blood pressure. Antihypertensive therapy produces a 50% relative risk reduction in the incidence of heart failure, 30-40% relative risk reduction in stroke, and a 20-25% relative risk reduction in MI. Speak to your doctor about what treatment they recommend as it can differ from patient to patient.
- **Follow Up**
  - After initiation, blood pressure should be checked every 2-4 weeks and adjustments made until control is achieved.
  - Once control is achieved, evaluate ever 3-6 months and then eventually annually.

## Blood Pressure Lowering Methods

- Weight reduction is the best way to bring down your blood pressure. For every 10 kg of weight lost, you can bring down your blood pressure 5-20 points. The DASH diet, a diet rich in fruits, vegetables, low-fat dairy products, with a reduced content of saturated and total fat, can bring down your blood pressure 8-14 points. Physical activity, at least 30 minutes per day for most days per week can bring down your blood pressure 4-9 points. Salt restriction, limiting your intake to 2.4g Na or 6g NaCl per day can bring down your blood pressure 2-8 points. Lastly, limiting alcohol intake to ≤2 drinks/day in men and ≤1 drink/day in women can bring down the blood pressure 2-4 points.

## Closing Remarks:

Hypertension is a silent killer and is not something to be taken lightly when diagnosed. Lifestyle modifications can definitely help any hypertensive patient. Speak to your doctor about any drugs that may help. Recent studies have looked into screening for hypertension in children and adolescents but currently the consensus is to treat stage 1 hypertension with only lifestyle modifications. Make your child exercise and eat healthy and that should help to prevent high blood pressure.

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## References

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3. AHA/ACC/CDC Science Advisory: An Effective Approach to High Blood Pressure Control
4. USPSTF Recommendation Statement for Screening for Primary Hypertension in Children and Adolescents