

# February's Topic: Hypertension

By: Kelsey Dobbs and Cody Paulk, Pharm.D. candidates 2018



## HEALTHCARE CLINIC HOURS:

Monday-Wednesday, Friday

8:00 a.m. to 5:00 p.m.

Thursday

9:00 a.m. to 5:00 p.m.

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## PHARMACY HOURS:

Monday-Wednesday, Friday

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## What is Hypertension?

Hypertension is another name for high blood pressure. Blood pressure is the force of your blood pushing against the walls of your arteries. With high blood pressure, the force of blood against these vessel walls is greater than normal. This can cause the heart to have to work harder to pump blood to the rest of the body. If not monitored appropriately, hypertension can lead to serious health problems, such as heart attack, stroke, and even death.

Because hypertension often presents with no signs or symptoms, it is referred to as the "silent killer." Therefore, it is recommended to regularly check your blood pressure so you will know if it becomes elevated. Symptoms that may arise include headache, sweating, anxiety, or trouble sleeping.

The best first step in managing high blood pressure is making appropriate lifestyle modifications. This includes improvement in food choices and physical activity. If these changes do not adequately control the condition, your doctor may opt to prescribe anti-hypertensive medication.<sup>1</sup>

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## Risk Factors

- Age >60 years old
- Ethnicity
  - African Americans develop high blood pressure more often than Caucasian, Hispanic, Asian, Pacific Islanders, and other ethnicities.
- Obesity
- Chronic alcohol and tobacco use
- Heart disease, diabetes, kidney disease, high cholesterol
- Physical inactivity
- High-sodium (salt) diet
- Low potassium diet

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## Why does high blood pressure matter?

- 67 million Americans have high blood pressure.
  - High blood pressure contributes to 1,100 deaths/day.
  - When your blood pressure is high, you are 4 times more likely to die from a stroke.
  - High blood pressure also makes you 3 times more likely to die from heart disease.<sup>3</sup>
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## What effects does high blood pressure have on the body?

### The heart

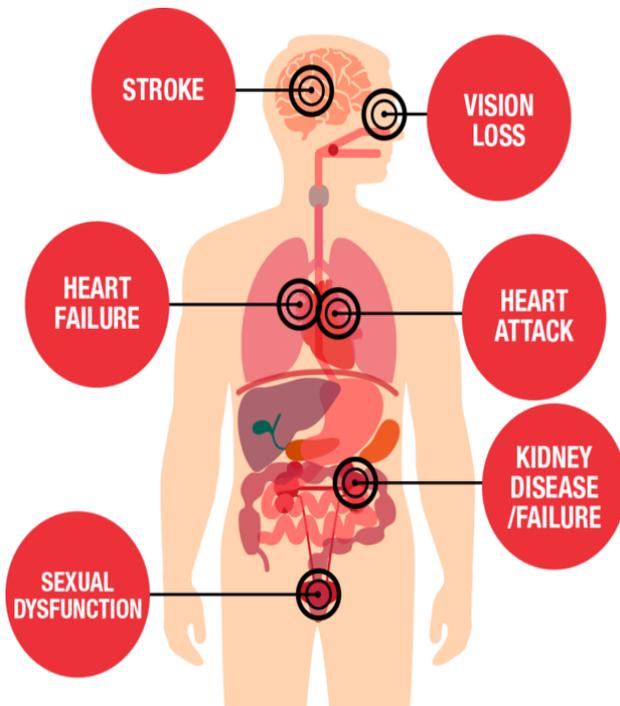
- It can harden your arteries and reduce the flow blood and oxygen to your heart and cause chest pain (angina), heart failure, or a heart attack.

### The brain

- It can block arteries or cause them to burst disrupting flow to the brain leading to a stroke.

### The kidneys

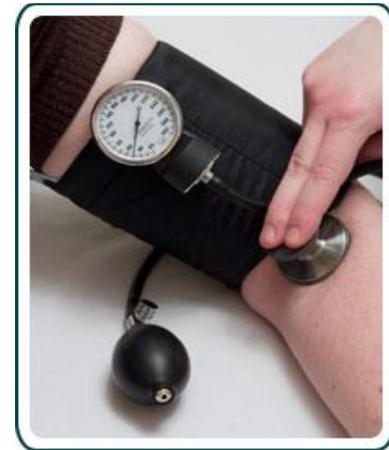
- Those who have high blood pressure, diabetes, or both have a higher risk of developing chronic kidney disease.<sup>3</sup>



Picture from:  
[http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/GettheFactsAboutHighBloodPressure/What-is-High-Blood-Pressure\\_UCM\\_301759\\_Article.jsp#.WmuONSOZOT8](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/GettheFactsAboutHighBloodPressure/What-is-High-Blood-Pressure_UCM_301759_Article.jsp#.WmuONSOZOT8)

## Diagnosis

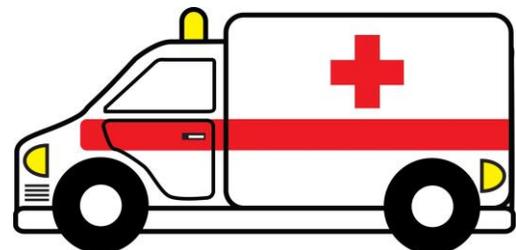
A diagnosis of hypertension requires multiple readings on different occasions showing an elevated blood pressure.



Picture from:  
<https://www.cdc.gov/bloodpressure/measure.htm>

## When should I seek immediate medical attention?

- When your blood pressure is greater than 180/120 mmHg.
- If you are having the following symptoms: severe chest pain, severe headache with confusion and blurred vision, nausea and vomiting, severe anxiety, shortness of breath, seizures, and unresponsiveness.



Picture from:  
<http://images.clipartpanda.com/ambulance-clipart-ambulance-clipart-ambulance-car-clip-artempty-nest--41011---4-1ptfw842.jpg>

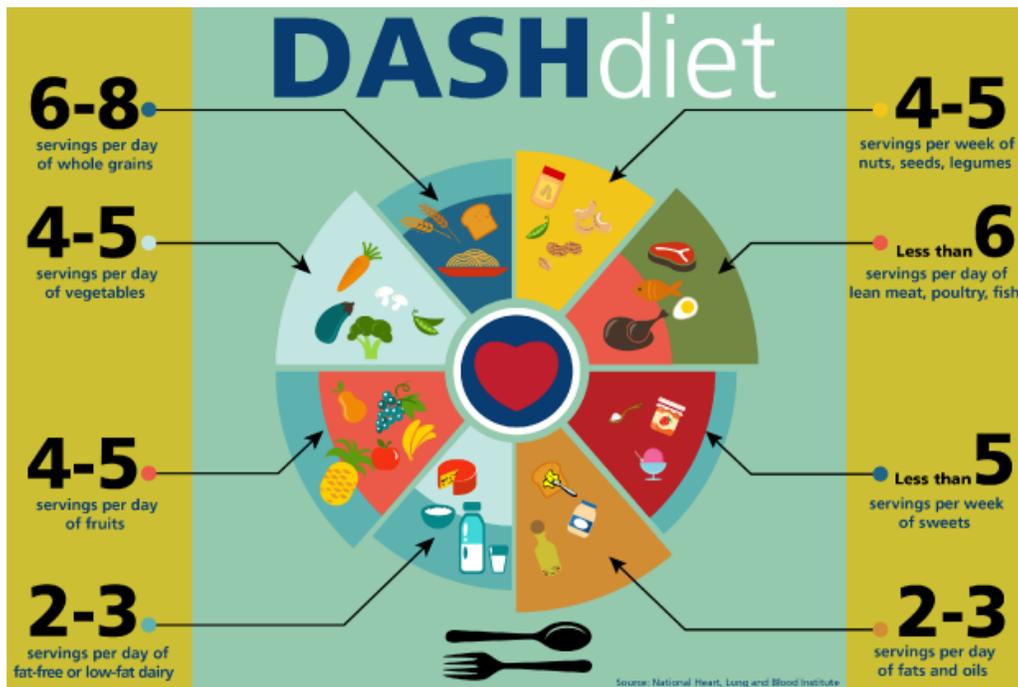
## New Guideline Recommendations

In November 2017, the American Heart Association (AHA) released updated treatment recommendations for the management of hypertension. Whereas previous guidelines defined high blood pressure as greater than 140/90 mmHg, new guidelines define it as greater than 130/80 mmHg. Furthermore, the 2017 guidelines stress the importance of lifestyle modifications as the first step in management of hypertension.<sup>2</sup>

Blood pressure	Systolic BP (top #)		Diastolic BP (bottom #)
Normal	< 120 mmHg	<b>and</b>	< 80 mmHg
Elevated	120 – 129 mmHg	<b>and</b>	< 80 mmHg
Hypertension: stage 1	130 – 139 mmHg	<b>or</b>	80 – 89 mmHg
Hypertension: stage 2	≥ 140 mmHg	<b>or</b>	≥ 90 mmHg

## Lifestyle Modifications

- Physical activity: 30 minutes of moderate-intensity aerobic exercise at least 5 days each week
  - Walking
  - Jogging
  - Cycling
  - Swimming
- Stress reduction
- Smoking cessation
- Limit alcohol consumption: maximum of 2 drinks per day for men, 1 drink per day for women
- Dietary Approaches to Stop Hypertension (DASH) Diet



Picture from: [https://www.google.com/imgres?imgurl=http://www.newenglanddairycouncil.org/media/DASH-DIET.png&imgrefurl=http://www.newenglanddairycouncil.org/3074-2/&h=491&w=625&tbnid=sj3QFo8CNJHYuM:&tbnh=199&tbnw=253&usq=\\_lpw6usVWwi1xjN\\_88ee\\_0lEdmYU%3D&vet=1&docid=Ptj2ZUC3CS-oJM](https://www.google.com/imgres?imgurl=http://www.newenglanddairycouncil.org/media/DASH-DIET.png&imgrefurl=http://www.newenglanddairycouncil.org/3074-2/&h=491&w=625&tbnid=sj3QFo8CNJHYuM:&tbnh=199&tbnw=253&usq=_lpw6usVWwi1xjN_88ee_0lEdmYU%3D&vet=1&docid=Ptj2ZUC3CS-oJM)

## Medication Management<sup>4</sup>

<i>Medication Class</i>	<i>Examples</i>	<i>How it works</i>
<b>First-line agents</b>		
<b>Thiazide diuretics</b>	hydrochlorothiazide	Diuretics increase urination which reduces sodium and fluid in the body. That can help lower blood pressure because it lowers blood volume.
<b>Calcium channel blockers</b>	amlodipine (Norvasc®), felodipine (Plendil®), nifedipine (Procardia®)	Calcium channel blockers lower blood pressure by relaxing blood vessels and reducing heart rate.
<b>Angiotensin-converting enzyme (ACE) inhibitors</b>	lisinopril (Prinivil®, Zestril®), captopril (Capoten®), ramipril (Altace®), quinapril (Accupril®), fosinopril (Monopril®), benazepril (Lotensin®)	Angiotensin is a hormone in the body that causes blood vessels to narrow. The angiotensin-converting enzyme (ACE) inhibitors decrease the production of angiotensin and, in turn, that helps lower blood pressure.
<b>Angiotensin receptor blockers (ARB)</b>	losartan (Cozaar®), valsartan (Diovan®), olmesartan (Benicar®), telmisartan (Micardis®), irbesartan (Avapro®)	The hormone angiotensin narrows blood vessels. ARBs prevent angiotensin from binding to receptors on the blood vessels to help lower blood pressure.
<b>Alternative agents</b>		
<b>Loop diuretics</b>	furosemide (Lasix®), torsemide (Demadex®), bumetanide (Bumex®), ethacrynic acid (Edecrin®)	Loop diuretics block the reabsorption of sodium, potassium, and chloride in the kidneys, allowing them to be expelled in the urine.
<b>Potassium-sparing diuretics</b>	amiloride (Midamor®), triamterene (Dyrenium®), spironolactone (Aldactone®), eplerenone (Inspra®)	Potassium-sparing diuretics are medicines that increase urination without the loss of potassium.
<b>Alpha-blockers</b>	doxazosin (Cardura®), prazosin (Minipress®), terazosin (Hytrin®)	Alpha blockers cause blood vessels to dilate, thereby lowering blood pressure.
<b>Beta-blockers</b>	carvedilol (Coreg®), atenolol (Tenormin®), propranolol (Inderal®), labetalol (Normodyne®), bisoprolol (Zebeta®), metoprolol (Lopressor®/Toprol®)	Beta blockers lower blood pressure by acting directly on the heart. These high blood pressure medications reduce heart rate and force of pumping, as well as reduce blood volume.
<b>Central agonists</b>	clonidine (Catapres®), methyldopa (Aldomet®)	Central alpha agonists lower blood pressure by stimulating alpha-receptors in the brain which open peripheral arteries easing blood flow.
<b>Peripheral adrenergic inhibitors</b>	reserpine	The peripheral adrenergic inhibitors work in the brain to block signals that tell blood vessels to constrict.
<b>Vasodilators</b>	minoxidil (Loniten®), hydralazine (Apresoline®)	Vasodilators relax artery wall muscles, and that causes blood pressure to drop.



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APPOINTMENT  
TODAY!**

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## References

- MacGill M. Everything you need to know about hypertension. Medical News Today. [updated 2017 Dec 11; cited 2018 Jan 18]. Available from: <https://www.medicalnewstoday.com/articles/150109.php>
- Whelton PK, Carey RM, Aronow WS, et al. ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines [published online November 13, 2017]. Hypertension. doi: 10.1161/HYP.0000000000000065.
- High Blood Pressure. Centers for Disease Control and Prevention. [updated 2014 July 7; cited 2018 Jan 20]. Available from: <https://www.cdc.gov/bloodpressure/about.htm>
- Morelli J, Ogbru O. High Blood Pressure (Hypertension) Medications. [updated 2016 April 26; cited 2018 Jan 26]. Available from: [https://www.rxlist.com/high\\_blood\\_pressure\\_hypertension\\_medications/drugs-condition.htm#diuretics](https://www.rxlist.com/high_blood_pressure_hypertension_medications/drugs-condition.htm#diuretics)

## State Wellness Center

101 S. Union Street  
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All active employees, covered spouses of active employees, non-Medicare retirees and covered non-Medicare spouses of retirees that use the State Employees' Health Insurance Plan (Group 13000) as their primary insurance plan are eligible for a wellness premium discount. Each wellness plan year is November 1 through October 31.

SEIB and Local Government employees along with SEIB retirees are able to use the State Wellness Center Pharmacy. The pharmacy offers various over the counter products at discounted prices and a **free medication delivery service**. Delivery can be provided to the patients located in Montgomery. Please designate which site you would like your medication delivered to, and if it is to your residence someone must be available at the home to receive the delivery.

## State Wellness Center Healthcare Clinic

The SEIB clinic has a quality healthcare **TEAM** that includes nurse practitioners, an ambulatory care pharmacist, a physician, and nurses who work closely together to take care of your health and wellness needs.

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- Treat minor illnesses
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- Check health progress between appointments
- Share information with your physician
- Monitor efficacy & safety of every medication
- Evaluate out of pocket medication expense
- Smoking cessation & weight loss services
- Diabetes education program
- Immunizations & injectable medications
- Develop a personalized medication plan
- Monitor control of chronic illnesses
- Medication check-ups
- Medication therapy management