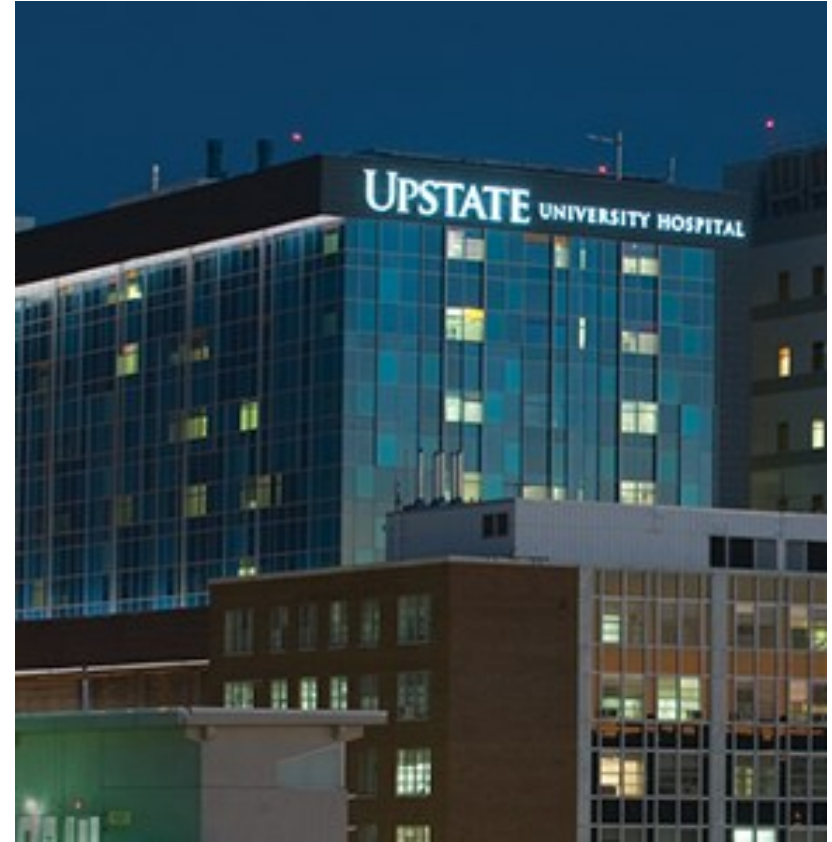




Hypertension and Stroke

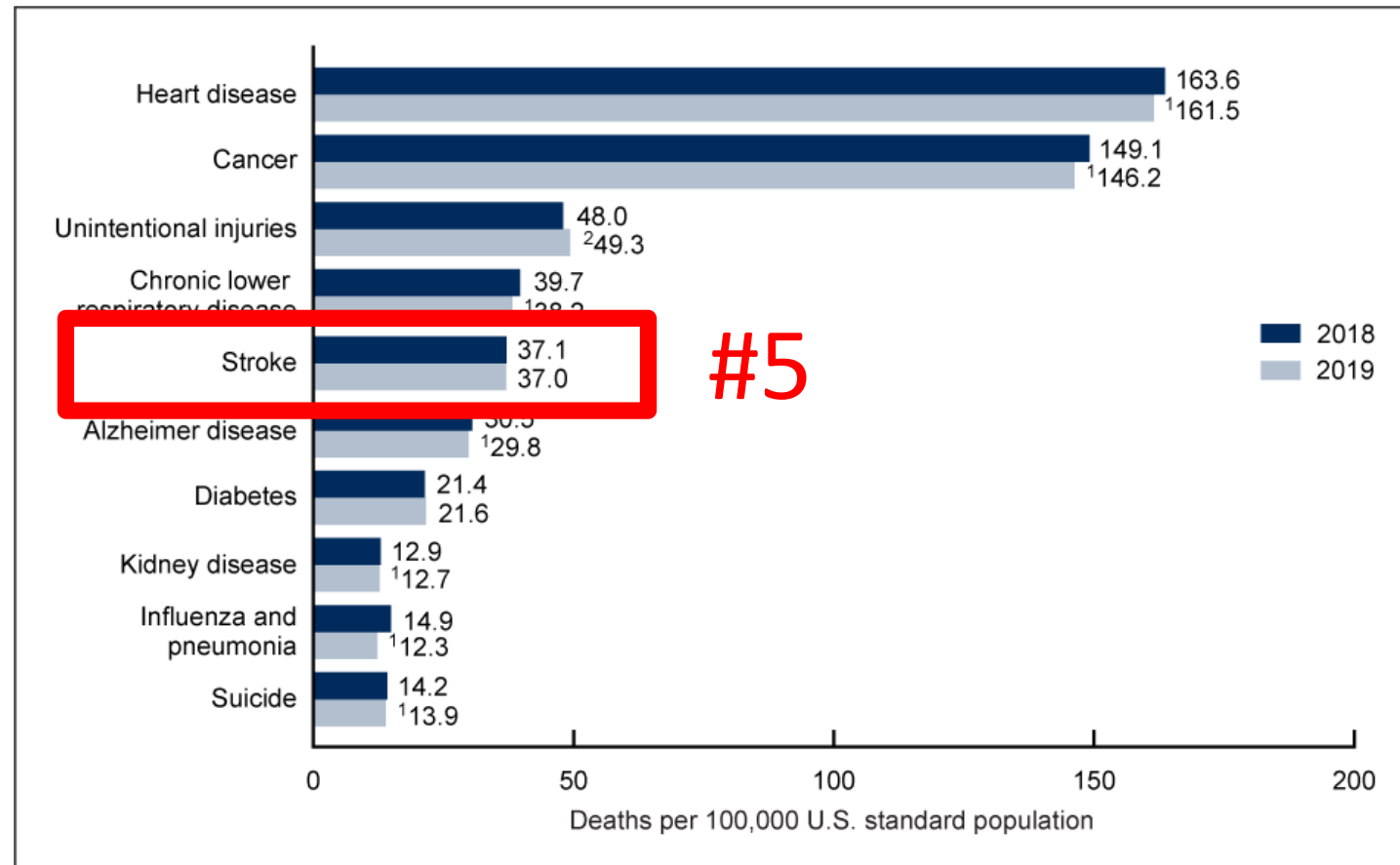
Amit S. Dhamoon, MD, PhD

Blood pressure management



Stroke is the 5th leading cause of death in the US

Figure 4. Age-adjusted death rates for the 10 leading causes of death in 2019: United States, 2018 and 2019



¹Statistically significant decrease in age-adjusted death rate from 2018 to 2019 ($p < 0.05$).

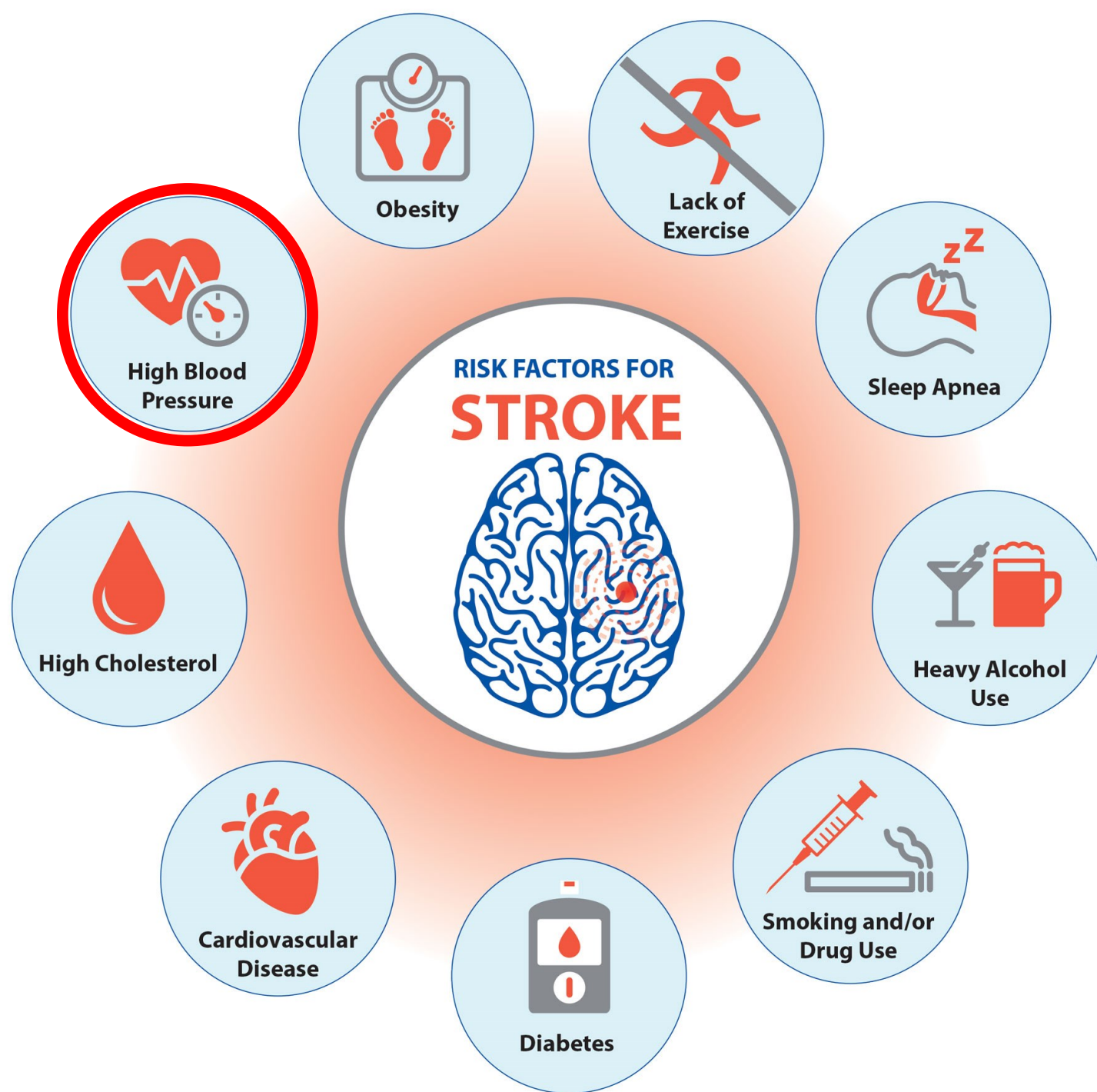
²Statistically significant increase in age-adjusted death rate from 2018 to 2019 ($p < 0.05$).

NOTES: A total of 2,854,838 resident deaths were registered in the United States in 2019. The 10 leading causes of death accounted for 73.4% of all deaths in the United States in 2019. Causes of death are ranked according to number of deaths. Rankings for 2018 data are not shown. Data table for Figure 4 includes the number of deaths for leading causes. Access data table for Figure 4 at: <https://www.cdc.gov/nchs/data/databriefs/db395-tables-508.pdf#4>.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Stroke; Leading Cause of Disability





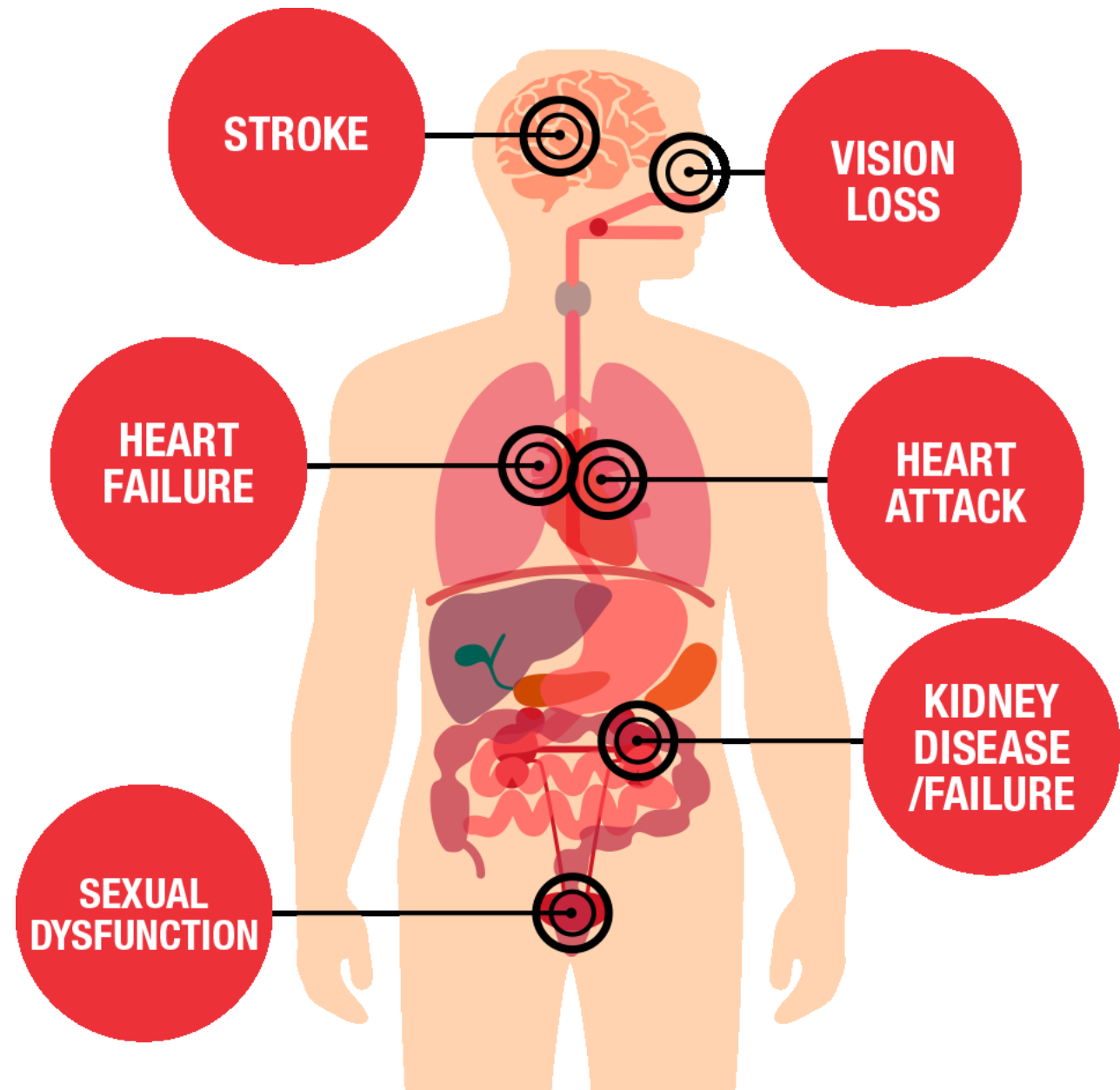
Hypertension Facts; WHO

- 1.28 billion adults (30-79 years old) have hypertension
- 46% of adults with hypertension are unaware they have the diagnosis
- Only 42% of adults with hypertension are diagnosed and treated optimally
- Hypertension is a major cause of premature death worldwide



**World Health
Organization**

Effects of hypertension on the body



Blood Pressure Categories



BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120-129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130-139	or	80-89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Case 1: Joseph

- 47-year-old gentleman presenting to the clinic to establish care
- Vitals: T = 37.6 BP = 147/88 HR = 72 O₂ sats = 98% on RA
- BMI 34
- Drinks alcohol 2-3x/week + weekends
- Smokes ½ PPD
- Drinks 2-3 cups of coffee daily
- Medications: vitamin D, multivitamin



Does Joseph have hypertension?



My Blood Pressure Log

Name: _____

My Blood Pressure Goal: _____ mm Hg

Instructions:

- Measure your blood pressure twice a day—morning and late afternoon—at about the same times every day.
- For best results, sit comfortably with both feet on the floor for at least two minutes before taking a measurement.
- When you measure your blood pressure, rest your arm on a table so the blood pressure cuff is at about the same height as your heart.
- Record your blood pressure on this sheet and show it to your doctor at every visit.

DATE	AM	PM	DATE	AM	PM

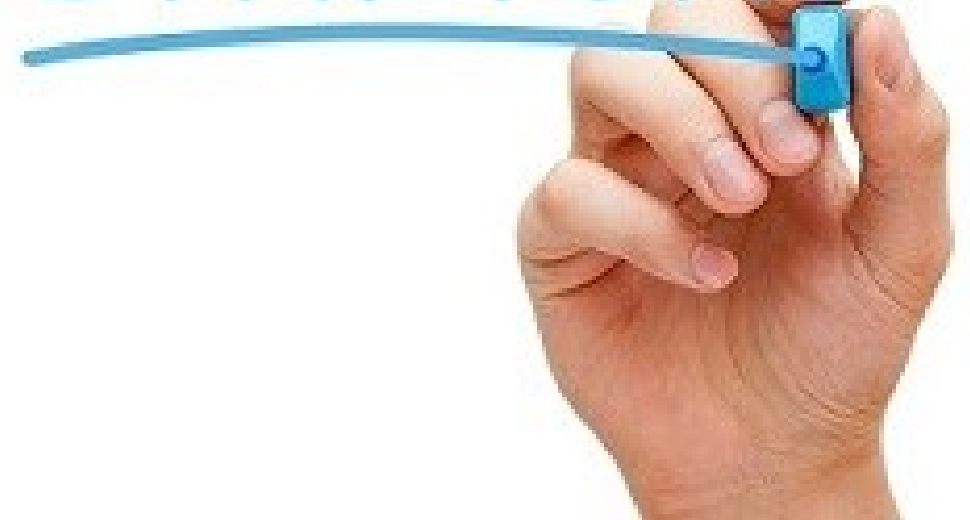
<https://www.validatebp.org>



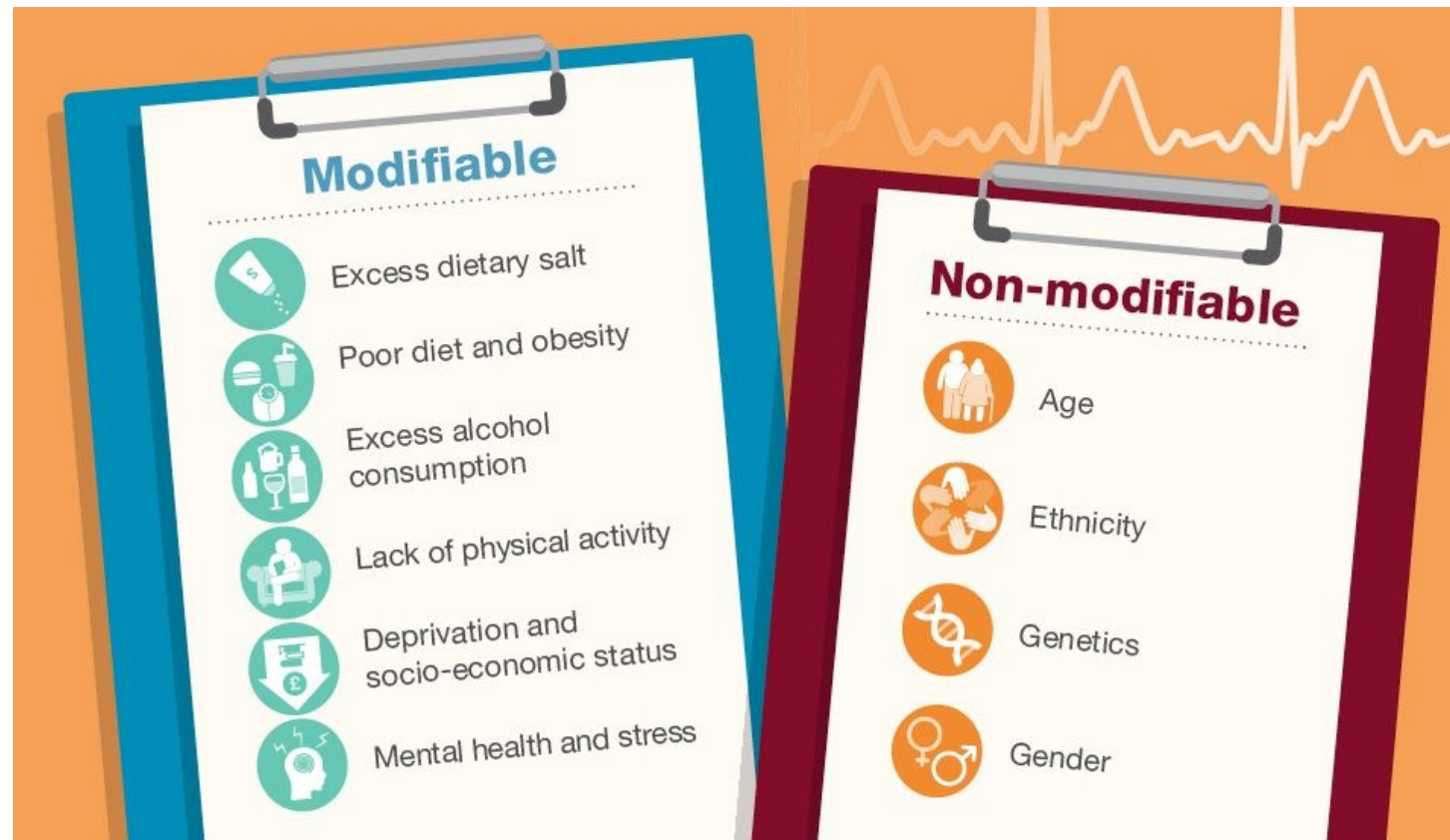
Joseph's hypertension symptoms?



SYMPTOMS



Hypertension Risk Factors





Joseph's Risk Factors for Hypertension

Set the Clock for Lifestyle Changes



Does Joseph have OSA?

STOP-Bang questionnaire

Please answer the following questions by checking “yes” or “no” for each one.

	Yes	No
Snoring (Do you snore loudly?)	<input type="checkbox"/>	<input type="checkbox"/>
Tiredness (Do you often feel tired, fatigued, or sleepy during the daytime?)	<input type="checkbox"/>	<input type="checkbox"/>
Observed Apnea (Has anyone observed that you stop breathing, or choke or gasp during your sleep?)	<input type="checkbox"/>	<input type="checkbox"/>
High Blood Pressure (Do you have or are you being treated for high blood pressure?)	<input type="checkbox"/>	<input type="checkbox"/>
BMI (Is your body mass index more than 35 kg per m ² ?)	<input type="checkbox"/>	<input type="checkbox"/>
Age (Are you older than 50 years?)	<input type="checkbox"/>	<input type="checkbox"/>
Neck Circumference (Is your neck circumference greater than 40 cm [15.75 inches]?)	<input type="checkbox"/>	<input type="checkbox"/>
Gender (Are you male?)	<input type="checkbox"/>	<input type="checkbox"/>

Score 1 point for each positive response.


Scoring interpretation: 0 to 2 = low risk, 3 or 4 = intermediate risk, ≥5 = high risk.

Source: University Health Network, Toronto, Ontario, Canada (www.stopbang.ca/osa/screening/php). Used with permission from Sauk Prairie Healthcare.



Case 1: Joseph; Take Home Points

- To make good decisions we need good data.
- In male patients with obesity and hypertension, screen for OSA
- Lifestyle modifications; set the clock

 American Heart Association.

My Blood Pressure Log

Name: _____

Blood Pressure Goal: _____

Instructions:

Measure your blood pressure twice a day—morning and late afternoon—at about the same times every day. For best results, sit comfortably with both feet on the floor for at least two minutes before taking a measurement. When you measure your blood pressure, rest your arm on a table so the blood pressure cuff is at about the level of your heart.

Record your blood pressure on this sheet and show it to your doctor at every visit.

DATE	AM	PM	DATE	AM



Case 2: Joseph 2 years later

- 49 year old gentleman with essential hypertension, OSA on CPAP
- Admitted after ATV accident
- Drinks alcohol 1x/week
- Quit smoking one year ago
- BMI 30
- Vitals: T = 37.6 BP = 182/104 HR = 72 O₂ sats = 98% on RA



Contributors to Inpatient Hypertension



- Pain
- Stress
- Anxiety
- Withdrawal
- Nausea
- Medication changes
- Urinary retention

Inpatient Hypertension; Data Free Zone

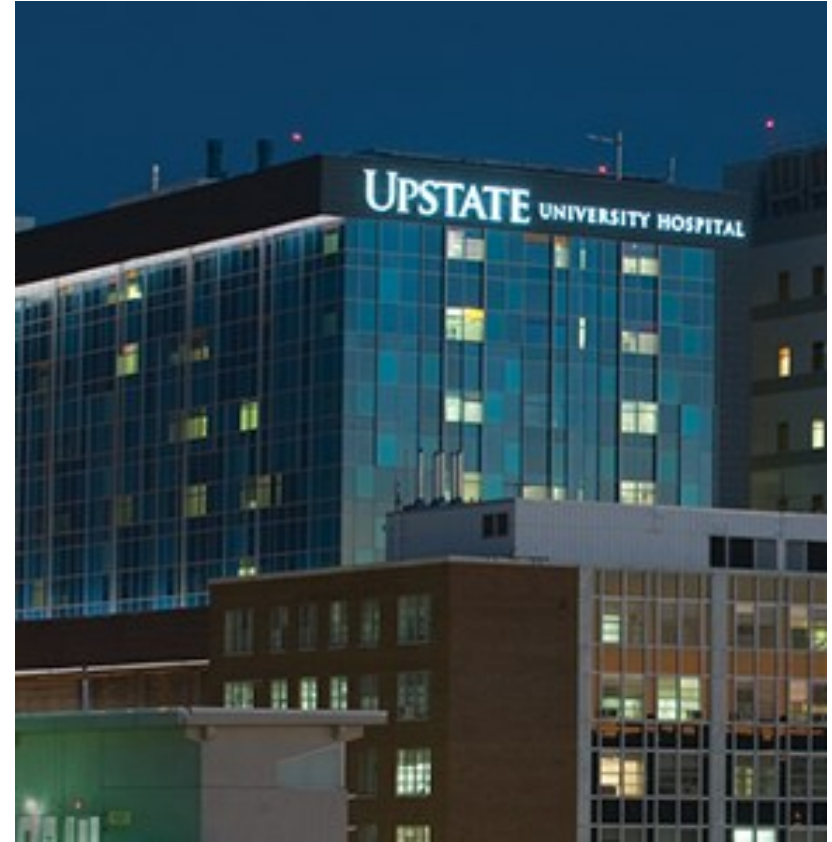
- Hypertensive urgency vs. Hypertensive emergency
- >180/120
- Is there end organ damage?
 - Encephalopathy
 - Acute kidney injury
 - Myocardial injury
 - Pulmonary edema

Jacobs ZG et al. J Hosp Med. 2019 Mar;14(3):144-150.

Pasik SD et al. J Hosp Med. 2019 Mar;14(3):151-156.



In the hospital treat the patient not a number



Hypertension Management is a Marathon, not a Sprint



STROKE is an Emergency.
Every minute counts.
ACT F.A.S.T!



FACE

Does one side of the face droop?
Ask the person to smile.



ARMS

Is one arm weak or numb?
Ask the person to raise both arms. Does one arm drift downward?



SPEECH

Is speech slurred?
Ask the person to repeat a simple sentence. Is the sentence repeated correctly?



TIME

If the person shows any of these symptoms, **Call 911** or get to the hospital immediately.

Thank you for your attention