Update Round-up!
Applying the Latest Guidelines for Diabetes and Cardiovascular Disease

AAPA WE ARE FAMILY (Medicine) Conference
San Diego, California 2023

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BAYLOR COLLEGE OF MEDICINE

DEPARTMENT OF MEDICINE | SCHOOL OF HEALTH PROFESSIONS | PHYSICIAN ASSISTANT PROGRAM

HOUSTON, TEXAS

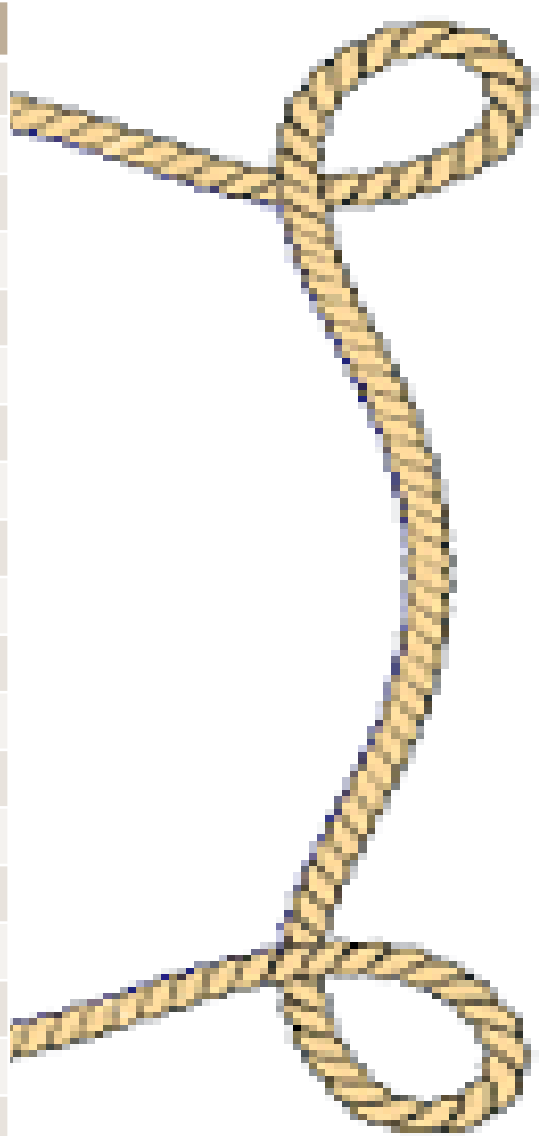
Baylor College of Medicine

AAPA

We have no relevant relationships with ineligible companies to disclose within the past 24 months.

Time for the Round-UP!!

FOCUS	Time
Intro + Pre-Workshop MCQ	5 min
Hypertension	10 min
Hyperlipidemia	15 min
Diabetes	30 min
Social Determinants of Health	5 min
Case I	
Read	5 min
Questions	5 min
Discuss	5 min
Case II-A	
Read	5 min
Questions	5 min
Discuss	5 min
Case II-B	
Read	5 min
Questions	5 min
Discuss	5 min
Post-Workshop MCQ	2 min
YOUR QUESTIONS	8 min



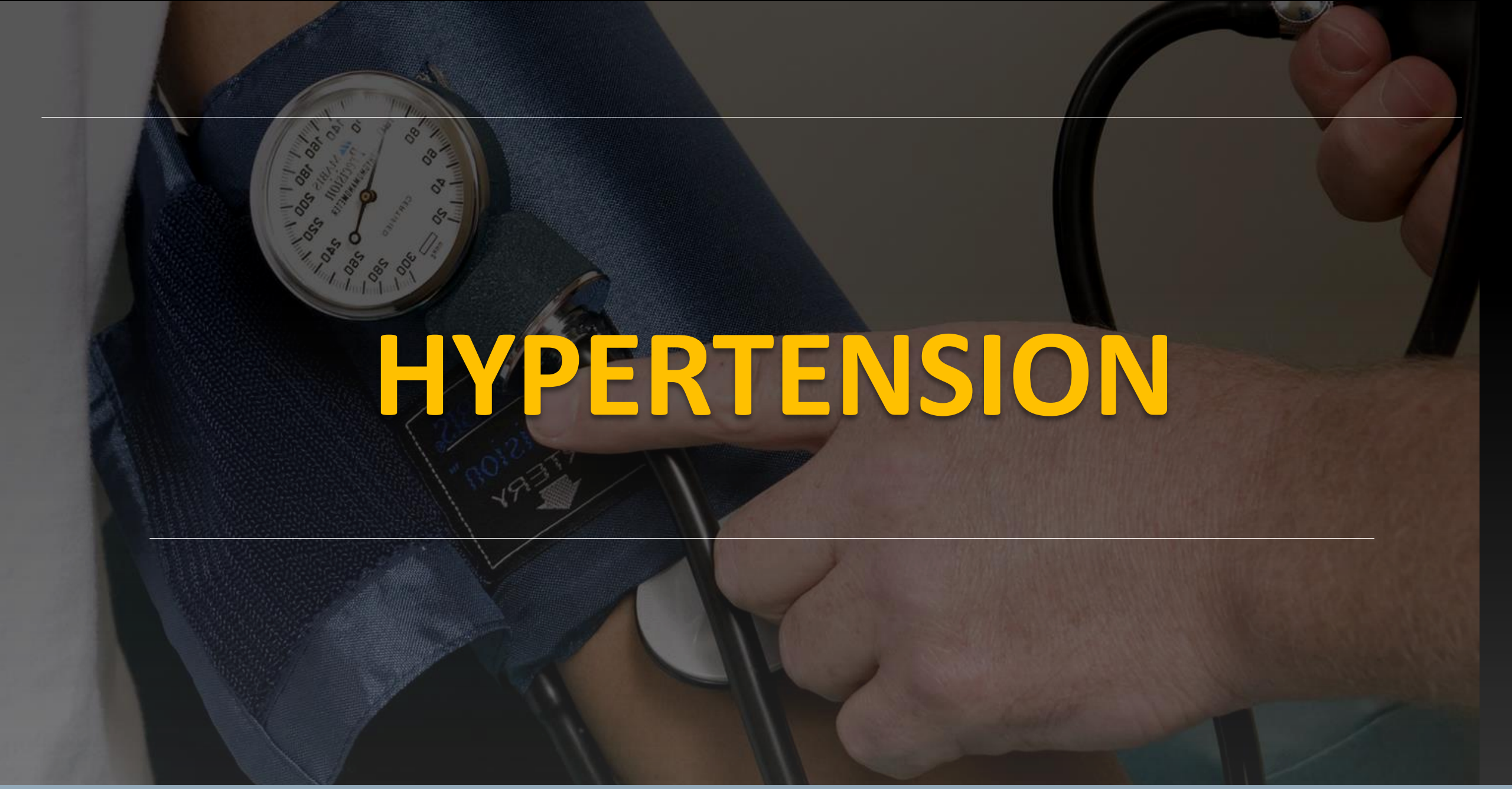
OBJECTIVES

At the conclusion of this session, participants should be able to:

- Utilize recommended ***screening*** methodologies from the USPSTF and other authorities
- Apply current ***diagnostic guidelines*** for hypertension and atherosclerotic cardiovascular disease (including hyperlipidemia) from ACC/AHA and diabetes from ADA/AACE
- Implement individualized ***treatment plans*** using recommended algorithms for evidence-based pharmacotherapeutics and shared-decision approaches
- ***Counsel and motivate*** diverse patient populations on cardiovascular health with culturally informed lifestyle modifications while considering social determinants of health

Acronyms

- **USPSTF** - United States Preventive Services Task Force
- **ADA** - American Diabetes Association
- **AACE** - American Association of Clinical Endocrinologists
- **ACE** - American College of Endocrinologists
- **ACC** - American College of Cardiologists
- **ACP** - American College of Physicians
- **AHA** - American Heart Association
- **GDM** - Gestational Diabetes Mellitus
- **CKD** - Chronic kidney disease
- **ASCVD** – Atherosclerotic Cardiovascular Disease



HYPERTENSION

HYPERTENSION **SCREENING**: USPSTF

USPSTF RECOMMENDATIONS for HYPERTENSION (HTN) SCREENING	
Who?	All adults 18 +
What?	Screen all adults for HTN (Grade A recommendation)
Where?	Screen in office, then confirm at home • Educate BP should be taken at the brachial artery with an automated device in a seated position after 5 minutes of rest
When?	• Annual screening for adults 40+ • Annual screening for adults at increased risk for HTN including: ✓ Black persons ✓ Persons with high-normal BP ✓ Persons who are overweight or obese • Ok to screen less frequently (every 3-5 years) for adults 18 – 39 not at increased risk for HTN and with a prior normal BP reading

How to measure your blood pressure at home

Follow these steps for an accurate blood pressure reading

1 PREPARE

Avoid caffeine, cigarettes and other stimulants 30 minutes before you measure your blood pressure.

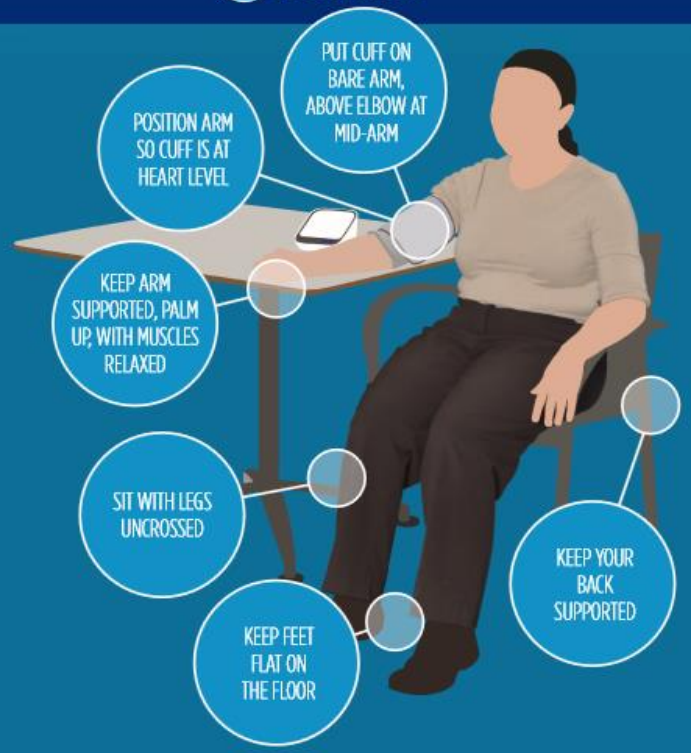
Wait at least 30 minutes after a meal.

If you're on blood pressure medication, measure your BP **before** you take your medication.

Empty your bladder beforehand.

Find a quiet space where you can sit comfortably without distraction.

2 POSITION



3 MEASURE

Rest for five minutes while in position before starting.

Take two or three measurements, one minute apart.

Keep your body relaxed and in position during measurements.

Sit quietly with no distractions during measurements—avoid conversations, TV, phones and other devices.

Record your measurements when finished.

TARGET:BP™ | American Heart Association. Life is why | AMA American Medical Association

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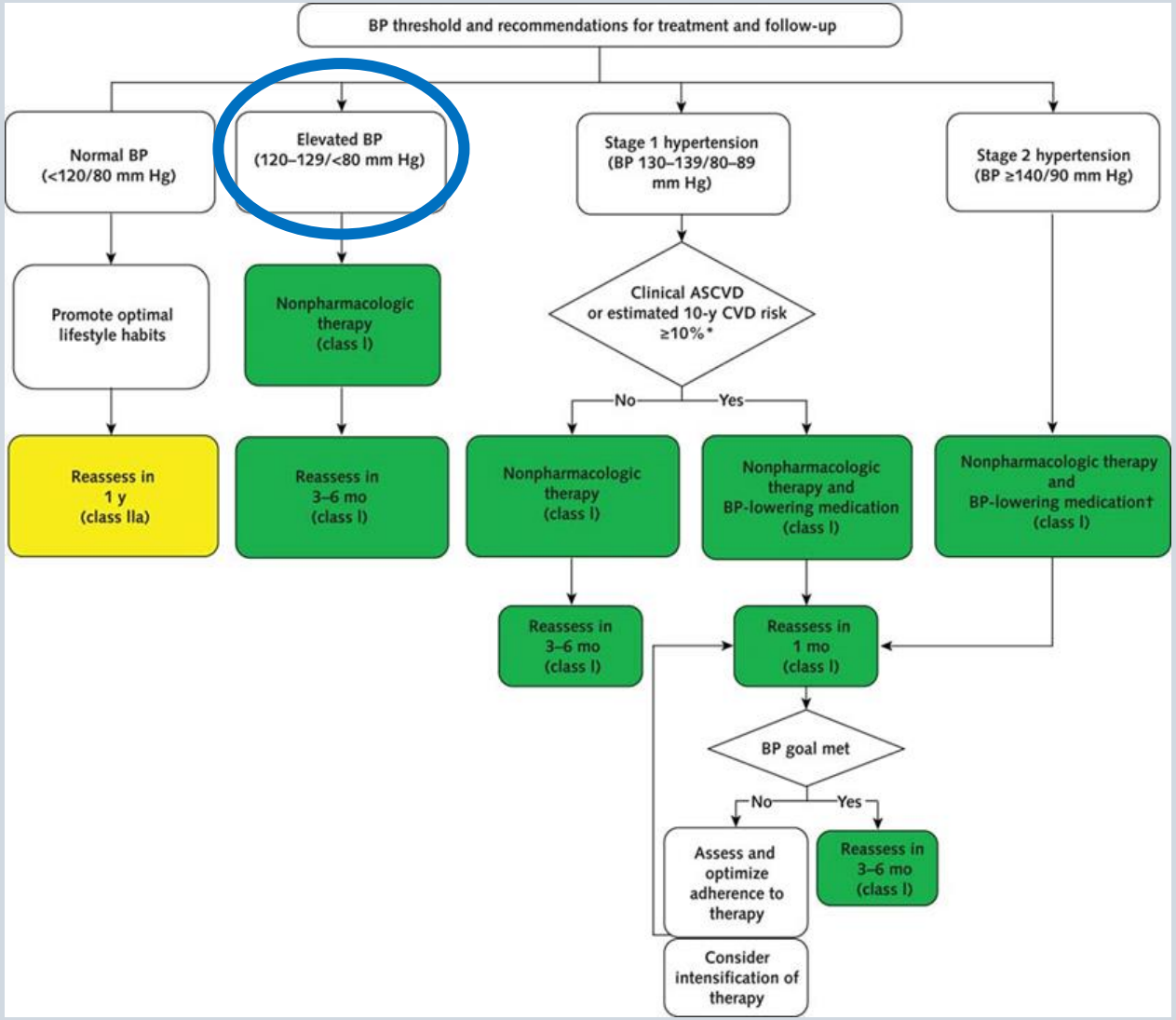
HYPERTENSION **DIAGNOSTIC CRITERIA**: ACC/AHA Guidelines

Blood Pressure Categories

American Heart Association | American Stroke Association

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

HYPERTENSION **TREATMENT**: ACC/AHA Guidelines



Elevated BP:

120-129/<80

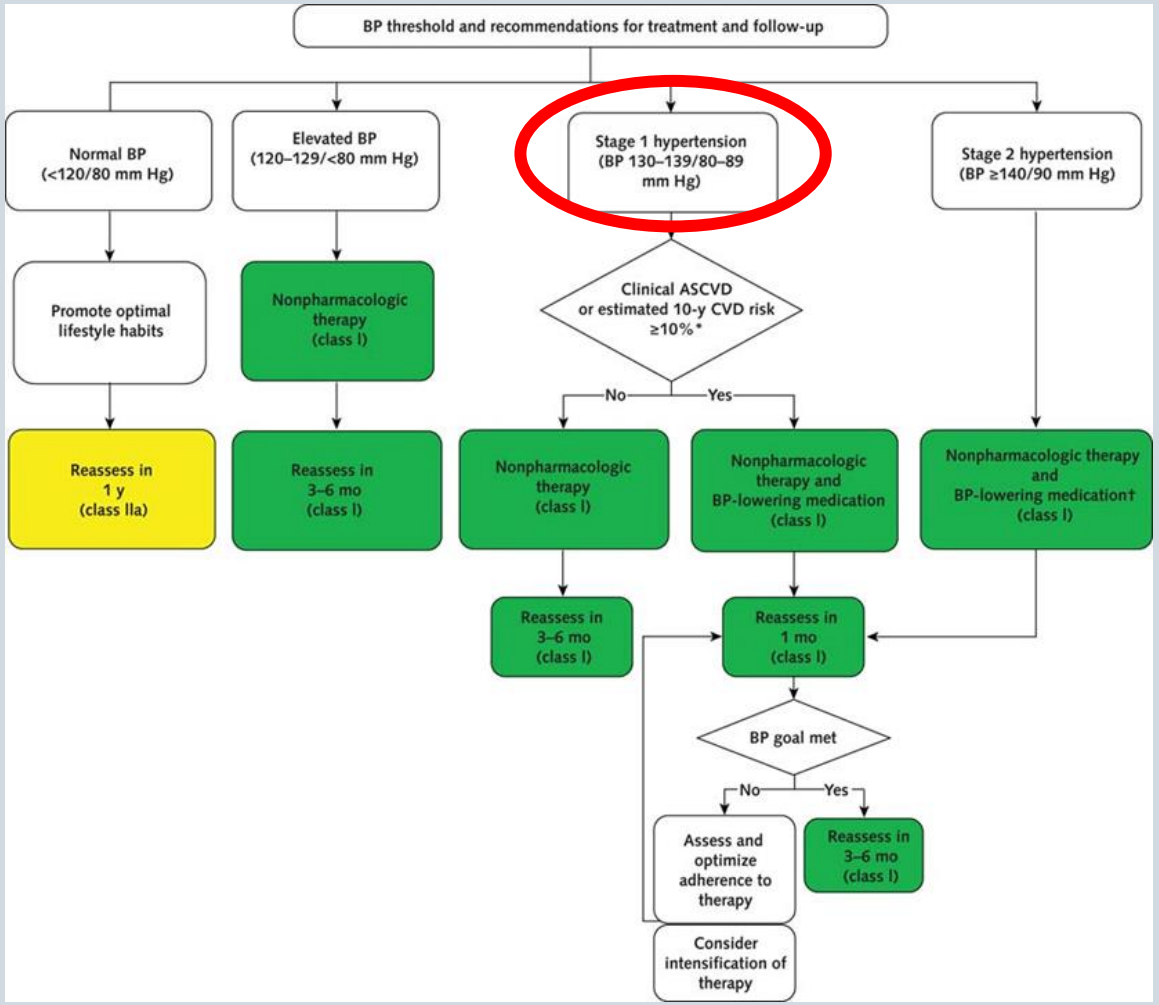
mm Hg

LIFESTYLE MODIFICATIONS

HYPERTENSION **TREATMENT**: Lifestyle Modifications

MODIFICATION	RECOMMENDATION	EXPECTED SBP REDUCTION
Weight Reduction	Maintain normal body weight (BMI 18.5-24.9)	5-20 mm Hg for each 10 kg weight loss
Adapt DASH eating plan	Consume diets rich in fruits, vegetables, low fat dairy and low saturated fat	8-14 mm Hg
Increase physical activity	Engage in regular aerobic activity such as walking (30 min/day on most days)	4-9 mm Hg
Dietary sodium reduction	Reduce sodium to no more than 1.5 g/day sodium	2-8 mm Hg
Moderate alcohol consumption	Limit alcohol to no more than 2 drinks/day for men and 1 drink/day for women.	2-4 mm Hg

HYPERTENSION **TREATMENT**: ACC/AHA Guidelines

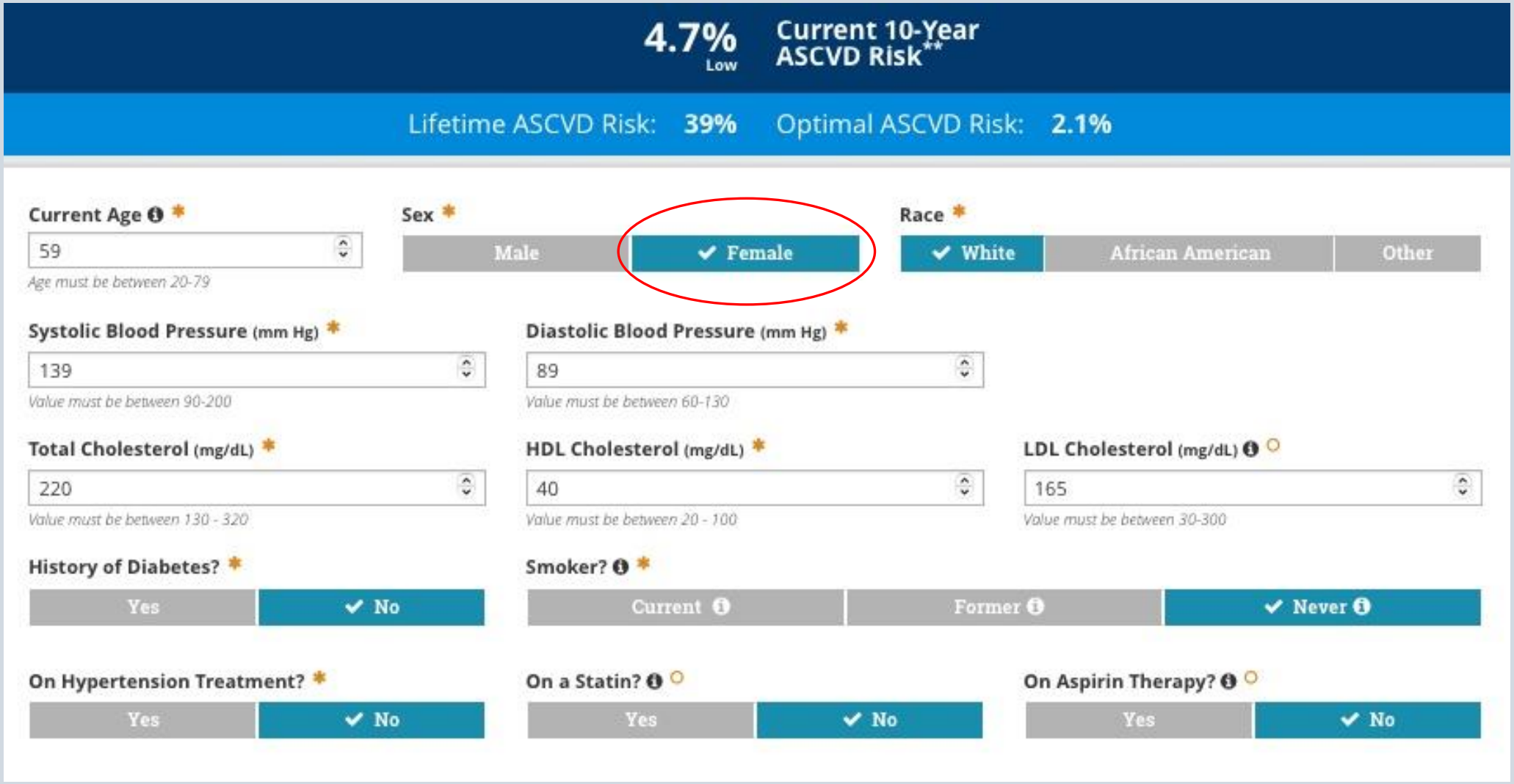


STAGE 1:

130-139/80-89

mm Hg

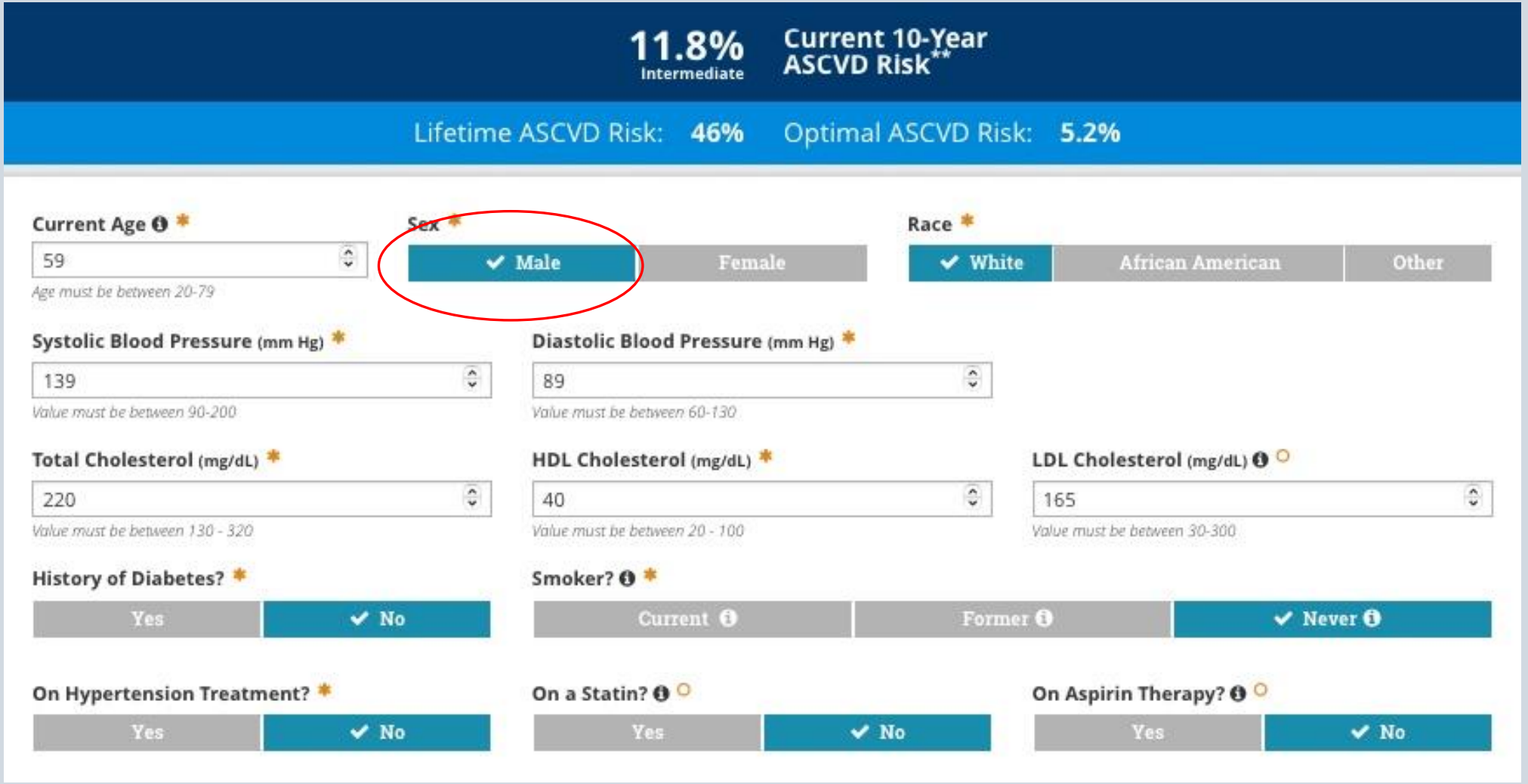
ASCVD RISK ESTIMATOR PLUS (ACC)



ASCVD RISK < 10% STAGE 1 HYPERTENSION TREATMENT

LIFESTYLE MODIFICATIONS!

ASCVD RISK ≥ 10%



ASCVD RISK ≥ 10% STAGE 1 HYPERTENSION TREATMENT

LIFESTYLE MODIFICATIONS

+

ANTIHYPERTENSIVES

ASCVD RISK ≥ 10% STAGE 1 HYPERTENSION TREATMENT

RENIN-ANGIOTENSIN-ALDOSTERONE (RAA) BLOCKING AGENTS

- ✓ Angiotensin-Converting Enzyme Inhibitor (-pril *e.g., lisinopril*)
- ✓ Angiotensin Receptor Blockers (-sartan *e.g., olmesartan*)

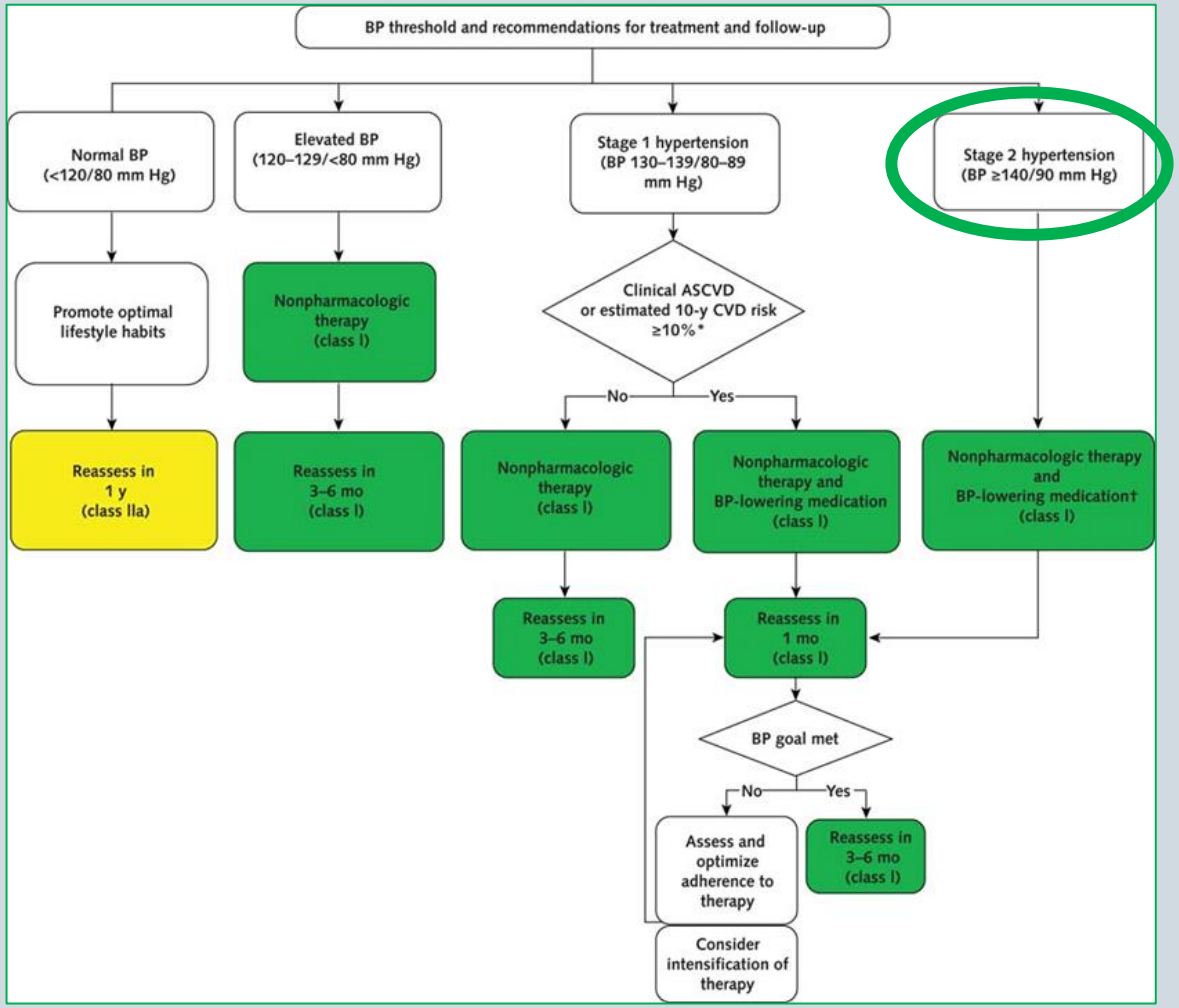
CALCIUM CHANNEL BLOCKERS

- ✓ Dihydropyridine (-pine *e.g., amlodipine*)

DIURETICS

- ✓ Thiazides (-ide *e.g., hydrochlorothiazide*)

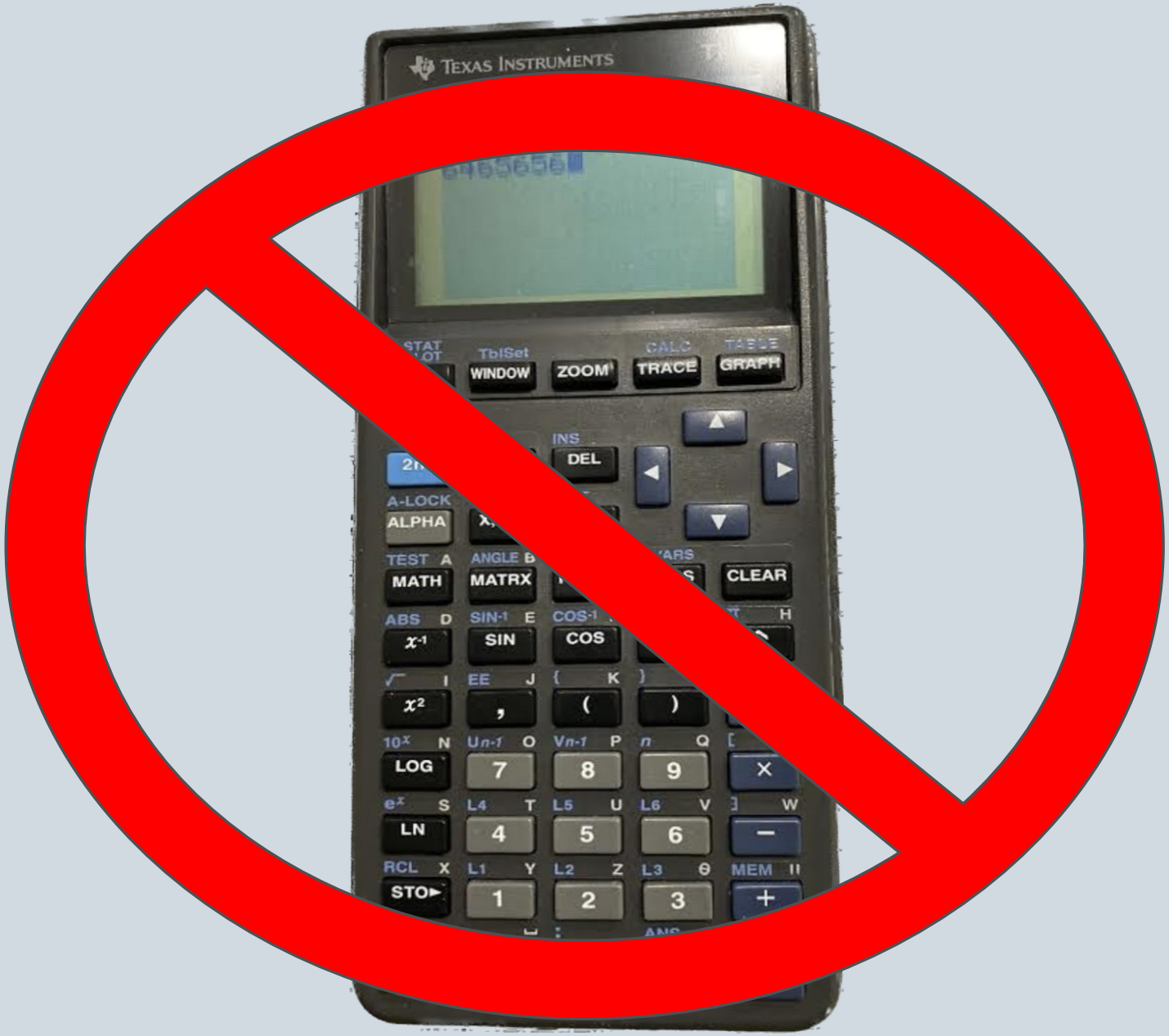
HYPERTENSION **TREATMENT**: ACC/AHA Guidelines



STAGE 2:

≤140/90

mm Hg


TEXAS INSTRUMENTS
WINDOW
ZOOM
TRACE
GRAPH
DEL
CLEAR
MATH
MATRX
SIN
COS
LOG
LN
STO
ALPHA
A-LOCK

FORGET THE CALCULATOR, MOVE STRAIGHT TO **TREATMENT**!

LIFESTYLE MODIFICATIONS

+

ANTIHYPERTENSIVES

STAGE 2 HYPERTENSION TREATMENT

RENIN-ANGIOTENSIN-ALDOSTERONE (RAA) BLOCKING AGENTS

- ✓ Angiotensin-Converting Enzyme Inhibitor (-pril *e.g., lisinopril*)
- ✓ Angiotensin Receptor Blockers (-sartan *e.g., olmesartan*)

CALCIUM CHANNEL BLOCKERS

- ✓ Dihydropyridine (-pine *e.g., amlodipine*)

DIURETICS

- ✓ Thiazides (-ide *e.g., hydrochlorothiazide*)

SO, YOU STARTED TREATMENT, NOW WHAT?

REASSESS IN 1 MONTH

IF **AT** GOAL AFTER 1 MONTH, THEN

REASSESS AGAIN IN 3-6 MONTHS

IF **NOT AT** GOAL AFTER 1 MONTH, THEN

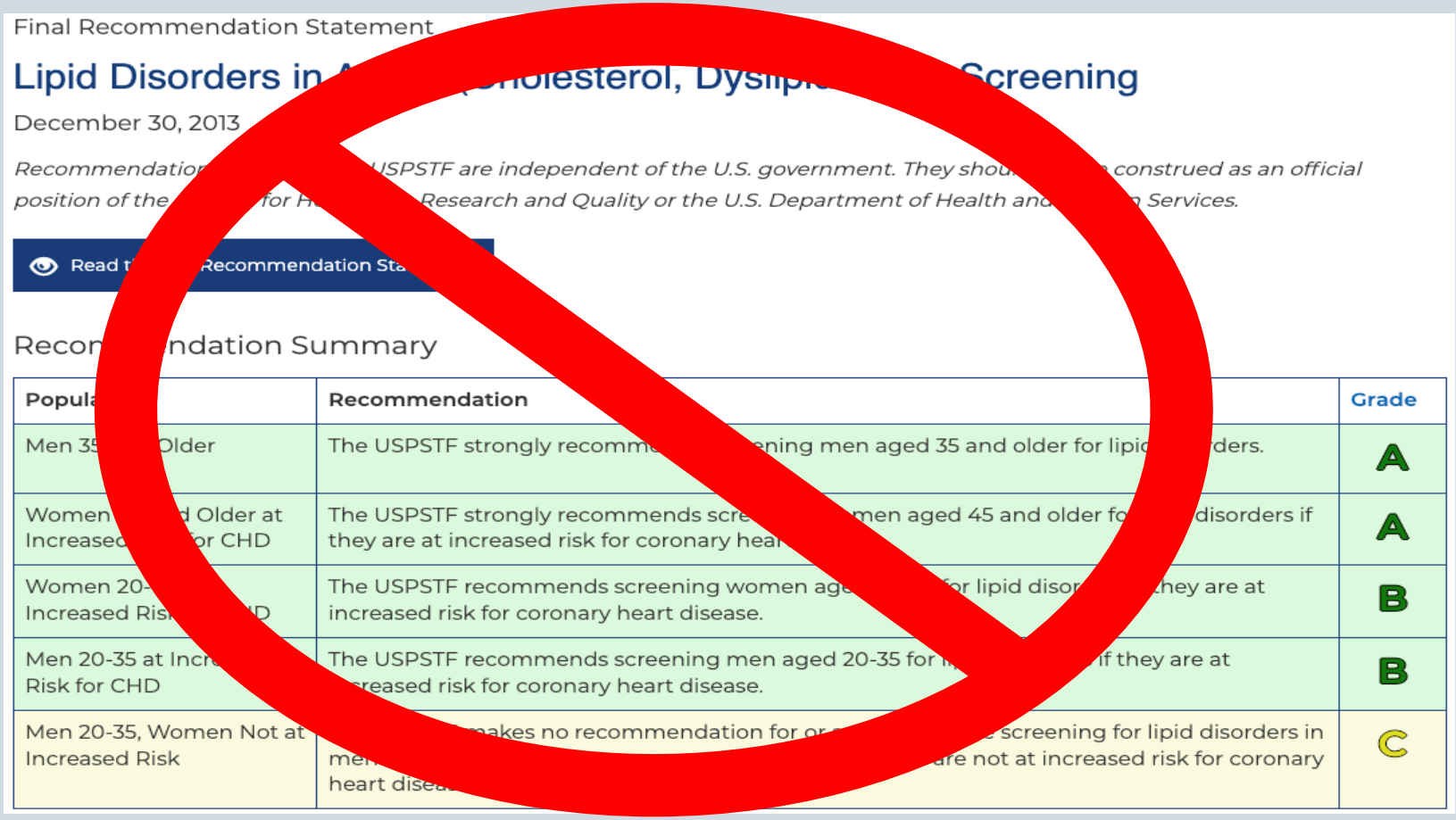
ASSESS & OPTIMIZE ADHERANCE TO THERAPY

+

CONSIDER INTENSIFYING THERAPY

ASCVD | HYPERLIPIDEMIA

ASCVD/Lipids Screening USPSTF 2013



Final Recommendation Statement

Lipid Disorders in A… (Cholesterol, Dyslipi… Screening

December 30, 2013

Recommendation… USPSTF are independent of the U.S. government. They shou… construed as an official position of the … for H… Research and Quality or the U.S. Department of Health and… Services.

Read t… Recommendation Sta…

Recom…ndation Summary

Popula…	Recommendation	Grade
Men 35… Older	The USPSTF strongly recomm… ening men aged 35 and older for lipid… ders.	A
Women … Older at Increased … or CHD	The USPSTF strongly recommends scre… men aged 45 and older fo… disorders if they are at increased risk for coronary hea…	A
Women 20-… Increased Ris… D	The USPSTF recommends screening women ag… or lipid diso… they are at increased risk for coronary heart disease.	B
Men 20-35 at Incr… Risk for CHD	The USPSTF recommends screening men aged 20-35 for l… if they are at …creased risk for coronary heart disease.	B
Men 20-35, Women Not at Increased Risk	…akes no recommendation for or … screening for lipid disorders in men… …are not at increased risk for coronary heart disea…	C

ASCVD/Lipids Screening: USPSTF 2022

U.S. Preventive Services TASK FORCE

Steps for implementing screening:

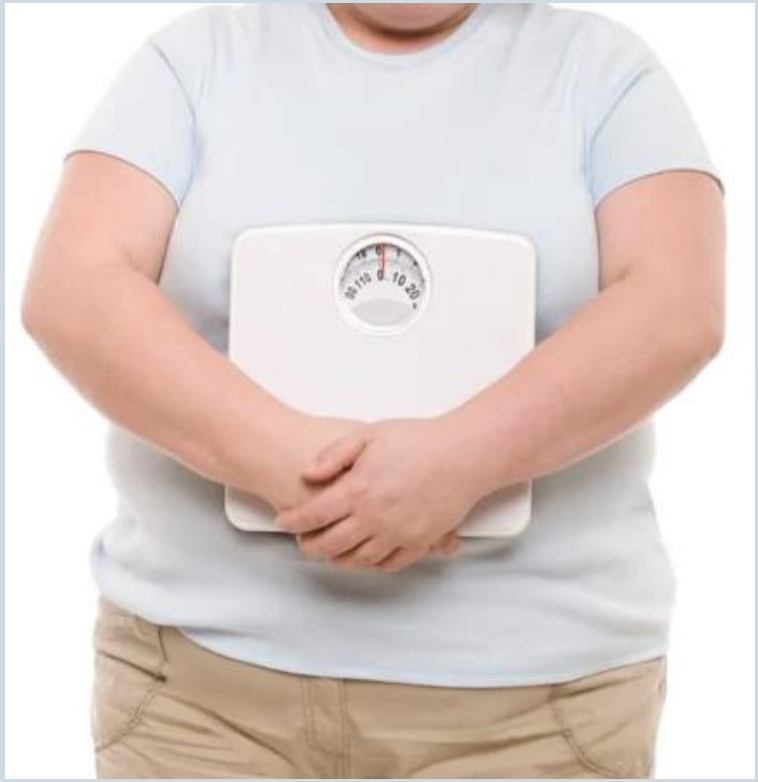
1. Identify **Risk Factors**
2. Estimate **ASCVD Risk** in 40-75 y/o
3. Start *statin* for primary prevention for >10%
4. Use shared-decision making to start *statin* in 7.5% - 10%

Population	Recommendation	Grade
Adults aged 40 to 75 years who have 1 or more cardiovascular risk factors and an estimated 10-year cardiovascular disease (CVD) risk of 10% or greater	The USPSTF recommends that clinicians prescribe a statin for the primary prevention of CVD for adults aged 40 to 75 years who have 1 or more CVD risk factors (ie, dyslipidemia, diabetes, hypertension, or smoking) and an estimated 10-year risk of a cardiovascular event of 10% or greater.	B
Adults aged 40 to 75 years who have 1 or more cardiovascular risk factors and an estimated 10-year CVD risk of 7.5% to less than 10%	The USPSTF recommends that clinicians selectively offer a statin for the primary prevention of CVD for adults aged 40 to 75 years who have 1 or more CVD risk factors (ie, dyslipidemia, diabetes, hypertension, or smoking) and an estimated 10-year risk of a cardiovascular event of 7.5% to less than 10%. The likelihood of benefit is smaller in this group than in persons with a 10-year risk of 10% or greater.	C
Adults 76 years or older	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of initiating a statin for the primary prevention of CVD events and mortality in adults 76 years or older.	I

What are USPSTF ASCVD Risk Factors?

U.S. Preventive Services TASK FORCE

- Diabetes
- Hypertension
- Dyslipidemia
- Smoking
- Obesity/overweight
- CKD and Albuminuria
- Family history of premature coronary disease



What are ACC/AHA ASCVD Risk-Enhancing Factors?

- **FHx premature ASCVD**
  Males <55 y; Females <65 y
- **Primary hypercholesterolemia**
  LDL-C 160-189 mg/dL; non HDL-C 190-219 mg/dL
- **Metabolic syndrome**
  Three of any of the following: ↑ waist circumference, ↑ TG, ↑ BP, ↑ glucose, ↓ HDL-C <40mg/dL in males or <50mg/dL in females
- **CKD**
- **High-risk race/ethnicities**
  South Asian ancestry
- **Chronic inflammatory conditions**
  RA, HIV/AIDS, Psoriasis
- **Hx menopause before 40 yo and hx pregnancy-associated high-risk conditions** (ie. preeclampsia)
- **Lipid/biomarkers**
  Persistently elevated TG, ↑ hs-CRP, ↑ Lp(a), ↑apoB or ABI < 0.9

Comparing ASCVD Risk Factors

U.S. Preventive Services TASK FORCE

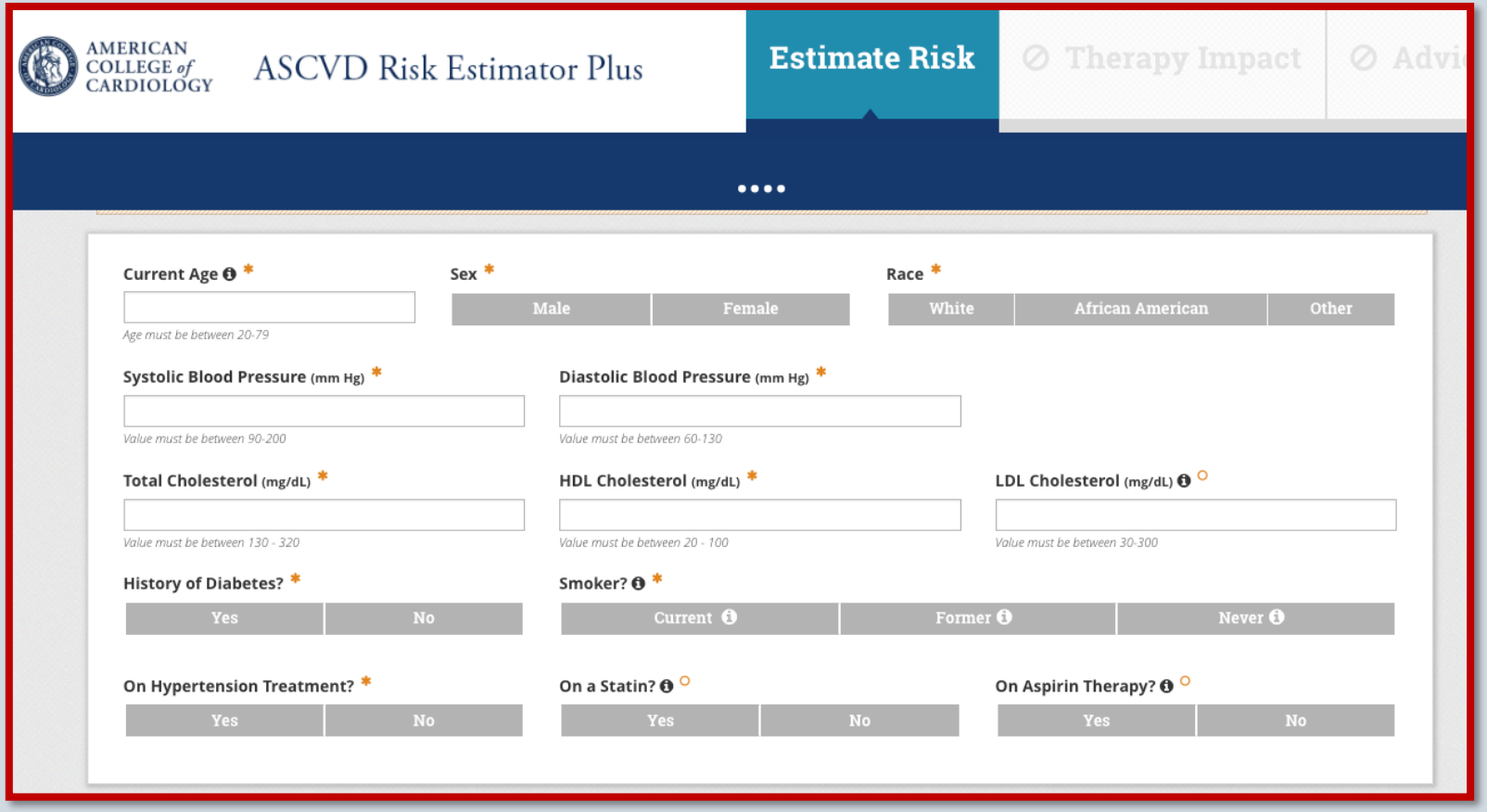
- Diabetes
- Hypertension
- Dyslipidemia
- Smoking
- Obesity/overweight
- CKD and Albuminuria
- Family history of premature coronary disease

American Heart Association | AMERICAN COLLEGE of CARDIOLOGY

- FHx premature ASCVD
- Primary hypercholesterolemia
- Metabolic syndrome
- CKD
- Chronic inflammatory conditions
- Hx premature menopause and hx pregnancy-associated conditions that increase ASCVD risk
- High-risk race/ethnicities
- Lipid/biomarkers

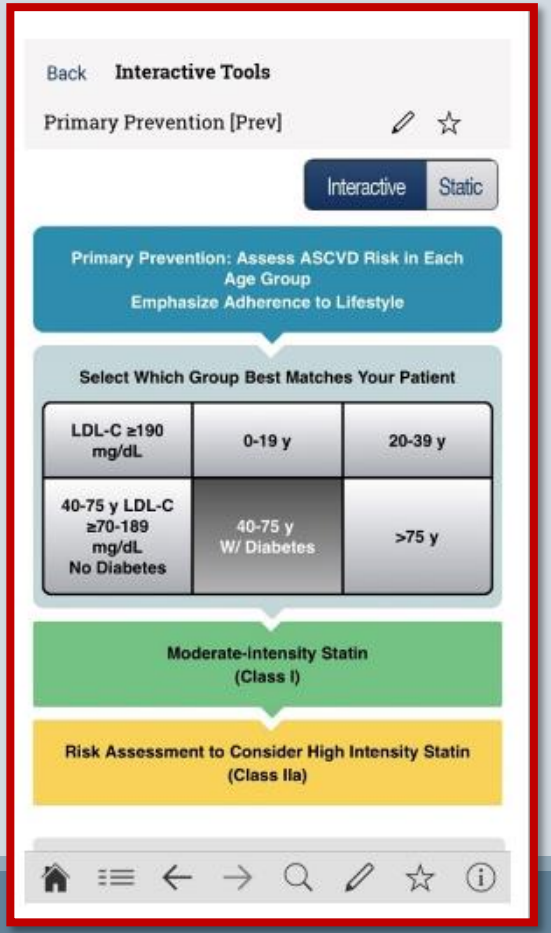
ACC ASCVD Risk Estimator

ACC ASCVD Risk Estimator Calculator for internet browser



ACC Clinical Guideline
Mobile App

COMPREHENSIVE MOBILE APP WITH ALL GUIDELINES AND CALCULATORS



Statin Therapy by Intensity

HIGH (≥50%)

Atorvastatin 40mg, 80mg

Rosuvastatin 20mg, 40mg

MODERATE (30%-49%)

Atorvastatin 10mg, 20mg

Rosuvastatin 5mg, 10mg

Simvastatin 20-40mg

Pravastatin 40mg, 80mg

Lovastatin 40mg

LOW (<30%)

Simvastatin 10mg

Pravastatin 10mg-20mg

Lovastatin 20mg

ACC/AHA Treatment:

Severe Hypercholesterolemia LDL-C ≥ 190 mg/dL

Start treatment in 20 to 75 y/o with maximally tolerated **High Intensity*** STATIN therapy

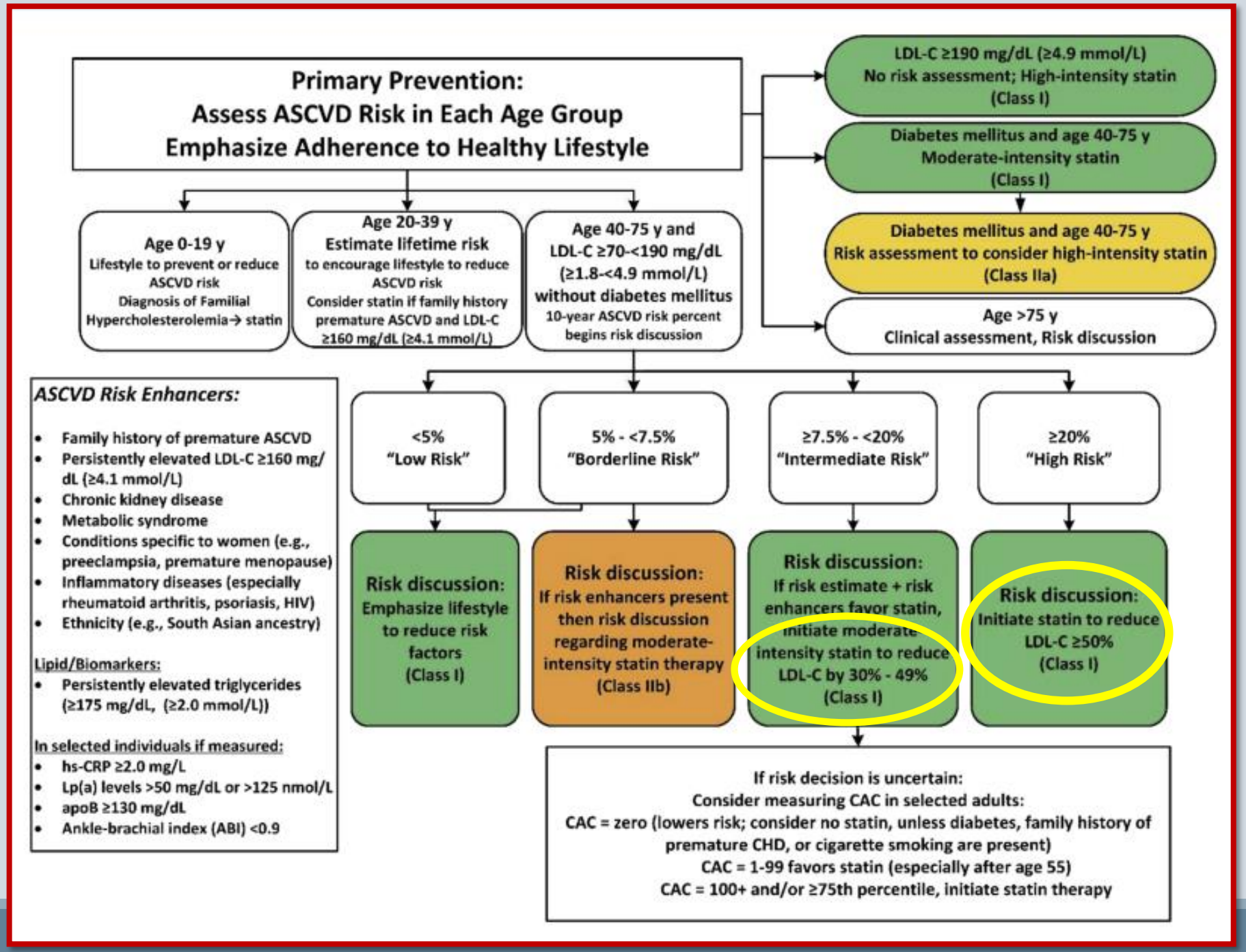
Add EZETIMIBE if:

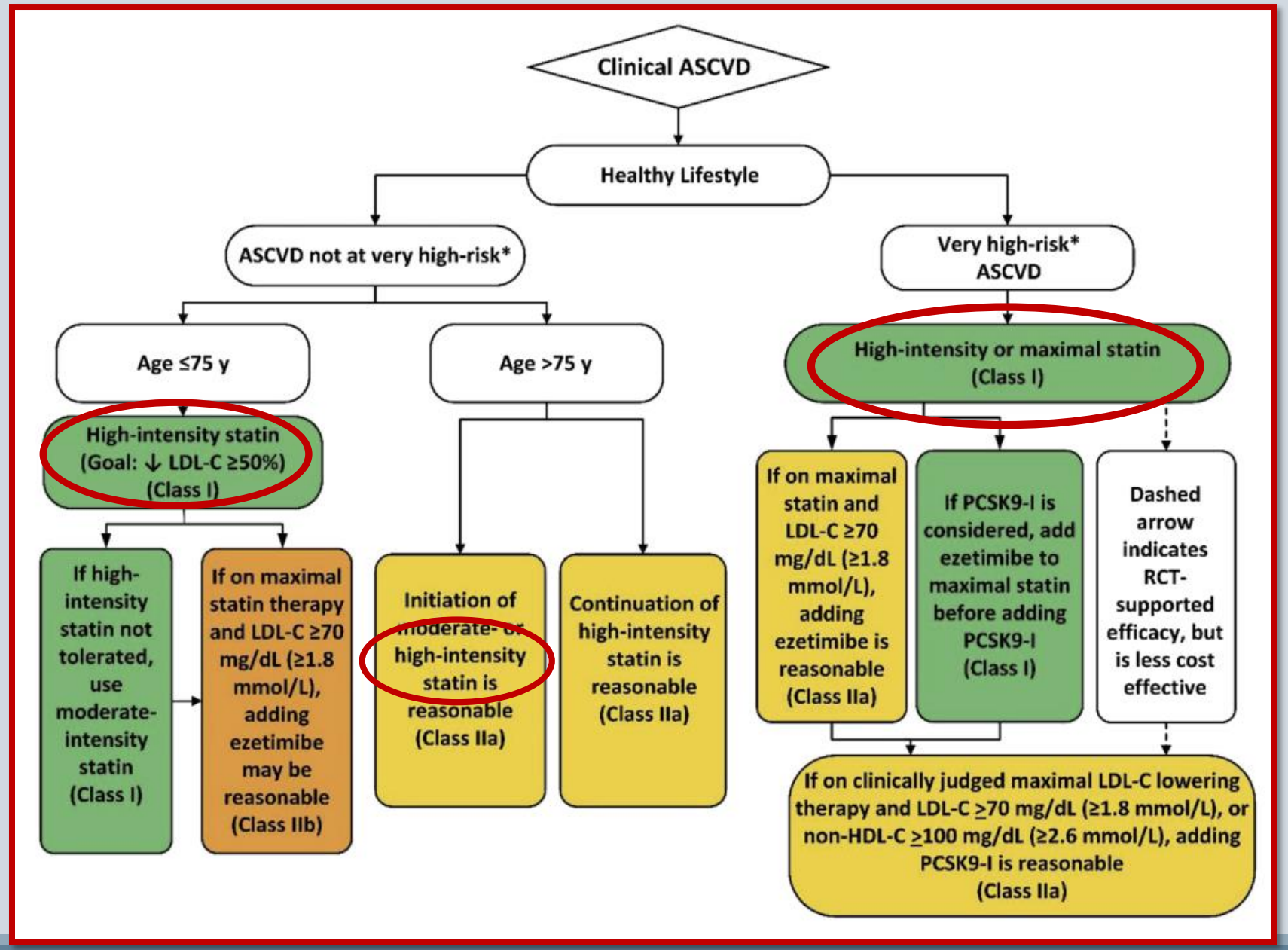
- Patients achieves <50% LDL-C reduction
- LDL-C is greater than 100 mg/dL

Add BILE ACID SEQUESTRANT if all the above *and* have fasting TG >300 mg/dL

ACC/AHA Treatment:

ASCVD *Primary* Prevention





ACC/AHA ent:

ASCVD *Secondary* Prevention

(ie– has had a cardiovascular event)

Quick word about Triglycerides from ACC

If Hypertriglyceridemia is,	Then,
Moderate (175-499 mg/dL)	Treat lifestyle factors such as obesity, secondary factors (such as diabetes, CKD, liver or thyroid disease) and address meds that increase TG in adults > 20 years old
Moderate to Severe (≥ 500 mg/dL) *and* ASCVD risk ≥ 7.5%	Start statin if TG are persistently elevated after lifestyle and secondary factors are addressed in adults 40-75 y/o
Severe (≥ 500 mg/dL, fasting) *and* ASCVD risk ≥ 7.5%	Start statin and address reversible causes of high TG

- ***AACE 2022 Update*** recommends adding fibrates or icosapent ethyl if fasting TG are persistently *over >200 mg/dL*
- You can check triglycerides in both fasting and non-fasting states
- If the triglycerides are VERY high, LDL-C will not be calculated by the lab
- Still not at goal, refer your patients to *endocrinologists or cardiologists*

*Quick word about **Aspirin** and ASCVD –*

- **Aspirin** (75-162mg/day) can be used as **secondary prevention** in patients with **DM and ASCVD**
  - Shared decision making should be used to consider aspirin as ***primary prevention*** in patients at **increased ASCVD risk**

- **Dual antiplatelet therapy** (low-dose Aspirin and Clopidogrel)
  - Reasonable for **1 year** after acute coronary syndrome (but could be extended)
  - Long term use should be considered in patients with high ischemic risk, prior coronary intervention and low bleeding risk to prevent further cardiovascular events

DIABETES

Diabetes Screening: USPSTF

Recommendation (Grade B):

- Screen for prediabetes/diabetes:
  - **Age 35-70**
  - ***WITH* BMI >25-30** (or >23 in Asian American)
  - ***Without*** symptoms of diabetes

KEY CHANGE: ***Initial screening age 35 (previously age 40)***

Screening tests:

- **Fasting blood glucose** (FBG) ***or* HbA1c *or* OGTT**

Frequency:

- Interval is ***uncertain***

Preventive Interventions:

- Lifestyle modifications ***and*** metformin have both demonstrated efficacy in slowing progression to diabetes
- Metformin has not ***yet*** been approved for prediabetes treatment

USPSTF Prediabetes & Diabetes Screening

What does the USPSTF recommend?	**Adults aged 35 to 70 years who have overweight or obesity:** • **Screen** for prediabetes and type 2 diabetes, and offer or refer patients with prediabetes to effective preventive interventions. **Grade: B**
To whom does this recommendation apply?	Nonpregnant adults aged 35 to 70 years who have overweight or obesity and no symptoms of diabetes
What's new?	The USPSTF has lowered the starting age of screening from 40 to 35 years.
How to implement this recommendation?	1. **Assess risk:** • Obtain height and weight measurements to determine whether patient has overweight or obesity. Overweight and obesity are defined as a BMI ≥25 and ≥30, respectively. 2. **Screen:** • If the patient is aged 35 to 70 years and has overweight or obesity. Consider screening at an earlier age if the patient is from a population with a disproportionately high prevalence of diabetes (American Indian/Alaska Native, Black, Hawaiian/Pacific Islander, Hispanic/Latino), and at a lower BMI (≥23) if the patient is Asian American. • Screening tests for prediabetes and type 2 diabetes include measurement of fasting plasma glucose or HbA_{1c} level or an oral glucose tolerance test.
How often?	The optimal screening interval for adults with an initial normal glucose test result is uncertain. Screening every 3 years may be a reasonable approach for adults with normal blood glucose levels.
What are other relevant USPSTF recommendations?	The USPSTF has made a recommendation on behavioral weight loss interventions to prevent obesity-related morbidity and mortality in adults with a BMI ≥30. This recommendation is available at https://www.uspreventiveservicestaskforce.org
Where to read the full recommendation statement?	Visit the USPSTF website (https://www.uspreventiveservicestaskforce.org) to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms; supporting evidence; and recommendations of others.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation.

Figure Legend:

Clinician Summary: Screening for Prediabetes and Type 2 Diabetes BMI indicates body mass index (calculated as weight in kilograms divided by height in meters squared); HbA_{1c}, hemoglobin A_{1c}; USPSTF, US Preventive Services Task Force.

Diabetes Screening: ADA Risk-Centered Approach

Overweight/obese with ≥ 1 risk factors:

- **First-degree relative** with diabetes
- High-risk **race/ethnicity**
- **History of CVD, HTN** (treated or untreated)
- **Abnormal Lipids**
  - Low HDL (<35 mg/dL) and/or High TG (>250 mg/dL)
- Conditions associated with **insulin resistance**
  - PCOS
- Physical **inactivity**

Interval of Screening

- **Annually** in patients with **prediabetes**
- Repeat at least every 3 years or more frequently based on results

Special Populations

- History of gestational diabetes (GDM) get lifelong screening in 3-year intervals
- HIV patients

Key Differences Between Authorities

USPSTF

- Screening **initiated** at ***age 35*** for ***any asymptomatic*** individual
- ***No optimal screening interval*** but 3-year interval may be reasonable

ADA

- For **initial** screening, ***prioritizes risk factors*** over start age of 35
- ***Annual*** screening interval advised for people with ***prediabetes***
- ***Three-year*** screening interval for patients who had ***GDM***
- ***Three-year*** screening interval (OR more frequent) depending on ***risk factors*** or ***initial results***
- Patients with ***HIV***

DIABETES DIAGNOSTIC CRITERIA:

ADA GUIDELINES

American Diabetes Association criteria for the diagnosis of diabetes

1. A1C ≥6.5%. The test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay.*

OR

2. FPG ≥126 mg/dL (7 mmol/L). Fasting is defined as no caloric intake for at least 8 hours.*

OR

3. 2-hour plasma glucose ≥200 mg/dL (11.1 mmol/L) during an OGTT. The test should be performed as described by the World Health Organization, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.*

OR

4. In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥200 mg/dL (11.1 mmol/L).

Diagnosis
requires TWO results
from the same or different/subsequent samples
(except in scenario #4)

Acronyms:

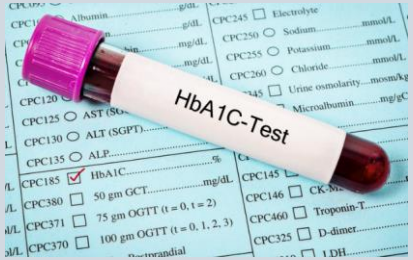
A1C: glycated hemoglobin; NGSP: National Glycohemoglobin Standardization Program; DCCT: Diabetes Control and Complications Trial; FPG: fasting plasma glucose; OGTT: oral glucose tolerance test.

* In the absence of unequivocal hyperglycemia, diagnosis requires two abnormal test results from the same sample or in two separate test samples.

DIABETES TARGET GOALS: HbA1c

Treatment Goals

- **ADA: < 7%**
- **AACE: <6.5%**
- **ACP: 7% - 8%**



Keep in mind:

- ***A1c could be falsely elevated*** in conditions with decreased RBC turnover --Anemias (B12 or folate deficiency)
- ***A1c could be falsely decreased*** in conditions with increased RBC turnover -- End-stage renal disease (ESRD)

DIABETES TREATMENT:
Pharmacologic Options (Think TWO Buckets)

EVERYTHING ELSE: (MOSTLY)

- **Metformin**
- **GIP/GLP-1 receptor agonist**
  (eg tirzepatide)
- **GLP-1 receptor agonist**
  (eg. semaglutide)
- **SGLT-2 inhibitors**
  (eg. dapagliflozin)
- **Thiazolidinediones (TZD)**
  (eg. pioglitazone)
- **DPP-4 inhibitors**
  (eg. sitagliptan)
- **Sulfonylureas (SU)**
  (eg. glipizide)

INSULIN: (OUTSIDE SCOPE OF TODAY'S WORKSHOP)

- **Basal:** Long acting
- **Prandial**: (aka: bolus)
  - Short acting, tons of options
- Start in cases of **severe** hyperglycemia
  - FBG >250 mg/dL
  - Random >300 mg/dL
  - HbA1c at or above 9%

GLYCEMIC CONTROL ALGORITHM

INDIVIDUALIZE GOALS

A1C ≤6.5% For patients without concurrent serious illness and at low hypoglycemic risk

A1C >6.5% For patients with concurrent serious illness and at risk for hypoglycemia

LIFESTYLE THERAPY AND ONGOING GLUCOSE MONITORING (CGM preferred)

INDEPENDENT OF GLYCEMIC CONTROL, IF ESTABLISHED OR HIGH ASCVD RISK AND/OR CKD, RECOMMEND SGLT2i AND/OR LA GLP1-RA

Entry A1C <7.5%

MONOTHERAPY[1,2]

- ✓ Metformin
- ✓ GLP1-RA
- ✓ SGLT2i
- ✓ DPP4i
- ⚠ TZD
- ✓ AGi
- ⚠ SU/GLN

Independent of glycemic control, if established ASCVD or high risk, CKD 3, or HFrEF, start LA GLP1-RA or SGLT2i with proven efficacy*

Entry A1C ≥7.5% - 9.0%

DUAL THERAPY[1]

- ✓ GLP1-RA
- ✓ SGLT2i
- ✓ DPP4i
- ⚠ TZD
- ⚠ SU/GLN
- ⚠ Basal Insulin
- ✓ Colesevelam
- ✓ Bromocriptine QR
- ✓ AGi

3 MONTHS[2]

TRIPLE THERAPY[1]

- ✓ GLP1-RA
- ✓ SGLT2i
- ⚠ TZD
- ⚠ SU/GLN
- ⚠ Basal Insulin
- ✓ DPP4i
- ✓ Colesevelam
- ✓ Bromocriptine QR
- ✓ AGi

3 MONTHS[2]

MET + or other agent

Entry A1C >9.0%

SYMPTOMS

NO	YES
DUAL Therapy OR TRIPLE Therapy	INSULIN ± Other Agents

ADD OR INTENSIFY INSULIN

Refer to Insulin Algorithm

LEGEND

- ✓ Few adverse events and/or possible benefits
- ⚠ Use with caution

1 Order of medications represents a suggested hierarchy of usage; length of line reflects strength of recommendation

2 If not at goal in 3 months, proceed to next level therapy

*CKD 3: canagliflozin; HFrEF: dapagliflozin

CKD 3 = stage 3 chronic kidney disease; HFrEF = heart failure with reduced ejection fraction; LA = long-acting (≥24 hour duration)

PROGRESSION OF DISEASE

USE OF GLUCOSE-LOWERING MEDICATIONS IN THE MANAGEMENT OF TYPE 2 DIABETES

American Diabetes Association®

NEW UPDATE

HEALTHY LIFESTYLE BEHAVIORS; DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT (DSMES); SOCIAL DETERMINANTS OF HEALTH (SDOH)

TO AVOID THERAPEUTIC INERTIA REASSESS AND MODIFY TREATMENT REGULARLY (3–6 MONTHS)

Goal: Cardiorenal Risk Reduction in High-Risk Patients with Type 2 Diabetes (in addition to comprehensive CV risk management)*

+ASCVD†

Defined differently across CVOTs but all included individuals with established CVD (e.g., MI, stroke, any revascularization procedure). Variably included: conditions such as transient ischemic attack, unstable angina, amputation, symptomatic or asymptomatic coronary artery disease.

+Indicators of high risk

While definitions vary, most comprise ≥55 years of age with two or more additional risk factors (including obesity, hypertension, smoking, dyslipidemia, or albuminuria)

+ASCVD/Indicators of High Risk

GLP-1 RA# with proven CVD benefit **EITHER/OR** SGLT2i§ with proven CVD benefit

If A1C above target

- For patients on a GLP-1 RA, consider adding SGLT2i with proven CVD benefit or vice versa
- TZD^

+HF

Current or prior symptoms of HF with documented HFrEF or HFpEF

+HF

SGLT2i§ with proven HF benefit in this population

+CKD

eGFR <60 mL/min per 1.73 m² OR albuminuria (ACR ≥3.0 mg/mmol [30 mg/g]). These measurements may vary over time; thus, a repeat measure is required to document CKD.

+CKD (on maximally tolerated dose of ACEi/ARB)

PREFERABLY

SGLT2i§ with primary evidence of reducing CKD progression

Use SGLT2i in people with an eGFR ≥20 mL/min per 1.73 m²; once initiated should be continued until initiation of dialysis or transplantation

OR

GLP-1 RA with proven CVD benefit if SGLT2i not tolerated or contraindicated

If A1C above target, for patients on SGLT2i, consider incorporating a GLP-1 RA or vice versa

If additional cardiorenal risk reduction or glycemic lowering needed

Goal: Achievement and Maintenance of Glycemic and Weight Management Goals

Glycemic Management: Choose approaches that provide the efficacy to achieve goals:

Metformin OR Agent(s) including COMBINATION therapy that provide adequate EFFICACY to achieve and maintain treatment goals

Consider avoidance of hypoglycemia a priority in high-risk individuals

In general, higher efficacy approaches have greater likelihood of achieving glycemic goals

Efficacy for glucose lowering

Very High:
Dulaglutide (high dose), Semaglutide, Tirzepatide

Insulin

Combination Oral, Combination Injectable (GLP-1 RA/Insulin)

High:
GLP-1 RA (not listed above), Metformin, SGLT2i, Sulfonylurea, TZD

Intermediate:
DPP-4i

Achievement and Maintenance of Weight Management Goals:

Set individualized weight management goals

General lifestyle advice: medical nutrition therapy/eating patterns/ physical activity

Intensive evidence-based structured weight management program

Consider medication for weight loss

Consider metabolic surgery

When choosing glucose-lowering therapies:

Consider regimen with high-to-very-high dual glucose and weight efficacy

Efficacy for weight loss

Very High:
Semaglutide, Tirzepatide

High:
Dulaglutide, Liraglutide

Intermediate:
GLP-1 RA (not listed above), SGLT2i

Neutral:
DPP-4i, Metformin

If A1C above target

Identify barriers to goals:

- Consider DSMES referral to support self-efficacy in achievement of goals
- Consider technology (e.g., diagnostic CGM) to identify therapeutic gaps and tailor therapy
- Identify and address SDOH that impact achievement of goals

* In people with HF, CKD, established CVD or multiple risk factors for CVD, the decision to use a GLP-1 RA or SGLT2i with proven benefit should be independent of background use of metformin;† A strong recommendation is warranted for people with CVD and a weaker recommendation for those with indicators of high CV risk. Moreover, a higher absolute risk reduction and thus lower numbers needed to treat are seen at higher levels of baseline risk and should be factored into the shared decision-making process. See text for details; ^ Low-dose TZD may be better tolerated and similarly effective; § For SGLT2i, CV/renal outcomes trials demonstrate their efficacy in reducing the risk of composite MACE, CV death, all-cause mortality, MI, HHF, and renal outcomes in individuals with T2D with established/high risk of CVD; # For GLP-1 RA, CVOTs demonstrate their efficacy in reducing composite MACE, CV death, all-cause mortality, MI, stroke, and renal endpoints in individuals with T2D with established/high risk of CVD.

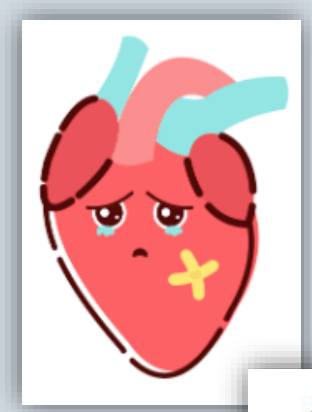
Diabetes Care. 2022;46(Supplement_1):S140-S157. doi:10.2337/dc23-S009

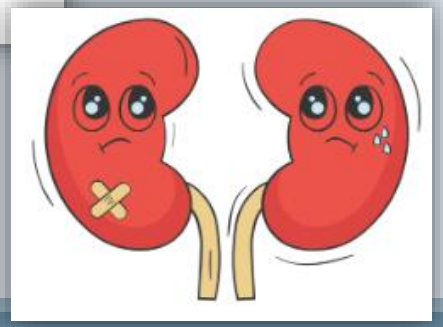
DIABETES TREATMENT:
(All Authorities Agree - ADA/ACE/AACE)

FIRST LINE TREATMENTS *(EVERYONE!)*

- **Lifestyle modifications**
  - **Diet**
  - **Exercise**
    - AHA recommends weekly goals of:
      - 150 mins of moderate intensity exercise
      - OR 75 mins of vigorous intensity exercise

American Diabetes Association®





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+CKD (on maximally tolerated dose of ACEi/ARB)

PREFERABLY

SGLT2i§ with primary evidence of reducing CKD progression

Use SGLT2i in people with an eGFR ≥20 mL/min per 1.73 m^2; once initiated should be continued until initiation of dialysis or transplantation

OR

GLP-1 RA with proven CVD benefit if SGLT2i not tolerated or contraindicated

If A1C above target, for patients on SGLT2i, consider incorporating a GLP-1 RA or vice versa

If additional cardiorenal risk reduction or glycemic lowering needed

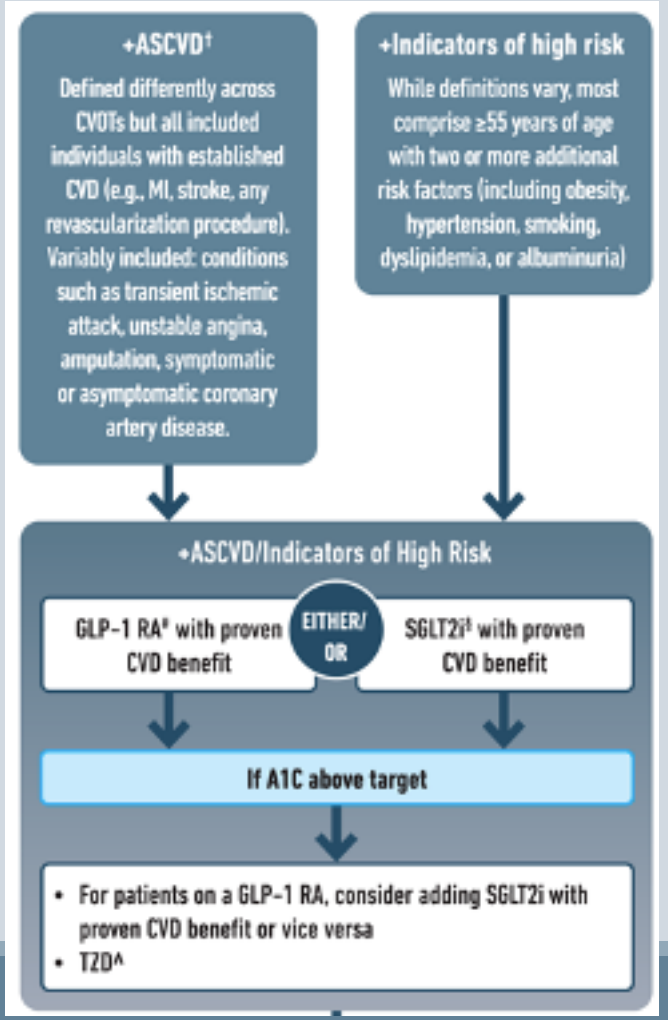
FIRST LINE THERAPEUTICS ASCVD or HIGH -RISK INDICATORS

GLP-1 RA

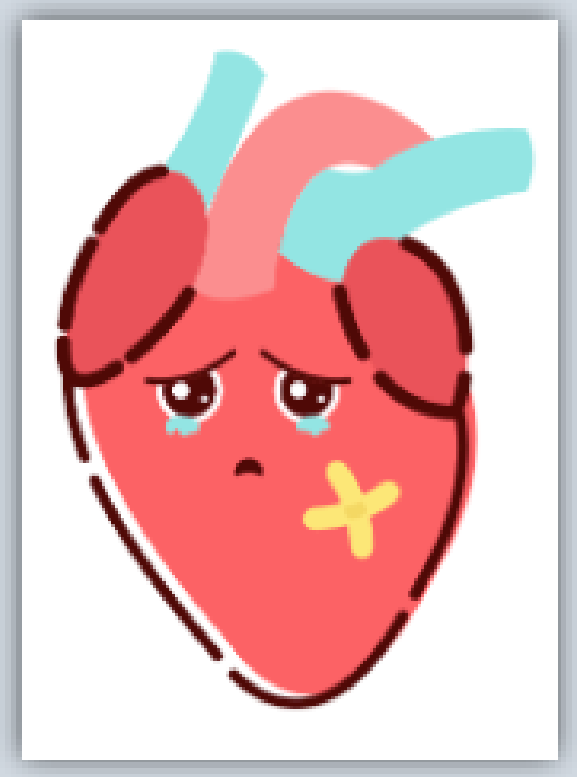
- Do NOT use in thyroid cancer, pancreatic cancer or MEN syndrome
- Side effects: GI issues such as nausea, reflux, diarrhea/constipation

SGLT2i

- Side effects: GU yeast infx
- Pos: slight weight loss, diuresis may lower BP
- Do not use in GFR <30

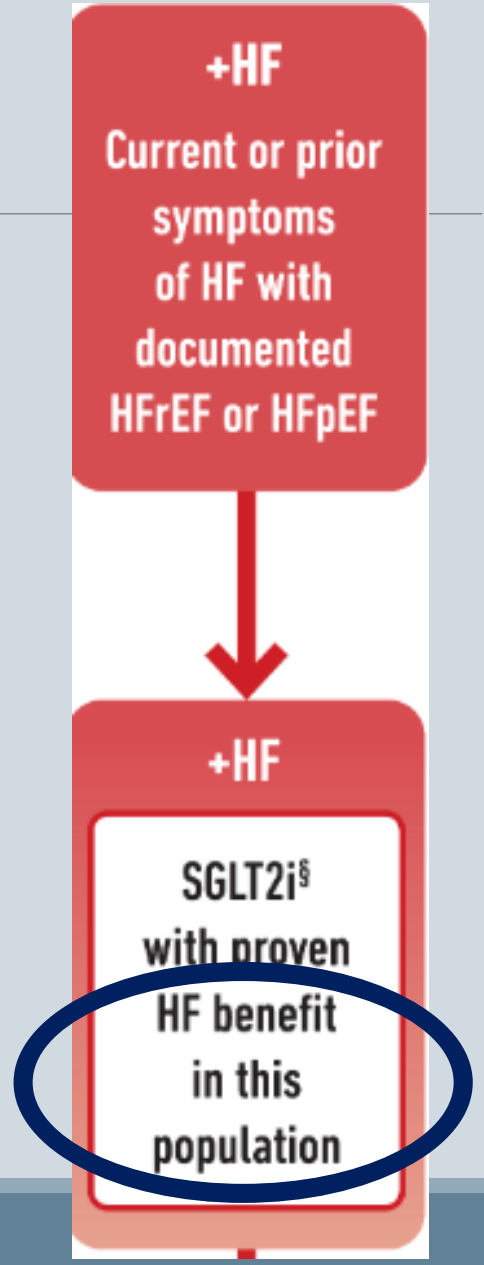


FIRST LINE THERAPEUTICS
Heart Failure



Use SGLT2i

- Neg: GU yeast infx
- Pos: slight weight loss, diuresis may lower BP
- Do not use in GFR <30
- As of 2022, consider medications with **proven HF benefit** such as *canagliflozin, dapagliflozin, empagliflozin or ertugliflozin*



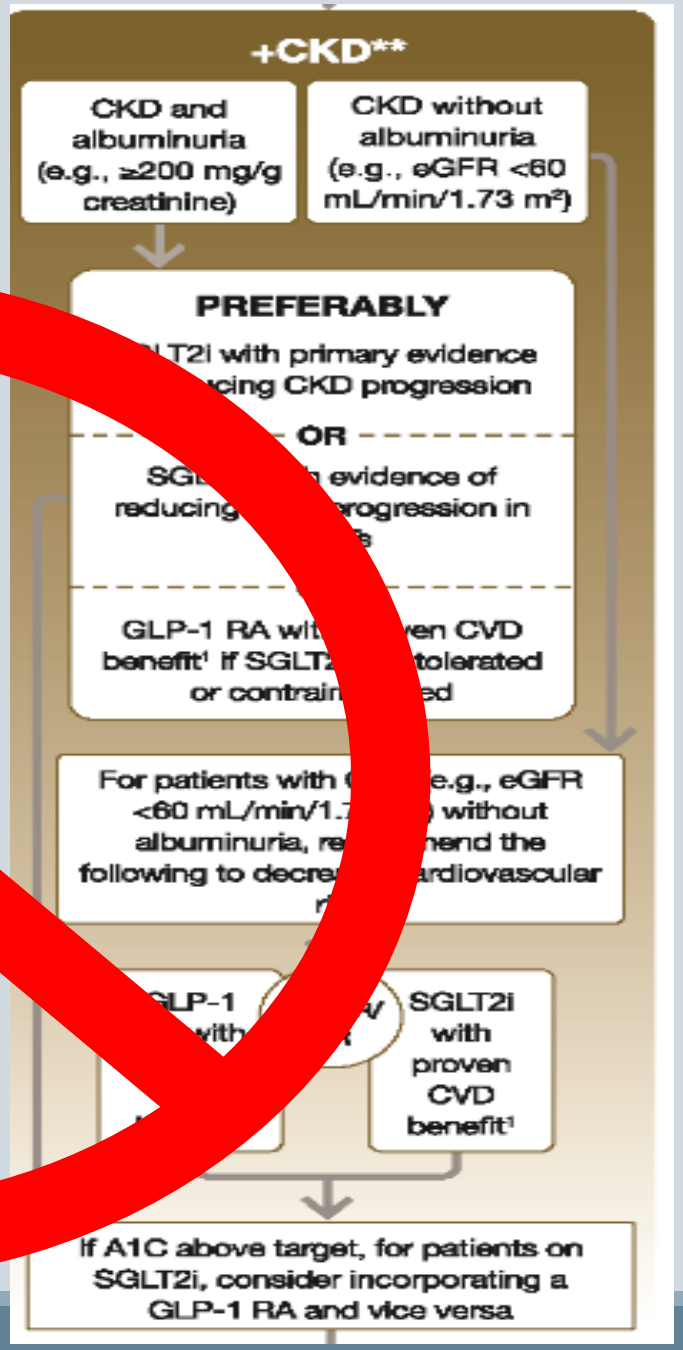
First Line Therapeutics: Chronic Kidney Disease (CKD)

CKD *with* albuminuria

- **SGLT**
- **G RA** if SG i is not tolerated

CK *without* album ria

- **P-1 RA** with CVD ben
- **T2i** with CVD benefit



FIRST LINE THERAPEUTICS
Chronic Kidney Disease (CKD)

- Use **SGLT2i** with evidence of reducing CKD progression
- As of 2022, consider medications with **CKD reduction benefit** *(canagliflozin, dapagliflozin or empagliflozin)*
  - Hold 3-4 days before surgery or during critical illness or prolonged fasting
  - *RARE*: Euglycemic DKA or Fournier gangrene
  - *Side Effect*: GU mycotic infections and glycosuria

+CKD

eGFR <60 mL/min per 1.73 m^2 OR albuminuria (ACR ≥3.0 mg/mmol [30 mg/g]). These measurements may vary over time; thus, a repeat measure is required to document CKD.

+CKD (on maximally tolerated dose of ACEi/ARB)

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American Diabetes Association®

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[illegible] including COMBINATION therapy that provide adequate EFFICACY to achieve and maintain treatment goals

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Very High:
Dulaglutide (high dose), Semaglutide, Tirzepatide

Insulin

Combination Oral, Combination Injectable (GLP-1 RA/Insulin)

High:
GLP-1 RA (not listed above), Metformin, SGLT2i, Sulfonylurea, TZD

Intermediate:
DPP-4i

Achievement and Maintenance of Weight Management Goals:

Set individualized weight management goals

General lifestyle advice: medical nutrition therapy/eating patterns/ physical activity

Intensive evidence-based structured weight management program

Consider medication for weight loss

Consider metabolic surgery

When choosing glucose-lowering therapies:
Consider regimen with high-to-very-high dual glucose and weight efficacy

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Very High:
Semaglutide, Tirzepatide

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Dulaglutide, Liraglutide

Intermediate:
GLP-1 RA (not listed above), SGLT2i

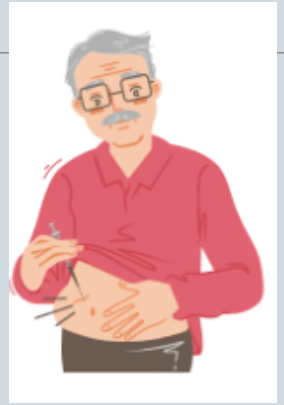
Neutral:
DPP-4i, Metformin

Diabetes Care. 2022;46(Supplement_1):S140-S157. doi:10.2337/d

NEXT LINE THERAPEUTICS
Glycemic Management

- EFFICACY without/less hypoglycemia

- **Metformin** OR Agent(s) such as *combination* medications that effectively achieve and maintain glycemic goals



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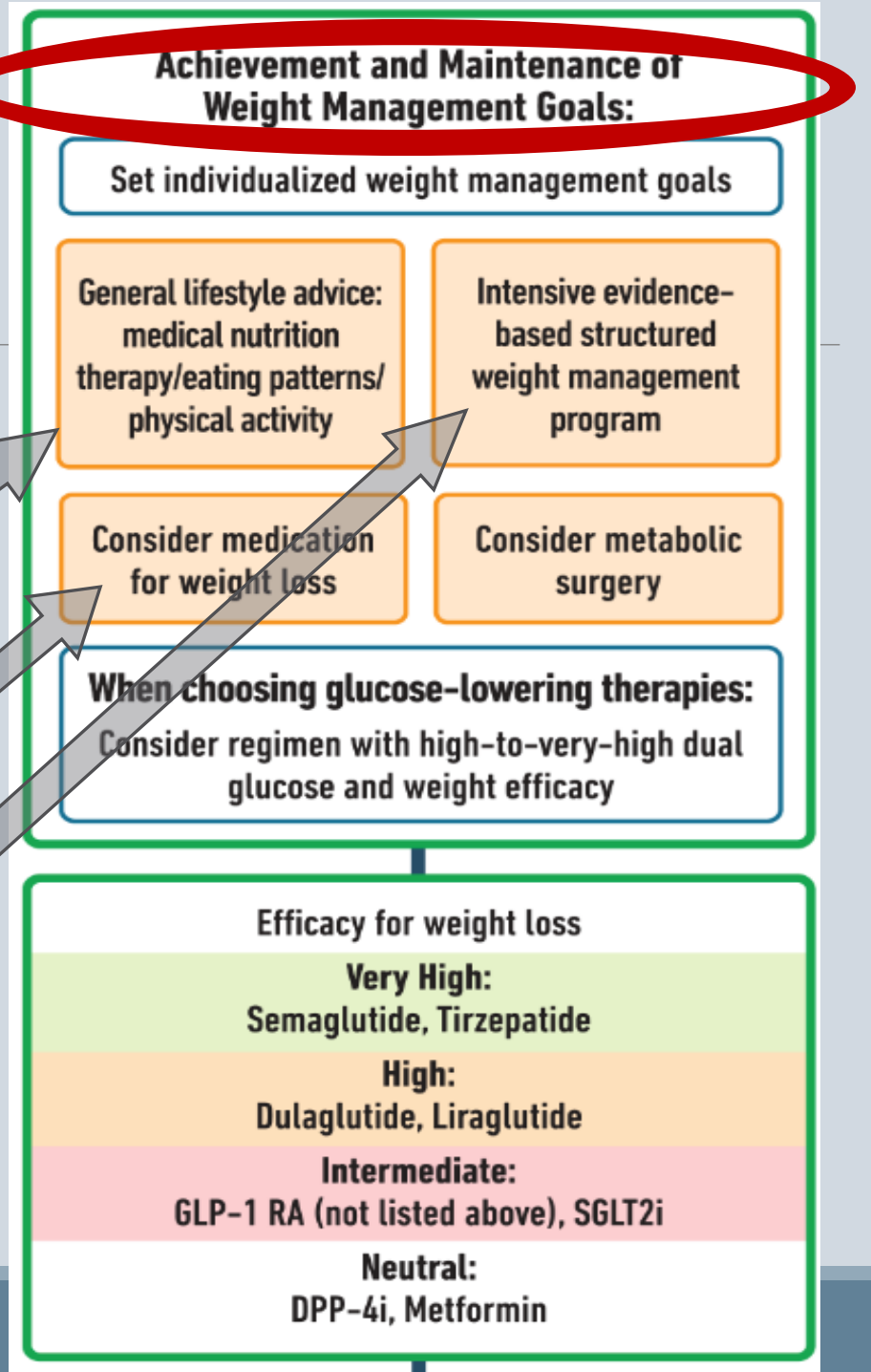
High:
GLP-1 RA (not listed above), Metformin, SGLT2i, Sulfonylurea, TZD

Intermediate:
DPP-4i

NEXT LINE THERAPEUTICS
Weight Management

- Select diabetes therapies that will control BOTH glucose and weight
- General lifestyle modification counseling
- Consider referral to surgery or weight loss medications
- Implement evidence-based weight management



NEXT LINE THERAPEUTICS
Weight Management

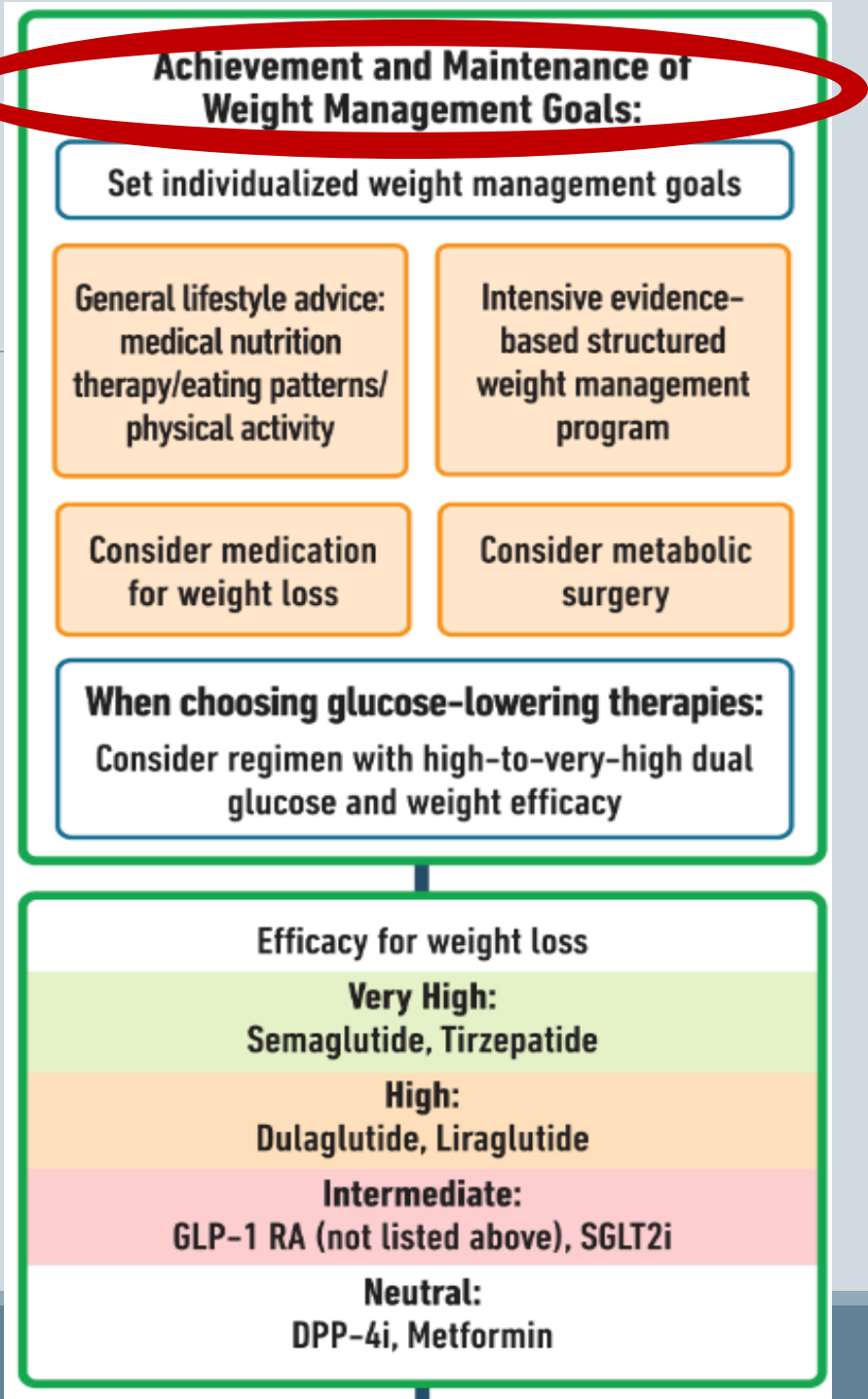
Select therapies based on WEIGHT LOSS EFFICACY

Very High
- Semaglutide, Tirzepatide

High
- Dulaglutide, Liraglutide

Intermediate
- GLP-1 not listed above (such as Exentide), SGLT2i

Neutral
- DPP-4i, Metformin



DIABETES TREATMENT:
But what about Metformin as first line ?

- Neutral to potential effect on cardiovascular risk
- Low risk of hypoglycemia, low to modest weight loss
- Take with food to lessen GI side effects and monitor for B12 Deficiency
- CKD implications
  - Can be used in eGFR >30
  - Do NOT start if eGFR <45
  - Reduce dose between eGFR 30-45
- Recommended for prediabetes by ADA and AACE

DIABETES TREATMENT: What about Tirzepatide?

Classification

- Dual glucagon-like peptide 1/glucose–dependent insulinotropic polypeptide receptor agonist (gip/glp-1)

Very high weight loss potential

Cost: Very High

Cardiovascular and Renal benefit studies are underway

	Efficacy[1]	Hypoglycemia	Weight change[2]	CV effects		Renal effects	
				Effect on MACE	HF	Progression of DKD	Dosing/use considerations*
GIP and GLP-1 RA	Very high	No	Loss (very high)	Under investigation	Under investigation	Under investigation	• See label for renal dose considerations • No dose adjustment • Monitor renal function when initiating or escalating doses in patients with renal impairment reporting severe adverse GI reactions

DIABETES TREATMENT:
Avoiding Hypoglycemia

Definition

- Decrease in glucose concentration **<70 mg/dL**
- However, this is a moving target based on the individual

Risk Factors

- Medications (Insulin/sulfonylurea)
- Exercise
- Frequency of Meals (food insecurities)

Signs/Symptoms

Tremor
Palpitations
Sweating
Confusion
Dizziness
Anxious/angry/hangry

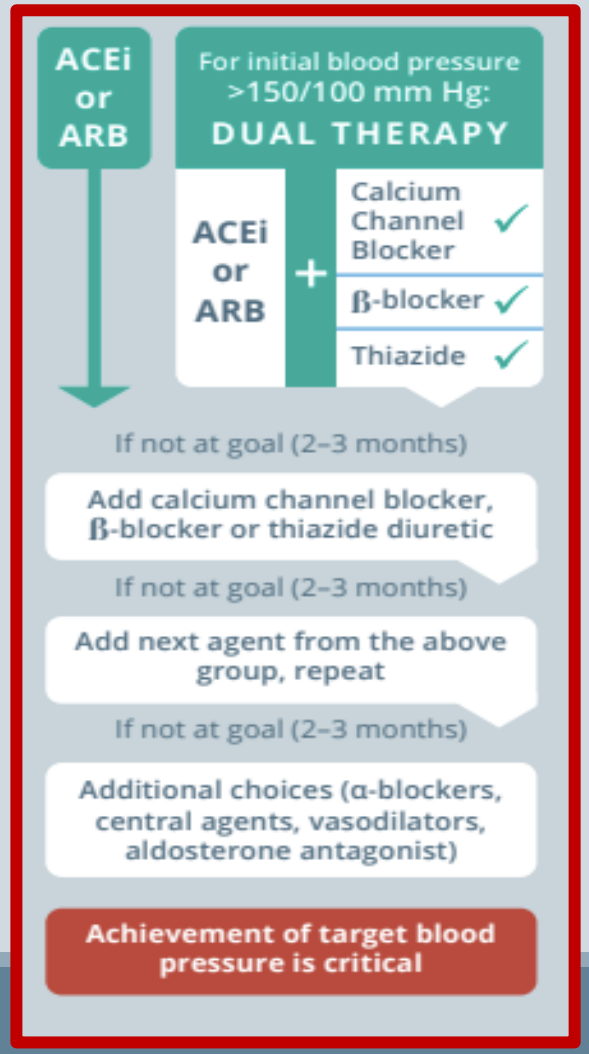
Treatment Sugar!

Glucose tablets
Soda/juices
Raisins
Sugar/honey
Hard candies

DIABETES *CAVEATS:* HYPERTENSION

LESS THAN 130/80

- **ADA**
  - 10-year ASCVD risk score ***at or greater*** than 15% or,
  - If ***established*** ASCVD
- **AACE**
  - Appropriate target for ***most*** individuals



LESS THAN 140/90

- **ADA**
  - 10-year ASCVD risk score ***less*** than 15%
- **AACE**
  - Aim for <130/80

TREATMENT ESCALATION PER AACE

DIABETES *CAVEATS:* ASCVD

AACE

Stratification to determine goals

HIGH: Diabetes alone and > 40 y/o

VERY HIGH: Diabetes + one more risk factor

EXTREME: Diabetes + prior ASCVD event such as CVA or MI =or= CKD3/4

Treatment

- **Maximally tolerated statin** → Intensify statin to reach goal if tolerated
- Add **ezetimibe** or PCSK9-inhibitors or colesevelam as needed

ADA

Primary Prevention

- **Moderate-intensity statin** in ages **40-75 without ASCVD**
- **High intensity statin** in patients with **multiple ASCVD** risk factors or ages **50-70**
- Add **ezetimibe** in adults with ASCVD risk of ≥20%
- Reasonable to **continue statin** or initiate statin after cost/benefit discussion in pts >75 y/o

ACC/AHA

Primary Prevention

- **Moderate-intensity statin** in ages **40-75 regardless of ASCVD risk**
- **High intensity statin** in patients with **multiple ASCVD** risk factors
- Add **ezetimibe** in adults with ASCVD risk of ≥20%
- Reasonable to **continue statin** or initiate statin after cost/benefit discussion in pts >75 y/o

IMPORTANT CONSIDERATIONS

Counsel and motivate

diverse patient populations on cardiovascular health

with culturally informed lifestyle modifications

while considering social determinants of health

Language, Disease and Inclusivity

Mindful goal: Avoid labeling our patients

Patients are **NOT *'diabetics'*** - they have a disease called **diabetes**

Patients are **NOT *'obese'*** - they have a disease called **obesity**

In summary, use PEOPLE FIRST language

*What do we mean by **social determinants of health**?*

Patient Considerations

Health Care Access and Quality

- Patients who live alone/limited assistance
- Distance to nearest clinics or hospitals
- Cost of medications and testing
  - ***Consider telemedicine visit, generic medications***

Education Access and Quality

- Consider health literacy of patient AND caregivers
- Language barriers
  - ***Provide materials in native language, consider limited access to internet***

Economic Stability

- Fixed income
- Unemployed
  - ***Engage team in identifying patient assistance options*** *(GOODRX or COVERAGE app)*

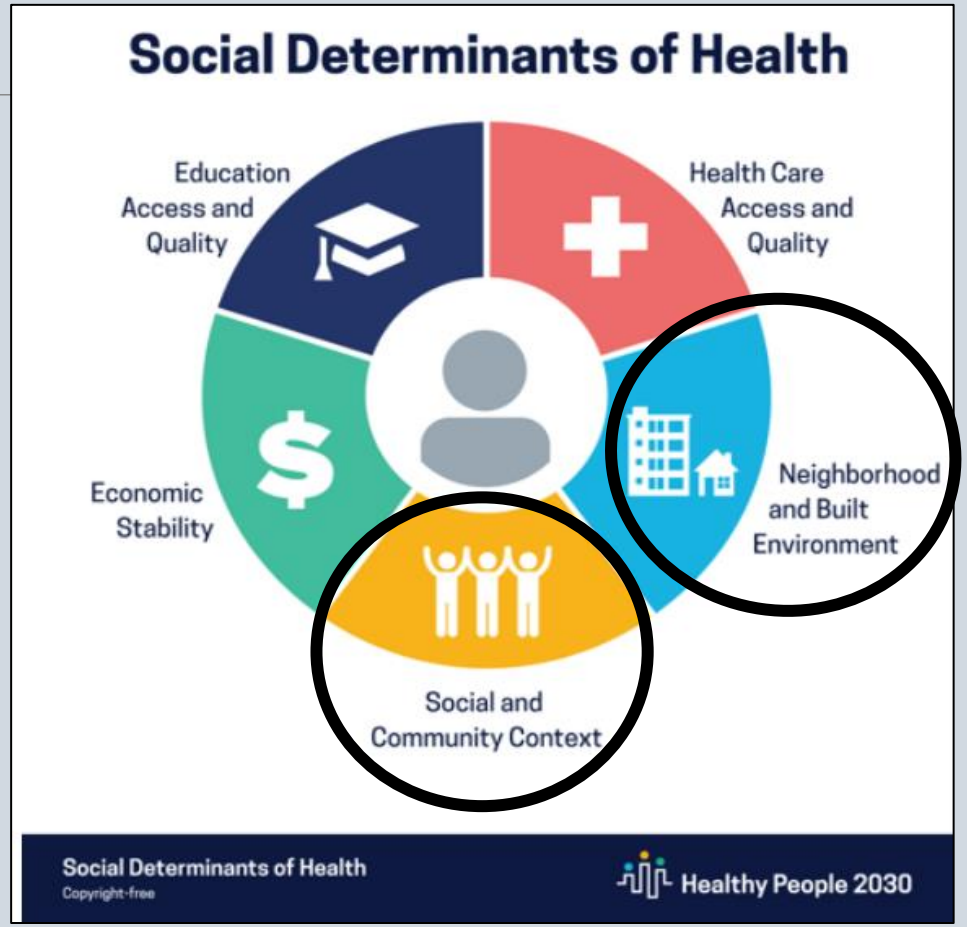
Patient Considerations

Social and Community Context

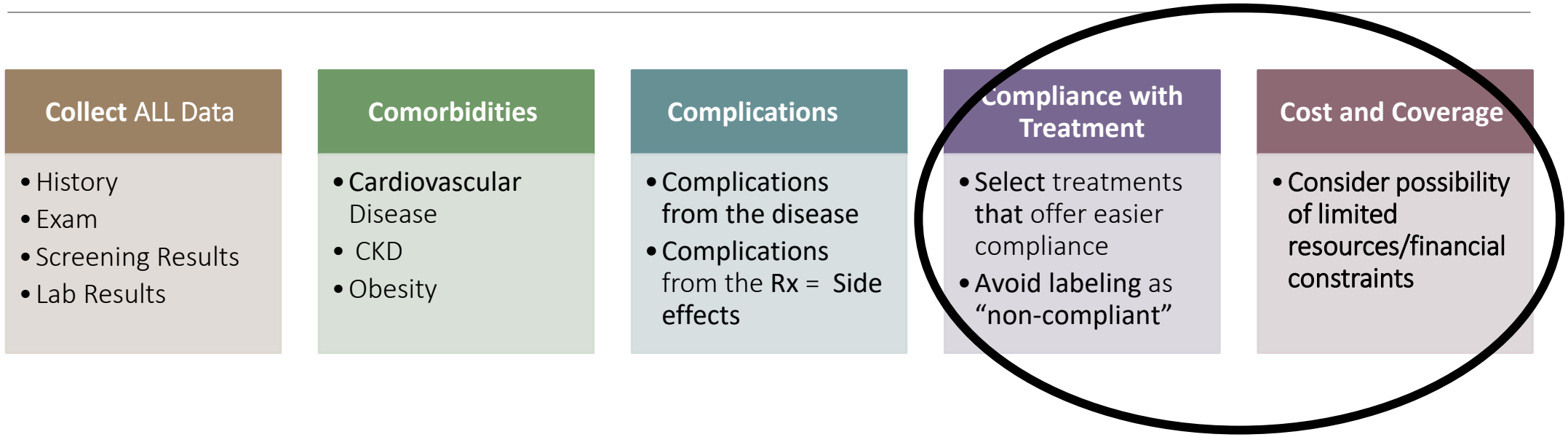
- Patients who live alone/limited assistance
- Multi-generation households
- Recent immigrants/Refugees
- Homelessness
  - ***ASK ASK ASK!***

Neighborhood and Built Environment

- Food deserts and access to healthy foods
- Transportation
- Faith-based community outreach
- Neighborhood safety and its implication on exercise
- Homelessness
  - ***Reconsider language of 'noncompliance'***
  - ***Change locus of control – what can we do to help them?***



Isabel's 5Cs of Treatment Considerations



- **Meet each person where they are**
- **GOAL: Best Outcomes for every patient regardless of situation**


CASES

Case Content QR Code

CC: Headaches every morning with Claudia

Claudia is a 56-year-old female with prior GDM, controlled migraines and mild psoriatic arthritis.

She is presently concerned with a headache over the last 4 days that “comes and goes, usually only in the mornings.” She reports the headaches are different from her migraines in that they are located across the forehead or on the back of her neck. She added that her headache yesterday caused some blurry vision, mild nausea and dizziness that were self-limiting. These headaches are not associated with vision loss, vomiting, photophobia or phonophobia. States no worsening factors but improvement either on their own or with acetaminophen. Denies fever, chills, unintentional weight loss, congestion, weakness, speech changes, numbness/tingling, chest pain, dyspnea, orthopnea, abdominal pain, bowel changes, dysuria or imbalance.

She had a similar symptoms a few months ago and was seen in the ER but was told “I was fine. They said I didn’t have a stroke.”

CC: Headaches every morning

PMH: As per above

PSH: Total hysterectomy without oophorectomy

Fam Hx: Father-unknown; Mother-HTN, thyroid disease. Brother-HTN, CAD and T1DM

Social Hx: Denies smoking vaping or chewing tobacco. Denies illicit drug use or substance abuse. Drinks 1-2 glasses of red wine twice a week

Allergies: ciprofloxacin

Medications:

Daily: escitalopram 10mg, estradiol cream 0.1mg vaginal cream every 3 days, meloxicam 7.5mg, women's multivitamin.

PRN: Rizatriptan 5mg + Toradol 10mg for migraine

CC: Headaches every morning

Vitals

BP 138/89 | HR 86 and regular | Wt 203 lb | Ht 5’6” | BMI 32.8 | Waist Circumference 39” | Pulse ox 100%

Physical Exam

GEN: no acute distress; alert and oriented x 3

Skin: warm, dry skin without tenting; no lesions or rashes

HN: Normocephalic, atraumatic; neck supple without rigidity and without carotid bruits; no thyromegaly

EENT: Conjunctiva clear; PERRLA; funduscopic exam with discs flat and sharp; OP with pink moist buccal mucosa; Nasal turbinates pink and moist

CV: Distinct S1, S2; no murmurs, gallops or rubs

Lungs: CTA-B without wheezing, rales or rhonchi

Neuro: Normal speech; cranial nerves II through XII intact; DTR's symmetric; Babinski sign negative; motor and sensory grossly normal bilaterally; normal muscle tone, no tremors, BUE and BLE strength 5/5, Romberg sign negative, normal gait and station.

CC: Headaches every morning

Fasting Lab	Value	Fasting Lab	Value	Fasting Lab	Value	Fasting Lab	Value
Glucose	122	Protein	6.9	TSH	3.5	Chol	260
BUN	19	Albumin	4.1	HgA1c	5.5	HDL	29
Creatinine	0.99	Globulin	2.3	Vitamin D	18	LDL-C	170
eGFR	76	A/G Ratio	1.8			TG	306
Sodium	145	Bilirubin, total	0.3	WBC	8.1		
Potassium	3.8	AST	28	RBC	4.1		
Chloride	105	ALT	35	Hg	12.6		
Carbon dioxide	25			Hct	39.7		
Calcium	9.9						

10.0% Intermediate — **Current 10-Year ASCVD Risk****

Lifetime ASCVD Risk: **39%** Optimal ASCVD Risk: **2.0%**

Current Age * : 56
Age must be between 20-79

Sex *: Male | ✔ Female

Race *: White | ✔ African American | Other

Systolic Blood Pressure (mm Hg) *: 138
Value must be between 90-200

Diastolic Blood Pressure (mm Hg) *: 89
Value must be between 60-130

Total Cholesterol (mg/dL) *: 260
Value must be between 130 - 320

HDL Cholesterol (mg/dL) *: 29
Value must be between 20 - 100

LDL Cholesterol (mg/dL) ○: 170
Value must be between 30-300

History of Diabetes? *: Yes | ✔ No

Smoker? *: Current | Former | ✔ Never

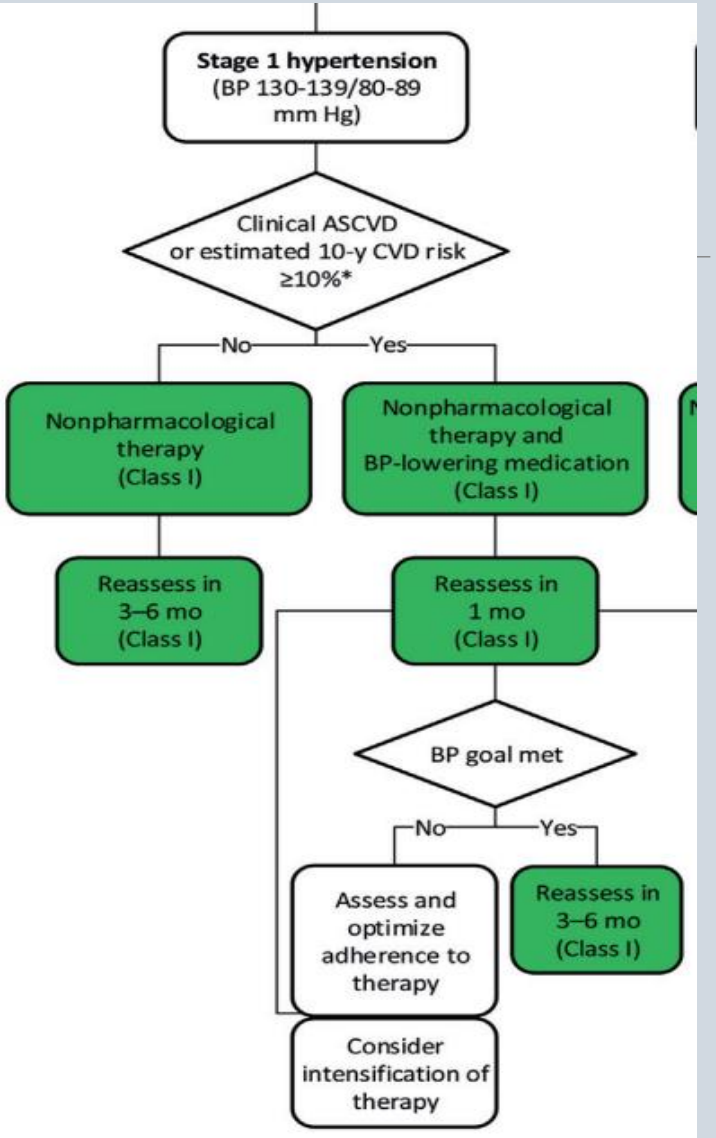
On Hypertension Treatment? *: Yes | ✔ No

On a Statin? ○: Yes | ✔ No

On Aspirin Therapy? ○: Yes | ✔ No

Discussion questions

1. **What are the diagnoses?**
2. **How would you approach the treatment for HTN?**
3. **Does this patient have ASCVD?**



CC: Follow up on back pain and labs with Mario

Mario is 46-years-old with OSA and HTN, who presents to clinic after going to the ED for back pain. His random blood glucose was 133 and he was advised to follow up with his PCP.

He reports trying diet and exercise to control his glucose since his last physical but finds it hard to make time to exercise.

Currently, he denies polydipsia, polyphagia and polyuria as well chest pain, shortness of breath, palpitations, headache, fevers, unintentional weight loss, abdominal pain, diarrhea, or rashes.

CC: Follow up on back pain and labs

PMH: As per above

PSH: Tonsillectomy as a child

Fam Hx: Father-ASCVD; died at 62 of an AMI; Mother-diabetes and breast cancer; sister-RA and HTN

Social Hx: Previous 22-pack year history. Quit smoking tobacco two years ago; does not vape or chew tobacco. Denies illicit drug use or alcohol use

Allergies: NKDA

Medications: Daily: loratadine 10mg, HCTZ 25mg, vitamin D 2000 IU, aspirin 81mg. PRN ibuprofen 600mg.

CC: Follow up on back pain and labs

Vitals

BP 143/79 | HR 86 | Wt 223 lb | Ht 5’9” | BMI 32.9 | Waist Circumference 45” | Pulse ox 100% RA

Physical Exam

GEN: no acute distress; alert and oriented x 3

Skin: dry, skin tenting noted

HEENT: conjunctiva clear, PERRLA; OP with pink, moist mucosa; Nasal turbinates pink, moist

CV: RRR with normal S1/S2; no murmur or gallops noted

Lungs: CTA-B without wheezing, rales or rhonchi

Abd: soft, non-distended, non-tender with normal bowel sounds, no palpable masses, no hepatosplenomegaly, no rebound or guarding, no CVA-T

CC: Follow up on back pain and labs

Fasting Lab	Value	Fasting Lab	Value	Fasting Lab	Value	Fasting Lab	Value
Glucose	118	Protein	7.2	TSH	2.6	Chol	256
BUN	22	Albumin	4.6	HgA1c	6.3	HDL	31
Creatinine	1.00	Globulin	2.6	Vitamin D	27	LDL-C	169
eGFR	87	A/G Ratio	1.77			TG	282
Sodium	138	Bilirubin, total	0.9	WBC	5.3		
Potassium	4.2	AST	26	RBC	4.1		
Chloride	99	ALT	32	Hg	13.1		
Carbon dioxide	26			Hct	39.2		
Calcium	8.9						

8.5% Intermediate — **Current 10-Year ASCVD Risk****

Lifetime ASCVD Risk: **69%** Optimal ASCVD Risk: **1.3%**

App should be used for primary prevention patients (those without ASCVD) only.

Current Age * 46
Age must be between 20-79

Sex * ✔ Male | Female

Race * ✔ White | African American | Other

Systolic Blood Pressure (mm Hg) * 143
Value must be between 90-200

Diastolic Blood Pressure (mm Hg) * 79
Value must be between 60-130

Total Cholesterol (mg/dL) * 256
Value must be between 130 - 320

HDL Cholesterol (mg/dL) * 31
Value must be between 20 - 100

LDL Cholesterol (mg/dL) ○ 169
Value must be between 30-300

History of Diabetes? * Yes | ✔ No

Smoker? * Current | ✔ Former | Never

How long ago did patient quit smoking? * 2.5-3.5 years ago

On Hypertension Treatment? * ✔ Yes | No

On a Statin? ○ Yes | ✔ No

On Aspirin Therapy? ○ ✔ Yes | No

Discussion questions

1. **What are the diagnoses?**
2. **Does this patient have ASCVD? If so, how would you address this diagnosis?**
3. **What are the implications of this pt's BMI? How can this be addressed?**
4. **What are the implications of the pt's glucose? How could this be addressed?**
5. **Does this pt need to be on aspirin?**

Six-month follow-up with Mario

On routine follow-up, Mario reports he has changed his lifestyle by drinking fewer soft drinks and but still eats out for lunch 3-4 times a week. He has not had time to exercise. He is compliant with his **new medications** *

Medications

Daily: loratadine 10mg, HCTZ 25mg, Vitamin D 2000 IU, **valsartan 160mg** *, **atorvastatin 20mg***

PRN: ibuprofen 600mg, famotidine 10mg

Six-month follow-up with Mario

Vitals

BP 122/78 | HR 74 | Wt 218 lb | Ht 5’9” | BMI 32.2 | Waist Circumference 45” | Pulse ox 100%

Physical Exam

GEN: no acute distress, alert and oriented x 3; obese

Skin: dry, skin tenting noted

HEENT: conjunctiva with PERRLA; pink oral mucosa, dry; Nasal turbinates pink, moist

CV: RRR with normal S1/S2; no murmur or gallops noted

Lungs: CTA-B without wheezing, rales or rhonchi

Abd: soft, non-distended, non-tender with normal bowel sounds, no palpable masses, no hepatosplenomegaly, no rebound or guarding, no CVAT

Six-month follow-up with Mario

Fasting Lab	Value	Fasting Lab	Value	Fasting Lab	Value	Fasting Lab	Value
Glucose	145	Protein	7.5	TSH	3.2	Chol	209
BUN	23	Albumin	4.3	HgA1c	7.2	HDL	41
Creatinine	1.04	Globulin	2.7			LDL-C	123
eGFR	87	A/G Ratio	1.59	WBC	4.8	TG	223
Sodium	136	Bilirubin, total	0.9	RBC	3.9		
Potassium	3.9	AST	36	Hg	13.7		
Chloride	6	ALT	41	Hct	38.5		
Carbon dioxide	24						
Calcium	8.3						

3.3% Low — **Current 10-Year ASCVD Risk****

Lifetime ASCVD Risk: **50%** Optimal ASCVD Risk: **1.3%**

Current Age * 46
Age must be between 20-79

Sex * ✔ Male | Female

Race * ✔ White | African American | Other

Systolic Blood Pressure (mm Hg) * 122
Value must be between 90-200

Diastolic Blood Pressure (mm Hg) * 78
Value must be between 60-130

Total Cholesterol (mg/dL) * 209
Value must be between 130 - 320

HDL Cholesterol (mg/dL) * 41
Value must be between 20 - 100

LDL Cholesterol (mg/dL) 123
Value must be between 30-300

History of Diabetes? * Yes | ✔ No

Smoker? * Current | ✔ Former | Never

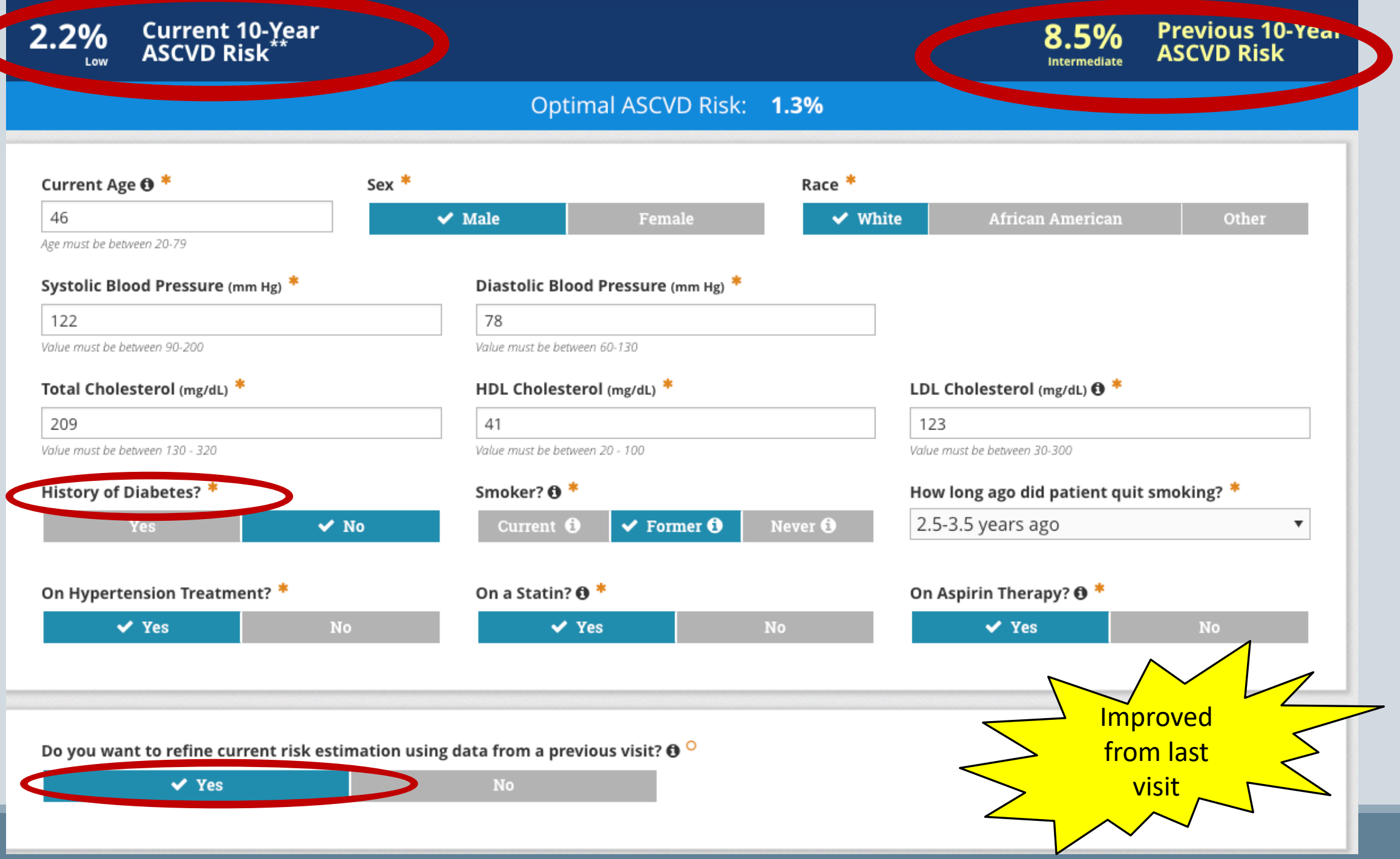
How long ago did patient quit smoking? * 2.5-3.5 years ago

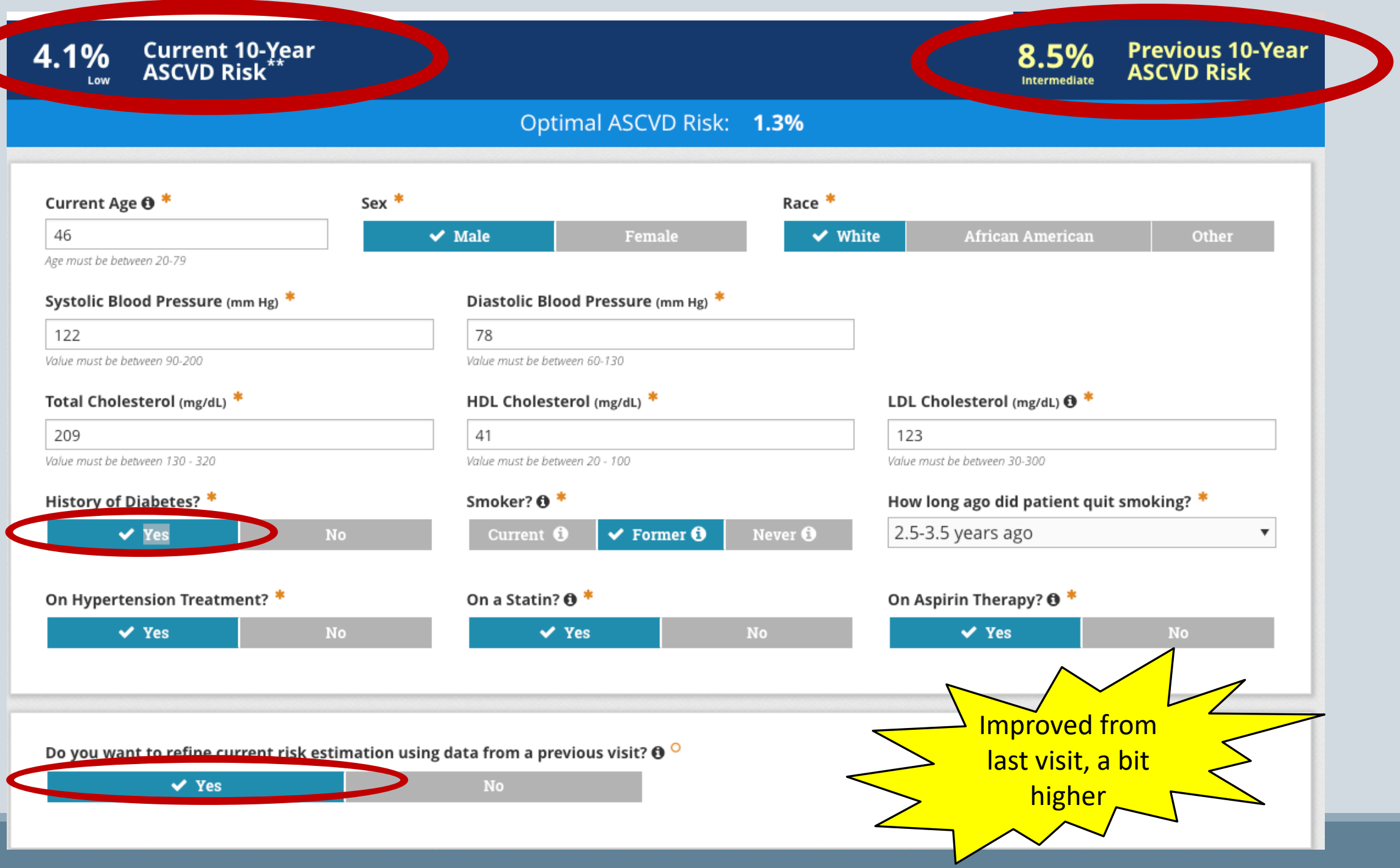
On Hypertension Treatment? * ✔ Yes | No

On a Statin? ✔ Yes | No

On Aspirin Therapy? ✔ Yes | No

Do you want to refine current risk estimation using data from a previous visit? Yes | No


2.2%
Low
Current 10-Year ASCVD Risk**
8.5%
Intermediate
Previous 10-Year ASCVD Risk
Optimal ASCVD Risk: 1.3%
Current Age *
46
Age must be between 20-79
Sex *
Male
Female
Race *
White
African American
Other
Systolic Blood Pressure (mm Hg) *
122
Value must be between 90-200
Diastolic Blood Pressure (mm Hg) *
78
Value must be between 60-130
Total Cholesterol (mg/dL) *
209
Value must be between 130 - 320
HDL Cholesterol (mg/dL) *
41
Value must be between 20 - 100
LDL Cholesterol (mg/dL) *
123
Value must be between 30-300
History of Diabetes? *
Yes
No
Smoker? *
Current
Former
Never
How long ago did patient quit smoking? *
2.5-3.5 years ago
On Hypertension Treatment? *
Yes
No
On a Statin? *
Yes
No
On Aspirin Therapy? *
Yes
No
Do you want to refine current risk estimation using data from a previous visit?
Yes
No
Improved from last visit


4.1% Low
Current 10-Year ASCVD Risk**
8.5% Intermediate
Previous 10-Year ASCVD Risk
Optimal ASCVD Risk: 1.3%
Current Age *
46
Age must be between 20-79
Sex *
Male
Female
Race *
White
African American
Other
Systolic Blood Pressure (mm Hg) *
122
Value must be between 90-200
Diastolic Blood Pressure (mm Hg) *
78
Value must be between 60-130
Total Cholesterol (mg/dL) *
209
Value must be between 130 - 320
HDL Cholesterol (mg/dL) *
41
Value must be between 20 - 100
LDL Cholesterol (mg/dL) *
123
Value must be between 30-300
History of Diabetes? *
Yes
No
Smoker? *
Current
Former
Never
How long ago did patient quit smoking? *
2.5-3.5 years ago
On Hypertension Treatment? *
Yes
No
On a Statin? *
Yes
No
On Aspirin Therapy? *
Yes
No
Do you want to refine current risk estimation using data from a previous visit?
Yes
No
Improved from last visit, a bit higher

Discussion questions

1. **What are the diagnoses?**
2. **What are your impressions of his ASCVD risk?**
3. **What are the implications of the new glucose readings?**
4. **Discuss the implications of the lipid panel after starting statin therapy? How do we approach the elevated TG?**
5. **Does he need to be on aspirin?**

TAKE HOME POINTS

- **ASCVD Risk Estimation drives diagnoses and management** of hypertension, hyperlipidemia and diabetes.
- **Lifestyle modifications** are still the **mainstay** in treatment.
- **Statin** therapy is the **preferred treatment** for hypercholesteremia and hypertriglyceridemia.
- **Novel treatments** for diabetes that **reduce the risks of ASCVD, HF and CKD** and that promote **weight loss** are considered **first-line** therapy.
- **Meet your patients where they** are based on SDOH and find **creative solutions** to help them meet goals.

Thank you!

?

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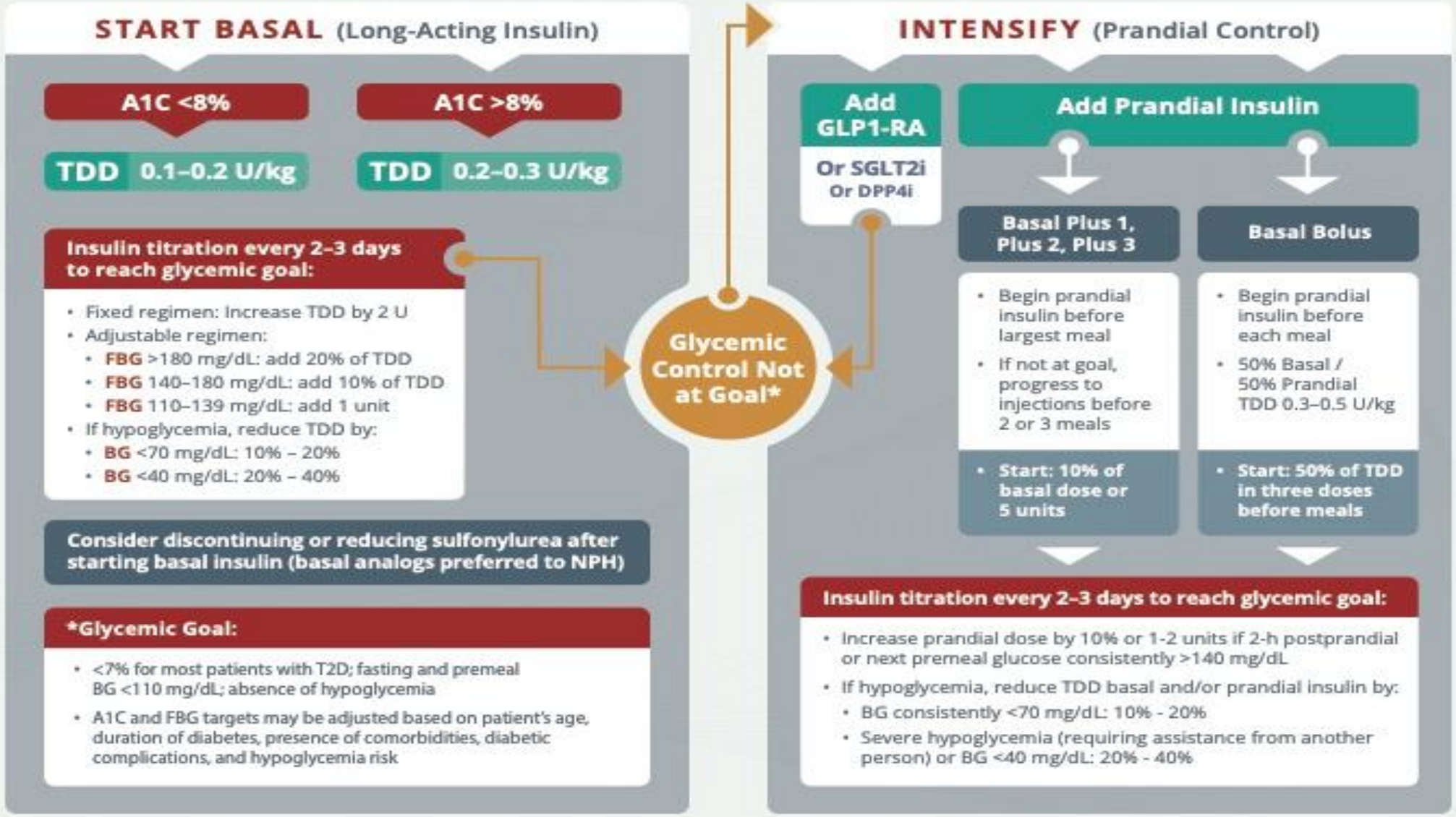
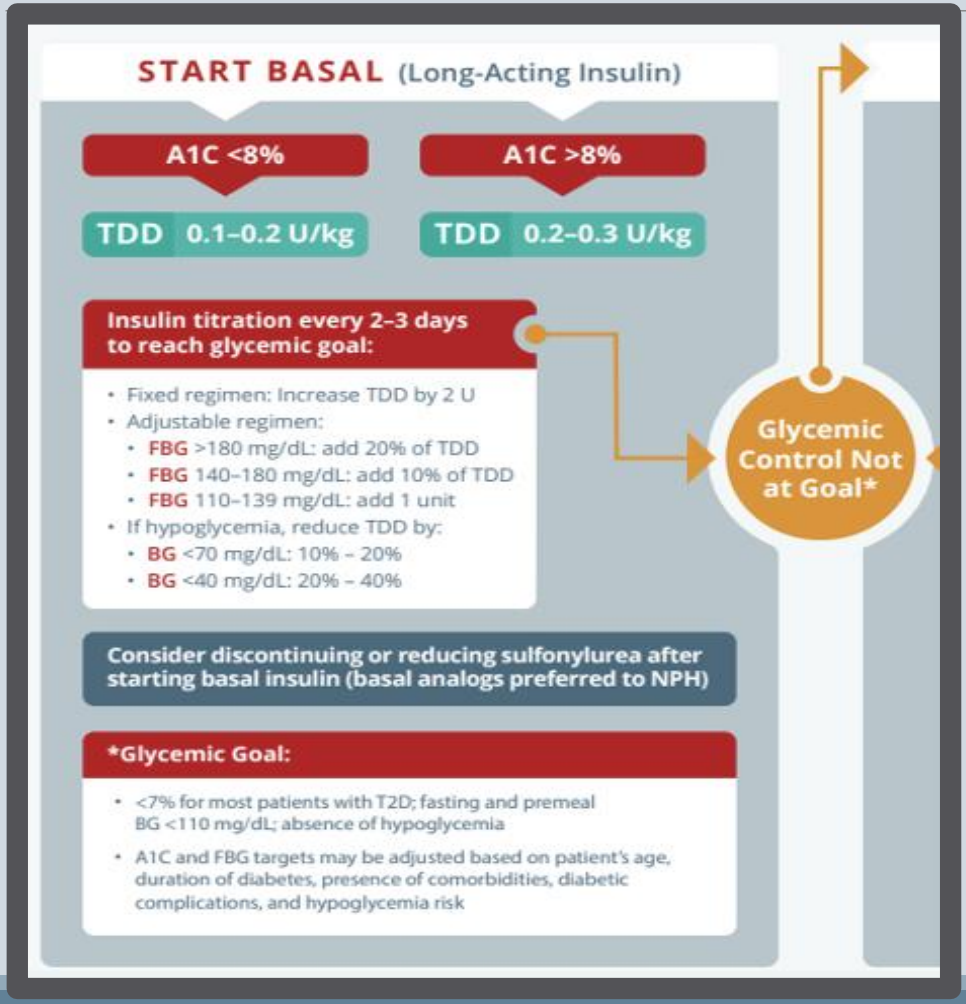
Post-Workshop TAKE OUT:

INSULIN for THOUGHT

ALGORITHM FOR ADDING/INTENSIFYING INSULIN



STARTING INSULIN



BASAL

- Lower incidence of hypoglycemia
- Glargine
  - U-100: Lantus or Basaglar
  - U-300: Toujeo concentrated
- Detemir: Levemir, usually BID
- Degludec (Tresiba)
  - U-100
  - U-200 concentrated , lasts 40+hrs = steady state
- Titration
  - Fixed: increase by 2U if glucose over goal for 2-3 days straight
  - Sliding: increase insulin dose by10%-20% of the TDD if over 180 or 140 respectively
  - Decrease insulin if hypoglycemia is noted or FBG<140 x 3 days

BOLUS (aka: prandial, mealtime)

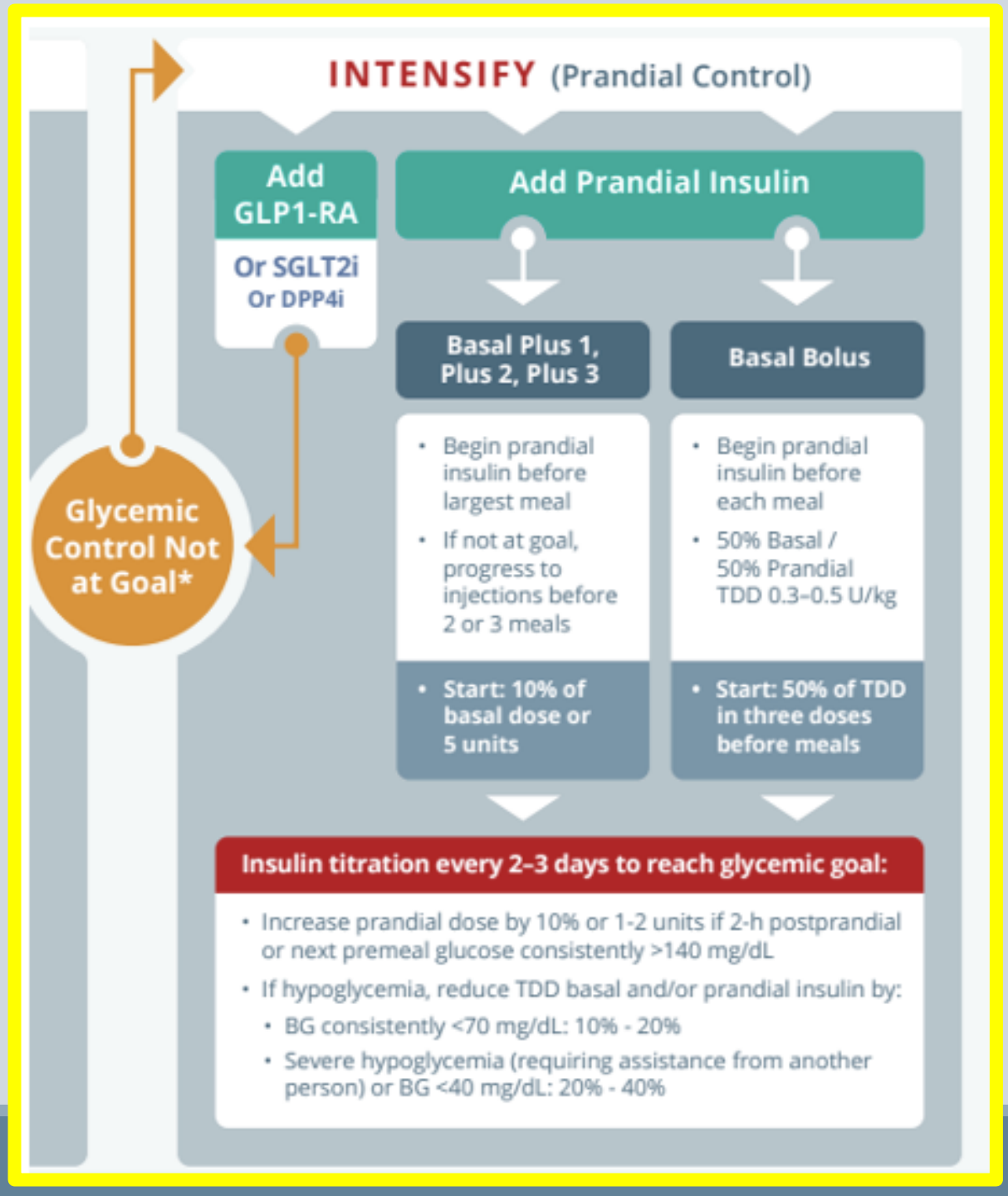
- Timing is KEY to prevent hypoglycemia.
- Administer 20-30 mins before meal
- ***Eat before the peak***

Basal + Bolus with the Biggest meal (BBB)

- Fewer sticks a day (ie: insulins + glucose monitoring)
- May help patients get past fear of needles

Start *both* Basal + Bolus together

- Give half of the TDD in Basal dose at night
- Give the other half in Bolus with meals
- SLE pt 120kg pt @ 0.3U/kg = 36 Units TDD
  - Basal: 18U at night
  - Bolus: 6U x 3 meals for remainder18U



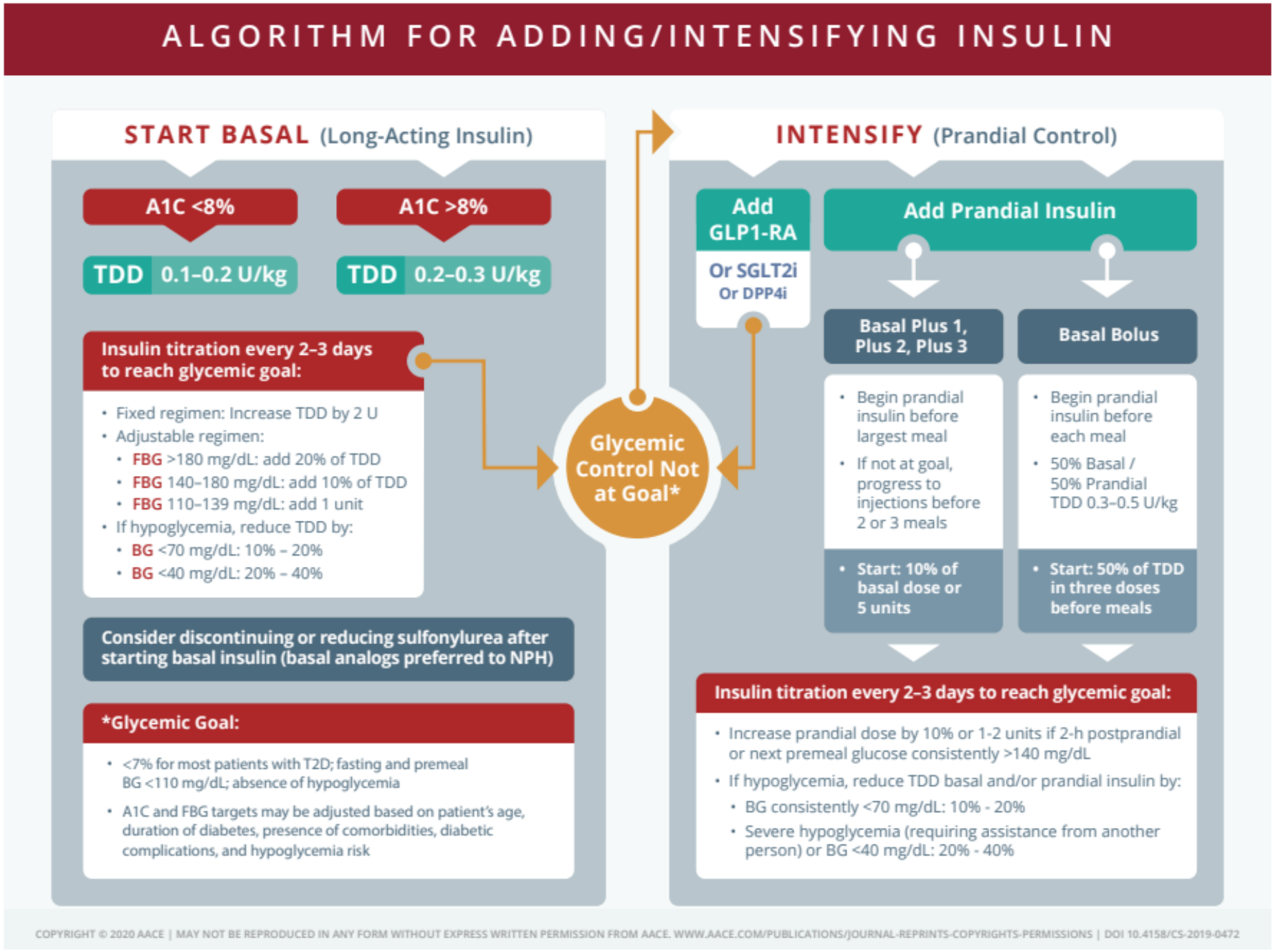
Insulin Pearls

AACE

- If insulin is to be used, **start with a BASAL insulin**
- Basal insulin (or GLP1-RA) should be considered if a patient is on two oral agents and has an A1c >8.0%

ADA

- Start insulin early if the patients has weight loss, hyperglycemia symptoms, or when A1c or glucose are high (>10% or >300mg/dL respectively)
- Continue metformin if insulin is started (unless there are contraindications)



Blood Glucose Targets Goals (for INSULIN)

in Nonpregnant Adults With Diabetes

Pre-prandial Blood Glucose

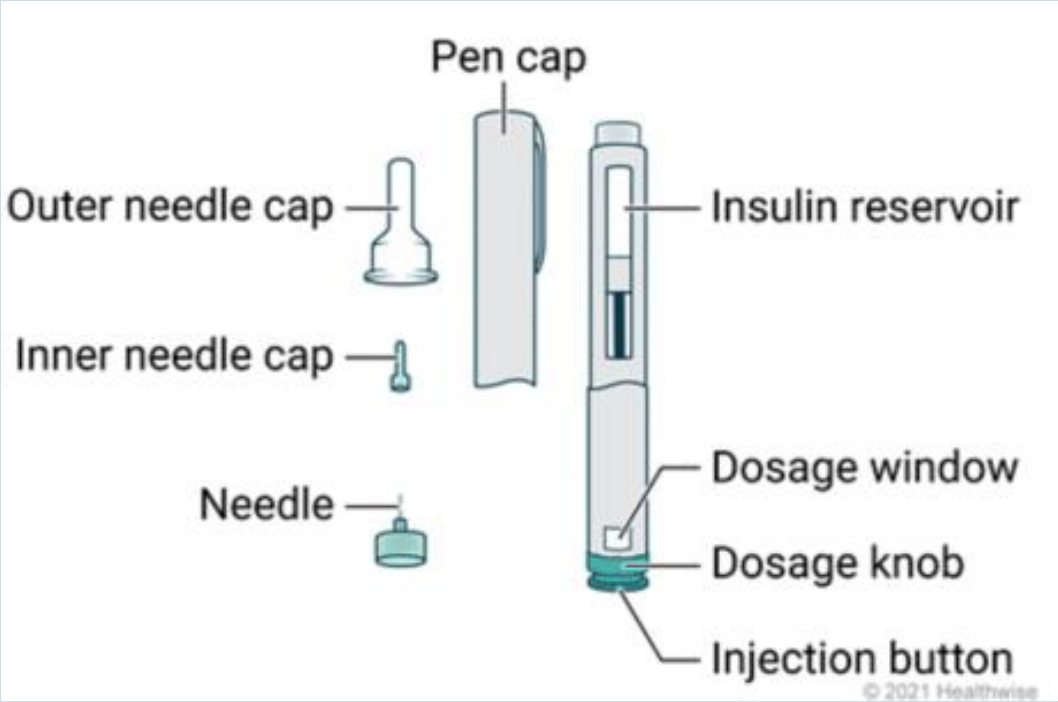
80 - 130 mg/dL

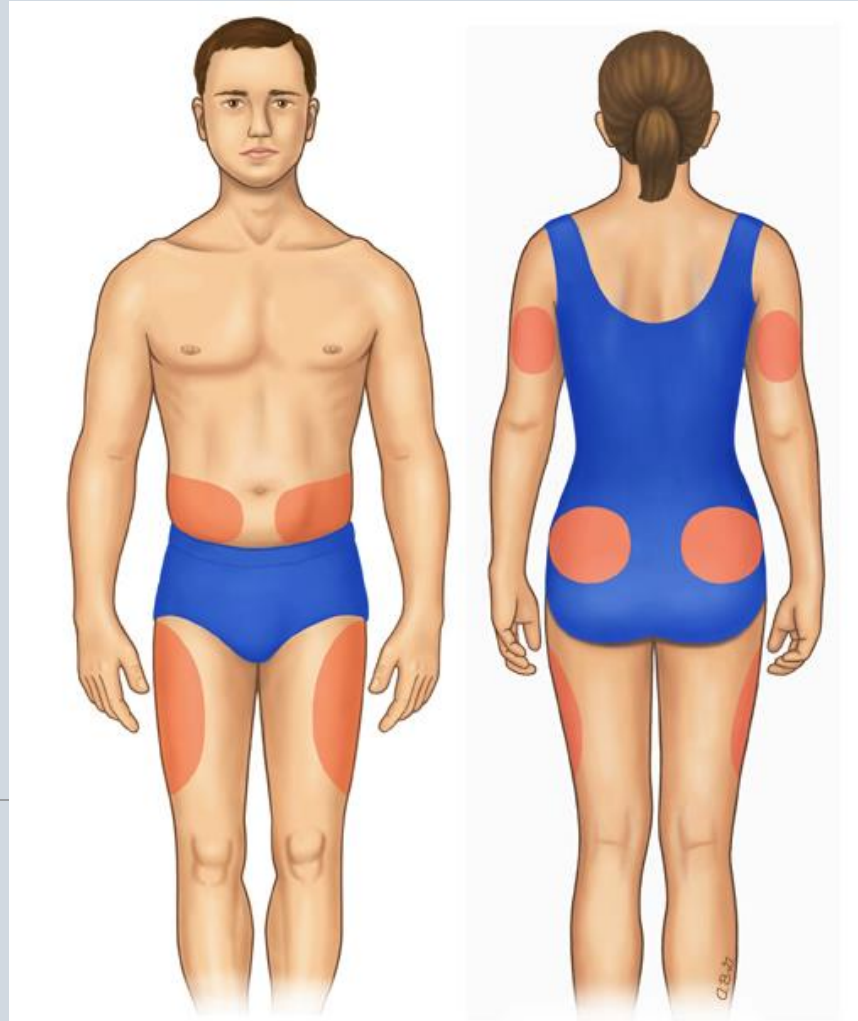
- Variable based on comorbidities, age, risk of hypoglycemia
- Readings used to determine bolus insulin dose

Post-prandial Blood Glucose

<180 mg/dL

CbGM:
Continuous Blood Glucose Monitor





The shaded areas may be used for insulin injections. Injection sites should be rotated. Insulin is absorbed more rapidly when injected into the abdomen as compared with the arms or legs.