CardioVascular Disease: Managing the Risks

SHALON R. BUCHS, MHS, PA-C

Objectives

Compare and contrast primary and secondary prevention.

Discuss current recommendations for primary prevention of coronary vascular disease.

Discuss current recommendations for secondary prevention of coronary vascular disease.

Given a patient case, create a prevention strategy for a patient at risk of coronary vascular disease.

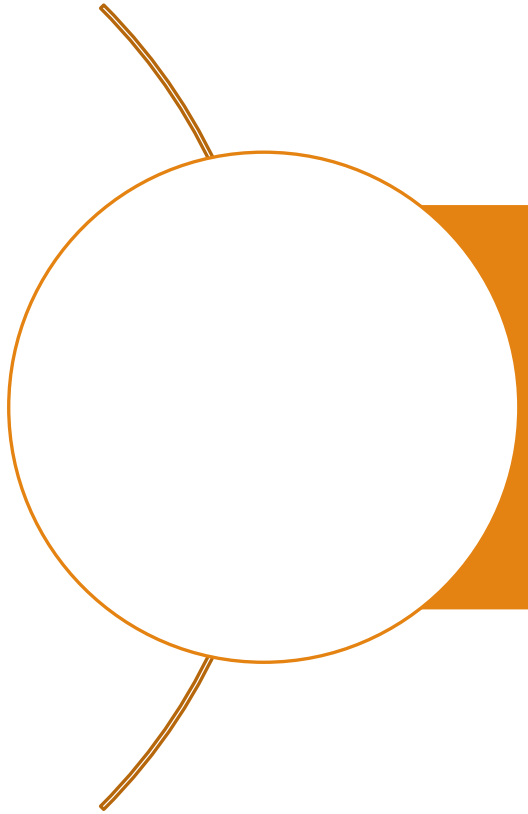
The why

Cardiovascular disease encompasses coronary heart disease, stroke and peripheral artery disease. It remains the leading cause of death in men and women in the US and is a leading cause worldwide.

Evidence shows up to 90% of the stroke burden may be attributable to modifiable risk factors

Similar data shows that over 90% of first MI can be attributed to at least one modifiable risk factor

Who



ALL adults should be evaluated for major cardiovascular disease risk factors and receive primary prevention as needed

Primary Prevention

"intervening before health effects occur to prevent development of disease"

CDC.GOV

Team Based Care

Shared Decision Making

Social Determinants of Health

The foundation of prevention!

Younger adults can be assessed less frequently

- Adults aged 20-39 without can be assessed ~every 4-6 years

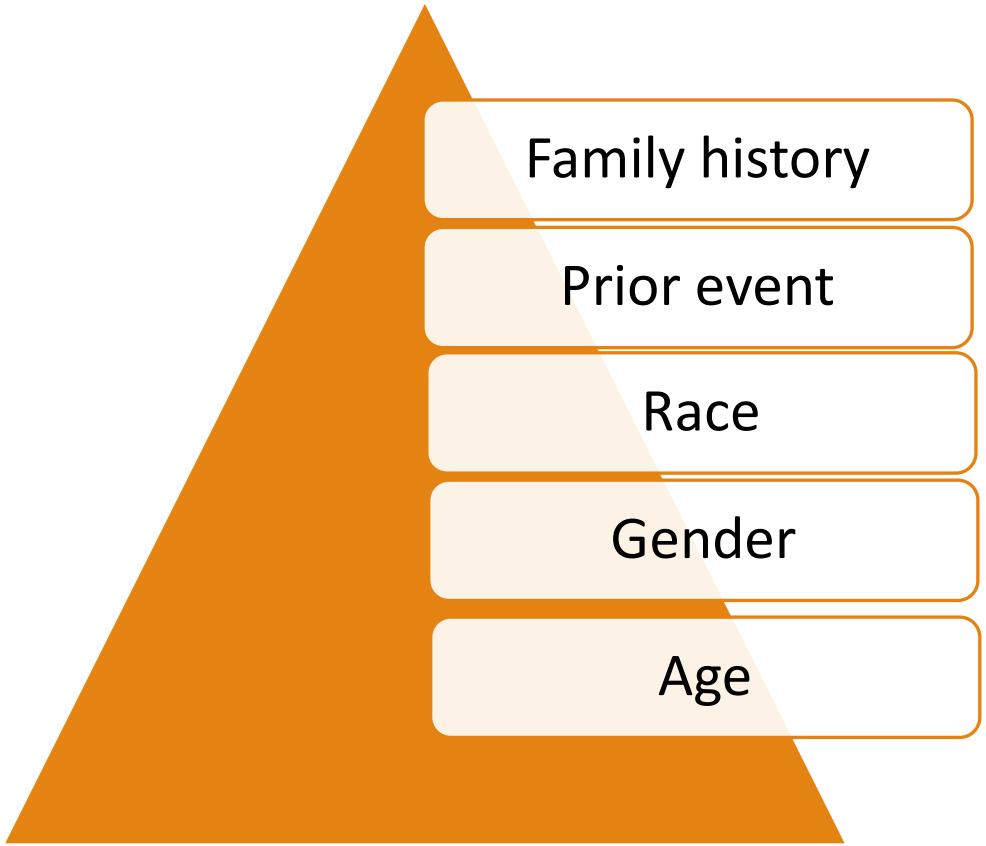
All adults 40-75 years old should have routine assessment of risk factors and 10 year risk calculation assessment

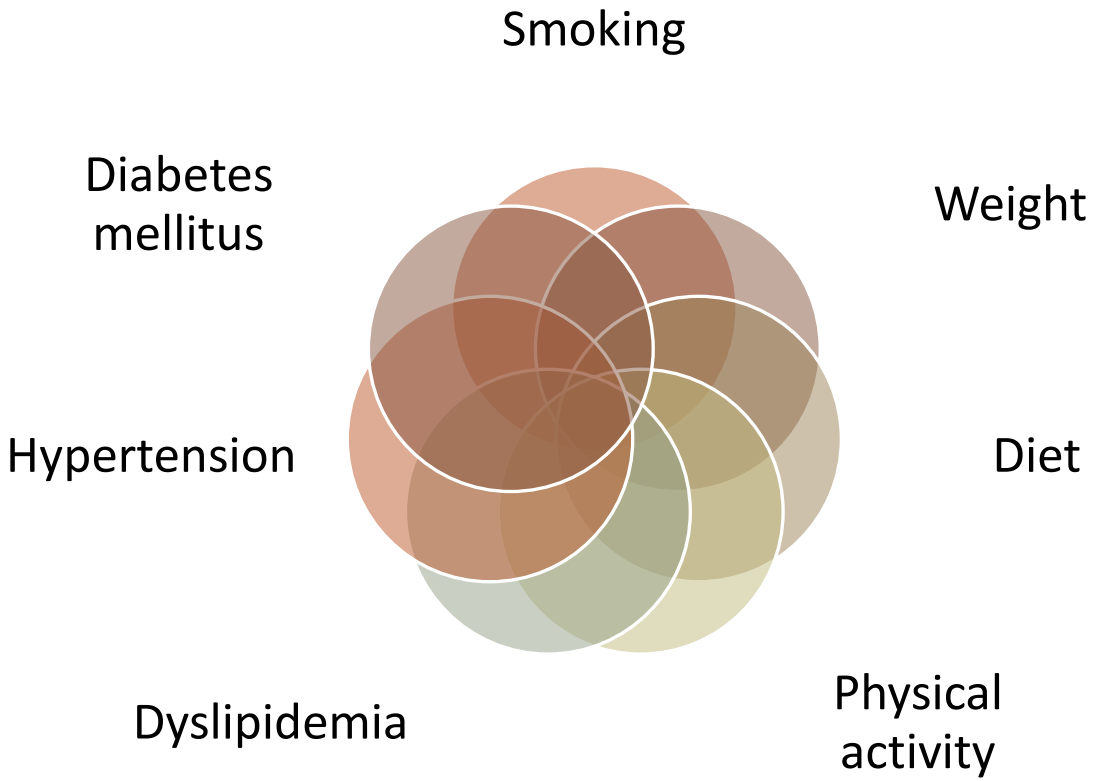
Estimation should be guideline based, patients should be categorized by 10 year ASCVD risk

ASCVD risk calculator

Assess and Estimate

Non-Modifiable risks





Modifiable risk factors

Smoking

- Never too late
- Assess at every visit
- Behavioral therapy
- Nicotine replacement
- Pharmacologic therapy

Physical activity

- Moderate intensity activity for 150 minutes per week
- Vigorous intensity for 75 minutes per week
- *Some combination of the above*
- Even modest amounts of regular physical activity can have associated benefits on the risk of CHD

Diet

Consuming a healthy diet will help reduce both CHD and stroke.

Proven components include:

- Fruits, vegetables, whole grains
- Fish, nuts and legumes
- Monounsaturated & polyunsaturated fats rather than saturated fats
- Avoiding *trans* fats
- Reduction of cholesterol and sodium
- Minimize the intake of processed meat, refined carbohydrates and sweetened beverages

May soon overtake smoking as the leading modifiable risk factor for CVD

Contributes to many other modifiable risks

Linear increase in morbidity and mortality associated with CHD for those with higher body weight

Assess willingness, behavior modification, diet, physical activity, other interventions

Weight management

Weight management

Counseling and lifestyle interventions including calorie restrictions are recommended

Calculating the BMI is recommended annually or more frequently for weight loss considerations

Consider waist circumference measurement to identify those at high risk of cardiometobolic conditions

Dyslipidemia

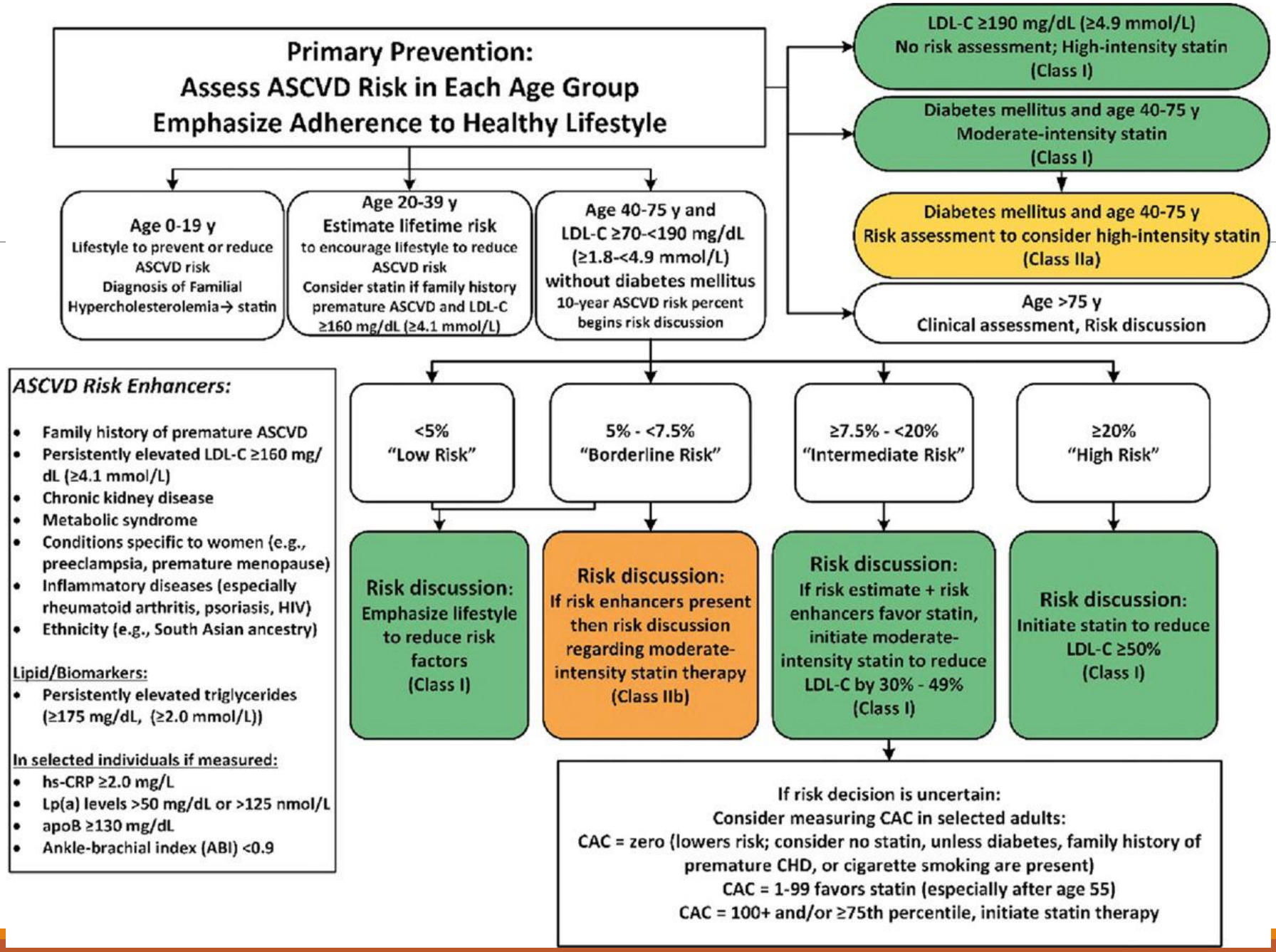
Screen all adults at establishment of care for baseline

Normal → timing/frequency should be guided by patient's CVD risk factors

Counsel on diet, physical activity and maintaining normal body weight

Elevated lipid levels should be managed with a statin

- Intensity choice based on CVD risk factors


Primary Prevention:
Assess ASCVD Risk in Each Age Group
Emphasize Adherence to Healthy Lifestyle
LDL-C ≥190 mg/dL (≥4.9 mmol/L)
No risk assessment; High-intensity statin
(Class I)
Diabetes mellitus and age 40-75 y
Moderate-intensity statin
(Class I)
Diabetes mellitus and age 40-75 y
Risk assessment to consider high-intensity statin
(Class IIa)
Age >75 y
Clinical assessment, Risk discussion
Age 0-19 y
Lifestyle to prevent or reduce ASCVD risk
Diagnosis of Familial Hypercholesterolemia→ statin
Age 20-39 y
Estimate lifetime risk
to encourage lifestyle to reduce ASCVD risk
Consider statin if family history premature ASCVD and LDL-C ≥160 mg/dL (≥4.1 mmol/L)
Age 40-75 y and LDL-C ≥70-<190 mg/dL (≥1.8-<4.9 mmol/L) without diabetes mellitus
10-year ASCVD risk percent begins risk discussion
ASCVD Risk Enhancers:
Family history of premature ASCVD
Persistently elevated LDL-C ≥160 mg/dL (≥4.1 mmol/L)
Chronic kidney disease
Metabolic syndrome
Conditions specific to women (e.g., preeclampsia, premature menopause)
Inflammatory diseases (especially rheumatoid arthritis, psoriasis, HIV)
Ethnicity (e.g., South Asian ancestry)
Lipid/Biomarkers:
Persistently elevated triglycerides (≥175 mg/dL, (≥2.0 mmol/L))
In selected individuals if measured:
hs-CRP ≥2.0 mg/L
Lp(a) levels >50 mg/dL or >125 nmol/L
apoB ≥130 mg/dL
Ankle-brachial index (ABI) <0.9
<5%
"Low Risk"
5% - <7.5%
"Borderline Risk"
≥7.5% - <20%
"Intermediate Risk"
≥20%
"High Risk"
Risk discussion:
Emphasize lifestyle to reduce risk factors
(Class I)
Risk discussion:
If risk enhancers present then risk discussion regarding moderate-intensity statin therapy
(Class IIb)
Risk discussion:
If risk estimate + risk enhancers favor statin, initiate moderate-intensity statin to reduce LDL-C by 30% - 49%
(Class I)
Risk discussion:
Initiate statin to reduce LDL-C ≥50%
(Class I)
If risk decision is uncertain:
Consider measuring CAC in selected adults:
CAC = zero (lowers risk; consider no statin, unless diabetes, family history of premature CHD, or cigarette smoking are present)
CAC = 1-99 favors statin (especially after age 55)
CAC = 100+ and/or ≥75th percentile, initiate statin therapy

AHA/ACC

Hypertension

Well known risk factor for CHD and stroke

Definition according to 2017 AHA/ACC guidelines ≥130 systolic and/or ≥80 diastolic

Goals dependent upon risk factors and cardiovascular risk

Lifestyle modifications for everyone

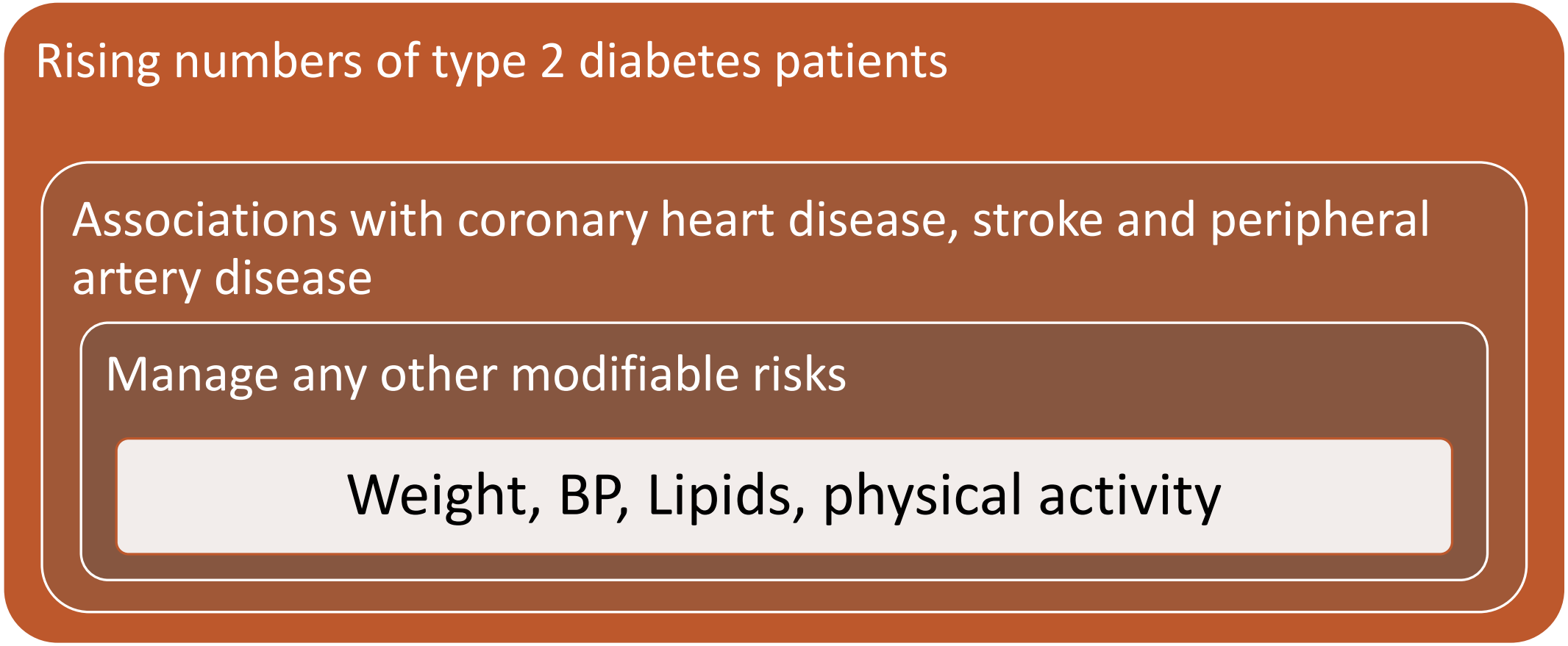
Pharmacologic therapy for HTN

Consider special circumstances

Thiazide diuretics, Calcium channel blockers, ACE inhibitors or ARBs

- *Young patients tend to respond best to ACE/ARB and beta blockers*
- *Older patients and black patients tend to respond best to thiazide diuretics and CCBs*

Consider two drug therapy initially when BP is more than 20/10 above goal


Rising numbers of type 2 diabetes patients
Associations with coronary heart disease, stroke and peripheral artery disease
Manage any other modifiable risks
Weight, BP, Lipids, physical activity

Diabetes

SGLT – 2 inhibitor

GLP-1R agonist

Statin – at least moderate intensity

Pharmacologic therapy for DM
beyond the basics

Aspirin use

USPSTF notes a B recommendation for ASA in CVD prevention

Newer evidence recommends ASA offered based on individual clinical judgement

ASCEND Study (2018); Association of Aspirin Use for Primary Prevention With Cardiovascular Events and Bleeding Events: A systematic Review and Meta-analysis (2019); Efficacy and Safety of aspirin for primary prevention of cardiovascular events: a meta-anaylsis and trial sequential analysis of randomized controlled trials (2019)

Secondary Prevention

"prevention of disease progression or recurrence"

CDC.GOV

Tertiary Prevention

"reduce complications or disability"

CDC.GOV

Lifestyle modifications

DIET

WEIGHT MANAGEMENT

PHYSICAL ACTIVITY

SMOKING

ALCOHOL

CARDIAC REHAB

Pharmacologic therapy

- Antiplatelet
- Statins
- Beta blockers
- ACE or ARB
- Aldosterone antagonist

Antiplatelet agents

- Long term ASA for all patients with established cardiovascular disease
- Dose is generally between 81mg and 325 depending on the condition (heart, brain, peripheral)
- Dual antiplatelet therapy (ASA and P2Y12 blocker) for patients that have received coronary stent placement
- Dual antiplatelet therapy may also be recommended for patients that have recently had an ischemic stroke (ASA and clopidogrel)

Statins

- All patients with established CVD → high intensity statin therapy
- Atorvastatin 40-80mg
- Rosuvastatin 20-40mg

Beta Blockers

Nearly all patients with AMI should have long term beta blockers as part of oral therapy unless there is a contraindication

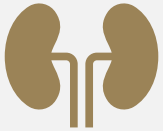
Duration of therapy is not well documented

- Beta-1 selective agents most often utilized
  - Metoprolol
  - Atenolol

ACE Inhibitors or ARB therapy

HTN treatment

Acute MI or the presence of HF



High risk of subsequent CVD event; DM, HF, CKD may be of substantial benefit

Aldosertone blockers

Specific post-MI populations

No significant renal dysfunction, no hyperkalemia

Receiving appropriate ACE I and BB therapy

Have LVEF ≤40%

AND have DM or HF

Take home points

Prevention is our business

- We can talk about one of these risks with everyone

Lifestyle modifications should be recommended for everyone

Managing one of the modifiable risk factors will often impact another

Ensure all risk factors are appropriately managed for best preventative outcomes

48 year old AA male patient was told he had elevated BP at a health fair. His reading at the fair was 146/92. He has no complaints today and has no known PMH. He does admit to drinking a beer or two most nights. He is a smoker of ½-1 pack of cigarettes per day and has been doing so for the last 15 years. Denies any drug use.

He's on no medications at this time.

In the office his vitals are:

- BP: 152/90, Pulse: 78, RR: 14, Weight: 189lbs, Height: 6'0"

Case 1

72 y/o white female patient with a hx of DM and HTN.

Former smoker. Attempts to adhere to a diabetic diet. Last A1C was 6.7 about a month and a half ago.

- Meds include Metformin, Captopril, Empaglifozin and Clopidogrel
- Allergic to PCN

- BP: 148/79, Pulse: 82, RR: 16, Temp: 98.2, Weight: 203lbs, Height: 5’7”
- Most recent lipid panel (partial)– total cholesterol: 265, LDL: 185, HDL: 65

Case 2

64 y/o white male presents to establish care. Has a history of HTN that is well controlled on Lisinopril 20mg/day. No other significant PMH. Former smoker, quit 7 years ago.

Family hx of MI in father at age 71y/o.

- BP: 126/70, Pulse: 78, RR: 16, Temp: 98.9, Weight: 187lbs, Height: 5’11”
- Lipid profile shows total cholesterol of 220, LDL of 131 and HDL of 43
- Non fasting glucose is 183. Hgb A1-C is 5.9

Case 3

THANK YOU!!