



Brigham and Women's Hospital

Founding Member, Mass General Brigham

PREVENTION OF CARDIOVASCULAR DISEASE

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- Harvard Medical School
- Medicine Residency at MGH
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- Associate Professor of Medicine HMS
 - Clinical focus: preventive cardiology, lipids, valvular heart disease
 - Research focus: inflammation, diabetes and cardiovascular disease

Disclosures

- Consulting or Investigator Initiated Grants from
 - PCORI
 - Novo Nordisk
 - Eli Lilly and Company
 - Kowa
 - Circulation
 - Up to Date
 - FDA
 - NIDDK



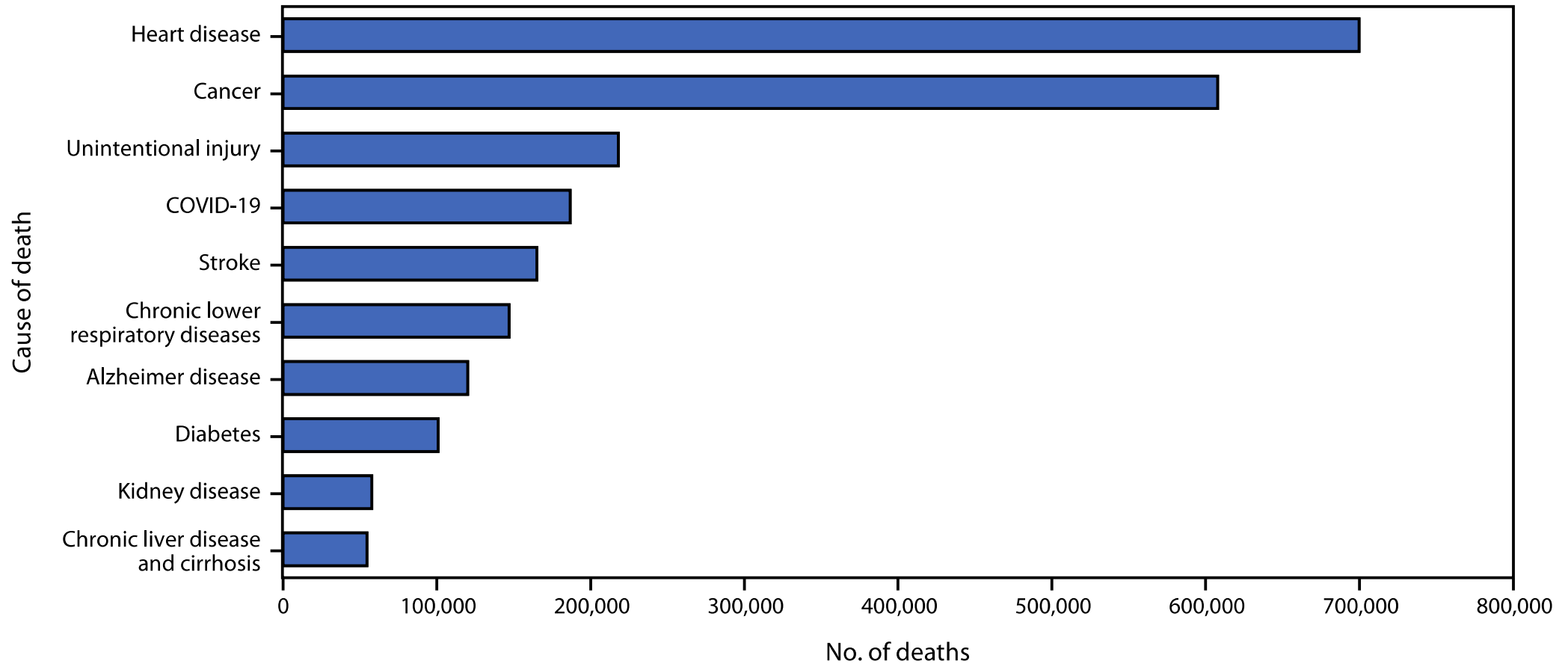
Cardiovascular Disease Prevention: Key Learning Objectives

- Describe the prevalence of cardiovascular disease (CVD) in the US and around the world
- Identify CVD risk factors and behaviors
- Understand the key changes in new Hypertension and Lipid guidelines
- Understand the evidence base that supports recommendations for CVD prevention, including for
 - Diet
 - Exercise
 - Smoking cessation
 - Blood pressure control
 - Risk estimation and prediction
 - Lipid lowering therapy
 - Use (or non-use) of aspirin

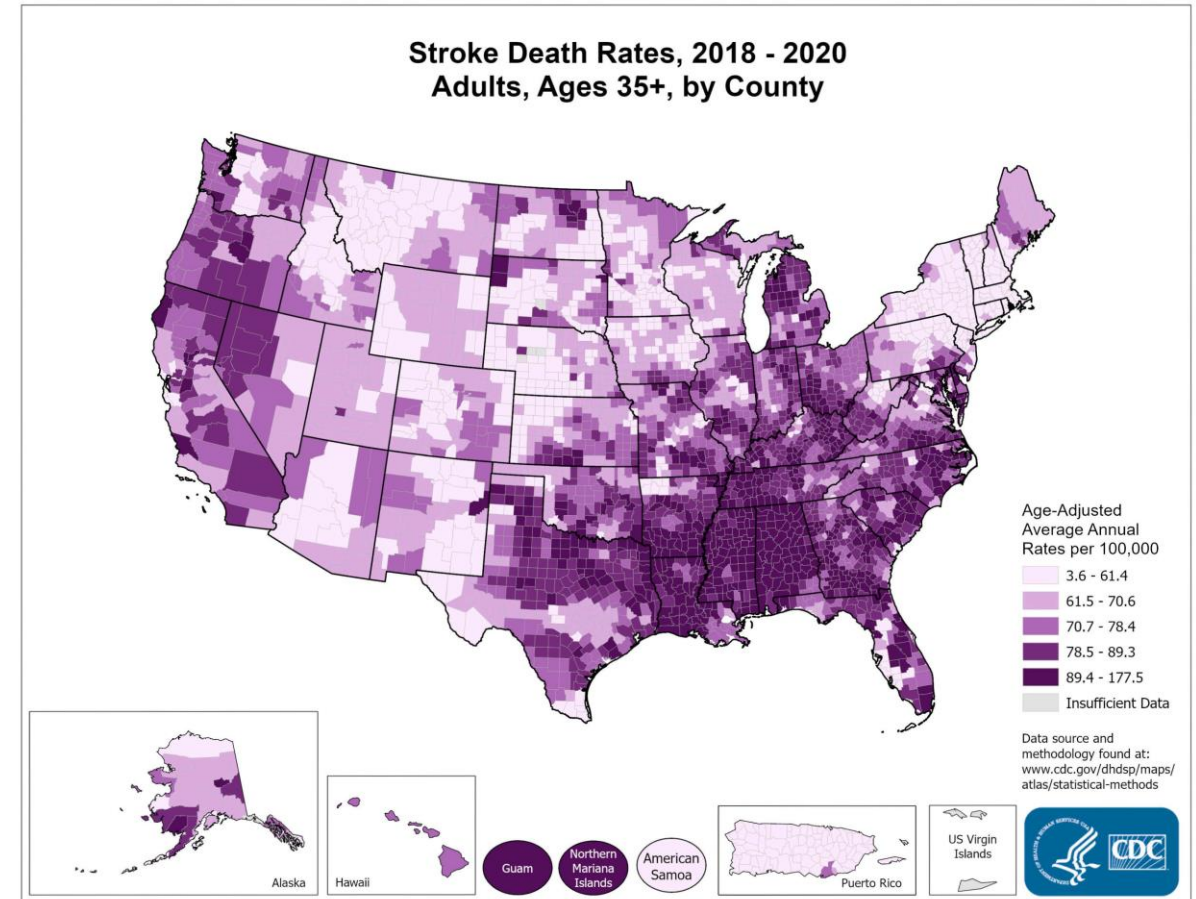
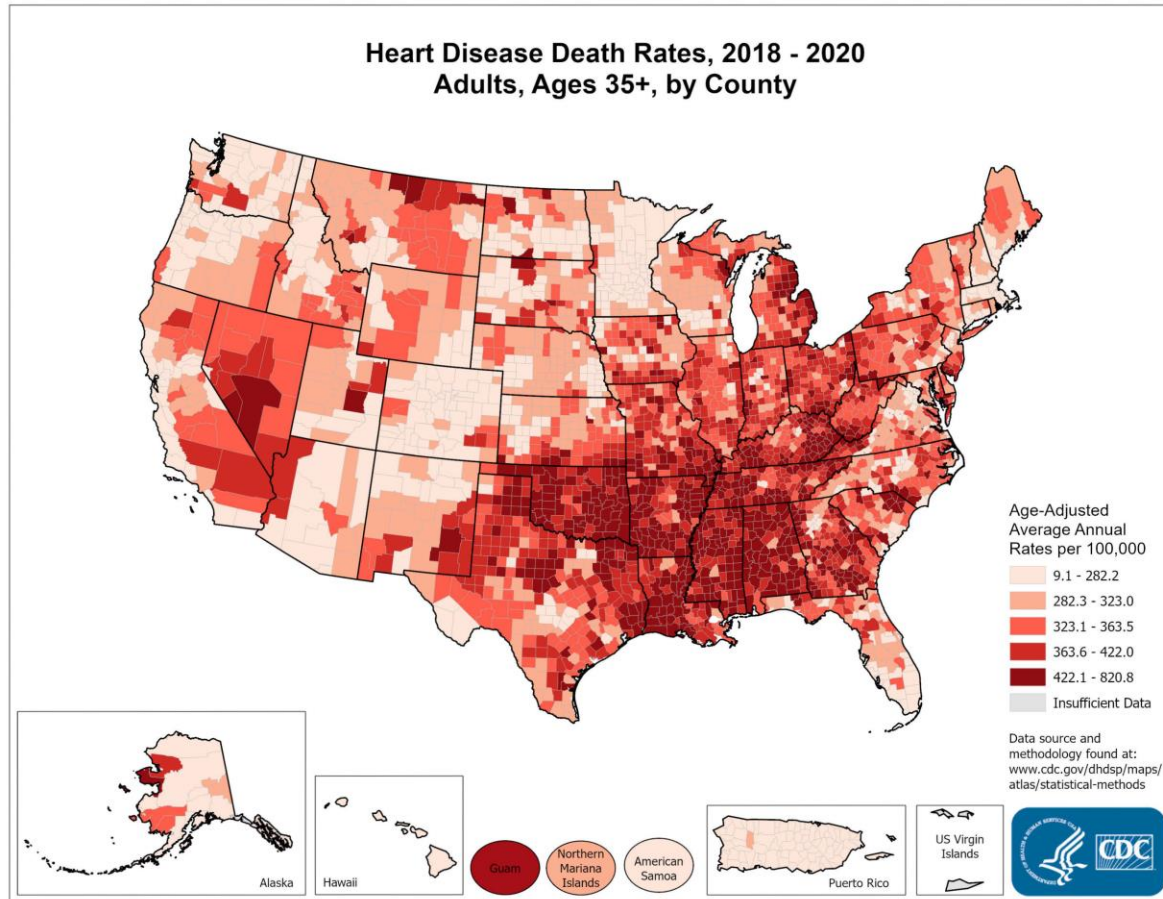


Provisional Mortality Data in the United States in 2022

FIGURE 2. Leading underlying causes of death*,† — National Vital Statistics System, United States, 2022



Deaths due to Heart Disease and Stroke



Source: CDC.gov https://www.cdc.gov/dhdsp/maps/pdfs/hd_all.pdf,
https://www.cdc.gov/dhdsp/maps/pdfs/stroke_all.pdf

Age-Standardized Disability Adjusted Life Year Rates (per 100,000) in 2019

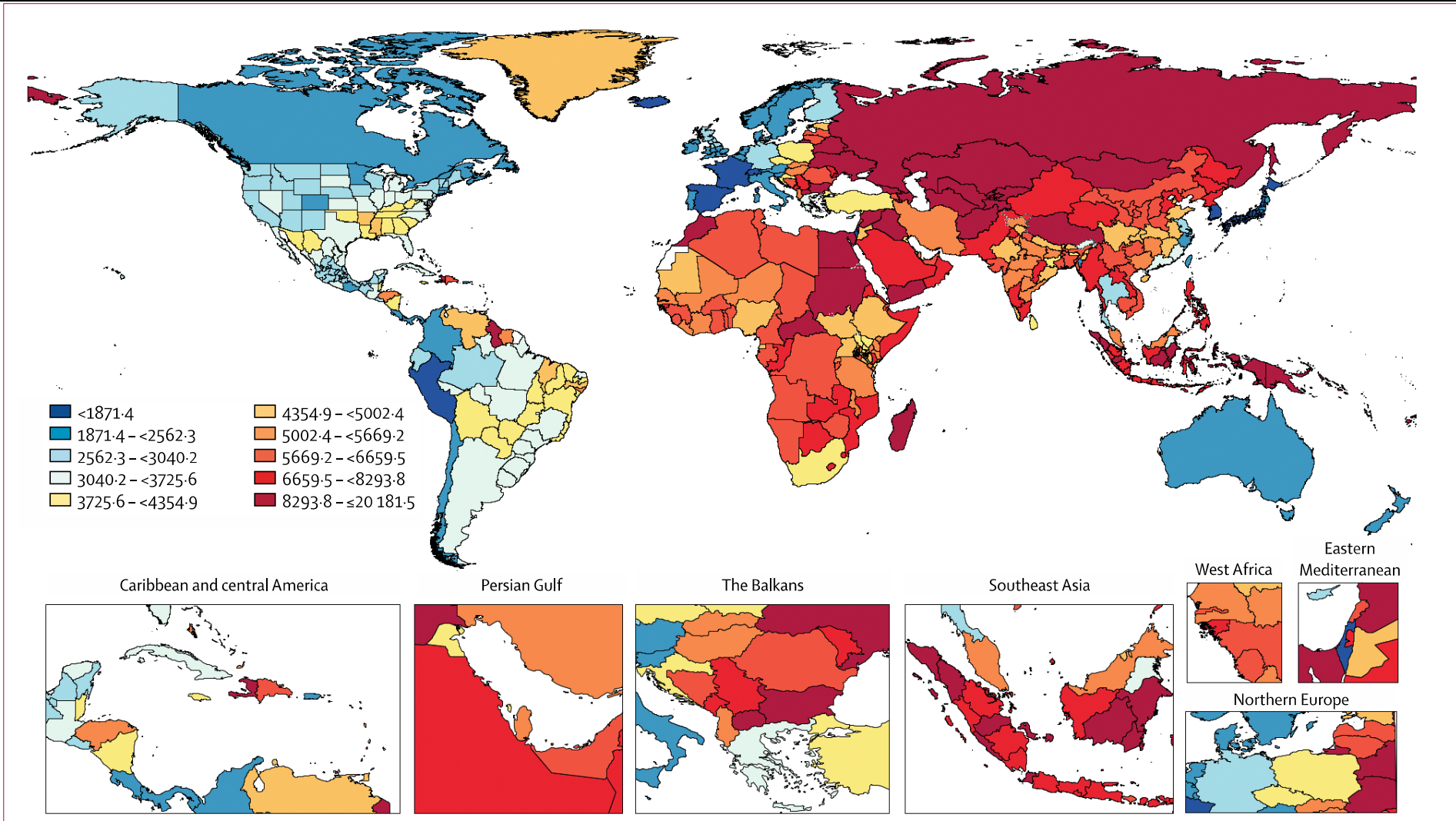


Figure 5: Age-standardised DALY rates (per 100 000) by location, both sexes combined, 2019

Source: Global Burden of Disease Survey

Global Burden of Cardiovascular Diseases

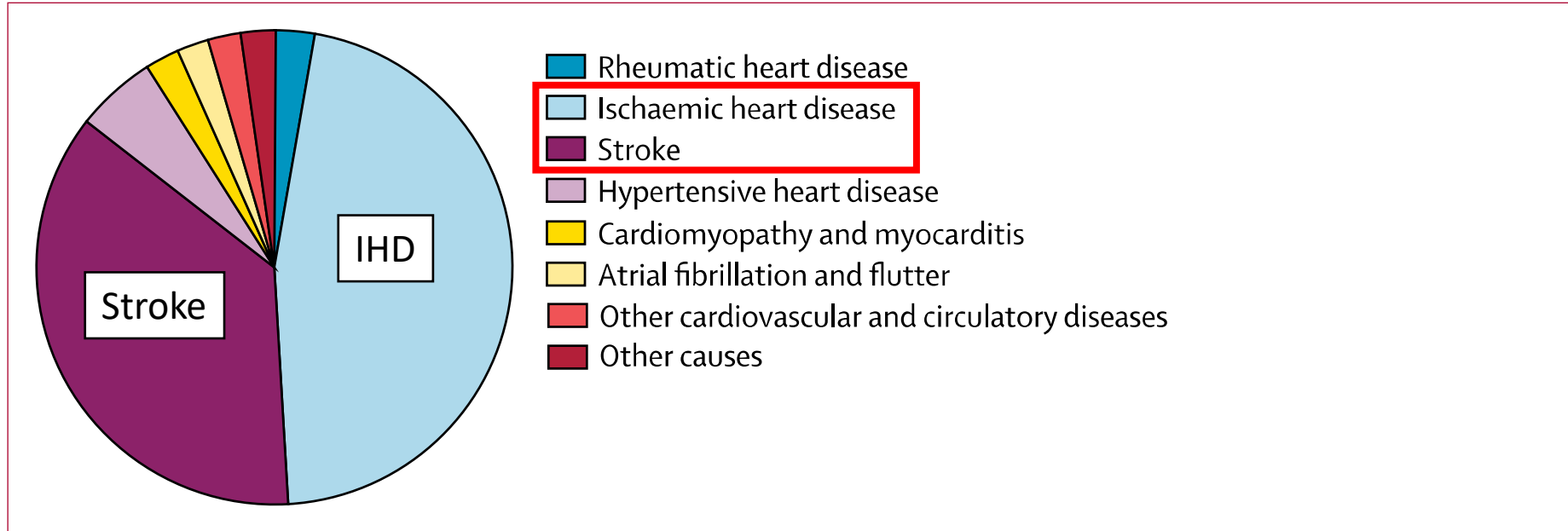


Figure 1: Composition of DALYs by constituent Level 3 causes for both sexes combined, 2019

Percentage of CV Disability Attributable to Common Risk Factors

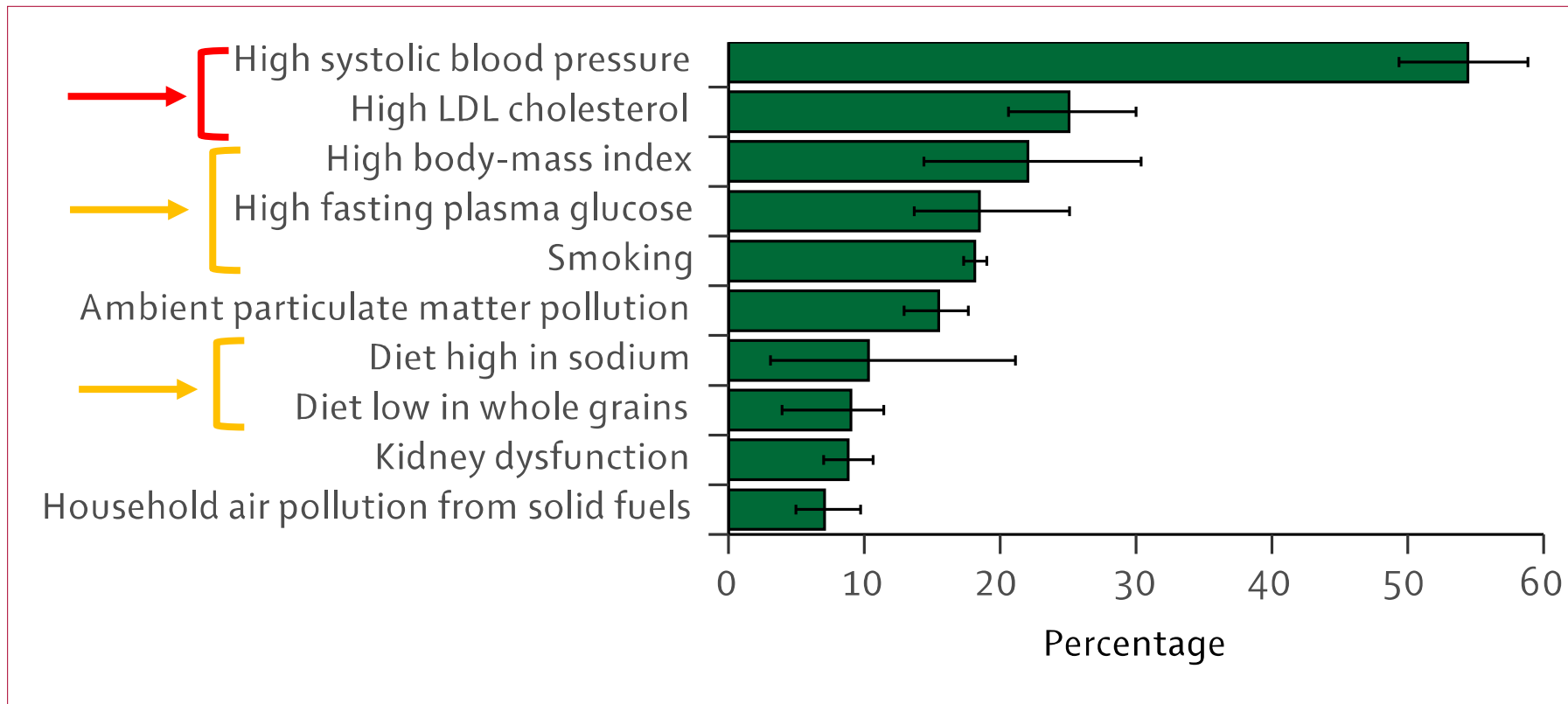


Figure 2: Percentage of DALYs attributable to top risk factors for both sexes combined, 2019

Diet



Why do we care about diet?

- Everyone must eat
- What you eat clearly has a huge impact on health
- However, the evidence for the effects of diet are usually observational studies
- Observational studies of diet and nutrition are particularly prone to bias and confounding
- Randomized trials of diet face challenges of adherence, short duration, and surrogate endpoints (BP, weight, lipids)

Evidence-based Cardiovascular Disease Prevention

The New York Times

OPINION
GUEST ESSAY

The Science of What We Eat Is Failing Us

June 19, 2023, 5:00 a.m. ET

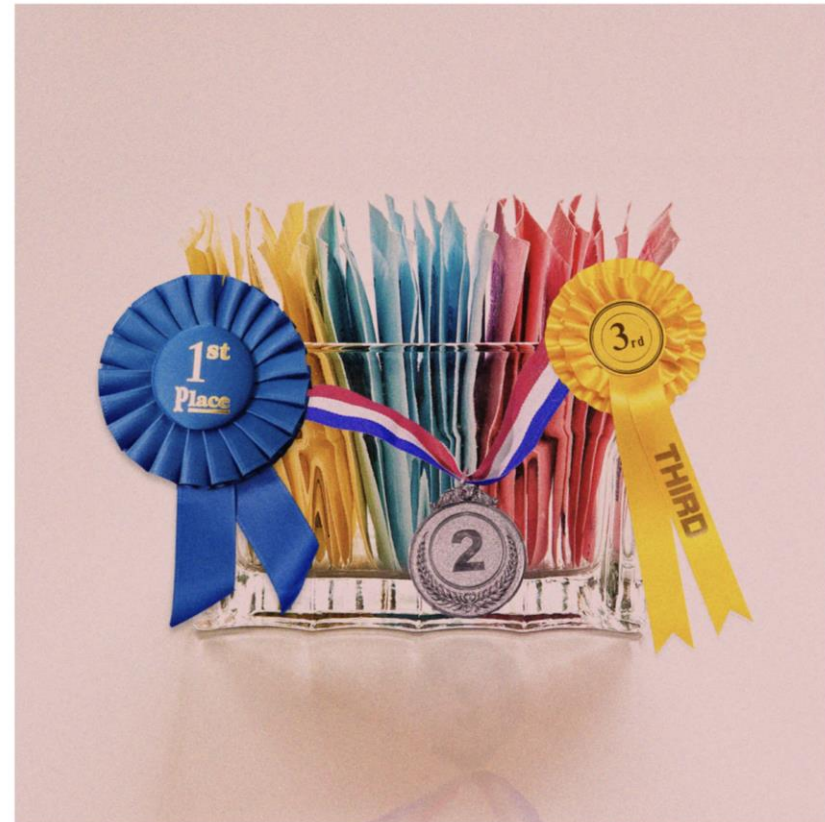


Illustration by The New York Times

[By Drs. Anupam B. Jena and Christopher M. Worsham, HMS. NYT, Published June 19, 2023](#)

Diet: Cardiovascular Disease Prevention

- Which diets have been shown to prevent major adverse cardiovascular events?
- Which diets have been shown to modify known cardiovascular risk factors, such as blood pressure, lipids, or weight?

Diet RCTs with MACE as an outcome

- PREDIMED (published, retracted, republished – high risk primary prevention)
- LYON HEART STUDY (post MI patients)
- DART (post MI patients)

PREDIMED

- Conducted in Spain
- 7447 participants at high CV risk but without established CVD
 - Mediterranean diet supplemented with EVOO
 - Mediterranean diet supplemented with mixed nuts
 - Control diet (advice to reduce dietary fat intake)
- Primary outcome: MACE (MI, stroke, CV death)
- Median follow up 4.8 years
- Stopped early for efficacy
- HOWEVER, a number of protocol deviations, including household member randomization, assignment without randomization, and inconsistent use of randomization tables led to a retraction and reanalysis of the data

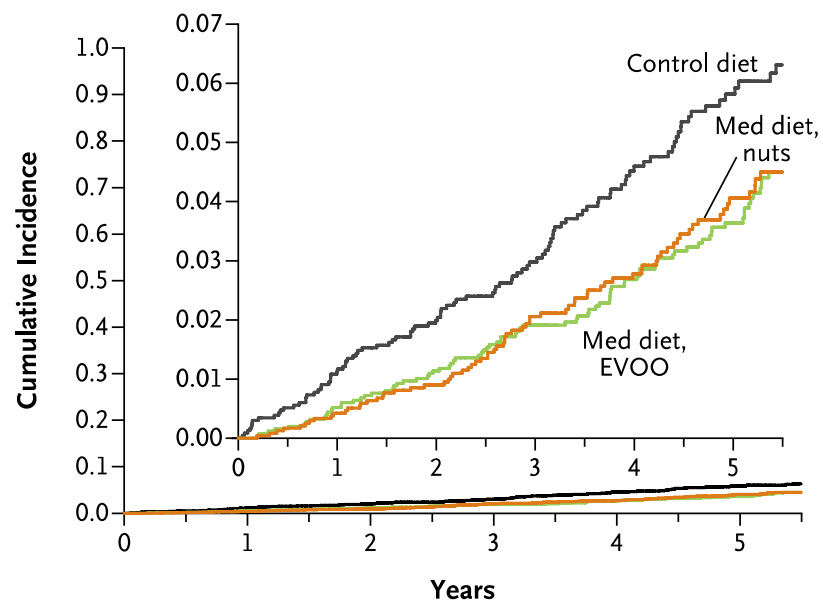


PREDIMED Republished 2018

Acute MI, Stroke, CV Death

EVOO HR 0.69 (0.53-0.91)

Nuts HR 0.72 (0.54-0.95)



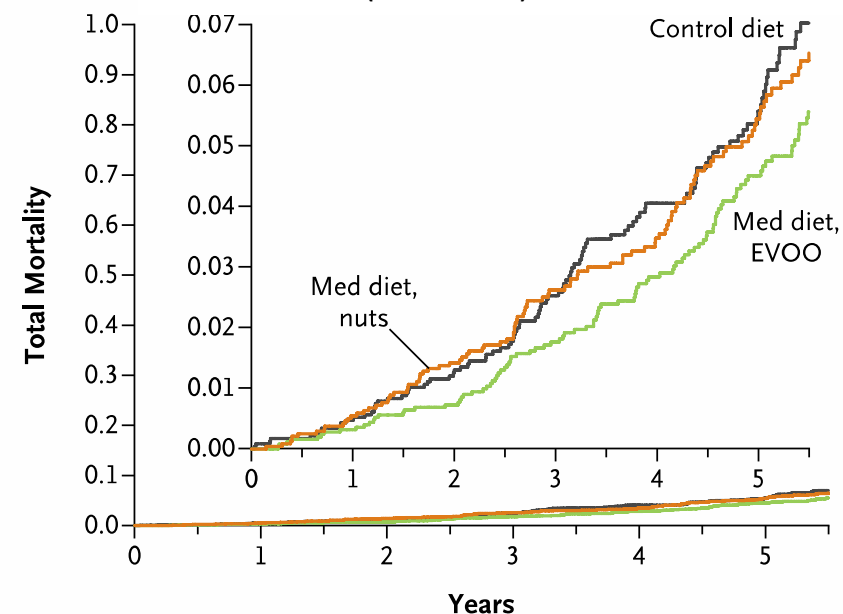
No. at Risk

Control diet	2450	2268	2020	1583	1268	946
Med diet, EVOO	2543	2486	2320	1987	1687	1310
Med diet, nuts	2454	2343	2093	1657	1389	1031

Total Mortality

EVOO HR 0.90 (0.69-1.18)

Nuts HR 1.12 (0.86-1.47)



No. at Risk

Control diet	2450	2270	2027	1586	1272	949
Med diet, EVOO	2543	2486	2324	1991	1691	1310
Med diet, nuts	2454	2345	2097	1662	1395	1037

PREDIMED: Body weight and waist circumference

No significant effects of randomly assigned treatment group on weight or waist circumference

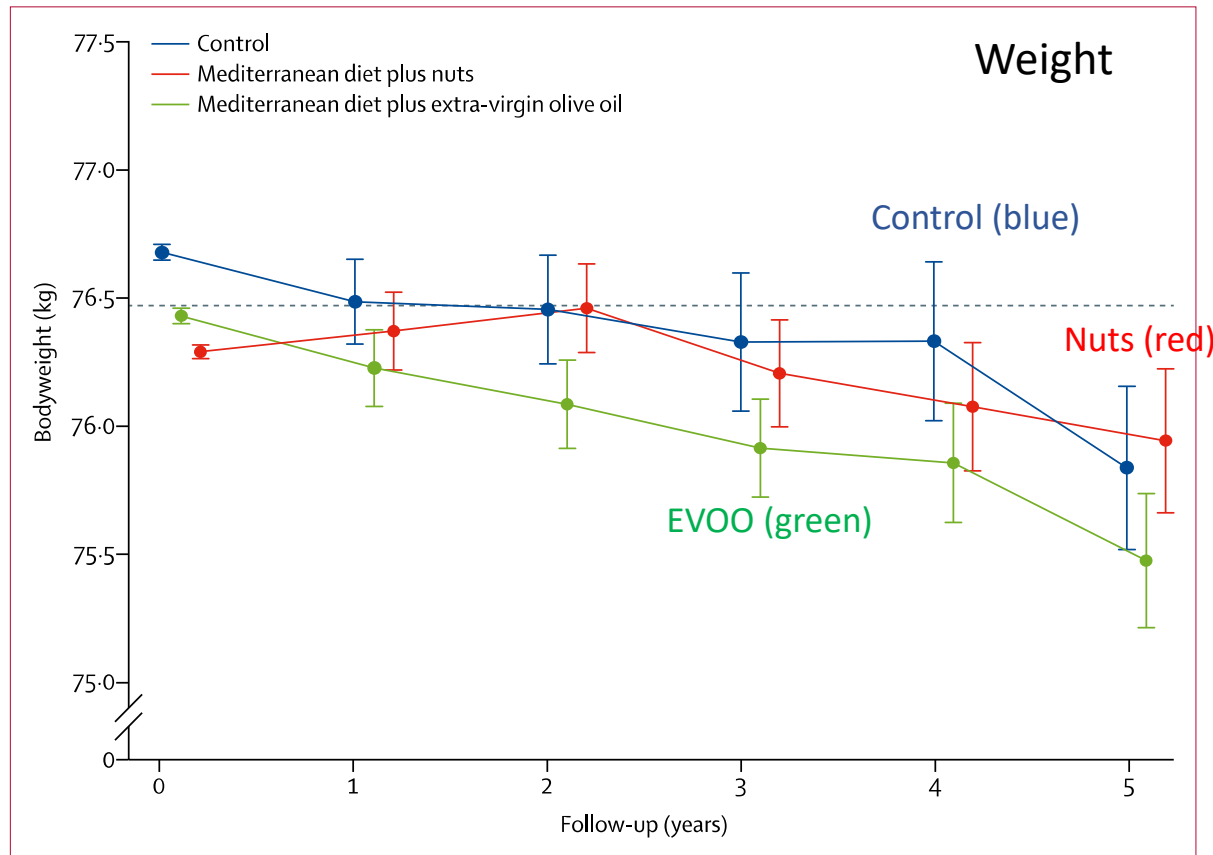


Figure 2: Multivariable-adjusted average bodyweight of PREDIMED participants during follow-up, by intervention group

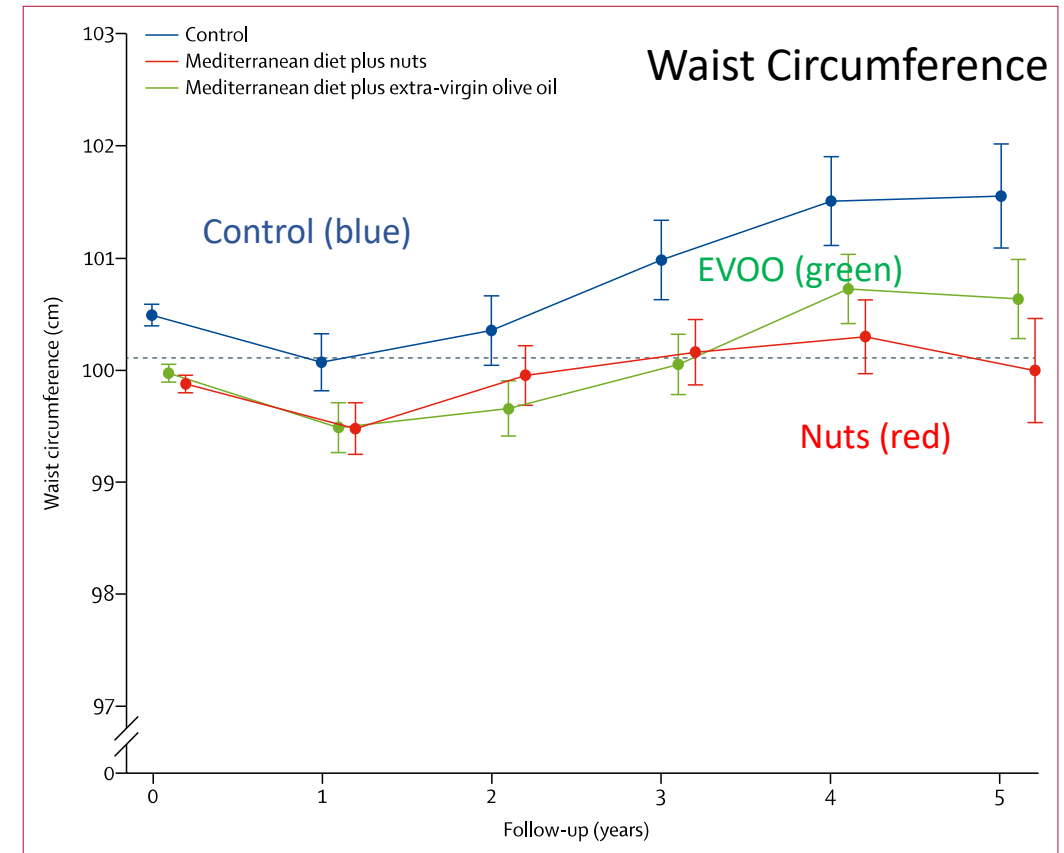


Figure 3: Multivariable-adjusted average waist circumference of PREDIMED participants during follow-up, by intervention group

Evidence summary

- The Mediterranean diet is the only diet supported by evidence that it reduces hard cardiovascular outcomes (MI, stroke, CV death)
- There is really only 1 trial of about 7,000 patients that supports this recommendation
- Effects of diet on blood pressure are also important to consider

Smoking cessation



Cigarette smoking and CV risk

- Help your patients quit smoking!
 - Ask about tobacco use
 - Tell them they should quit
 - Assess whether they're ready to quit
 - Help them quit if they're ready
- Pharmacotherapy
 - Nicotine patch, gum, lozenge, and inhalers
 - Varenicline (Chantix)
 - Bupropion (Wellbutrin, Zyban)

Pharmacotherapy

- Nicotine replacement therapy (patch, gum, lozenge, etc)
- Varenicline
 - 0.5 mg daily x 3 days, then 0.5mg BID x 4 days, then 1 mg BID for 12-week course
 - The FDA removed the boxed warning about neuropsychiatric side effects in 2016
 - There does not appear to be an increased risk of CV events with varenicline
 - Patients instructed to quit smoking 1 week after starting varenicline
- Bupropion
 - 150 mg daily x3 days, then 150 mg BID for a 12-week course

Blood pressure



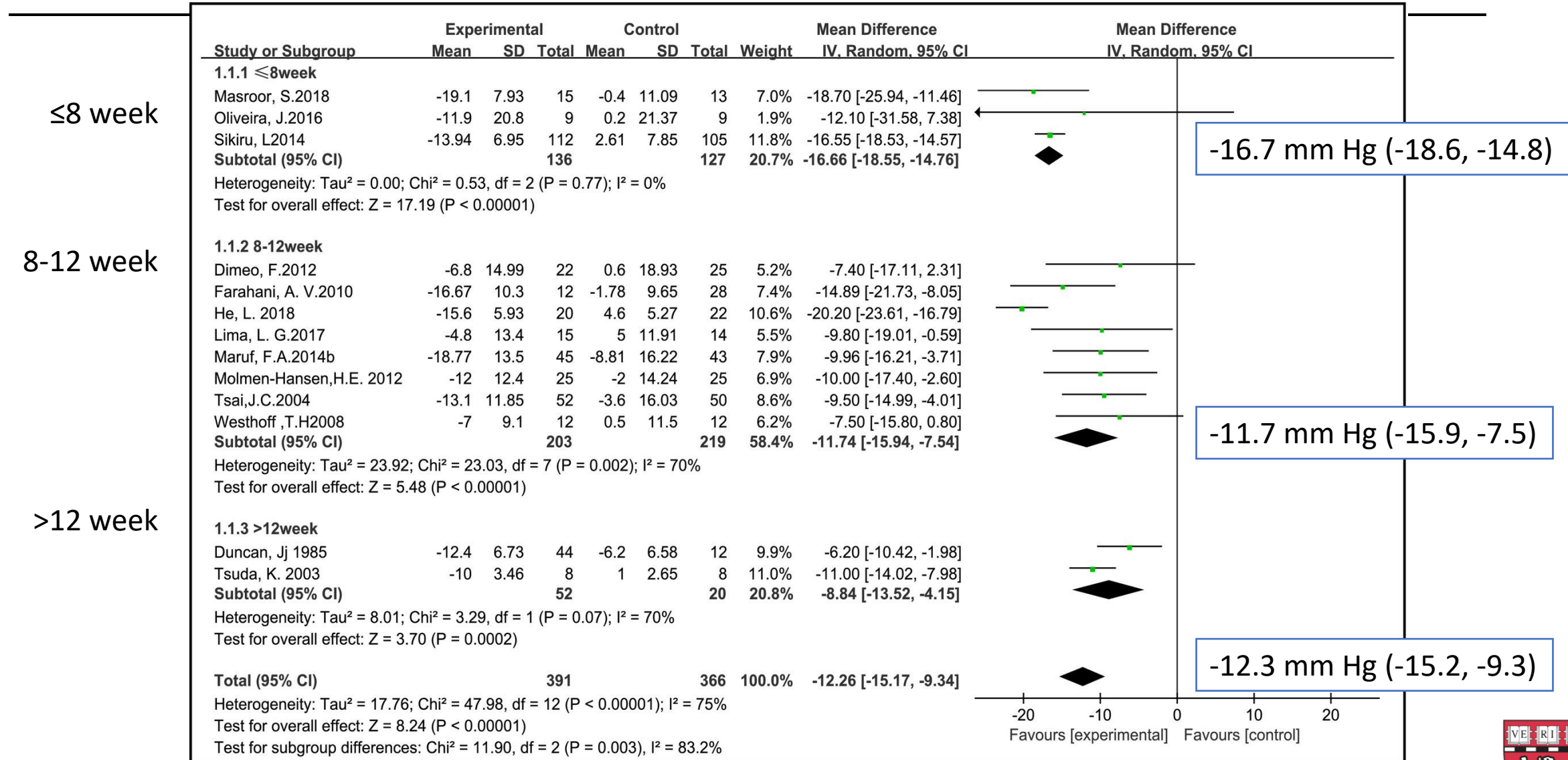
Blood Pressure

- Hypertension is an important contributor to CV risk
- New guidelines published in 2025 have a few important changes

Initial approach to elevated BP

- Exercise
- Weight loss
- DASH diet, Lacto-ovo-vegetarian diet
 - Each diet associated with a ~5 mm Hg reduction in BP
- Avoidance of excessive alcohol intake
- 3-6 months of lifestyle intervention... then pharmacotherapy!

Exercise can reduce systolic and diastolic BP: Meta-analysis of RCTs



DASH diet: 5 mmHg blood pressure reduction

Key Points

- Fresh fruits and vegetables
 - Lean meats, and less of them
 - Avoid saturated fats
 - Avoid processed or prepared foods
 - Avoid foods with salt
-
- Associated with a ~5 mm Hg reduction in BP

Food Group	Daily Servings	What is “1 serving”?
Grains and grain products	7-8	1 slice bread, 1 cup cereal
Vegetables	4-5	1 cup raw, ½ cup cooked
Fruits	4-5	1 medium fruit, 6 ounces fruit juice
Lowfat or fat-free dairy	2-3	8 ounces milk, 1 cup yogurt
Lean meats, poultry and fish	2 or fewer	3 ounces cooked lean meat, skinless poultry, fish
Nuts, seeds, dry beans	4-5 per week	1/3 cup or 1.5 ounces nuts ½ cup cooked dry beans
Fats and oils	2-3	1 teaspoon margarine, 1 tablespoon lowfat mayo, 2 tablespoons light salad dressing
Sweets	5 per week	1 tablespoon sugar, jelly, or jam

Key Take Home Points from the new BP Guidelines

- High blood pressure is the most prevalent and modifiable risk factor for MI, stroke, heart failure, AF, dementia, CKD, and death
- The guidelines rely on the PREVENT-CVD* risk prediction tool to define who should be treated ($\geq 7.5\%$ 10-year risk defines you as “high risk”)
- * PREVENT-CVD score includes both ASCVD risk and heart failure risk

Blood pressure definitions

Category	Blood Pressure (mm Hg)	Intervention
Normal	<120 / <80	
Elevated	120-129 / <80	Lifestyle interventions
Hypertension (Stage 1)	130-139 / 80-89	Lifestyle + Single drug therapy with thiazide, dihydropyridine CaCB or ACEi or ARB
Hypertension (Stage 2)	≥ 140 / ≥ 90	Lifestyle + Combination therapy with 2 first line agents from different classes, ideally in a single pill combination

- Treatment goal is < 130/80 mm Hg for everyone
- Encouragement to achieve <120 mm Hg if high risk

Starting pharmacotherapy

- Start pharmacotherapy for BP in everyone with BP ≥ 140 / ≥ 90 mm Hg
- Start pharmacotherapy for BP in people with BP $\geq 130/\geq 80$ IF
 - They have established CVD
 - Their PREVENT score is $\geq 7.5\%$ 10-year risk
 - They have diabetes or CKD
- If the PREVENT score is $<7.5\%$ they can have a 6-month "lifestyle" grace period, then start pharmacotherapy

First line therapy:

- Thiazide diuretics
- Dihydropyridine calcium channel blockers
- ACEi or ARB

Use of Risk-Based Thresholds for Initiation of BP Treatment in Adults

BP Level-Only

Does the patient have an average BP $\geq 140/90$ mm Hg?

YES

Initiate antihypertensive medications to lower BP and reduce CVD risk for primary or secondary prevention of CVD

1

NO

Risk-Based Thresholds for Initiation of BP Treatment for Adults*

Does the patient have existing clinical CVD (CHD, stroke, HF)?

YES

Initiate antihypertensive medications to lower BP and reduce CVD risk if average SBP ≥ 130 mm Hg or DBP ≥ 80 mm Hg for secondary prevention of CVD

1

NO

Does the patient have diabetes or CKD, or is the patient at increased short-term risk of CVD (10-year PREVENT-CVD risk $\geq 7.5\%$)?

YES

Initiate antihypertensive medications to lower BP and reduce CVD risk if average SBP ≥ 130 mm Hg or DBP ≥ 80 mm Hg for primary prevention of CVD

1

NO

Initiate antihypertensive medications to lower BP if average SBP ≥ 130 mm Hg or DBP ≥ 80 mm Hg after 3-6 months of lifestyle intervention

1

LEGEND

- COR 1
 - COR 2a
 - COR 2b
 - COR 3-No Benefit
 - COR 3-Harm
- (Class of Recommendation)



2025 High Blood Pressure

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Figure 6. Use of Risk-Based Thresholds for Initiation of BP Treatment in Adults.

*In older adults who may be frail or have a limited life expectancy, a clinician-patient assessment of potential benefits and harms of BP lowering should be pursued to align care with patient goals. †Increased short-term or 10-year risk is defined as a 10-year predicted risk for CVD events of $\geq 7.5\%$ using PREVENT. BP indicates blood pressure; CHD, coronary heart disease; CKD, chronic kidney disease; CVD, cardiovascular disease; DBP, diastolic blood pressure; HF, heart failure; PREVENT, Predicting Risk of cardiovascular EVENTS; and SBP, systolic blood pressure.

Risk Stratification and Lipid Lowering Therapy



Lipid Lowering Therapy and Risk Prediction

- New guidelines published March 2026!

CLINICAL PRACTICE GUIDELINES



2026 ACC/AHA/AACVPR/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Dyslipidemia: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines

Developed in Collaboration With and Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, Association of Black Cardiologists, American College of Preventive Medicine, American Diabetes Association, American Geriatrics Society, American Pharmacists Association, American Society for Preventive Cardiology, National Lipid Association, and Preventive Cardiovascular Nurses Association



What's new?

1. PREVENT risk categories
2. Treatment goals! They're back!
3. Calcium: CAC and incidentally discovered
4. Lipoprotein(a)

Mapping the Old to the New when LDL-C 70 to 189 mg/dL

Risk	PCE Risk Category	PREVENT Risk Category 10-year ASCVD risk	Intervention and Goal
Low	<5%	0 to 3%	Lifestyle
Borderline	5 to <7.5%	3 to <5%	Consider therapy, goal LDL < 100 mg/dL
Intermediate	≥7.5 to <20%	5 to <10%	LDL lowering therapy, Goal LDL < 100 mg/dL
High	≥20%	≥10%	LDL lowering therapy, Goal LDL < 70 mg/dL
Established ASCVD	N/A	N/A	LDL lowering therapy, Goal LDL < 55 mg/dL

LDL-lowering therapy generally is max tolerated statin, ezetimibe, PCSK9i mAb, or bempedoic acid

Circulation. 2026;153:e1154–e1276. DOI: 10.1161/CIR.0000000000001423



PREVENT online calculator

professional.heart.org

The American Heart Association PREVENT™ Online Calculator

About the PREVENT Equations [Online Calculator](#)

CVD **ASCVD** **Heart Failure**

Sex*
☒ Male ☐ Female

Age (years)*
30-79

SBP (mmHg)*
90-200

Total Cholesterol (mg/dL)*
130-320

HDL Cholesterol (mg/dL)*
20-100

eGFR (mL/min/1.73m²)*
15-140

BMI (kg/m²)*
18.5-39.9

Diabetes
Any history of diabetes.
☒ No ☐ Yes

Current Smoking
Any cigarette use within the last 30 days
☒ No ☐ Yes

Lipid-lowering medication
Current use of statin medication to lower cholesterol
☒ No ☐ Yes

Anti-hypertensive medication
Current use of any medication for hypertension
☒ No ☐ Yes

<https://professional.heart.org/en/guidelines-and-statements/prevent-calculator>



PREVENT example: What's the risk of cardiovascular disease?

- 46 yo M of South Asian ancestry
- BMI 38
- Father died abruptly from an MI at the age of 50
- Exercises 4 days a week on the elliptical
- BP 130/74
- TC 222, TG 200, HDL 37, cLDL 145
- HbA1c 5.3
- eGFR 60

Results for CVD

Estimated **10-year**
risk of CVD

3%

Estimated **30-year**
risk of CVD

21.5%

Results for ASCVD

Estimated **10-year**
risk of ASCVD

2.3%

Estimated **30-year**
risk of ASCVD

15.2%

Results for Heart Failure

Estimated **10-year**
risk of Heart Failure

1.5%

Estimated **30-year**
risk of Heart Failure

13%

Risk Enhancers not accounted for by PREVENT

Table 13. Risk Enhancers

Risk Enhancers
History of premature ASCVD in a parent or sibling (onset age <55 y for men, <65 y for women)
Higher risk ancestry (eg, South Asian, Filipino)
High polygenic risk (if measured) (Section 4.2.3.5, "Polygenic Risk Scores")
Chronic inflammatory diseases (eg, systemic lupus, rheumatoid arthritis, advanced psoriasis, inflammatory arthritis)
Lp(a) ≥ 125 nmol/L or ≥ 50 mg/dL
hsCRP ≥ 2 mg/L on >1 occasion (if measured)
TG persistently ≥ 175 mg/dL (2 mmol/L) (if nonfasting) and ≥ 150 mg/dL (1.7 mmol/L) (if fasting)
CKM syndrome
LDL-C persistently ≥ 160 – 189 mg/dL (4.1–4.9 mmol/L), non-HDL-C ≥ 190 – 219 mg/dL or apoB ≥ 120 mg/dL*
Reproductive risk markers (premature menopause, preeclampsia, gestational diabetes, gestational hypertension, preterm delivery; Section 4.2.3.4, "Reproductive Risk Marker")

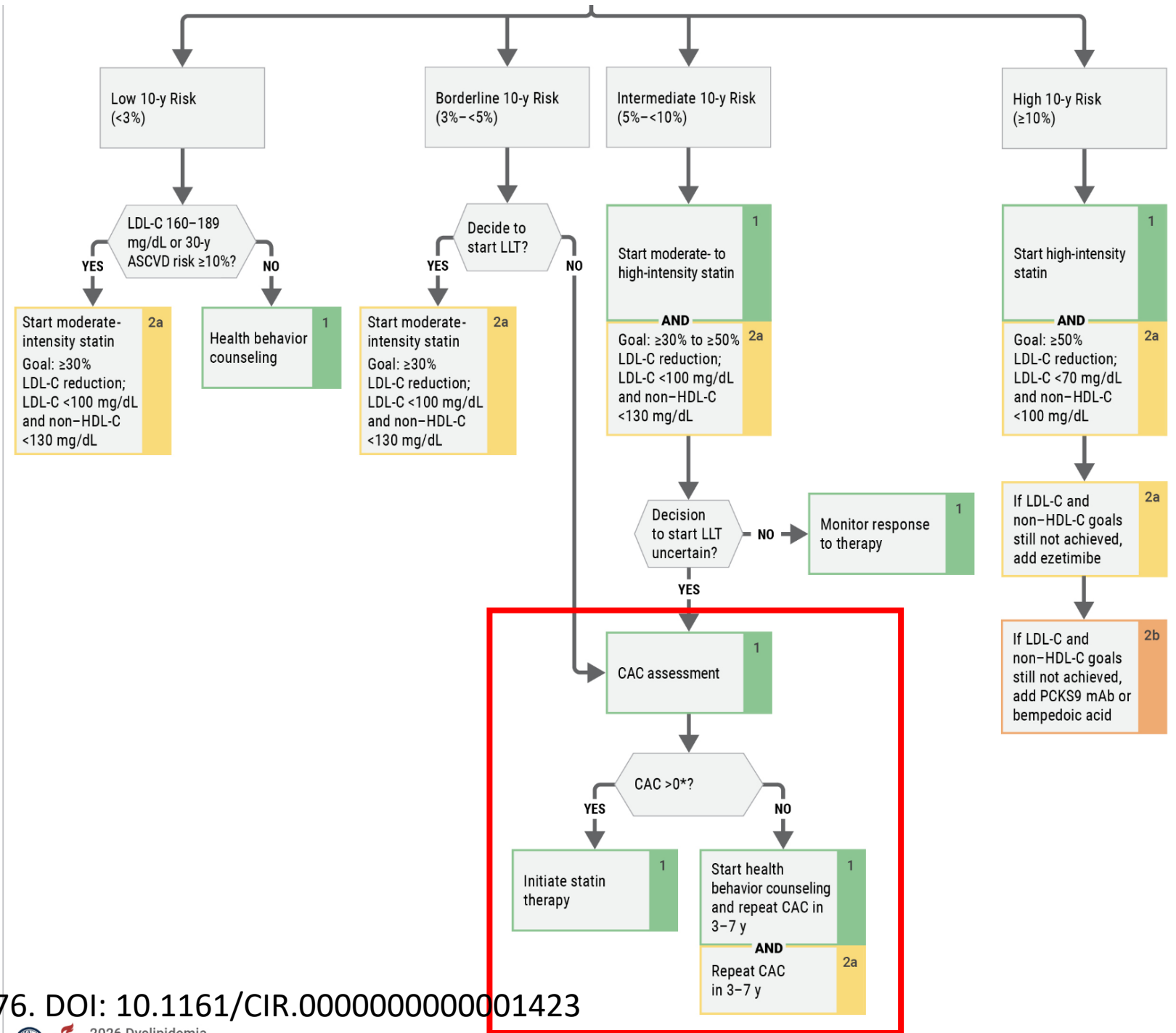
Table 14. Reproductive Risk Markers Associated With ASCVD Events

Adverse Pregnancy Outcomes* That Have a Stronger Association With ASCVD Events ¹⁴
Hypertensive disorders of pregnancy (preeclampsia, gestational hypertension)
Gestational diabetes
Small-for-gestational age ²³ (birthweight below the 10th percentile ²⁴)
Preterm delivery (before 37 wk gestation)
Recurrent spontaneous pregnancy loss
Other Reproductive Risk Markers ¹¹
Early menarche (<10 y old) ²⁵
Early menopause (<45 y old), ¹⁸ especially premature menopause (<40 y old) ^{18,21}
Polycystic ovarian syndrome and irregular menses ^{26,27}

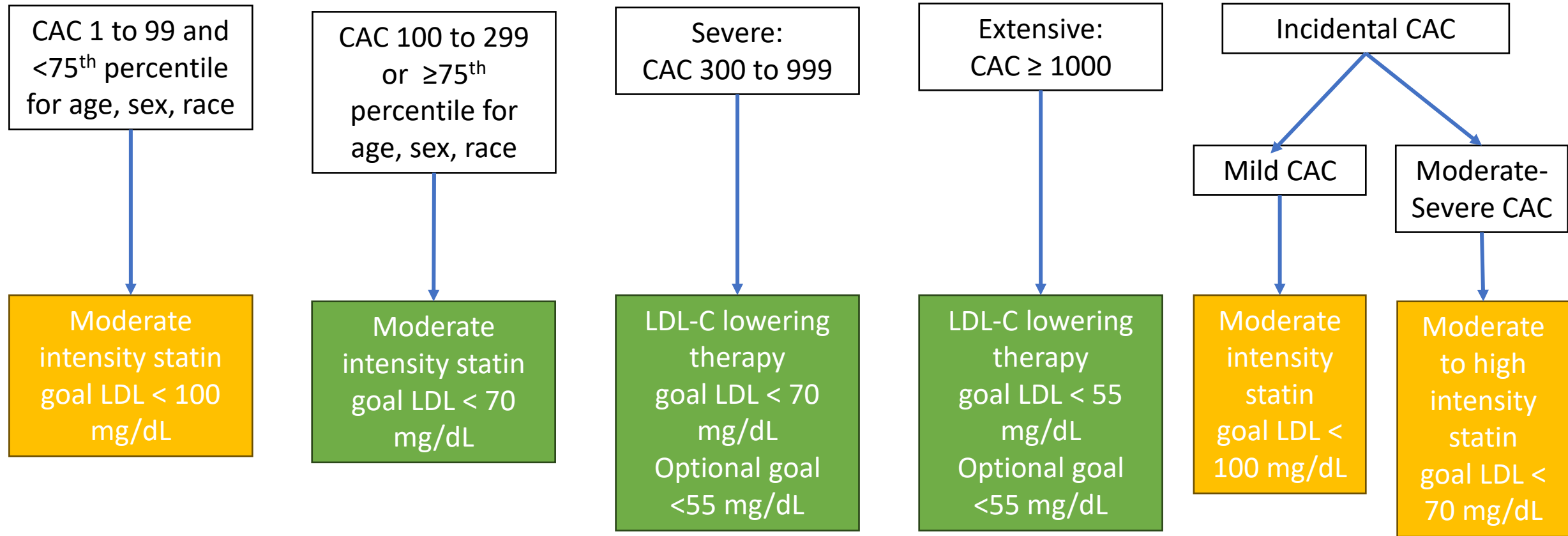
*See reference for a full list of Adverse Pregnancy Outcomes.²⁸
ASCVD indicates atherosclerotic cardiovascular disease.



Primary Prevention in adults age 30-79 without ASCVD



Subclinical Atherosclerosis



If you have checked CAC and started LDL lowering therapy, there is NO value in repeating to monitor therapy!

Measure Lp(a) once, use it to inform lipid treatment thresholds

- Measure Lp(a) once
- Elevated levels are those > 75th percentile
- Consider treating other risk factors more aggressively (LDL-C, BP) if Lp(a) is elevated

3.4. Measurement of Lp(a)

Recommendations for Measurement of Lp(a) Referenced studies that support recommendations are summarized in the Evidence Table .		
COR	LOE	Recommendations
1	B-NR	1. In all adults, measurement of Lp(a) concentration is recommended at least once for ASCVD risk assessment. ^{1–4}
1	B-NR	2. In individuals with FH, premature ASCVD, or high Lp(a), cascade testing of first-degree family members for high Lp(a) concentration is recommended to identify those at increased ASCVD risk. ^{5–8}
1	B-NR	3. For individuals undergoing measurement of Lp(a), use of laboratories employing assays that are insensitive to apolipoprotein(a) [apo(a)] isoforms and traceable to official reference standard materials is recommended to more accurately measure Lp(a) and characterize ASCVD risk. ^{8–12}

Lipoprotein Goals for ASCVD Risk Reduction

Patient population	LDL-C <100 mg/dL (2.6 mmol/L) Non-HDL-C <130 mg/dL (3.4 mmol/L)	LDL-C <70 mg/dL (1.8 mmol/L) Non-HDL-C <100 mg/dL (2.6 mmol/L)	LDL-C <55 mg/dL (1.4 mmol/L) Non-HDL-C <85 mg/dL (2.2 mmol/L)
Primary prevention	PREVENT-ASCVD <10% • If TG ≥150 mg/dL to 499 mg/dL, apoB goal: <90 mg/dL	PREVENT-ASCVD ≥10% • If TG ≥150 mg/dL to 499 mg/dL, apoB goal: <70 mg/dL	N/A
Severe hypercholesterolemia	Without FH, ASCVD risk factors, and subclinical atherosclerosis	With FH, ASCVD risk factors, or subclinical atherosclerosis	Severe hypercholesterolemia or HeFH with clinical ASCVD
Diabetes	Without ASCVD risk factors or diabetes-specific risk modifiers • apoB goal: <90 mg/dL	With ASCVD risk factors or diabetes-specific risk factors • apoB goal: <70 mg/dL	N/A
Subclinical atherosclerosis	CAC = 1–99 AU and <75th percentile for age, sex, and race	• CAC ≥100 to 299 AU or ≥75th percentile for age, sex, race • CAC ≥300 to 999 AU ◦ Optional goal: LDL-C <55 mg/dL, non-HDL-C <85 mg/dL and consider apoB goal <55 mg/dL	CAC ≥1000 AU
Hypertriglyceridemia	<50 y old with no additional risk enhancers	• With clinical ASCVD not at very high risk ◦ apoB goal: <70 mg/dL • Age 40–75 y with ≥1 ASCVD risk factor ◦ apoB goal: <70 mg/dL	With clinical ASCVD at very high risk • apoB goal: <55 mg/dL
Clinical ASCVD	N/A	Not at very high risk • Optional goal: LDL-C <55 mg/dL, non-HDL-C <85 mg/dL and consider apoB goal <55 mg/dL	• At very high risk ◦ apoB goal: <55 mg/dL • With CKD



 2026 Dyslipidemia
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Figure 1. Lipoprotein Goals for ASCVD Risk Reduction.

apoB indicates apolipoprotein B; ASCVD, atherosclerotic cardiovascular disease; AU, Agatston units; CAC, coronary artery calcium; CKD, chronic kidney disease; FH, familial hypercholesterolemia; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; and TG, triglycerides.

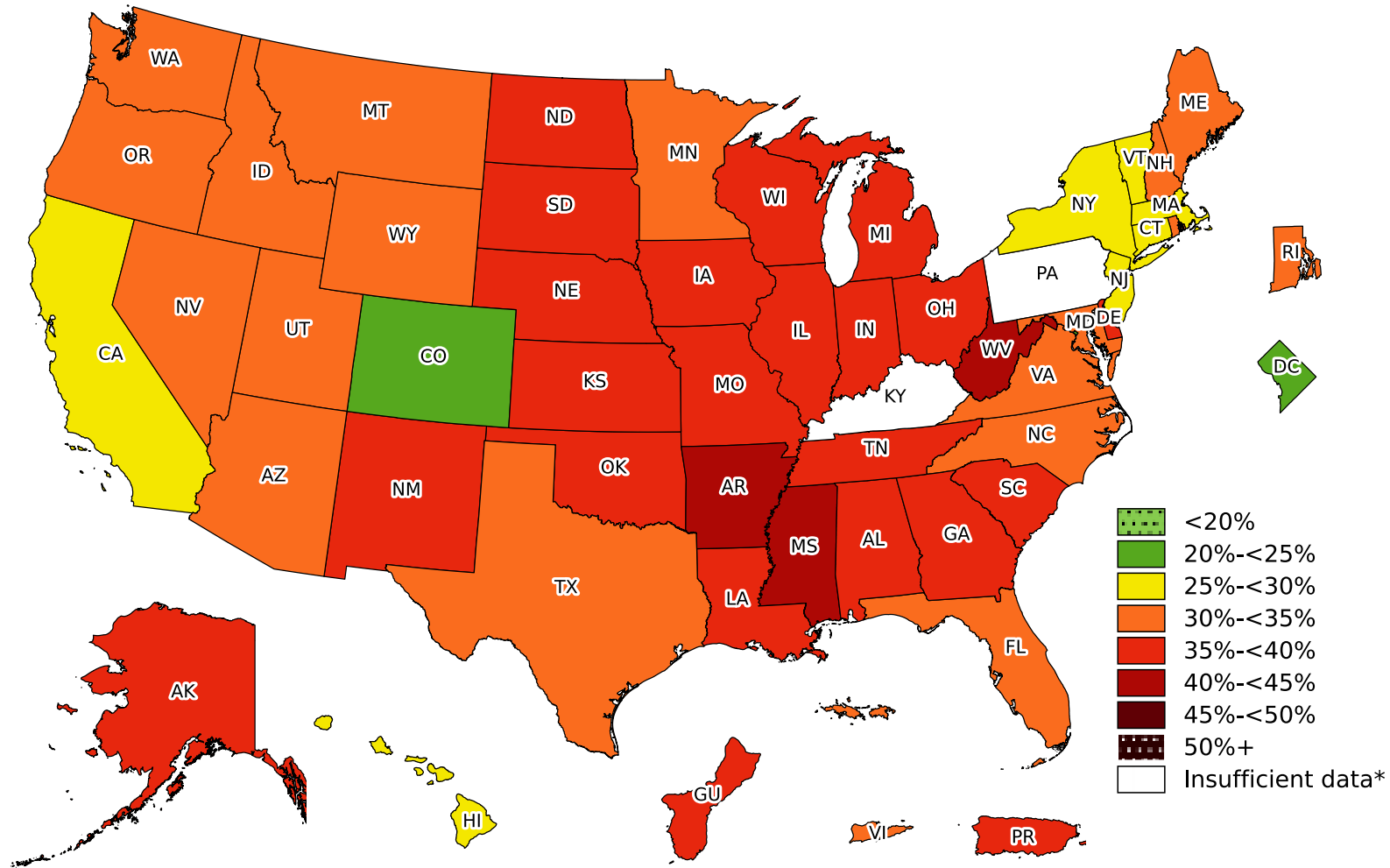
Risk Stratification: Risk Calculators aside from PREVENT

- UK QRISK 3
- European Society of Cardiology: SCORE
- ACC/AHA Pooled Cohort Equation

What about treating obesity?



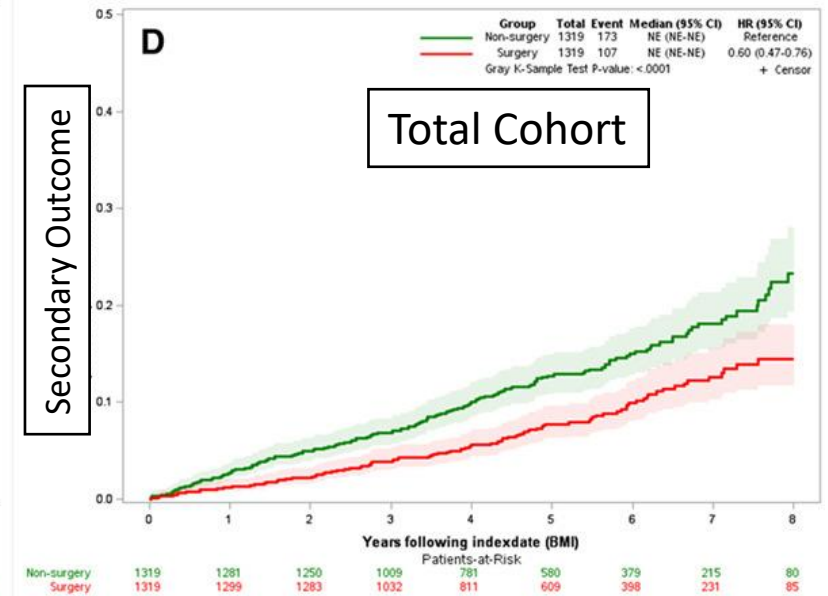
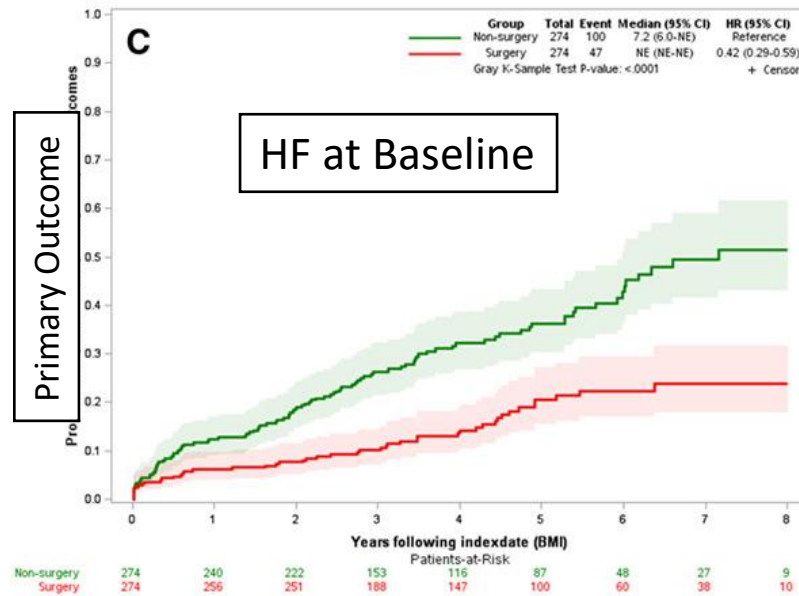
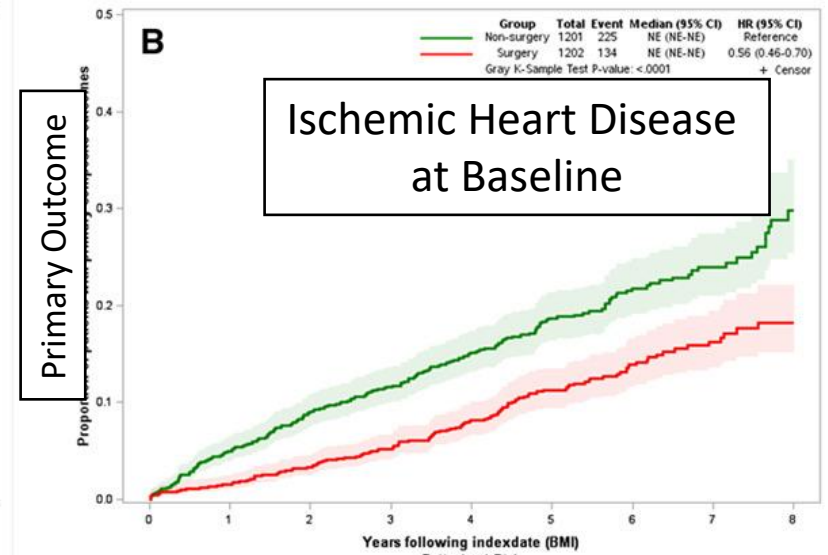
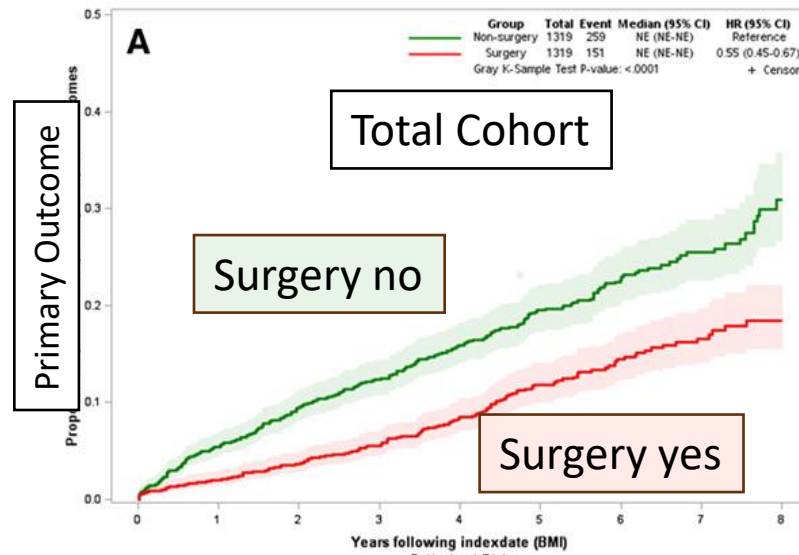
Prevalence of Obesity (BMI ≥ 30) in 2023



<https://www.cdc.gov/obesity/data-and-statistics/adult-obesity-prevalence-maps.html>

Bariatric Surgery and CVD Outcomes

- Propensity matched cohort study of 2638 patients from Ontario
- Patients with established ischemic heart disease or heart failure
- **Primary outcome was extended MACE (all cause mortality, MI, coronary revasc, cerebrovascular events, HF hospitalization)**
- Secondary outcome MACE (MI, stroke, all-cause mortality)
- HR for primary outcome 0.58 (0.48-0.71)
- HR for secondary outcome 0.66 (0.52-0.84)
- Similar for those with HF or ischemic heart disease at baseline.



SELECT TRIAL: Patients with obesity and CVD but no T2D

- Patients ≥ 45 years with established CVD
- BMI ≥ 27 kg/m² no T2D
- Semaglutide 2.4 mg vs. placebo
- 17,604 followed for 40 mos
- 20% reduction MACE

A. Primary: MI, stroke, CV death

B. CV death

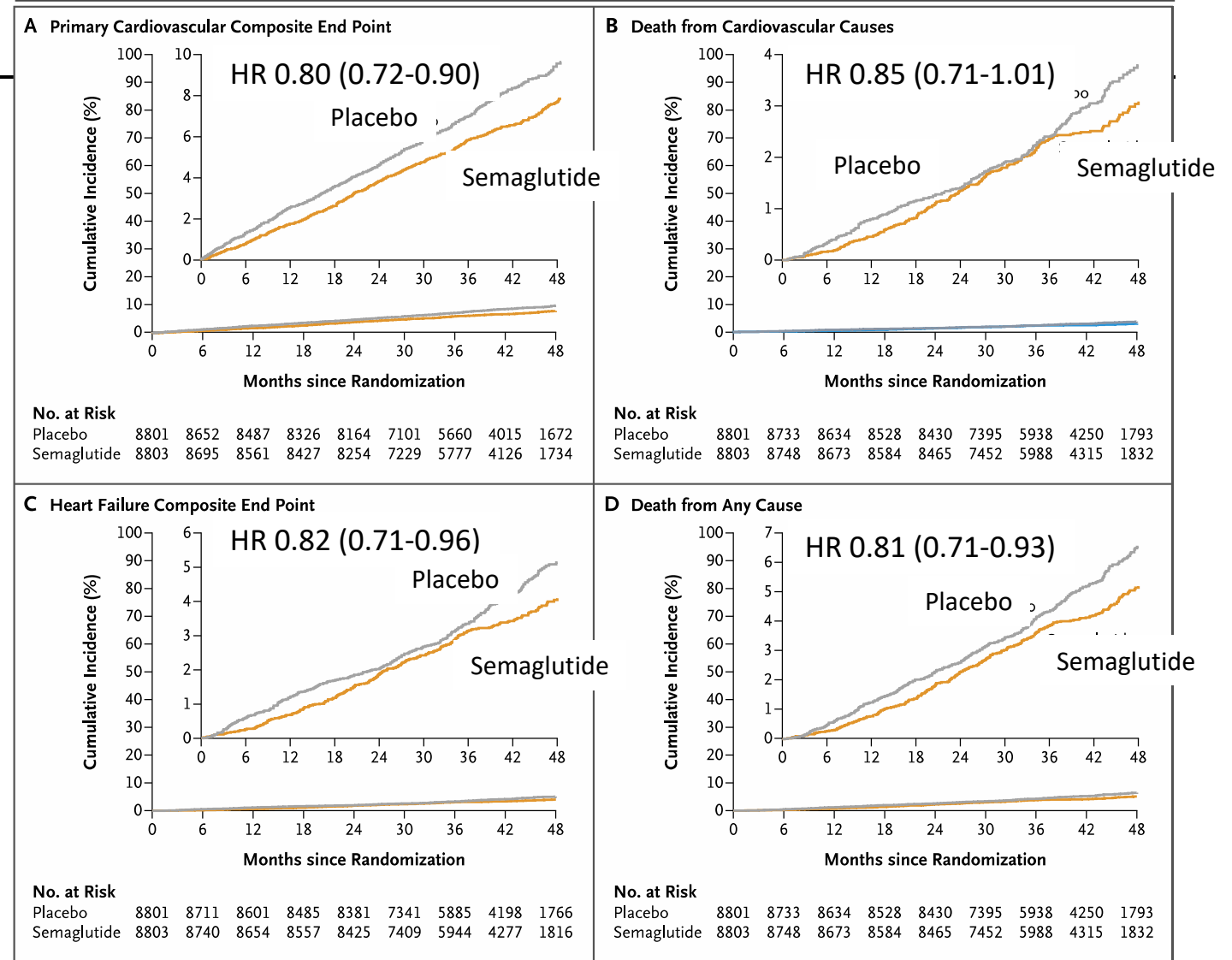


Figure 1. Time-to-First-Event Analysis for Primary and Confirmatory Secondary Efficacy End Points.

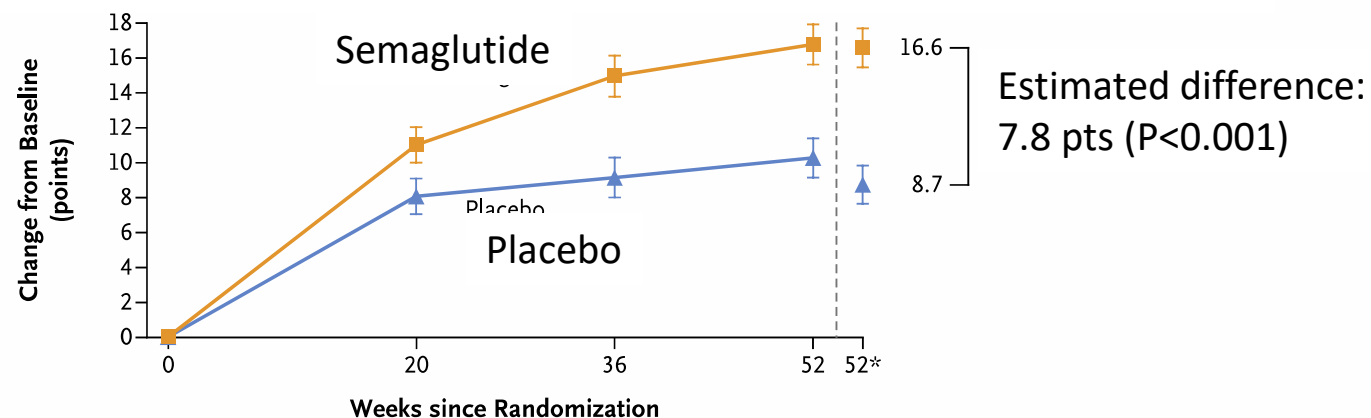
C. HF composite outcome

D. All-cause death

STEP-HFpEF: Weight Reduction in Patients with obesity and HFpEF but no T2D

- 529 subjects with BMI $\geq$ 30 and HFpEF but no T2D
- Randomized to semaglutide 2.4mg weekly or placebo
- Coprimary endpoints: change in KCCQ and body weight

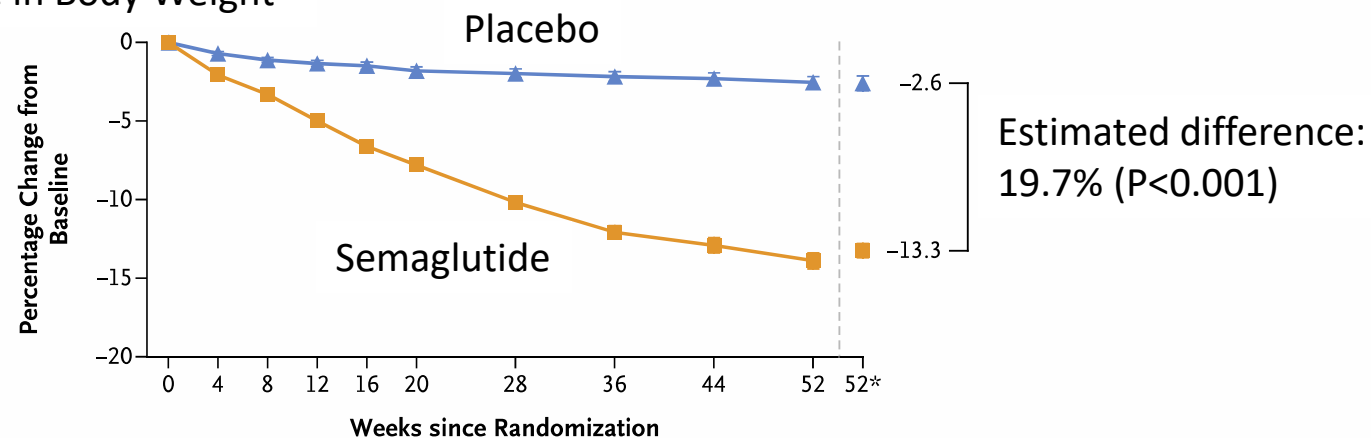
A. Change in Kansas City Cardiomyopathy Questionnaire – clinical summary score



No. of Participants

Semaglutide	263	249	225	243	263
Placebo	266	242	217	237	266

B. Change in Body Weight

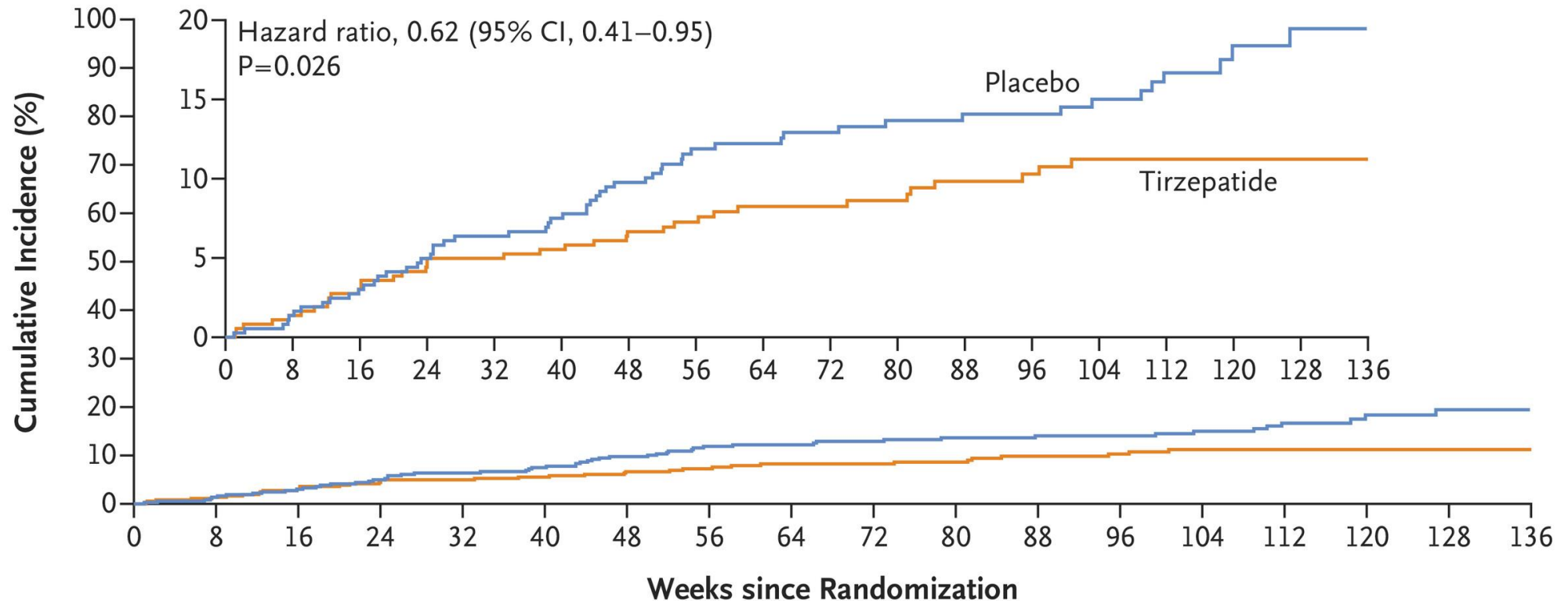


No. of Participants

Semaglutide	263	255	254	250	246	252	239	243	240	246	263
Placebo	266	259	249	250	243	246	243	239	233	242	266

Figure 1. Changes from Baseline to Week 52 in the Dual Primary End Points.

SUMMIT Trial: Tirzepatide in patients with HFpEF and Obesity: Composite of CV Death or a worsening heart failure event



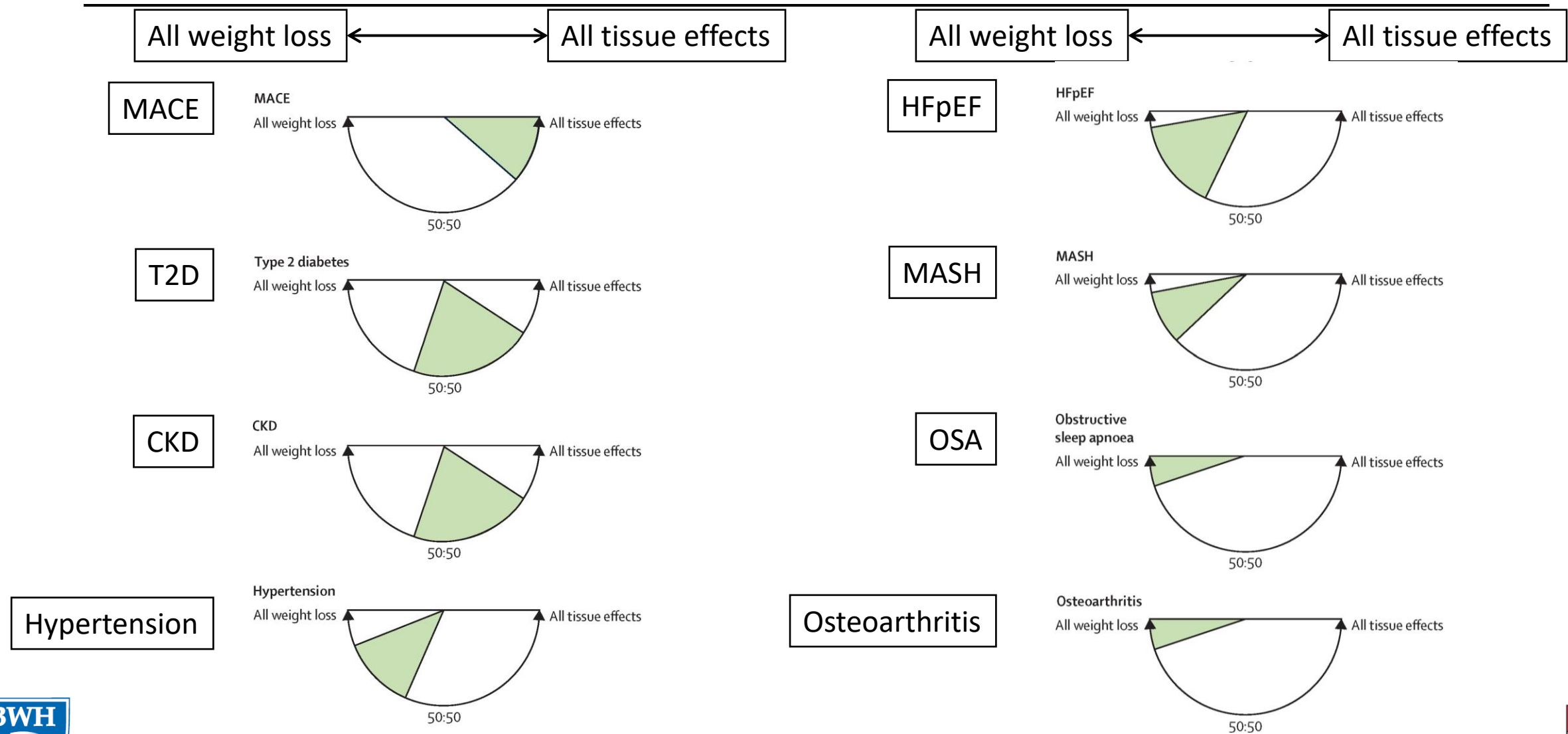
No. at Risk

Placebo	367	361	349	339	332	328	318	268	259	240	219	215	195	165	145	94	73	45
Tirzepatide	364	359	349	344	340	338	333	284	275	251	228	220	196	167	146	105	82	46

Proven benefits of treatments associated with decent weight loss interventions

Outcome	Improvement and evidence
Increased QOL, cardiorespiratory fitness	<u>YES</u>
T2D remission and prevention	Yes (50% to 93%)
BP reduction	Yes (up to 8/4 mm Hg)
Improvement lipids	Yes (decreased TG, increase HDL, LDL?)
HF benefits	Yes (STEP HFpEF and SUMMIT trials)
MACE	Yes – SELECT trial
OSA/OA/MASLD	Yes, 5-6 trials
LONG COVID	Yes, fatigue benefit

Incretin therapy: Weight loss or direct tissue effects?



Patient ARS: What's the risk of cardiovascular disease?

- 46 yo F of South Asian ancestry
- BMI 38
- Father died abruptly from an MI at the age of 50
- Vegetarian, protein from lentils and cheese
- Refined carbohydrates (usually white rice)
- Exercises 4 days a week on the elliptical
- BP 110/74
- TC 222, TG 116, HDL 47, cLDL 152, dLDL 142
- HbA1c 5.3

What should I do about aspirin?



Who should take aspirin?

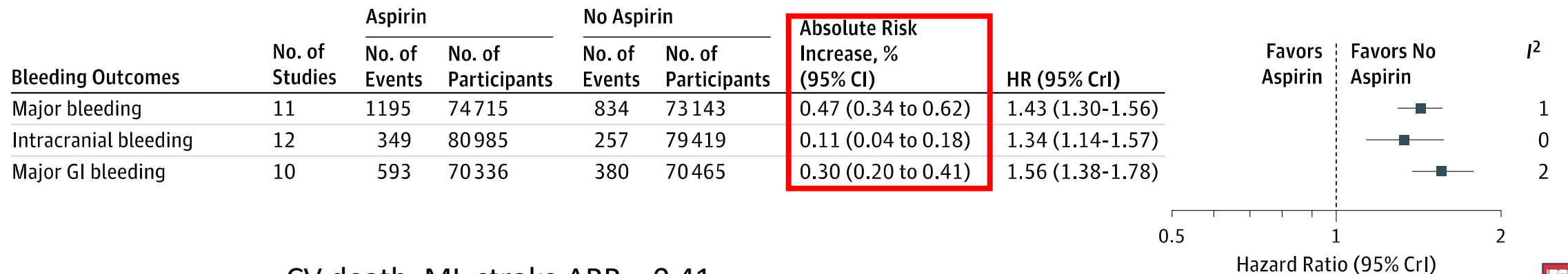
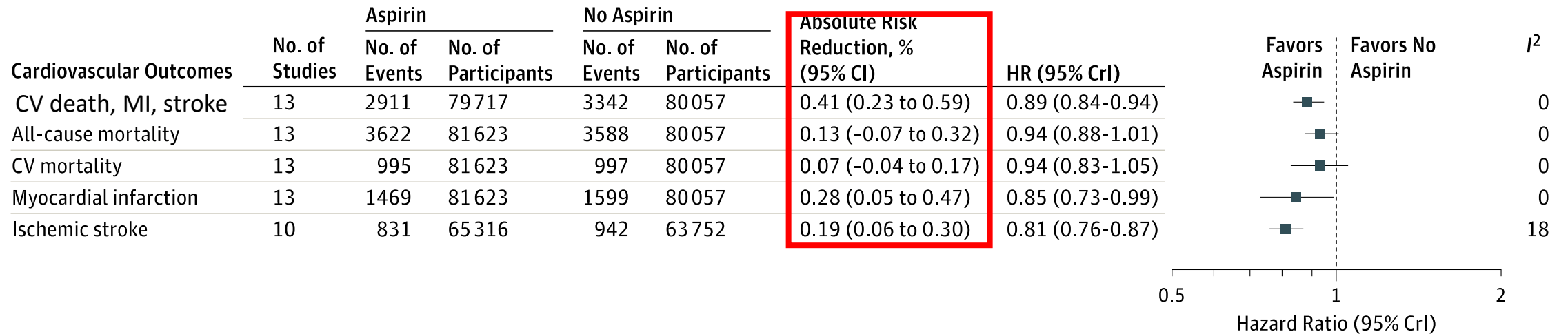
U.S. Preventive Service Task Force

Recommendation Summary

Population	Recommendation	Grade
Adults aged 40 to 59 years with a 10% or greater 10-year cardiovascular disease (CVD) risk	The decision to initiate low-dose aspirin use for the primary prevention of CVD in adults aged 40 to 59 years who have a 10% or greater 10-year CVD risk should be an individual one. Evidence indicates that the net benefit of aspirin use in this group is small. Persons who are not at increased risk for bleeding and are willing to take low-dose aspirin daily are more likely to benefit.	C
Adults 60 years or older	The USPSTF recommends against initiating low-dose aspirin use for the primary prevention of CVD in adults 60 years or older.	D

Aspirin for Primary Prevention

Figure 1. Cardiovascular and Bleeding Outcomes in All Participants



CV death, MI, stroke ARR = 0.41

Major bleeding: ARI = 0.47

Consider aspirin use among those

- Who are at elevated risk ($\geq 20\%$ 10-year risk) among whom the absolute CV benefit may be worth the risk of bleeding
- Who are at high risk for colorectal cancer
- Who are concerned about MI risk but less concerned about bleeding risk
- Among those who have a CAC score ≥ 100

CAC ≥ 100 as a guide to using aspirin in primary prevention

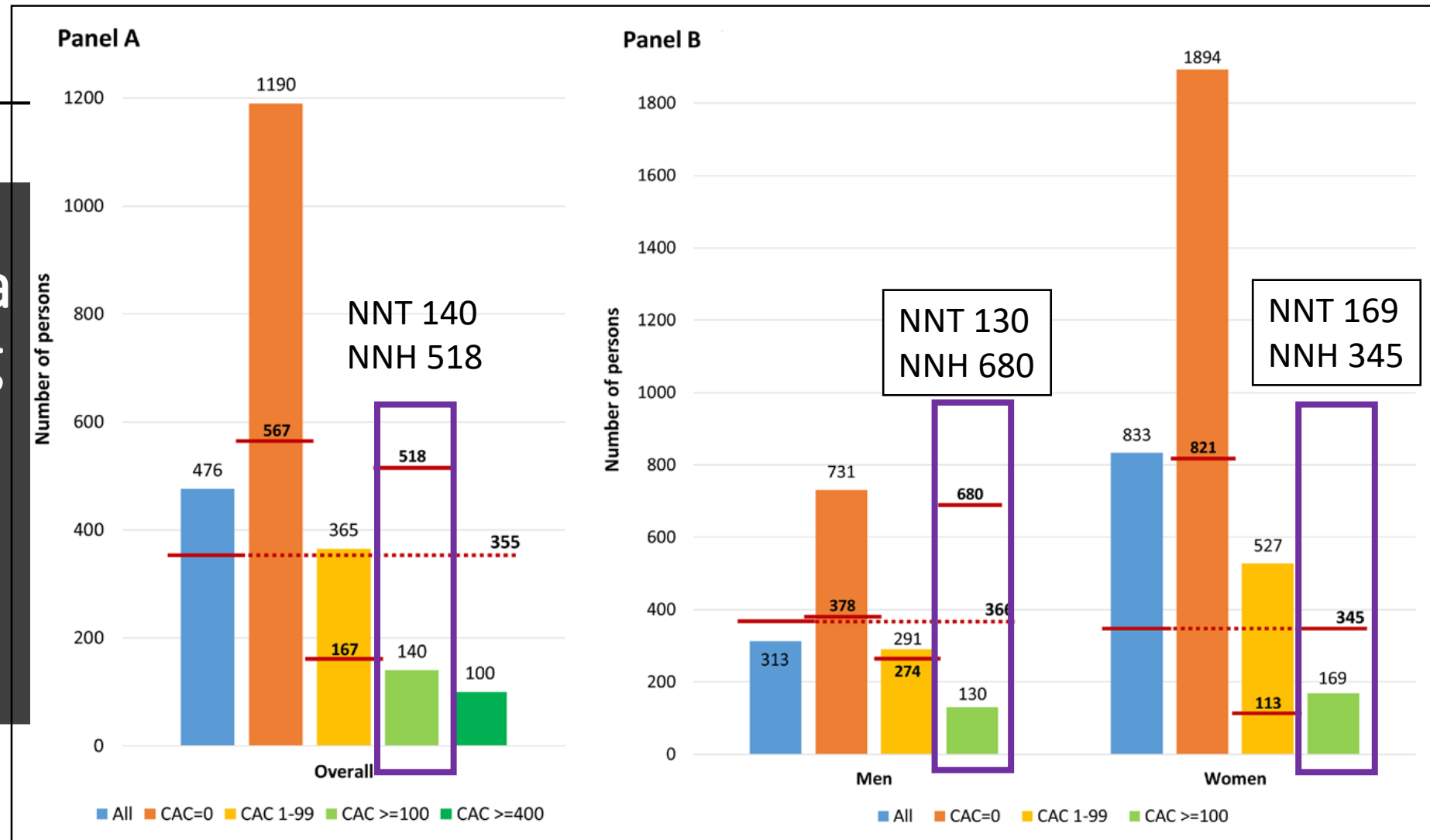


Figure 3. Number needed to treat with low-dose aspirin during 5 years to prevent 1 CVD event and number needed to cause a major bleeding event by baseline CAC score, overall (A) and by sex (B).

Values are presented as number of persons. Follow-up was censored at 5 years. Red horizontal lines represent NNH thresholds. Participants with CAC ≥ 400 had zero bleeding events, and the NNH could not be computed. The exploratory NNT for participants with CAC ≥ 400 was computed only overall. CAC indicates coronary artery calcium; CVD, cardiovascular disease; NNH, number needed to harm; and NNT, number needed to treat.

Conclusion

- Behaviors are an important tool to prevent cardiovascular disease but the evidence supporting specific diet recommendations is sparse, tends to be from observational studies, and subject to bias and confounding
- Diet, exercise, and weight loss are effective first line therapy for treating hypertension
- Risk prediction is a valuable tool and the new PREVENT equation is central to both hypertension and lipid treatment guidelines
- Statins remain our most effective tool for preventing ASCVD events. Aspirin reduces the risk of CV events (particularly MI) but also increases the risk of bleeding. Patients who derive the most benefit are also those at the highest risk for adverse bleeding events.
- The treatment and prevention of cardiovascular, kidney, and metabolic conditions is among the most rapidly evolving and exciting spaces in medicine right now





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Thank you!

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