

Clinical Update

ADAPTED FROM:

2024 Guideline for the
Primary Prevention of Stroke:

A Guideline from the American Heart
Association/American Stroke Association



AHA Clinical Update PPTX



2024 Guideline for the Primary Prevention of Stroke: A Guideline From the American Heart Association/American Stroke Association

Endorsed by the Preventive Cardiovascular Nurses Association and the Society for Vascular Surgery

The American College of Obstetricians and Gynecologists supports the value of this clinical document as an educational tool

The American Academy of Neurology affirms the value of this statement as an educational tool for neurologists

GUIDELINE WRITING GROUP

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Table 1. Applying Class of Recommendation and Level of Evidence to Clinical Strategies, Interventions, Treatments, or Diagnostic Testing in Patient Care

Bushnell, C., et al. 2024 Guideline for the Primary Prevention of Stroke: A Guideline From the American Heart Association/American Stroke Association. *Stroke*.



CLASS (STRENGTH) OF RECOMMENDATION	LEVEL (QUALITY) OF EVIDENCE‡
CLASS 1 (STRONG) Benefit >>> Risk	LEVEL A <ul style="list-style-type: none"> High-quality evidence‡ from more than 1 RCT Meta-analyses of high-quality RCTs One or more RCTs corroborated by high-quality registry studies
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> Is recommended Is indicated/useful/effective/beneficial Should be performed/administered/other Comparative-Effectiveness Phrases†: <ul style="list-style-type: none"> Treatment/strategy A is recommended/indicated in preference to treatment B Treatment A should be chosen over treatment B 	LEVEL B-R (Randomized) <ul style="list-style-type: none"> Moderate-quality evidence‡ from 1 or more RCTs Meta-analyses of moderate-quality RCTs
CLASS 2a (MODERATE) Benefit >> Risk	LEVEL B-NR (Nonrandomized) <ul style="list-style-type: none"> Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies Meta-analyses of such studies
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> Is reasonable Can be useful/effective/beneficial Comparative-Effectiveness Phrases†: <ul style="list-style-type: none"> Treatment/strategy A is probably recommended/indicated in preference to treatment B It is reasonable to choose treatment A over treatment B 	LEVEL C-LD (Limited Data) <ul style="list-style-type: none"> Randomized or nonrandomized observational or registry studies with limitations of design or execution Meta-analyses of such studies Physiological or mechanistic studies in human subjects
CLASS 2b (Weak) Benefit ≥ Risk	LEVEL C-EO (Expert Opinion) <ul style="list-style-type: none"> Consensus of expert opinion based on clinical experience.
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> May/might be reasonable May/might be considered Usefulness/effectiveness is unknown/unclear/uncertain or not well-established 	
CLASS 3: No Benefit (MODERATE) Benefit = Risk	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> Is not recommended Is not indicated/useful/effective/beneficial Should not be performed/administered/other 	
CLASS 3: Harm (STRONG) Risk > Benefit	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> Potentially harmful Causes harm Associated with excess morbidity/mortality Should not be performed/administered/other 	

•COR and LOE are determined independently (any COR may be paired with any LOE).

•A recommendation with LOE C does not imply that the recommendation is weak.

Sources of Evidence Used in Prevention Recommendations in this Guideline



Outcome data from research in populations:

- Without CVD
- With CVD but not any Stroke or TIA
- With CVD but $\leq 50\%$ with history of stroke

Elements Associated with Elevated Stroke Risk



Adverse Social Determinants of Health

- Poor Access to Care
- Socioeconomic Disadvantage
- Lack of Social and Community Support
- Poor Access to Education
- Racism and Discrimination



Inadequate Management of Common Risk Factors

- Undiagnosed Risk Factors
- Untreated Risk Factors
- Best Practices Not Followed
- Lack of Shared Decision Making
- Health System Barriers
- De-Emphasis of Lifestyle Factors (*Life's Essential 8*)



Commonly Unrecognized Risk-enhancing Factors

- Lipoprotein(a)
- Thrombophilias
- Endometriosis
- Early Menopause
- Complications of Pregnancy

Closing the **Prevention Gap**

Prevention Gap: Difference between current and potential control of stroke risk factors in the US.

Factors Affected:

- Lifestyle factors
- Medical factors that can be managed with behavior change and/or medication
- Non-medical factors including health literacy, food security, housing security, and access to medication
- Social determinant of health factors including access to education, access to health insurance, economic stability, neighborhood environment, and social and community context

Importance:

- Represents the opportunity to reduce the burden of stroke on patients, communities, and society
- Presents modifiable factors that allow us to address disparities in stroke risk
- Underscores the imperative for quality improvement and health services research to improve risk factor detection and control

Social Determinants of Health and Health-Related Social Needs



Specific Recommendations for Primary Prevention

Primary Prevention: **Screening**

COR	RECOMMENDATIONS
1	In persons aged 40-79 years, estimations of risk for CVD every 1-5 years is beneficial to guide decisions on treatments and lifestyle recommendations that may reduce risk for stroke.
1	In persons with AF, calculations of CHA2DS2-VASc score is recommended to guide decisions on prescription of oral anticoagulation to reduce risk for stroke.
1	In persons aged 18 or greater, periodic screening for modifiable behaviors and medical conditions that increase stroke risk is recommended.
1	In persons aged 18 and up, periodic screening for SDoH is beneficial to identify additional factors which contribute to stroke risk.

Abbreviations: CVD indicates cardiovascular disease; and SDoH , social determinants of health.

Framework for Cardiovascular Health and Primary Prevention of Stroke



Lloyd-Jones, et al Circulation
2022;146:e18-e43

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Diet Quality	
COR	RECOMMENDATIONS
1	In adults without prior CVD and who are at high or intermediate CVD risk, a Mediterranean diet is recommended to reduce the risk of incident stroke.
2a	In adults who are aged 60 years or older and have uncontrolled BP, compared to using 100% sodium chloride, salt substitution is reasonable to reduce the risk of incident stroke.
2b	In adults, folic acid supplementation and B-complex vitamins supplementation for reducing the risk of stroke is not well-established.
3: No Benefit	In adults without prior CVD, long-chain fatty acids are not effective for reducing the risk of stroke.
3: No Benefit	In adults, vitamin C, vitamin E, selenium, antioxidants, calcium, calcium with vitamin D, and multivitamin supplementation are not effective for reducing the risk of stroke.

Abbreviations: BP indicates blood pressure; and CVD, cardiovascular disease.

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Physical Activity	
COR	RECOMMENDATIONS
1	In adults, screening for physical activity is recommended to estimate stroke risk.
1	In adults, counseling patients to get at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity physical activity per week is recommended to reduce stroke risk.
1	In adults, counseling to avoid excessive time spent in sedentary behavior is recommended to reduce stroke risk.

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Blood Sugar	
COR	RECOMMENDATIONS
1	In asymptomatic adults aged 18 or over, who have overweight, obesity , or ASCVD, screening for diabetes is recommended to inform stroke risk.
1	In patients with diabetes and high CV risk or established CVD, treatment with a GLP-1 receptor agonist is effective to reduce the risk of stroke.
3: No Benefit	In patients with T1D or T2D, intensive glycemic control is not beneficial for stroke prevention.

Abbreviations: ASCVD indicates atherosclerotic cardiovascular disease; CV, cardiovascular; CVD, cardiovascular disease; GLP-1, glucagon-like protein-1; T1D, type 1 diabetes mellitus; and T2D, type 2 diabetes mellitus.

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Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Weight and Obesity	
COR	RECOMMENDATIONS
1	In adults over age 18, screening for overweight and obesity is recommended to inform the risk of stroke.
2b	In patients with Obesity Class II and above, bariatric surgical procedures to promote weight loss may be considered to reduce the risk of stroke.

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Lipids	
COR	RECOMMENDATIONS
1	In adults who qualify for treatment with lipid-lowering therapy according to the AHA guidelines, treatment with a statin is recommended to reduce the risk of a first stroke.
2b	Patients without CVD who are treated with lipid-lowering therapy, according to AHA guidelines, who cannot reach goals with statins, the benefit of alirocumab or evolocumab has not been proven for stroke risk reduction.
2b	In adults who do not tolerate statin therapy and have elevated LDL-C and increased CV risk, treatment with bempedoic acid has not been proven to reduce risk of stroke.
3: No Benefit	In adults in moderate or low intake of long chain omega-3 fatty acid is not recommended to reduce the risk of a first stroke.

Abbreviations: AHA indicates the American Heart Association ; CV, cardiovascular; CVD, cardiovascular disease; and LDL-C, low-density lipoprotein cholesterol.

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Blood Pressure	
COR	RECOMMENDATIONS
1	In adults aged 18 or over, screening for hypertension is recommended to identify stroke risk and eligibility for treatment.
1	In adults with stage 1 or stage 2 hypertension, lifestyle modification and drug treatment to a BP less than 130/80 is recommended to reduce stroke risk.
1	In adults with HTN, thiazide and thiazide –like diuretics, CCB, ACEI, and ARBs are recommended as initial therapies to reduce stroke risk.
1	In adults with HTN, drug therapy with one or more medications is indicated to reach BP control necessary to prevent stroke.

Abbreviations: ACEI indicates angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BP, blood pressure; CCB, calcium channel blocker; and HTN, hypertension.

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Tobacco Use / Cessation Intervention	
COR	RECOMMENDATIONS
1	For active smokers, cessation medication delivered with behavioral counseling is recommended.
1	For active smokers of cigarettes and other tobacco products assistance with cessation is recommended to reduce the risk of stroke.
2a	For active smokers who are in a hospital setting, cessation medications alongside behavioral counseling is reasonable for smoking cessation.
2b	For active smokers, the long-term health benefits of using e-cigarettes in place of nicotine replacement therapy for smoking cessation is not well-established.

Management of Health Behaviors and Health Factors for Primary Prevention of Stroke



Sleep	
COR	RECOMMENDATIONS
2b	The effectiveness of screening adults for obstructive sleep apnea to prevent stroke is unclear.
2b	In patients with obstructive sleep apnea, continuous positive airway pressure might be reasonable to reduce the risk of stroke.

Atherosclerotic and Non-Atherosclerotic Risk Factors: **Migraine**

Linking Migraine to Stroke:

- ✓ An association between migraine, particularly migraine with aura, and stroke risk has been consistently identified in observational studies.
- ✓ This association is stronger for ischemic stroke than for hemorrhagic stroke and is more evident in young women.
- ✓ Vascular risk factors are common in patients with migraine and contribute to excess stroke risk.
- ✓ Use of combined hormonal contraception in those with migraine with aura is associated with increased risk for ischemic stroke.

Atherosclerotic and Non-Atherosclerotic Risk Factors: **Migraine**

COR	RECOMMENDATIONS
1	In adults aged 18-64 years with migraine with or without aura, evaluation and modification of vascular risk factors is recommended, to address the elevated risk of stroke.
1	In adults with migraine with aura who desire contraception, progestin-only or non-hormonal forms are recommended to avoid the increased risk of ischemic stroke associated with combined hormonal contraception.

Inflammation in Atherosclerosis



COR	RECOMMENDATIONS
2b	In adults with a recent MI, the addition of low dose colchicine to intensive statin therapy might be reasonable to decrease the risk of ischemic stroke

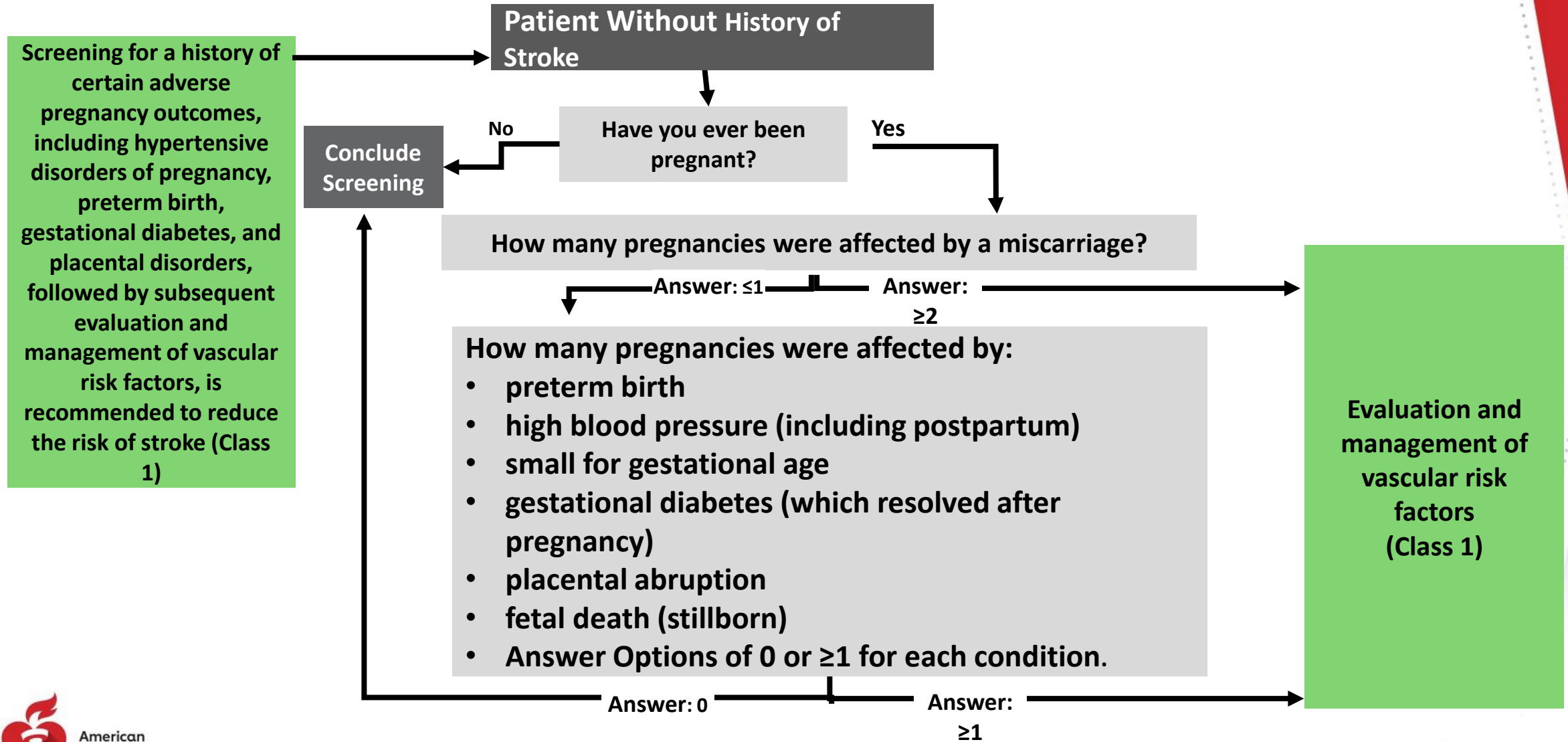
Prevention of Pregnancy-Associated Stroke

In pregnant or early postpartum (within 6 weeks of delivery) patients with severe hypertension, BP-lowering treatment to a target <160/110 mmHg as soon as possible is recommended to reduce the risk of fatal maternal ICH. (Class 1)



In patients with hypertensive disorders of pregnancy, including chronic hypertension in pregnancy, treatment with antihypertensive medication to a goal BP of <140/90 mmHg is reasonable to reduce the risk of pregnancy-associated stroke. (Class 2a)

Prevention of Stroke in Women at Increased Risk because of Pregnancy Events



Endometriosis Increases the Risk of Future Stroke

Positive History of Endometriosis increases the risk of:



Stroke



Hypertension



Hypercholesterolemia




Inflammation

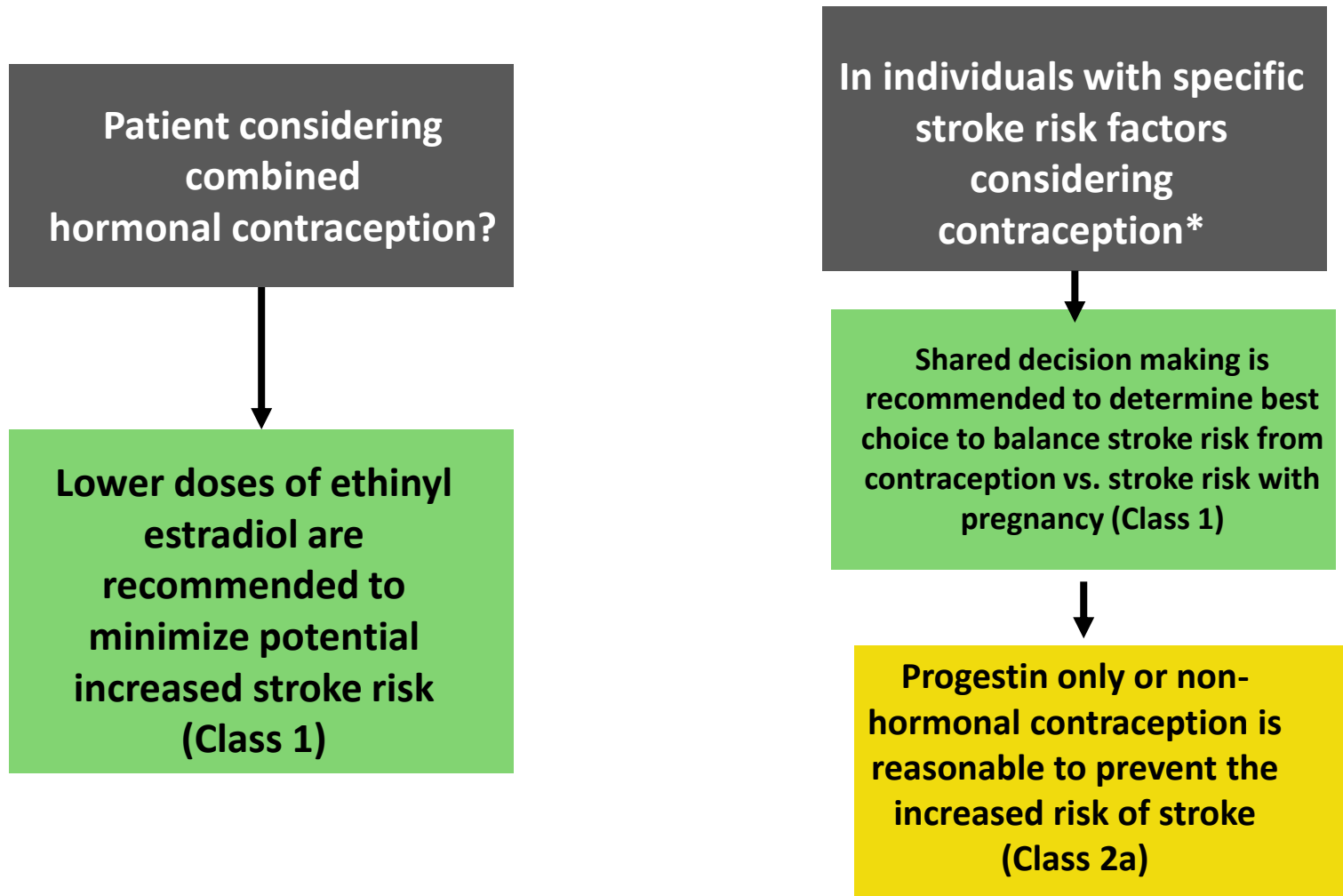


Cardiovascular Disease

COR	RECOMMENDATIONS
2a	Screening for Endometriosis history is reasonable to inform the risk of stroke
	POSITIVE HISTORY
2a	Vascular risk factor evaluation and modification of vascular risk factors are reasonable to reduce stroke risk.



Stroke Risk with Hormonal Contraception

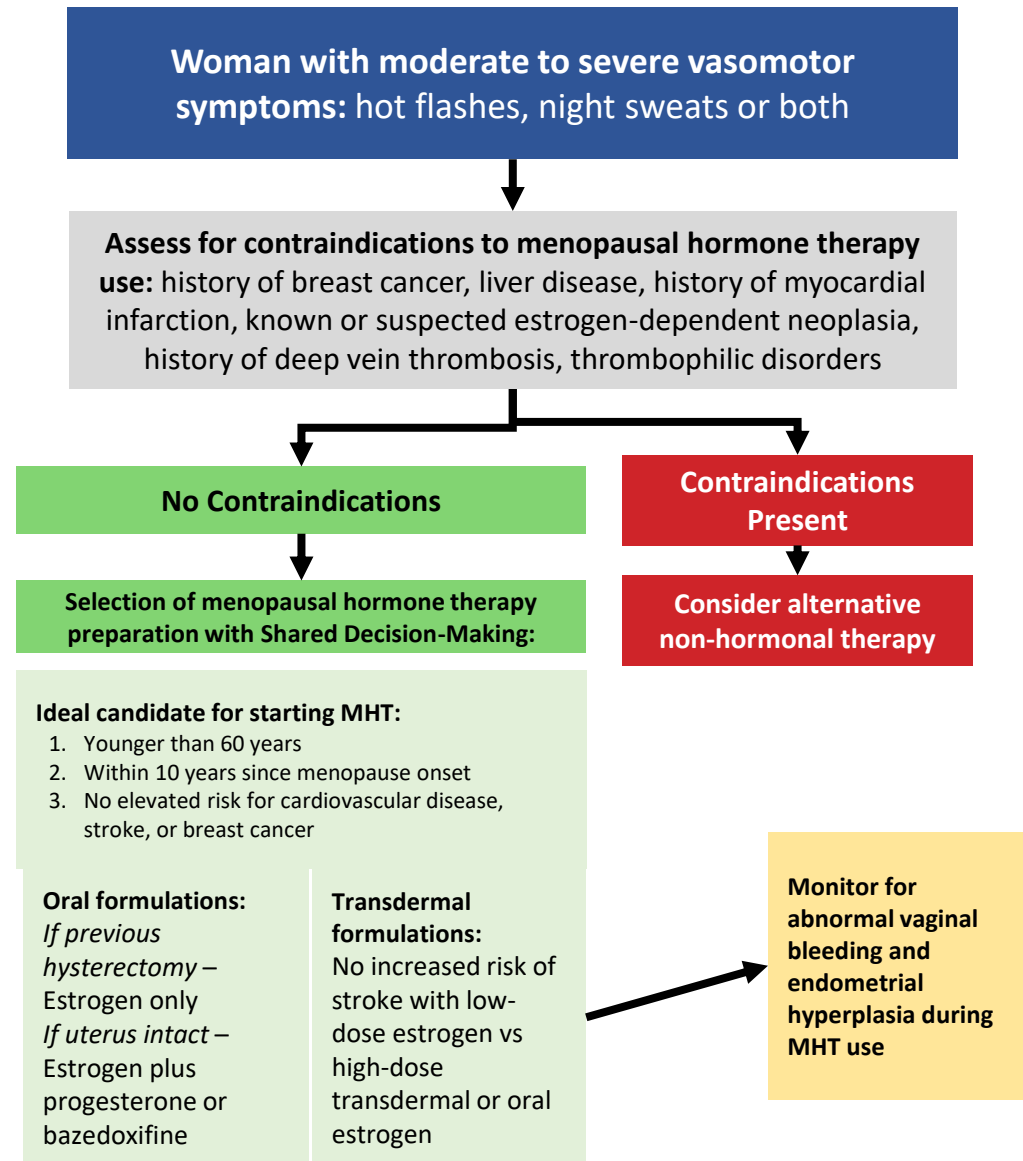


* i.e., age >35 years, tobacco use, hypertension, or migraine with aura

Menopause Associated Stroke Risk Reduction



COR	RECOMMENDATIONS
1	Screening for a history of premature ovarian failure or premature early menopause can be beneficial to inform stroke risk.
1	In patients with premature ovarian failure or early menopause, evaluation and modification of vascular risk factors is recommended to reduce elevated stroke risk.
3: Harm	In women aged 60 years or older, or more than 10 years post-natural-menopause, or at elevated risk for CVD or stroke, oral estrogen-containing menopausal hormone therapy is associated with an excess risk of stroke and must be weighed against clinical benefits.

Menopause Associated Stroke Risk Reduction

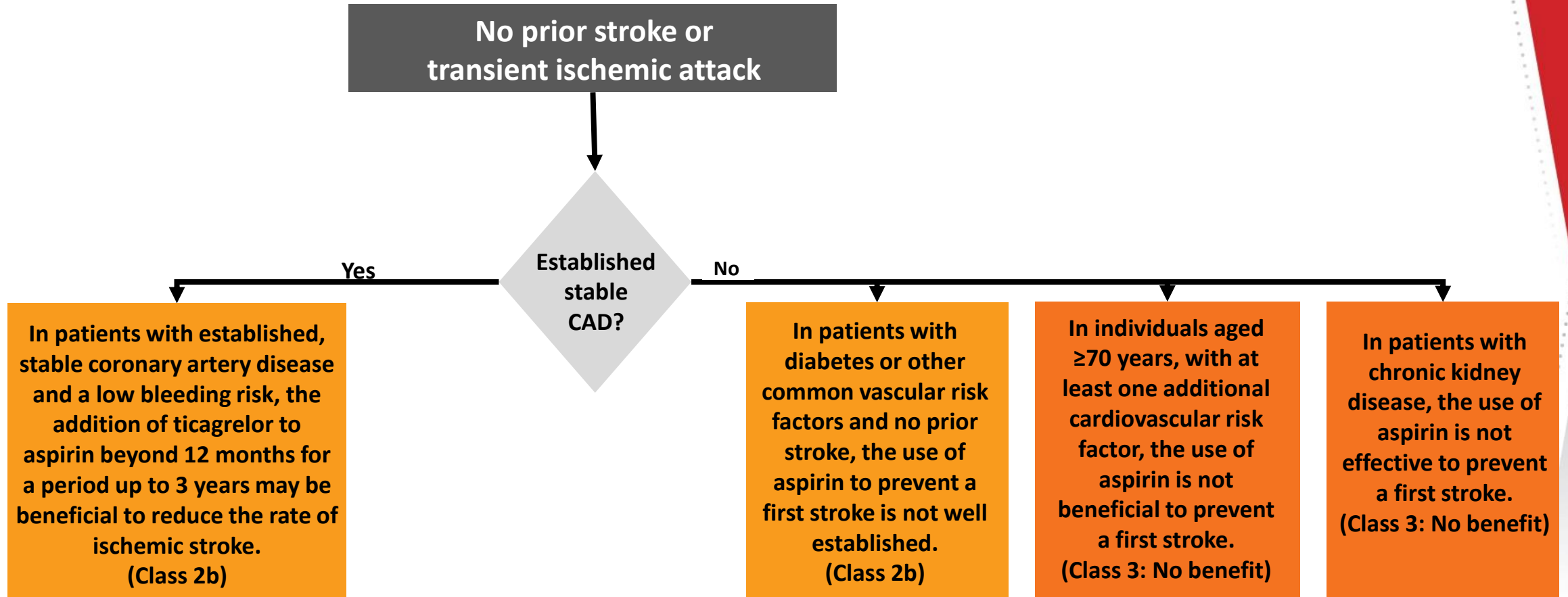


Abbreviations: MHT indicates menopausal hormonal treatment.

Hormone use and Stroke Risk Assessment

COR	RECOMMENDATIONS
2a	 In transgender women and gender-diverse individuals taking estrogens for gender affirmation, evaluation and modification of risk factors can be beneficial to reduce stroke risk.
2a	 In men aged 45-80 with confirmed hypogonadism who are considering testosterone therapy, initiation or continuation of testosterone replacement therapy is reasonable and does not increase stroke risk.

Antiplatelet Use for Primary Prevention of Stroke



Summary and Take-Home Messages

- We can prevent 60% of strokes with management of risk factors and lifestyle strategies
- Life's Essential 8 and the Brain Care Score are two approaches to the most basic ways to achieve optimum cardiovascular and brain health
- The primary prevention guideline also emphasizes updates on screening and identifying risk factors specific to women's health, particularly pregnancy, adverse pregnancy outcomes, endometriosis, hormonal therapy, and age of onset of menopause.
- The guideline is as inclusive as possible, i.e. sex and gender minority recommendation
- Social determinants of health should be part of the screening assessment for stroke risk

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<https://professional.heart.org/en/science-news> .



Questions?

