

Highlights from Guidelines and Consensus released at ESC Congress 2024

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- Received 19 October 2024
Accepted 21 November 2024
Published online 30 November 2024

To cite: Nguyen NQ. *J Vietnam
Cardiol* 2024;112E:4-10

ABSTRACTS

The 2024 ESC guidelines and consensus reveal several significant trends in cardiovascular medicine. They emphasize a more individualized, patient-centered approach while maintaining evidence-based protocols, supported by new biological markers and imaging techniques. Risk factor management and prevention have gained prominence, with comprehensive strategies for managing comorbidities and lifestyle modifications. The guidelines demonstrate greater flexibility in treatment targets and risk stratification, incorporating new markers for more precise patient care. They reinforce the importance of multidisciplinary team approaches and provide detailed frameworks for coordinating care between healthcare providers. Implementation considerations have been expanded, focusing on integrating preventive measures and non-pharmacological interventions throughout the patient journey, with practical recommendations for real-world clinical practice.

Keywords: ESC 2024, guidelines, consensus.

The 2024 European Society of Cardiology Conference marked a significant milestone in cardiovascular medicine, bringing together an impressive 31,800 delegates, including 5,400 chairs and presenters across 1,337 scientific sessions. The conference's scope was unprecedented, featuring key updates in clinical guidelines, cutting-edge research presentations, and important debates on current cardiovascular practices. The structured format included special events, global community sessions, official joint sessions, and numerous platforms for scientific exchange, demonstrating the ESC's commitment to advancing cardiovascular medicine through international collaboration.

A notable highlight was the presentation of 40 new clinical trials across 12 dedicated sessions, covering diverse areas including hypertension management, heart failure treatments, and innovative interventional approaches. The trials reflected current trends in cardiovascular medicine, with significant focus on personalized medicine approaches, novel therapeutic agents, and the integration of artificial intelligence in clinical practice.

The conference featured 19 "Great Debates" sessions, addressing crucial controversies in contemporary cardiovascular medicine. These debates covered a wide spectrum of topics, including preventive cardiology (blood pressure thresholds, lipid management strategies), chronic coronary disease

management, cardiac shock management, valvular interventions, and the role of artificial intelligence in cardiology. These sessions highlighted the evolving nature of cardiovascular medicine and the importance of evidence-based decision-making in complex clinical scenarios.

Professional education was a key focus, with an extensive program including 86 clinical case sessions, 16 practical seminars, 13 workshops, and 95 symposia. The conference also emphasized the importance of continuous medical education through interactive formats, including “Bring your Questions” sessions and tutorial presentations. The inclusion of 274 industry-collaborative sessions and 208 tutorials demonstrated the strong partnership between academic medicine and industry in advancing cardiovascular care.

Looking at emerging trends, the conference highlighted several key directions in cardiovascular medicine: a stronger emphasis on preventive cardiology, increased integration of artificial intelligence and digital health technologies, advancement in personalized medicine approaches, and new strategies for managing complex cardiovascular conditions. The high number of late-breaking science sessions (26) and advances in science presentations (24) underscored the rapid pace of innovation in cardiovascular medicine. These developments, combined with the release of four new guidelines, provide a comprehensive framework for advancing cardiovascular care while maintaining focus on evidence-based, patient-centered approaches.

Four guidelines on management of blood pressure, atrial fibrillation, chronic coronary syndromes; peripheral arterial and aortic diseases and one consensus on obesity and cardiovascular disease were released and extensively discussed at ESC congress this year.

KEY POINTS FROM THE 2024 ESC GUIDELINES FOR BLOOD PRESSURE MANAGEMENT:

The 2024 European Society of Cardiology guidelines for blood pressure management establish

a clear target systolic blood pressure (SBP) of 120-129 mm Hg for adults on medication. This target represents a significant shift in treatment goals, though the guidelines acknowledge certain exceptions, including patients over 85 years old, those with frailty, orthostatic symptoms, or limited life expectancy. For these groups, the recommendation is to achieve the lowest tolerable blood pressure approaching this target, recognizing the need for individualized care.

The guidelines introduce a new conceptual framework for understanding blood pressure risk, defining hypertension as SBP >140 mm Hg or diastolic BP >90 mm Hg, while also establishing a new category of “elevated BP” (SBP 120-139 mm Hg or DBP 70-89 mm Hg). This approach acknowledges that cardiovascular risk increases across a continuum rather than starting at a specific threshold. The guidelines emphasize the importance of out-of-office blood pressure measurements for diagnostic purposes, particularly to identify white-coat and masked hypertension, though office measurements remain acceptable when out-of-office readings are unavailable.

Treatment recommendations follow a risk-based approach, recognizing that patients with conditions such as diabetes, kidney disease, cardiovascular disease, target organ damage, and familial hypercholesterolemia require more intensive management. The guidelines recommend starting with lifestyle interventions for three months before initiating drug therapy if targets aren’t met. For pregnant women, the guidelines specifically recommend considering low- to moderate-intensity exercise to reduce the risk of gestational hypertension and pre-eclampsia, in consultation with an obstetrician.

The guidelines place strong emphasis on patient empowerment and treatment adherence through self-measurement of blood pressure. Special consideration is given to specific populations, including the recommendation for screening for secondary hypertension in adults diagnosed before age 40, except in obese young adults where sleep

apnea screening should be prioritized. The guidelines also specifically address measurement techniques, noting that manual blood pressure readings should be used for patients with atrial fibrillation, as most automated devices aren't validated for these patients.

Implementation remains a critical focus of these guidelines, with specific sections dedicated to overcoming barriers to effective implementation. The document takes an inclusive approach, incorporating sex and gender considerations throughout, clearly distinguishing between biological sex and sociocultural gender roles. This comprehensive approach reflects a modern understanding of how these factors influence both the presentation and management of hypertension, while acknowledging that poor implementation has historically been the major weakness of clinical hypertension guidelines.

KEY POINTS FROM THE 2024 ESC GUIDELINES FOR MANAGEMENT OF ATRIAL FIBRILLATION:

The European Society of Cardiology's 2024 guidelines for atrial fibrillation (AF) management centers around the AF-CARE pathway, which provides a structured approach to treatment. This comprehensive framework addresses four key areas: (1) Comorbidity and risk factor management, (2) Avoiding stroke and thromboembolism, (3) Reducing symptoms through rate and rhythm control, and (4) Evaluating patients' progress regularly. This pathway emphasizes the importance of a systematic approach to AF management while ensuring all critical aspects of care are addressed.

A cornerstone of AF management is the comprehensive control of risk factors and comorbid conditions. The guidelines strongly emphasize the importance of managing conditions such as hypertension, heart failure, and diabetes mellitus. Lifestyle modifications play a crucial role, with specific recommendations including a structured exercise program of 150-300 minutes of moderate activity or 75-150 minutes of vigorous activity weekly. Weight reduction of at least 10% is recommended for overweight patients, and alcohol consumption

should be limited to no more than three standard drinks per week. These interventions are designed not only to manage AF but also to prevent its progression and improve treatment outcomes.

Stroke prevention through appropriate anticoagulation remains a critical component of AF management. The guidelines recommend Direct Oral Anticoagulants (DOACs) as the preferred choice over vitamin K antagonists for eligible patients. Anticoagulation is strongly recommended for patients with a CHA₂-VA score of 2 or higher and should be considered for those with a score of 1. Importantly, the guidelines caution against combining anticoagulants with antiplatelet therapy unless specifically indicated for acute vascular events. All patients undergoing ablation procedures must maintain anticoagulation for at least two months post-procedure, regardless of their baseline stroke risk.

For symptom management, the guidelines outline a comprehensive approach to both rate and rhythm control. Rate control can be achieved through beta-blockers, digoxin, or calcium channel blockers, depending on the patient's left ventricular ejection fraction. Rhythm control strategies, including cardioversion, antiarrhythmic drugs, and catheter ablation, should be considered within 12 months of diagnosis in suitable patients. Catheter ablation is recommended as a first-line treatment for paroxysmal AF and as a second-line option for persistent AF when antiarrhythmic drugs prove ineffective.

Finally, the guidelines emphasize the importance of ongoing monitoring and treatment adjustment through a collaborative approach. Treatment decisions should be made jointly between the healthcare team and the patient, with regular reassessment of risk factors and treatment effectiveness. Patient education plays a vital role, ensuring individuals understand their condition and the importance of adherence to both medication and lifestyle modifications. This approach requires a multidisciplinary team effort, with regular evaluation of treatment progress and adjustment of management strategies as needed to optimize outcomes for each patient.

KEY POINTS FROM THE 2024 ESC GUIDELINES FOR CHRONIC CORONARY SYNDROMES MANAGEMENT:

The 2024 European Society of Cardiology guidelines introduce a comprehensive approach to managing chronic coronary syndromes (CCS), which describes stable periods of coronary artery disease. The guidelines emphasize the importance of distinguishing between obstructive atherosclerotic coronary artery disease and conditions like coronary microvascular disease or vasospasm, as symptoms can overlap. This distinction is particularly crucial for properly treating patients with angina or ischemia with nonobstructive coronary arteries (ANOCA/INOCA).

The guidelines outline a four-step management process for suspected CCS. The first step involves general clinical evaluation, including symptom assessment, ruling out acute coronary syndrome, and basic testing like ECG and blood work. The second step encompasses further cardiac examination, particularly echocardiography, to evaluate left ventricular function and valve health. The third step focuses on diagnostic testing to confirm CCS and assess future event risk, while the fourth step involves implementing lifestyle modifications, risk factor management, and appropriate medical therapies.

Diagnostic testing recommendations have been refined, with a preference for noninvasive anatomic or functional imaging as first-line testing. Coronary computed tomography angiography (CCTA) is recommended to rule out obstructive coronary artery disease and detect nonobstructive disease, while functional imaging is preferred for correlating symptoms with myocardial ischemia and guiding revascularization decisions. The guidelines suggest that combining these approaches through selective second-line testing may improve patient selection for invasive coronary angiography (ICA).

Regarding treatment, the guidelines recommend a single antiplatelet agent (aspirin or clopidogrel) for long-term use in CCS patients with obstructive atherosclerotic disease, with dual antithrombotic therapy considered for high-thrombotic-risk patients

who don't have high bleeding risk. Important new evidence indicates that myocardial revascularization doesn't improve survival compared to guideline-directed medical therapy alone in patients with normal left ventricular function and without significant left main or proximal left anterior descending lesions. However, for patients with complex multivessel disease, particularly those with diabetes, coronary artery bypass grafting shows better survival outcomes than percutaneous coronary intervention.

The guidelines strongly emphasize the importance of a comprehensive management approach that combines lifestyle modifications, risk factor management, and appropriate medication. Patient education and shared decision-making between healthcare professionals and patients are highlighted as crucial elements for successful long-term outcomes. This patient-centered approach ensures that therapeutic pathways are tailored to individual needs while maintaining focus on risk factor control and long-term management of the condition.

KEY POINTS FROM THE 2024 ESC GUIDELINES FOR PERIPHERAL ARTERIAL AND AORTIC DISEASES:

The 2024 European Society of Cardiology has released comprehensive updated guidelines that merge the previous 2017 peripheral arterial diseases (PAD) and 2014 aortic diseases guidelines into a single document. This consolidation reflects the interconnected nature of these conditions and provides streamlined recommendations for their management, incorporating significant updates in screening protocols, treatment targets, and intervention strategies.

The guidelines introduce expanded screening recommendations for abdominal aortic aneurysms (AAA), now including all men aged ≥ 75 years regardless of smoking status, and women aged ≥ 75 years who are active smokers or have hypertension. This represents a significant change from previous guidelines, which had more restricted criteria for women. Additionally, first-degree relatives aged ≥ 50 years of patients with AAA should undergo duplex

ultrasound screening, unless another clear cause for the index AAA can be identified - a recommendation that has been elevated to Class I.

Treatment targets for patients with PAD have been significantly revised, with more aggressive goals for both blood pressure and cholesterol management. The guidelines now recommend a systolic blood pressure target of 120-129 mm Hg for PAD patients with hypertension, compared to the previous target of <140/90 mm Hg. For patients with atherosclerotic PAD, the LDL-cholesterol reduction goal has been lowered to <55 mg/dL, with an additional requirement of >50% reduction from baseline. In cases of acute mesenteric ischemia due to superior mesenteric artery occlusion, endovascular revascularization is now preferred over open surgery.

The guidelines provide detailed recommendations for aortic interventions and follow-up protocols. For ascending aortic aneurysms, surgery is recommended at a maximal diameter of ≥ 55 mm, with valve-sparing aortic root replacement recommended in experienced centers. Post-intervention monitoring has been clearly defined, with specific timelines for both open and endovascular repairs. After open AAA repair, imaging is recommended within the first year and every five years thereafter, while endovascular repairs require CT at one month and annual duplex ultrasound follow-up.

Special attention is given to specific aortic conditions and their management. The guidelines now recommend thoracic endovascular aortic repair as a Class I intervention for complicated type B intramural hematoma, and similar strong recommendations exist for type A and complicated type B penetrating atherosclerotic ulcers. For patients with bicuspid aortic valves, the guidelines establish clear monitoring protocols using CT/MRI and echocardiography, with surgical intervention recommended at lower aortic diameters (≥ 45 mm) compared to standard cases. These comprehensive recommendations reflect the latest evidence in aortic disease management and aim to standardize care across different clinical scenarios.

KEY POINTS FROM THE ESC CLINICAL CONSENSUS STATEMENT ON OBESITY AND CARDIOVASCULAR DISEASE:

The European Society of Cardiology's consensus statement addresses the critical relationship between obesity and cardiovascular disease (CVD), noting that obesity rates have more than doubled globally in the past four decades, with approximately 67.5% of obesity-related excess mortality attributable to CVD. The statement defines obesity using WHO criteria, with BMI classifications ranging from normal (20 to <25 kg/m²) to severe obesity (≥ 40 kg/m²), while acknowledging that Asian populations may have lower country-specific cut-points. The obesity epidemic is influenced by multiple factors, including socioeconomic disparities, genetic predisposition, and environmental factors such as the increased availability of processed foods and sedentary lifestyles.

The statement emphasizes the importance of understanding metabolically unhealthy weight, particularly the role of visceral adipose tissue in cardiovascular risk. While BMI is commonly used, measures like waist circumference and waist-to-hip ratio may better reflect visceral adiposity and associated cardiovascular risk. The guidelines specifically recommend preventing further weight gain when waist circumference exceeds 94 cm in men and 88 cm in women. The relationship between obesity and other cardiovascular risk factors is significant, with approximately 80% of type 2 diabetes patients being overweight or obese, and clear associations between BMI and increased blood pressure, dyslipidemia, and obstructive sleep apnea.

Treatment strategies for obesity encompass multiple approaches, beginning with lifestyle interventions targeting diet and physical activity. Dietary interventions typically aim for a 500-750 kcal/day energy deficit, while emphasizing portion control and reduction of ultra-processed foods. The statement highlights the importance of psychological support and addressing obesity stigma, noting that patients are more likely to succeed when clinicians use supportive, nonjudgmental approaches.

Pharmacological options have expanded, with six approved medications in both Europe and the US, including newer agents like semaglutide and tirzepatide, which have shown promising results in reducing cardiovascular events.

Surgical treatments, including bariatric surgery, are recommended for individuals with BMI ≥ 40 kg/m² or ≥ 35 kg/m² with obesity-related comorbidities. While these procedures can lead to significant improvements in cardiovascular outcomes, including reductions in mortality and lower incidence of heart failure, myocardial infarction, and stroke, they also carry risks of long-term complications such as malabsorption and internal hernias. The statement addresses the complex relationship between obesity and various cardiovascular conditions, including the “obesity paradox” where moderately increased BMI may be associated with better prognosis in some cardiac conditions.

The consensus statement also specifically addresses obesity’s impact on various cardiovascular conditions, including heart failure, atrial fibrillation, and venous thromboembolism. Weight loss is recommended for managing these conditions, though the approach must be carefully tailored to each patient’s situation. The statement provides specific guidance for anticoagulation in obese patients, particularly those who have undergone bariatric surgery, recommending vitamin K antagonists over direct oral anticoagulants in certain cases and advising against edoxaban or dabigatran for patients with BMI ≥ 40 kg/m² or weight > 120 kg.

EMERGING TRENDS FROM 2024 ESC GUIDELINES AND CONSENSUS STATEMENTS

The European Society of Cardiology’s 2024 guidelines and consensus statements strongly emphasize a truly patient-centered approach to cardiovascular care, marking a significant evolution in treatment philosophy. While evidence-based protocols remain essential, the guidelines now place greater emphasis on individualizing treatment plans based on each patient’s specific characteristics,

preferences, and life circumstances. This enhanced patient-centered approach is supported by new biological markers and imaging techniques that enable more personalized diagnosis and treatment strategies. The integration of these new diagnostic tools allows for better characterization of individual patient risks and responses to therapy, leading to more precise and effective treatment plans. This individualized approach ensures that standardized care protocols serve as a foundation while allowing for flexibility in implementation to meet specific patient needs and circumstances.

Risk factor management and prevention have been elevated to new prominence across all guidelines, with a particular focus on comprehensive management of comorbidities in cardiovascular patients. The ESC emphasizes that addressing modifiable risk factors must begin at the initial patient encounter and continue throughout the treatment journey. Notably, there is increased attention to non-pharmacological interventions, with the guidelines providing detailed recommendations for lifestyle modifications, including dietary changes, regular physical activity, and weight management. This comprehensive approach to risk factor management reflects a deeper understanding of how cardiovascular disease development and progression are influenced by multiple interacting factors, requiring a more integrated approach to prevention and treatment.

The guidelines introduce new concepts in establishing evidence-based treatment targets and risk stratification. While maintaining specific numerical goals for key parameters such as blood pressure and cholesterol levels, the 2024 guidelines demonstrate greater flexibility in how these targets are applied, taking into account individual patient characteristics and comorbidities. New biological markers and imaging techniques are incorporated into risk assessment strategies, allowing for more precise patient stratification and treatment planning. This flexible approach to target-setting and monitoring reflects the growing understanding that optimal cardiovascular care requires regular reassessment and

adjustment based on individual patient responses and changing circumstances.

The multidisciplinary team approach has been further refined in the 2024 guidelines, with a stronger emphasis on integrated care that addresses both cardiovascular conditions and comorbidities simultaneously. The guidelines provide more detailed frameworks for coordinating care between various healthcare providers, including primary care physicians, specialists, nurses, and other healthcare professionals. Patient education and engagement are emphasized as essential components of successful treatment, with new approaches to shared decision-making that ensure patients are truly at the center of their care plans. The guidelines stress the importance of regular communication and coordination between team members to ensure comprehensive care delivery that addresses all aspects of patient health.

Implementation considerations have been significantly expanded in the 2024 guidelines, with a particular focus on integrating preventive measures and non-pharmacological interventions throughout the patient journey. The ESC acknowledges that translating guidelines into practice presents significant challenges and provides practical recommendations for implementing more holistic approaches to care. This includes strategies for incorporating preventive measures from the outset of treatment, integrating new monitoring technologies, and establishing clear pathways for ongoing risk assessment and treatment adjustment. The guidelines emphasize the importance of flexible implementation approaches that can adapt to individual patient needs while maintaining evidence-based standards of care. This enhanced focus on implementation reflects the ESC's commitment to ensuring that evidence-based recommendations translate effectively into real-world clinical practice while maintaining the flexibility needed for truly patient-centered care.

Finally, there is a marked emphasis on non-

pharmacological interventions and preventive measures integrated throughout the treatment journey. The guidelines place greater importance on lifestyle modifications, dietary interventions, and physical activity as fundamental components of cardiovascular care, rather than merely adjunct therapies. This reflects a growing recognition that optimal cardiovascular outcomes require a holistic approach to health management, with prevention and non-drug interventions playing crucial roles alongside traditional medical treatments. This trend is further supported by detailed recommendations for implementing these interventions in clinical practice, making them more accessible and effective for both healthcare providers and patients.

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