

2023

Essential Messages from ESC Guidelines

**Clinical Practice
Guidelines Committee**

DIABETES

Guidelines for the management of
cardiovascular disease in patients
with diabetes

Essential Messages

2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes

Developed by the task force on the management of cardiovascular disease in patients with diabetes of the European Society of Cardiology (ESC).

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Patient Forum

ESSENTIAL MESSAGES FROM THE 2023 ESC GUIDELINES FOR THE MANAGEMENT OF CARDIOVASCULAR DISEASE IN PATIENTS WITH DIABETES

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Key messages

1. Diagnosis of diabetes
 - Raised fasting or random glucose, elevated HbA1c, or an abnormal OGTT is diagnostic of diabetes; a single abnormal test is sufficient with symptoms, while two abnormal tests are usually required without symptoms.
 - Undiagnosed diabetes is common, particularly in individuals with CVD. Therefore, screening for diabetes in all individuals with CVD, including HF, is recommended using HbA1c and/or fasting glucose.
2. Cardiovascular risk assessment
 - All patients with diabetes should be evaluated for the presence of ASCVD and severe TOD.
 - In patients with T2DM without symptomatic ASCVD or severe TOD, 10-year CVD risk via SCORE2-Diabetes should be calculated.
3. Lifestyle
 - For smokers, smoking cessation is a primary target of lifestyle intervention in patients with CVD and diabetes.
 - Exercise should be introduced in all patients with CVD and T2DM, following the paradigm 'every step counts'.
 - In patients with obesity and T2DM with or without CVD, reducing weight combined with increasing daily PA through structured exercise sessions are key lifestyle components to improve metabolic control, improve exercise capacity, and reduce clinical outcomes.
 - A Mediterranean diet supplemented with olive oil and/or nuts reduces the incidence of major CV events in patients with CVD.
4. Glycaemic targets
 - Tight glycaemic control reduces short- and long-term microvascular disease.
 - Tight glycaemic control reduces long-term macrovascular complications (over 20 years).
 - Hypoglycaemia is associated with adverse CV outcomes and is best avoided.
5. Glucose-lowering therapy
 - ASCVD complications are common in patients with T2DM.
 - Glycaemic status should be systematically evaluated in all patients with or at high risk of CVD, as diabetes status informs many clinical decisions in cardiology.
 - Independent of baseline HbA1c or additional glucose-lowering agents, selected SGLT2 inhibitors and GLP-1 RAs reduce CV events in patients with T2DM with ASCVD and/or severe TOD.

6. Blood pressure

- BP targets should be individualized for hypertensive patients.
- Optimal BP control reduces the risk of micro- and macrovascular complications.
- Controlling BP often requires multiple drug therapies with an RAS inhibitor, and a CCB or diuretic. Dual therapy is recommended as firstline treatment.
- All hypertensive patients with diabetes, irrespective of their antihypertensive treatments, should monitor their BP at home.

7. Lipids

- Statins remain the first-line and state-of-the-art therapy to decrease LDL-C levels.
- Ezetimibe and PCSK9 inhibitors in addition to statins (if treatment targets have not been achieved)–or alone (in case of documented intolerance to statins)–significantly reduce LDL-C levels, thus improving CV outcomes.

8. Antithrombotic therapy

- Based on the presence of ASCVD and individual CV risk, antiplatelet agents are a cornerstone of preventing CV events in patients with diabetes.
- Shortening or scaling down DAPT to clopidogrel should be avoided in patients with diabetes post-ACS, given their high background CV risk, the lack of efficacy data, and the poor bio-activation of clopidogrel.
- Platelet-function testing guided de-escalation should be avoided based on lack of evidence and poor bio-activation of clopidogrel.

9. Multifactorial approach

- Continuous, multidisciplinary counselling is necessary to achieve long-term lifestyle changes.

10. Management of coronary artery disease

- In patients with CAD, SGLT2 inhibitors and/or GLP-1 RAs reduce the risk of CV events.
- In patients with diabetes and multi-vessel CAD, suitable coronary anatomy for revascularization, and low predicted surgical mortality, CABG is superior to PCI.

11. Heart failure

- The prognosis of patients with diabetes and HF is worse compared with patients with HF without diabetes.
- Beta-blockers, ARNI/ACE-Is, MRAs, and SGLT2 inhibitors are recommended as cornerstone therapies for patients with HFrEF and diabetes.
- Empagliflozin and dapagliflozin reduce the combined endpoint of CV death or HF hospitalization in patients with HF and a LVEF >40%.
- Glucose-lowering treatment with SGLT2 inhibitors in patients with diabetes and HF reduces HF-related endpoints.
- Saxagliptin and pioglitazone increase the risk of HF hospitalization in patients with diabetes and HF.

12. Arrhythmias

- AF is common in patients with diabetes, and increases mortality, risk of stroke, and risk of HF.
- Opportunistic screening for AF is recommended for patients with diabetes aged ≥ 65 years by palpating pulse (or using wearable devices) and systematic ECG screening when age is ≥ 75 years. AF should always be confirmed by ECG.
- Opportunistic screening for AF by pulse taking or ECG is recommended in patients with diabetes aged <65 years in view of their risk of AF and the possibly associated risk of ischaemic stroke.

13. Chronic kidney disease

- CKD in patients with diabetes is associated with high risk of developing kidney failure and CVD.
- Patients with diabetes should be regularly screened for CKD, or have their CKD staged, by assessing eGFR and UACR.
- Certain ACE-I/ARBs, SGLT2 inhibitors, and finerenone reduce the risk of kidney failure and the risk of CVD in patients with T2DM and CKD.

14. Aortic and peripheral arterial diseases

- LEAD is a common complication in patients with diabetes and associated with poorer prognosis.
- Patients with diabetes are at higher risk of CLTI as the first clinical manifestation of LEAD, supporting regular screening with ABI measurement for early diagnosis.
- The management of patients with LEAD and indications for different treatment strategies are similar in patients with or without diabetes, although the options for revascularization may be poorer in patients with diabetes because of diffuse and distal lesions.

15. Type 1 diabetes

- Glucose-lowering therapy in T1DM should follow principles of patient self-management under the guidance of the diabetes healthcare multidisciplinary team.

16. Person-centred care

- A person-centred approach is a key factor in successful self-management, resulting in greater patient satisfaction, adherence to therapeutic plans, and improved health outcomes.
- Important factors for self-management of diabetes and comorbidities are education, motivation, empowerment, and continuing supportive care of individuals.

Gaps in evidence

1. Diagnosis of diabetes

- Global screening programmes for diabetes, adjusted for regional demographics and ethnic groups, are required to establish the most accurate and cost-effective screening test.

2. Lifestyle

- RCTs of long-term exercise intervention to reduce CV outcomes are needed in different patient groups with diabetes and CVD, e.g. CAD, HFpEF, HFrEF, AF, or PAD.
- Large RCTs assessing the benefit of a multidisciplinary team to increase adherence to lifestyle interventions and optimal medication are needed in patients with T2DM and CVD.
- The applicability and best practice of telehealth needs to be evaluated in elderly and frail patients with T2DM and CVD.

3. Glycaemic targets

- The independent role of hypoglycaemia, glycaemic variability, time-in-range, and post-prandial hyperglycaemia in CV pathology requires further research.
- Large-scale studies are required to understand the role of modern glucose-monitoring strategies (CGM) in improving macrovascular and HF outcomes.

4. Glucose-lowering therapy

- It remains unclear if the combination therapy of GLP-1 RAs and SGLT2 inhibitors is complementary in cardio-renal outcomes in patients with T2DM.
- It needs to be examined if more intensive glycaemic control, achieved with novel medications, might prove to have incremental CV efficacy.

5. Blood pressure

- High-quality data on managing BP in T1DM are lacking.
- Optimal targets for (isolated) DBP in patients with diabetes and hypertension remain inconclusive.
- More information on optimizing CV protection in diabetes by managing BP based on out-of-office BP levels should be provided by randomized intervention trials.

6. Lipids

- Optimal LDL-C target levels for patients with diabetes need to be established; good scientific evidence is especially missing in T1DM.
- Novel lipid-lowering drugs, such as inclisiran, need efficacy data on CV endpoints both in the general population and in patients with diabetes.

Gaps in evidence

7. Antithrombotic therapy

- More data on primary CV prevention are needed for patients with T1DM.
- Future phase 3 RCTs testing anti-thrombotic drugs in CV prevention should share homogeneous classifications of bleeding to make the benefit-risk profile of mono- or combined therapy comparable across different studies.
- The benefit-risk profile of ASA in CV prevention in patients with diabetes, documented significant atherosclerotic lesions (peripheral or coronary), or high CAC score but without history of stroke or MI should be further investigated in RCTs.
- Since documented kidney and/or eye microvascular disease independently predict future CV events, it needs to be assessed whether patients with diabetes with microvascular disease and no history of MACE would benefit from early primary prophylaxis.
- It needs to be demonstrated in adequately powered, superiority, efficacy-based RCTs whether 12-month DAPT post-ACS can be reduced to a shorter period in patients with diabetes using SAPT with ASA or with a P2Y₁₂ inhibitor.
- The optimal duration of TAT post-ACS in patients with diabetes and AF needs to be established.

8. Multifactorial approach

- An optimal intervention protocol to improve adherence remains to be established, particularly addressing patients with diabetes and comorbidities, and the elderly population.
- Sex and ethnicity differences regarding efficacy of multifactorial interventions need to be evaluated.
- Evaluation of E-health applications to improve adherence to lifestyle intervention and medication also assessing clinical outcomes is needed in patients with CVD and diabetes.

9. Management of coronary artery disease

- Optimal glycaemic control and in-hospital anti-glycaemic strategies for the outcomes of ACS and stable CAD, as well as after coronary revascularization, remain to be established.
- Although newer-generation DES have improved outcomes in patients with diabetes, RCTs are needed to determine whether they can reduce the gap in outcomes between CABG and PCI.
- No direct comparison RCT has focused on revascularization in patients with diabetes and left main disease.
- Robust data on patients with CAD and T1DM are missing.
- The effect of anti-inflammatory strategies in patients with diabetes should be assessed in dedicated trials.

Gaps in evidence

10. Heart failure

- The effect of finerenone on cardio-renal endpoints in patients with diabetes and HFrEF or HFpEF needs to be examined.
- More mechanistic studies are warranted to better understand how SGLT2 inhibitors improve HF outcomes.
- Research is needed to guide OMT in patients with HF and T1DM.
- The prognostic benefit of HF screening with BNP/NT-proBNP in asymptomatic patients with diabetes needs to be determined.

11. Arrhythmias

- Better evidence is needed regarding the risks of atrial and ventricular arrhythmias associated with T1DM and how they should be optimally managed.
- Optimal screening methods and treatment for patients with diabetes still need to be defined in RCTs.
- The role of AF in diabetes needs to be evaluated in CVOTs.
- Whether SGLT2 inhibitors reduce the risk of CV death by reducing the risk of ventricular tachyarrhythmias should be more precisely evaluated.

12. Chronic kidney disease

- CV and renal effects of using non-steroidal MRAs in patients with CKD on a combined ACE-I/ARB + SGLT2-inhibitor regimen need to be explored.
- Net benefits of anti-platelet therapy in patients with diabetes and CKD with and without ASCVD need to be examined.

13. Aortic and peripheral arterial diseases

- The frequency and mode of vascular screening in patients with diabetes needs to be assessed.
- Specific trials are needed to help clinicians choose different pharmacological strategies according to the presence of PAD.

14. Type 1 diabetes

- Comprehensive cardio-protection management in patients with early-onset T1DM needs to be evaluated.
- The role of ameliorating insulin resistance and using adjunctive therapies to reduce CV risk remains to be elucidated.
- Lifestyle intervention trials in patients with T1DM and CVD are lacking.

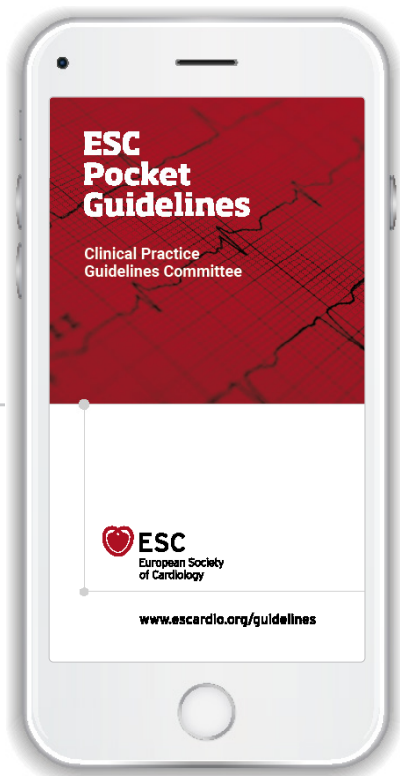
Gaps in evidence

15. Person-centred care

- Better CVD management of women with diabetes is needed.
- Effective interdisciplinary approaches to better manage glycaemic control and minimize the risk of complications are required.
- Data are lacking on personalization of mobile Health (mHealth) by assessing how individual factors, such as health literacy, culture, socioeconomic status, ageing, behaviours, and treatment plan, impact patient engagement with mHealth tools and clinical outcomes.

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The following material was adapted from the 2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes (European Heart Journal; 2023 - doi: 10.1093/eurheartj/ehad192).

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