

# The case for a joint cardiovascular and diabetes health check

Background document



fighting heart disease  
and stroke  
european heart network



**ESC**  
European Society  
of Cardiology



European  
Diabetes Forum



**International  
Diabetes  
Federation**



**MedTech Europe**  
from diagnosis to cure

## At a glance

The present document puts forward a set of policy recommendations to EU Member States and Institutions for the introduction of targeted joint cardiovascular and diabetes health checks at primary care level, on the basis of existing scientific evidence. The key conclusions and recommendations laid down in this document collect the input of the cardiovascular and diabetes stakeholder communities.

The recommendations also factor the outcome of the discussions that took place on 12 December 2022 during the event “*How can we reduce premature and preventable deaths caused by cardiovascular diseases and diabetes? The case for early detection*”, organised under the auspices of the Czech Presidency of the EU by the European Society of Cardiology (ESC) with the Czech Cardiac Society, together with the European Heart Network (EHN), the European Diabetes Forum (EUDF) and the European Federation of Pharmaceutical Industries and Associations (EFPIA). The event was hosted by the Deputy Health Minister of the Czech Republic, Mr. Jakub Dvořáček.

## Context and background

1. Cardiovascular disease (CVD) remains the predominant cause of death and disability in Europe: Every day, 5,000 European citizens lose their lives due to strokes, heart attacks and other cardiovascular-related causes<sup>1</sup>. These mortality rates are higher than those from cancer (almost two-fold), respiratory diseases, injuries, communicable, maternal and nutritional conditions and all other non-communicable diseases (NCDs). CVD mortality is mainly due to ischemic heart disease and stroke, which are common manifestations of atherosclerotic cardiovascular disease (ASCVD)<sup>2</sup> and apart from high mortality, they are associated with high rates of hospitalization, significant disability and increased healthcare costs. Although a large proportion of CVD is preventable, deaths attributable to CVD continue to increase, mainly due to inadequate prevention of atherosclerotic events.
2. In the EU more than **60 million**<sup>3</sup> people live with CVD, and close to **13 million** new cases are diagnosed every year. Overall, CVD is accountable for around 36% of all premature deaths (before the age of 65) in the EU, and it accounts for approximately ~16% of the healthcare expenditure in the EU<sup>4</sup>, or €210bn.
3. Diabetes is a complex condition with a multitude of expressions and causes. Many people with diabetes develop life-altering complications such as blindness, amputations, cardiovascular and chronic kidney diseases. Mortality linked to diabetes is also substantial. Its lethal effect is even larger when taking into account that diabetes increases the risk of cardiovascular diseases, given that people with Type 2 diabetes mellitus (T2DM) have a 2–3 times higher cardiovascular risk (CVR) than people without diabetes and see their life expectancy reduced by 10–14 years<sup>5</sup>. Diabetes also poses a unique burden on health systems and economies. This is not just in terms of direct medical expenditures, now €104

1 Fighting cardiovascular disease – a blueprint for EU action. June 2020. European Heart Network and European Society for Cardiology. Access link: <https://ehnheart.org/eu-action-on-cvd.html>

2 Roth, G. A. et al, (2020). Global Burden of Cardiovascular Diseases and Risk Factors, 1990–2019. In Journal of the American College of Cardiology

3 Early detection of cardiovascular disease – an update from the European Heart Network – 2020. Access link: <https://ehnheart.org/publications-and-papers/publications/1304:cvd-screening-2021.html>

4 Expenditure for CVD represents the highest component of healthcare costs, and in 2016 accounted for 16% of the spending in a selection of 11 high-income European countries. ESC ATLAS of cardiology disease statistics (2021) <https://academic.oup.com/eurheartj/article/43/8/716/6472699>

5 Avdagic-Terzic M, Babic Z, Burekovic A. Diabetes Mellitus Type 2 and Cardiovascular Diseases-Risk Assessment. Mater Sociomed. 2022

billion and rising<sup>6</sup>, but also, in an age of health staff shortages, of allocating health resources. Diabetes also engenders indirect costs, including diminished productivity, absences due to sickness, disability, early retirement and premature loss of life<sup>7</sup>.

4. In the EU, one in ten adults lives with diabetes. The number of adults diagnosed with diabetes in the EU has almost doubled over the last decade, from about 17 million in 2000 to 33 million in 2019 and it's projected to increase to 38 million by 2030<sup>8</sup>. Diabetes is responsible for 9% of healthcare expenditure<sup>9</sup> and up to 75% of those costs could be related to potentially preventable complications<sup>10</sup>.

## Key conclusions and recommendations

- Improving population lifestyle choices is not enough to tackle the burden of CVD and Type 2 diabetes. However, population-wide screening is not the best option either. In addition to comprehensive screening already in place, the addition of quick, inexpensive targeted joint cardiovascular and diabetes health checks would be a cost-effective way to improve early diagnosis.
- **It is crucial to diagnose people with CVD or Diabetes as early as possible** to prevent complications and save downstream costs. Given the interlinks between CVD and T2D, joint health checks based on common risk factors for both diseases (high BMI, high blood pressure, tobacco use, alcohol consumption, high blood glucose and high LDL cholesterol) are a sensible and cost-effective option for previously identified at-risk individuals.

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6 IDF Atlas 10th Edition. Access link: <https://diabetesatlas.org/data/en/>

7 Bommer C, Heesemann E, Sagalova V et al (2017) The global economic burden of diabetes in adults aged 20-79 years: a cost-of-illness study. *Lancet Diabetes Endocrinol* 5(6):423–430.

8 [https://research-and-innovation.ec.europa.eu/research-area/health/diabetes\\_en](https://research-and-innovation.ec.europa.eu/research-area/health/diabetes_en) and <https://www.idf.org/>

9 <https://www.idf.org/our-network/regions-members/europe/europe-news/487:idf-europe-statement-on-the-eu-ncd-initiative-%E2%80%93-healthier-together%C2%A0.html>

10 <https://pubmed.ncbi.nlm.nih.gov/17853332/>

## Recommendations for action to Member States

- Maintain and strengthen, as appropriate, those actions and policies towards a health promotion strategy which include cardiovascular and diabetes health checks that aim to increase cost-efficiency, maximize health benefits and minimize harm.
- Implement targeted cardiovascular and diabetes health checks at primary care level, where most of Europe's CVD and Diabetes patients are managed.
- Target Population:
  - To identify people at risk of developing diabetes, the Finnish Diabetes Risk Score (FINDRISC) can be used to predict the 10 year risk for developing type 2 diabetes. FINDRISC uses age, BMI, physical activity, vegetable & fruit intake, medical treatment of hypertension, history of hyperglycemia and family history to determine risk of developing diabetes. Depending on the score, further investigations such as the measurement of HbA1c are needed.
  - A systematic global CVD risk assessment is recommended in individuals with any major vascular risk factor i.e. family history of premature CVD, FH, CVD risk factors such as smoking, arterial hypertension, diabetes, raised lipid level, obesity, or comorbidities increasing CVD risk.
  - A Systematic or opportunistic CV risk assessment in the general population in men >40 years of age and in women >50 years of age or postmenopausal with no known ASCVD risk factors may be considered.
- This measure would be very effective in reducing the amount of people with undiagnosed CVD and/or diabetes and enable earlier, safer, more effective treatment and management of these conditions.
- These cardiovascular and diabetes health checks include measurements of the main causal and modifiable risk factors: LDL-C, blood pressure, smoking status, HbA1c and BMI.
- In addition to these, there are many other relevant risk factors that can also modify the calculated risk and that can be assessed by measuring the creatinine and ACR levels, and by conducting a stethoscope check and physical exam.
- Support healthcare professionals (HCPs) education, especially within primary care and specialist nursing settings, to ensure a better understanding of risk factors to practice intervention in early detection and diagnosis.

## Recommendations for action to the European Commission and the Council of the EU

- Adopt Council Conclusions that call Member States to implement joint cardiovascular and diabetes health checks.
- Explore, through pilot projects, the implementation of those health checks also through the work done within JACARDI.

## Further supporting evidence

1. Cardiovascular disease is not limited to older people, heavily impacting people of all age groups. **Around 20% of all premature deaths (before the age of 65) in the EU are caused by CVD<sup>11</sup>.** While premature CVD onset could be prevented or postponed in many cases, CVD morbidity and mortality have remained concerningly high.
2. The fundamental misperception around CVD and Diabetes is a major challenge, as they are seen very often as “lifestyle” diseases. While major efforts are, of course, needed on prevention, we also need bold actions to target all age groups at risk.
3. People with Type 2 diabetes mellitus (T2DM) have a 2–3 times higher cardiovascular risk (CVR) than people without diabetes and see their life expectancy reduced by 10–14 years<sup>12</sup>. As mentioned before, ASCVD is the major cause of morbidity and mortality in T2DM. CVD is also highly prevalent in patients with Type 1 diabetes mellitus (T1D) and a major cause of mortality, contributing to a significant reduction of at least 11 years of life expectancy<sup>13</sup>. The incidence of CVD is significantly higher in people who experience the onset of T1D onset at an early age.
4. Diabetes is a cause of many health complications: one third of people living with diabetes develop diabetic retinopathy<sup>14</sup> and one third develop cardiovascular diseases (CVDs)<sup>15</sup>, while four fifths of end-stage renal diseases occur in people living with type 2 diabetes and/or hypertension<sup>16</sup>. Diabetes is also a cause of early mortality and disability (e.g., blindness, amputations, heart failure).
5. Tobacco use also substantially increases the risk of CVD, with a significant part of all CVD deaths, compared to never smokers, attributed to smoking <sup>17 18</sup>.
6. Abdominal obesity has been linked as a key contributor to the development of insulin resistance and Type 2 diabetes<sup>19</sup>.

11 Fighting cardiovascular disease – a blueprint for EU action. June 2020. European Heart Network and European Society for Cardiology. Access link: <https://ehnheart.org/eu-action-on-cvd.html>

12 Avdagic-Terzic M, Babic Z, Burekovic A. Diabetes Mellitus Type 2 and Cardiovascular Diseases-Risk Assessment. *Mater Sociomed.* 2022

13 Rull A, Sanchez-Quesada JL, Pérez A. Cardiovascular Disease in Type 1 Diabetes Mellitus: Epidemiology and Management of Cardiovascular Risk. *J Clin Med.* 2021 Apr 20;10(8):1798

14 <https://pubmed.ncbi.nlm.nih.gov/26605370/>

15 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5994068/>

16 <https://idf.org/our-activities/care-prevention/diabetes-and-the-kidney.html>

17 Maddatu J, Anderson-Baucum E, Evans-Molina C. Smoking and the risk of type 2 diabetes. *Transl Res.* 2017 Jun;184:101-107

18 U.S. Department of Health and Human Services. *The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General.* Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.

19 Wondmkun YT. Obesity, Insulin Resistance, and Type 2 Diabetes: Associations and Therapeutic Implications. *Diabetes Metab Syndr Obes.* 2020 Oct 9;13:3611-3616.