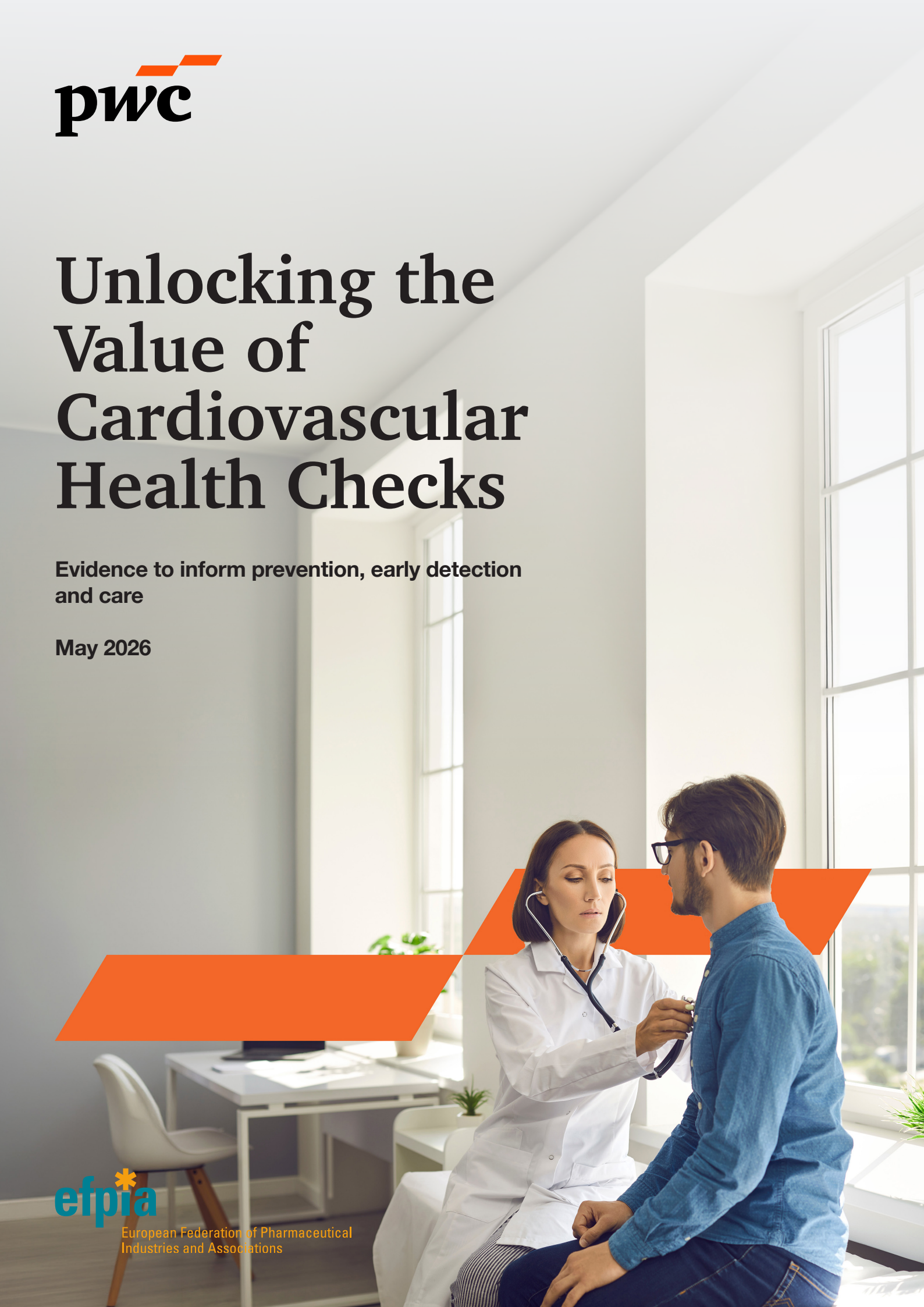
pwc

Unlocking the Value of Cardiovascular Health Checks

Evidence to inform prevention, early detection and care

May 2026



efpia
European Federation of Pharmaceutical Industries and Associations

Table of contents

EFPIA foreword

Victoria Tzouma
EFPIA Cardiovascular Health Platform Chair

Radka Lang
EFPIA Cardiovascular Health Platform Vice-Chair

Cardiovascular disease remains the leading cause of death in the EU nowadays, while progress in prevention has slowed in recent years and inequalities persist across and within Member States. Given these challenges, cardiovascular health checks have gained increasing political and clinical relevance as a practical policy tool to enable earlier detection, prevention and long-term risk management. Yet, despite growing political and clinical focus, a comprehensive European assessment of their value has been missing.

At a pivotal moment for cardiovascular prevention in Europe, the momentum generated by the cardiovascular health community, catalysed by the publication of the EU Safe Hearts Plan, by the European Commission in December 2025, has created a unique opportunity to strengthen prevention across Europe.

As a cross-sector industry partnership, the EFPIA Cardiovascular Health Platform brings together pharmaceutical companies committed to advancing evidence-based, equitable approaches to cardiovascular health. To support this momentum and reinforce the evidence base, the EFPIA Cardiovascular Health Platform commissioned an independent study by PwC to generate evidence on the value of cardiovascular health checks and to inform the next phase of policy action. The study provides a structured and comprehensive review of the clinical, economic and societal value of cardiovascular health checks, drawing on recent literature and real-world programme experience.

The report is distinctive in bringing these dimensions together in a single, policy-relevant analysis, while also highlighting a critical insight: the value of cardiovascular health checks depends not on screening alone, but on thoughtful programme design, effective follow-up and integration into care pathways. In doing so, it helps focus the public debate towards how health checks can be implemented to deliver the greatest benefit.

Well-designed cardiovascular health checks, embedded in strong primary care systems and linked to effective follow-up, can be a powerful lever for prevention and an important driver in reducing avoidable cardiovascular mortality across the EU, in line with the ambitions set out in the Safe Hearts Plan. The EFPIA Cardiovascular Health Platform is committed to remaining a constructive partner in delivering world-class cardiovascular prevention and treatment that supports all stakeholders' efforts to implement the Safe Hearts Plan.

Looking ahead, we see this report as a foundation for continued dialogue and collaboration across sectors to help translate evidence into sustainable, equitable cardiovascular health strategies for Europe.

Executive summary

Despite decades of progress, declines in cardiovascular mortality have stalled in several European Member States, leaving cardiovascular disease (CVD) the leading cause of death across Europe. The burden of CVD and associated conditions, such as obesity and diabetes, continues to place substantial pressure on health systems, economies and people's quality of life, with significant gaps in health also remaining across regions and social groups.

In response, the European Commission launched the Safe Hearts Plan, establishing, for the first time, a dedicated framework to strengthen cardiovascular health across the EU. A flagship initiative in this agenda is the opportunity to introduce, expand or better align systematic cardiovascular health check (CVHC) programmes as a structured mechanism for earlier detection, prevention and management of cardiometabolic risk.

This report assesses the clinical, economic and societal value of CVHCs, drawing on recent European evidence and real-world programme experience. The reviewed literature shows that CVHCs can generate real value, particularly by the earlier detection of cardiovascular and cardiometabolic risk factors. This allows the timely initiation of preventive care, well before serious symptoms or cardiac events manifest. The evidence also shows that this value is conditional on good programme design and implementation rather than on the act of screening alone.

The report highlights three sets of findings:

– From a clinical perspective, CVHCs have been shown to improve the diagnosis of hypertension, dyslipidaemia, diabetes, obesity and chronic kidney disease compared with routine or symptom-based care. Clinical benefits are strongest when CVHCs are embedded within primary care, linked to structured follow-up, and supported by treatment and longitudinal risk management in alignment with clinical guidelines. Evidence from sustained European prevention programmes further suggests that, when implemented in this way, CVHCs can contribute to improvements in long-term cardiovascular outcomes, including reducing deaths and other serious events.

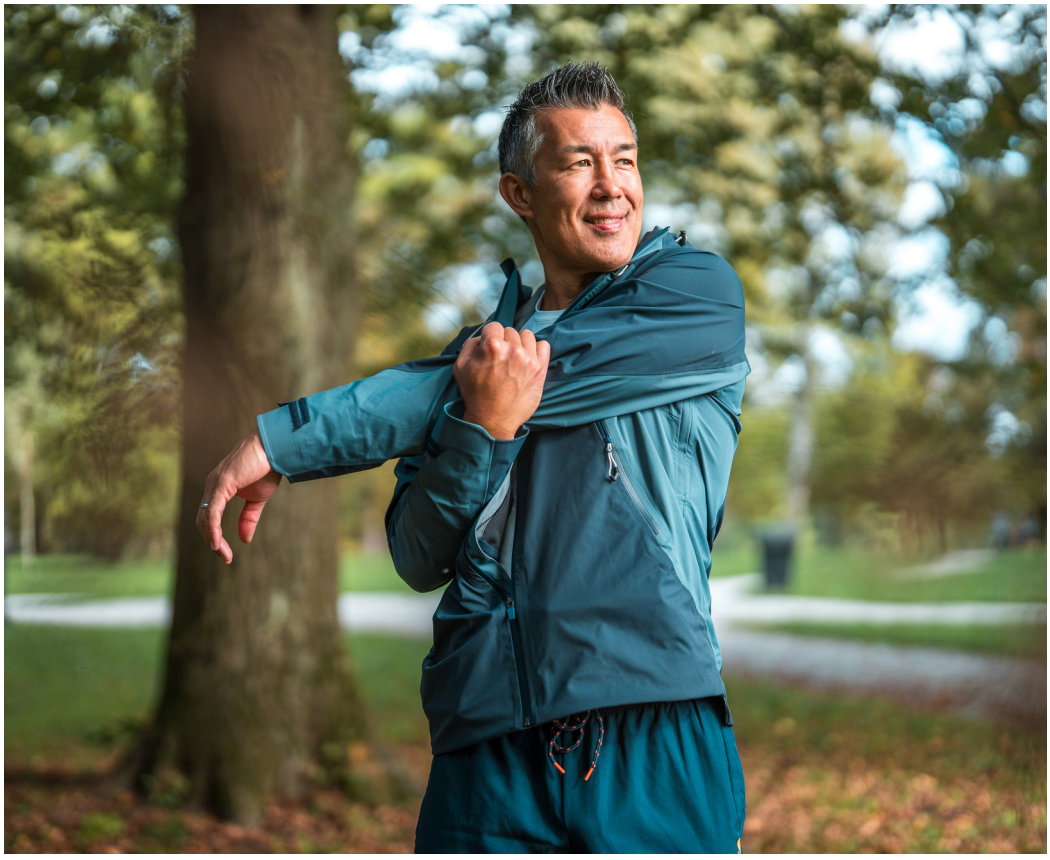
– From an economic perspective, CVHCs are associated with higher healthcare utilisation in the short term, reflecting increased diagnostic activity and treatment initiation. Over longer time horizons, multiple modelling studies and programme evaluations indicate that well-designed CVHCs can represent good value for money. The best economic performance is observed when programmes achieve high participation rates, ensure effective follow-up and focus on individuals that are at higher risk of cardiovascular and associated cardiometabolic diseases.

– From a societal perspective, CVHCs have the potential to contribute to improved equity, enhanced quality of life and sustained participation in work and social life. The strongest societal gains are observed when programmes actively address barriers to participation and succeed in reaching socioeconomically disadvantaged and underserved populations. Conversely, population-wide programmes without targeted engagement risk reinforcing existing inequalities in access and outcomes.

Based on these findings, the report identifies three evidence-informed, policy-relevant recommendations for EU Member States:

1. Offer cardiovascular health checks widely to adults and use risk information to prioritise follow-up and reach people at higher risk.
2. Embed cardiovascular health checks in primary care, involving multidisciplinary teams to ensure early prevention, treatment and coordinated management of multiple chronic conditions, including diabetes, obesity and kidney disease.
3. Provide strong follow-up support after health checks to help people reduce cardiovascular risk over time.

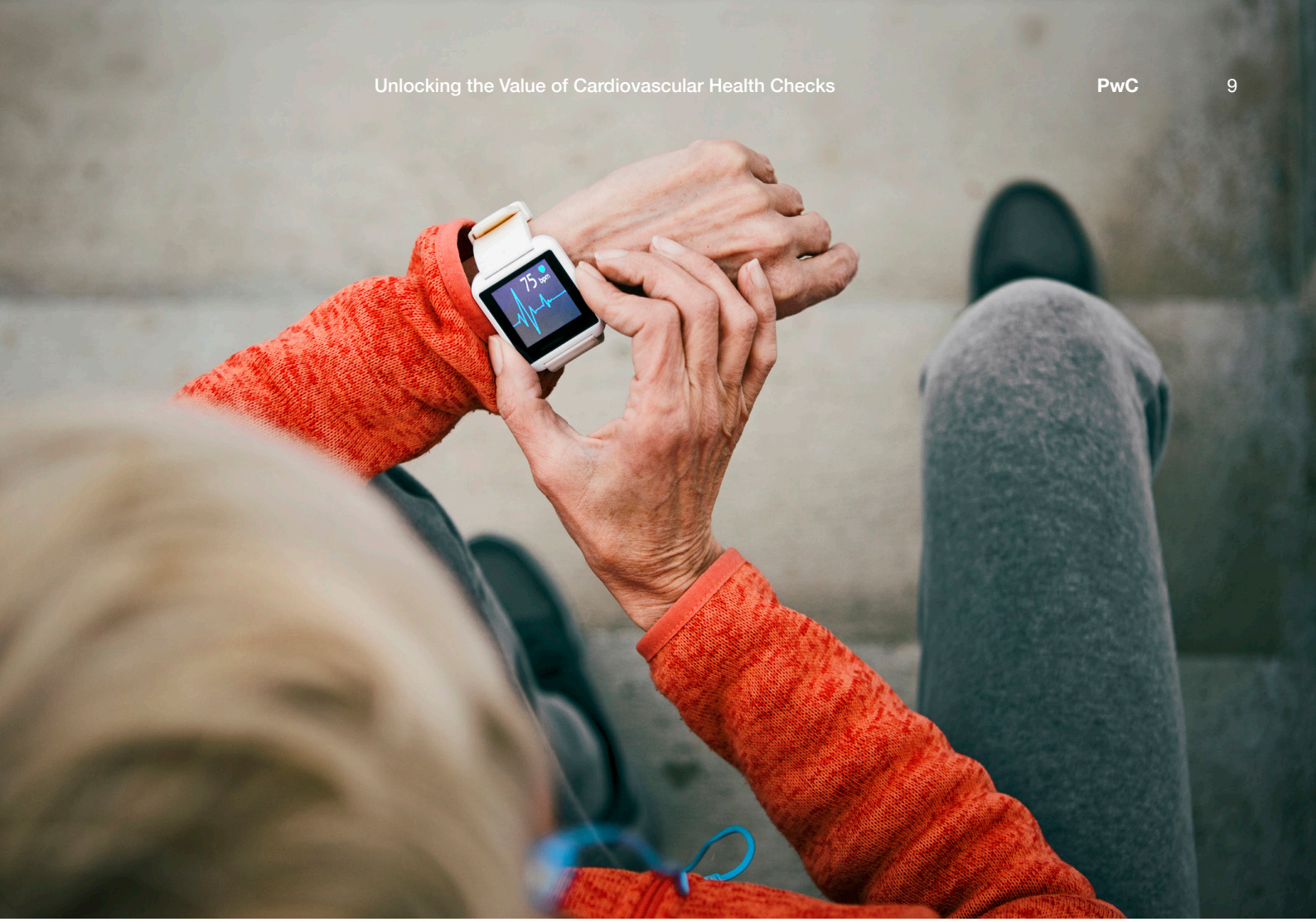
Overall, the findings from this report support the view that CVHCs represent a crucial component of the EU Safe Hearts Plan, provided they are integrated with existing healthcare pathways and designed to enable equitable access to care over the long term.



Glossary

Term	Working definition
Foundational concepts	
Risk-based prevention policy	Clinical-level or programme-level strategy that targets individuals with elevated/ increased or emerging disease risk, using age thresholds, risk scores or biomarkers to guide personalised counselling, monitoring and treatment. In cardiometabolic health, these policies may typically be based on age (e.g. all individuals above 35 years of age), sex, elevated biomarker levels such as high blood pressure, or other health conditions known to increase cardiometabolic disease risk.
Cardiovascular/ cardio-metabolic/ cardio-renal-metabolic health check or health check for CVD *Referred to as 'cardiovascular health check' (CVHC) in this report*	A structured assessment used to identify individuals at elevated risk of cardiovascular/ cardiometabolic disease. It typically includes measurement of core biological markers (e.g. blood pressure, lipid profile, fasting plasma glucose, renal function, body mass index and cardiac biomarkers), an evaluation of lifestyle and health behaviours, and relevant personal and family medical history. The aim is to detect risk factors for cardiometabolic disease before symptoms arise and/or the presence of previously undetected symptoms, and therefore to enable timely lifestyle counselling, pharmacological treatment and ongoing risk factor management.
Eligible (target) population	The defined group of individuals who meet the criteria for receiving a CVHC. Eligibility is typically based on factors such as age range, sex, absence of pre-existing CVD, or other risk-related characteristics specified in national or programme protocols.
Coverage	The proportion of the eligible (target) population that is offered a CVHC, typically measured as the number of individuals invited or otherwise reached by the programme divided by the total number of people who meet the eligibility criteria.
Uptake	The proportion of individuals who attend a CVHC among those who were invited or reached through the programme within a specified time interval (i.e. one year).
Systematic CVHC	A planned, organised CVHC offered to a defined eligible population (e.g. adults aged 35–65 years). Eligible individuals are proactively identified and either invited directly or broadly informed through public communication. Participation is always voluntary. Systematic health checks are delivered at regular intervals (e.g. every five years) and follow a standardised protocol to ensure consistent coverage and equitable access.
Opportunistic health check	A CVHC delivered during routine interactions with the health system rather than through organised invitations. It occurs, for example, during a GP visit, pharmacy encounter, outpatient appointment or emergency-department attendance. Opportunistic checks have no predefined schedule or interval, rely on the individual's healthcare-seeking behaviour and may vary in scope.

Term	Working definition
Economic value	
Cost-effectiveness	An analytic approach used to evaluate the effectiveness of one or more interventions, comparing the incremental costs (or cost savings) and health outcomes (e.g. quality life-year gained or a mortality prevented). Cost-effectiveness analyses typically focus on a single outcome of greatest relevance to the decision-maker and are conducted within a national context, using country-specific epidemiological data, resource use, costs and cost-effectiveness thresholds to judge whether an intervention represents good value for money.
Quality-adjusted life year (QALY)	A combined measure of life expectancy and quality of life used to quantify the health benefits of an intervention. One QALY represents one year of life in perfect health; years lived with illness or disability are weighted by a quality-of-life score between 0 (equivalent to death) and 1 (perfect health). QALYs allow the comparison of health gains across different interventions and are commonly used in cost-effectiveness analyses to assess value for money.
Willingness to pay (WTP) or cost-effectiveness threshold	The maximum amount a health system or decision-maker considers acceptable to pay for one unit of health gain, typically expressed as the cost per QALY gained or per life-year gained. WTP thresholds are country specific and reflect national priorities, budgets and societal values.
Return on investment (ROI)	An economic measure that compares the financial benefits generated by an intervention with the total costs required to deliver it. ROI expresses the net financial return per unit of investment (e.g. '2EUR returned for every 1EUR spent'). In the context of CVHCs, ROI captures long-term cost savings from prevented disease events and reduced healthcare utilisation relative to the upfront programme costs.
Perspective	The point of view from which a health economic analysis is conducted, determining which costs and health outcomes are included in the model. Common perspectives include the healthcare system perspective (considering medical costs and health outcomes), the payer perspective (focusing on reimbursed services) and the societal perspective (capturing broader costs and benefits such as productivity, informal care and social-care impacts). The choice of perspective shapes the scope and conclusions of a cost-effectiveness or ROI evaluation.



01 Introduction

Cardiovascular diseases are the leading cause of death in Europe, placing a persistent strain on health systems, economies and societies. Despite decades of progress, reductions in cardiovascular mortality have stalled in several Member States and inequalities between and within countries are widening. These trends highlight a gap between what is clinically possible and what is currently delivered in practice. Cardiovascular health checks, when well designed and followed by effective care, are one of the few policy tools that can systematically close this gap by identifying risk early and enabling timely action before symptoms appear.

1.1 The changing burden of cardiovascular diseases across Europe

Cardiovascular diseases (CVDs) are a broad group of heart and vascular disorders, most of which are driven by underlying atherosclerotic processes, as well as by interconnected conditions such as diabetes, obesity and kidney disease. The consequences of CVD in Europe are substantial. An estimated 62 million people in Europe live with a CVD, and in 2025 approximately one in every three deaths in the EU was attributable to CVD, corresponding to about 4,600 deaths every day [1].

The rising prevalence of diabetes and obesity, alongside hypertension and dyslipidaemia, is contributing to more complex patterns of CVD [2] as these interconnected conditions accelerate CVD progression. Furthermore, risk factors – including tobacco use, poor diet, physical inactivity and harmful alcohol consumption – remain widespread, reinforcing the central role of preventive strategies and policies in altering the trajectory of CVD [3].

Although investments in prevention and treatment have contributed to reductions in avoidable mortality in the past decades, progress has been uneven. Some Member States have successfully reduced the CVD burden, whereas others have seen little progress or even rising CVD incidence, particularly among working-age populations [2]. These disparities between countries point to systemic gaps in prevention and management that are not being addressed consistently across the EU.

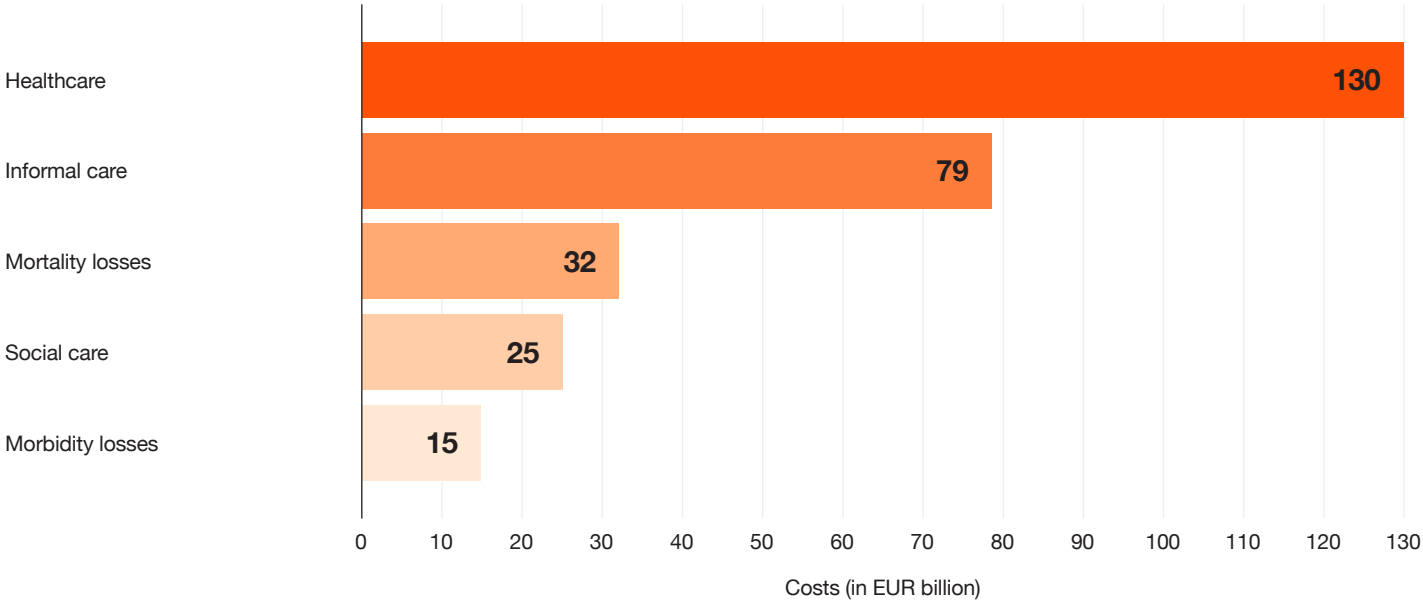
Beyond such differences, persistent inequalities within countries further shape cardiovascular outcomes. People from lower socioeconomic groups are more exposed to cardiovascular risk factors, have poorer access to preventive services and experience worse health outcomes [4]. Women, despite accounting for a substantial share of the overall CVD burden [1, 5], are more likely to receive delayed or suboptimal diagnosis and treatment. Environmental determinants – including air pollution and climate-related stressors – further increase cardiovascular risk, particularly in vulnerable communities [6].

From an economic perspective, a 2021 study placed the annual cost of CVD to the EU at 282bnEUR, with coronary heart disease (77bnEUR) and cerebrovascular diseases (76bnEUR) together accounting for more than half of the economic burden [4, 7]. Productivity losses and informal care costs were estimated at 48bnEUR (17%) and 79bnEUR (28%) respectively [7] **(Figure 1)**. The burden of CVD compromises societal resilience and healthcare system capacity [8].

Figure 1

The economic burden of cardiovascular disease in Europe by cost category.

The annual CVD-related costs are distributed across healthcare expenditure, informal care, mortality-related productivity losses, social care and morbidity-related productivity losses. Adapted from ESC, EU 27 Cardiovascular Realities (2025)[1].



Overall, the combination of stalled mortality gains, widening inequalities and escalating economic consequences highlights the need for renewed focus on early detection, risk identification and systematic preventive action, as discussed in the next pages.

1.2 The importance of prevention, early detection and management

CVD develops gradually and often without warning symptoms, meaning that many individuals remain unaware of their risk until a major event, such as a heart attack or stroke, occurs. Atrial fibrillation illustrates this challenge well: it is often asymptomatic and undetected in routine care, yet it increases stroke risk by approximately three to five times when left untreated [9]. As a result, a substantial share of cardiovascular events occur in people whose risk factors were present but not identified or managed in time.

Early detection of cardiovascular risk therefore plays a key role in prevention [10] as it enables timely counselling, treatment and long-term management of major risk factors, which are responsible overall for 90% of new CVD cases. These risk factors include arrhythmias (including atrial fibrillation), abnormal lipid levels, high blood pressure, diabetes, obesity, chronic kidney disease, poor diet, excess alcohol, smoking and physical inactivity [3]. Furthermore, the measurement of cardio-biomarkers, including high-sensitivity C-reactive protein (hs-CRP) and elevated Lp(a), can guide early intervention and cardiovascular risk management.

In practice, translating early detection into better outcomes requires a combination of complementary preventive strategies **(Table 1)**. First, population-wide, structural prevention approaches – such as tobacco control, policies encouraging healthy diets and environments that support active lifestyle – aim to reduce the cardiovascular risk across entire populations by addressing the social and environmental determinants of health. Second, risk-based prevention strategies – such as targeted awareness and education campaigns, workplace screening programmes and health checks for CVD – focus on identifying individuals with elevated or emerging cardiovascular risk, for example based on age, risk scores or biological markers, and on tailoring the intensity of counselling, monitoring and treatment accordingly. Together, these approaches form the foundation of today's cardiovascular health management: population-wide strategies shift overall risk distributions, while risk-based approaches enable timely identification and management of those most likely to benefit from targeted intervention [11].

To support risk-based prevention in practice, the SCORE2 Working Group and the European Society of Cardiology (ESC) Risk Collaboration have developed a stepwise, evidence-based approach to cardiovascular risk stratification. Central to this framework is the SCORE2 algorithm, which estimates an individual's ten-year risk of fatal and non-fatal cardiovascular events. The score is based on the assessment of age, sex, smoking status, systolic blood pressure, diabetes status, total cholesterol and high-density cholesterol. In this way, the SCORE2 provides a consistent foundation for determining who should receive more intensive preventive intervention, closer monitoring or further risk detection, helping health systems target resources where the potential benefit is greatest [12].

Table 1

Comparison of population-wide and risk-based strategies for cardiovascular disease prevention.

Population-wide public health approaches and risk-based preventive strategies play distinct and complementary roles in reducing cardiovascular disease burden. Adapted from Irish Heart Foundation, 2023 [3].

	Population-wide strategies	Risk-based strategies
Target population	Whole population irrespective of individual risk status	Individuals identified through risk stratification (age-based, risk-factor-based or diagnosis-based approaches)
Primary objective	Improve the overall health and well-being of entire populations by addressing the social, environmental and behavioural determinants of health	Identify and modify specific risk factors in high-risk individuals to prevent disease on a personal level, providing personalised preventive care
Intervention example	Nationwide public health policy such as tobacco control strategy	Health checks for CVD (age-based, risk-factor-based or diagnosis-based approaches)

What is a cardiovascular health check?

In this report, the term **cardiovascular health check (CVHC)** refers to a structured assessment designed to enable the early identification of cardiovascular disease and related cardiometabolic conditions, including diabetes, obesity and kidney disease. By detecting risk factors for cardiometabolic disease before symptoms arise and/or by detecting previously unrecognised symptoms, CVHCs enable timely lifestyle counselling, pharmacological treatment and ongoing risk factor management.

Depending on the context, these assessments may also be described in the literature as ‘health checks for cardiovascular disease’, ‘cardio(renal) metabolic health checks’, or more broadly as ‘health checks’.

The **scope of measurements** included in a CVHC varies. Typically, assessments include anthropometric measures (e.g. height, weight, waist circumference, BMI), core clinical and biological markers (e.g. blood pressure, lipid profile, fasting plasma glucose, renal function and cardiac biomarkers) and evaluation of lifestyle and health behaviours, as well as relevant personal and family medical history. Some CVHCs also incorporate basic heart-rhythm assessments, as well as mental health, functional or social measures. Additional tests may be administered based on the individual risk profile emerging from the assessment [13].

1.3 Health checks to enable timely identification and management of CVD risk

Health checks, and particularly cardiovascular health checks (CVHCs), provide a practical mechanism for translating risk-based prevention into routine practice. By offering a structured assessment to individuals before symptoms arise, CVHCs enable the early identification of elevated cardiovascular and cardiometabolic risk and support timely action to prevent disease progression. In contrast to ad hoc or symptom-driven care, CVHCs apply a systematic, proactive approach to prevention. When embedded in care pathways, they create a direct link between risk identification, lifestyle counselling, initiation of preventive treatment and timely follow-up and management, thereby helping health systems move from episodic intervention to sustained risk management in accordance with clinical guidelines **(Figure 2)**.

Figure 2

Cardiovascular health check (CVHC) pathway, from population engagement to long-term risk management.

CVHCs combine population engagement, screening, risk scoring, risk-based intervention and ongoing follow-up within a structured prevention framework.

Case Study

I prevent (Greece)

I prevent (Prolamvano) is Greece's national prevention and population-health screening programme, launched between 2022 and 2024 and expanded into 2025–2026. It is the country's first comprehensive, centrally organised public health prevention plan, funded by the EU Recovery and Resilience Facility (Greece 2.0) and implemented via the Ministry of Health, IDIKA and the National Organisation for Healthcare Services Provision (EOPYY).

The programme offers a free CVHC to 5.5 million individuals aged 30–70 years with a social security number (AMKA), delivered via digital invitations (SMS/e-prescription) and accessible across 15,000 public and private health facilities. Participants' individual risk is assessed during the health check, followed by referral to specialist centres for advanced tests based on the emerging cardiovascular risk profile.

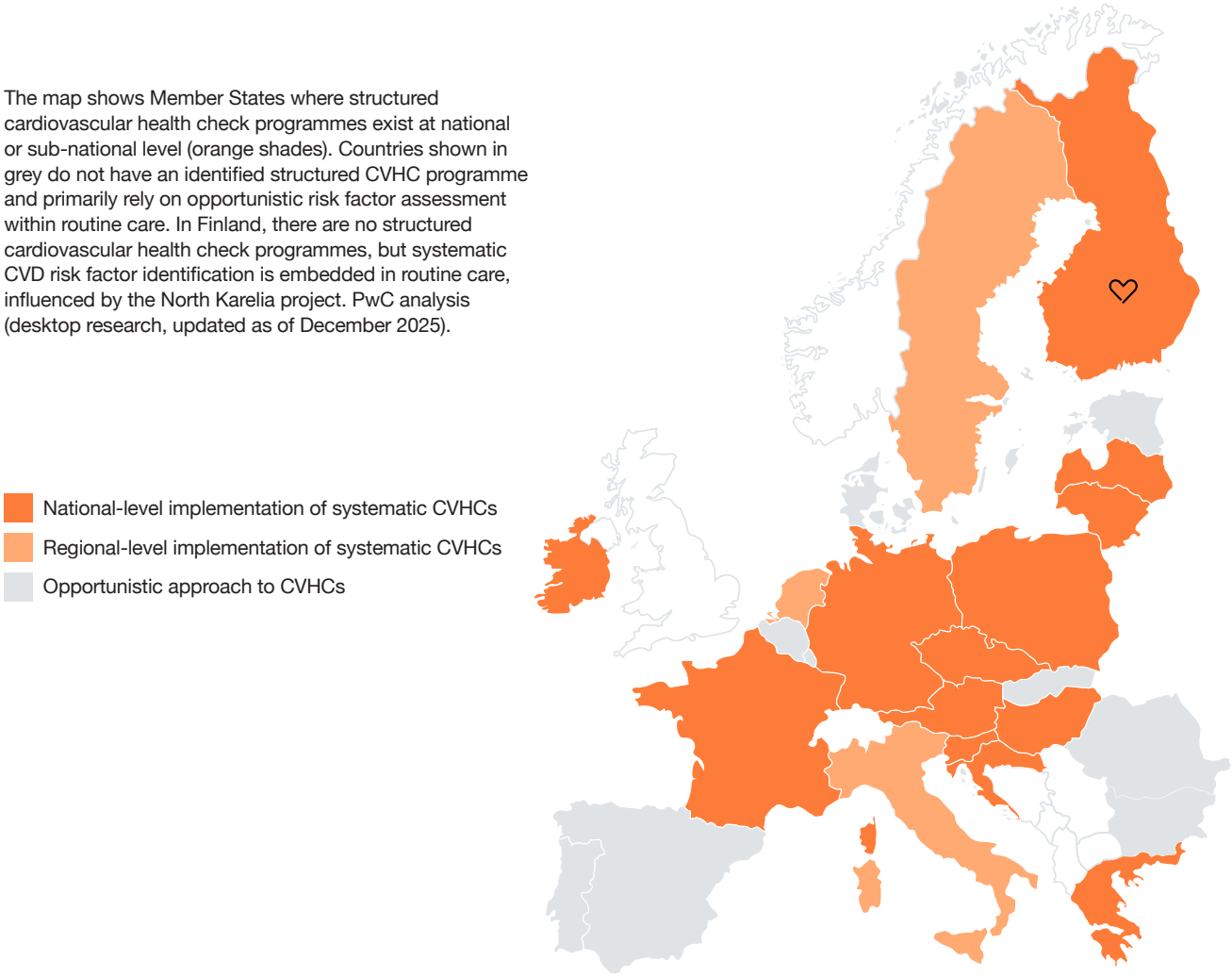
Since its inception, over 2.5 million individuals have been screened across all sub-programmes, with more than 500,000 CVD-related blood tests and over 30,000 referrals for coronary disease evaluation. The programme has been recognised at the EU level for setting a national model for CVD prevention strategy, highlighting that cultural shifts and attitude changes are needed for proactive health management [72, 73].

Across the EU, CVHCs are generally used as part of broader CVD prevention and management strategies, but their design and implementation vary substantially between Member States **(Figure 3)**. Countries differ in whether CVHCs are rolled out nationally or regionally, whether they are organised as dedicated cardiovascular programmes or embedded within general preventive examinations, and in the extent to which they are formally linked to follow-up and care pathways. Approaches also vary with respect to the target population – from broad adult population checks to programmes dedicated to individuals at increased risk based on age thresholds or the presence of uncontrolled risk factors. Finally, emerging digital and hybrid delivery models add further diversity to how CVHCs are implemented across countries, as described in **Appendix 1**.

Figure 3

Implementation of structured cardiovascular health check programmes across EU-27

The map shows Member States where structured cardiovascular health check programmes exist at national or sub-national level (orange shades). Countries shown in grey do not have an identified structured CVHC programme and primarily rely on opportunistic risk factor assessment within routine care. In Finland, there are no structured cardiovascular health check programmes, but systematic CVD risk factor identification is embedded in routine care, influenced by the North Karelia project. PwC analysis (desktop research, updated as of December 2025).



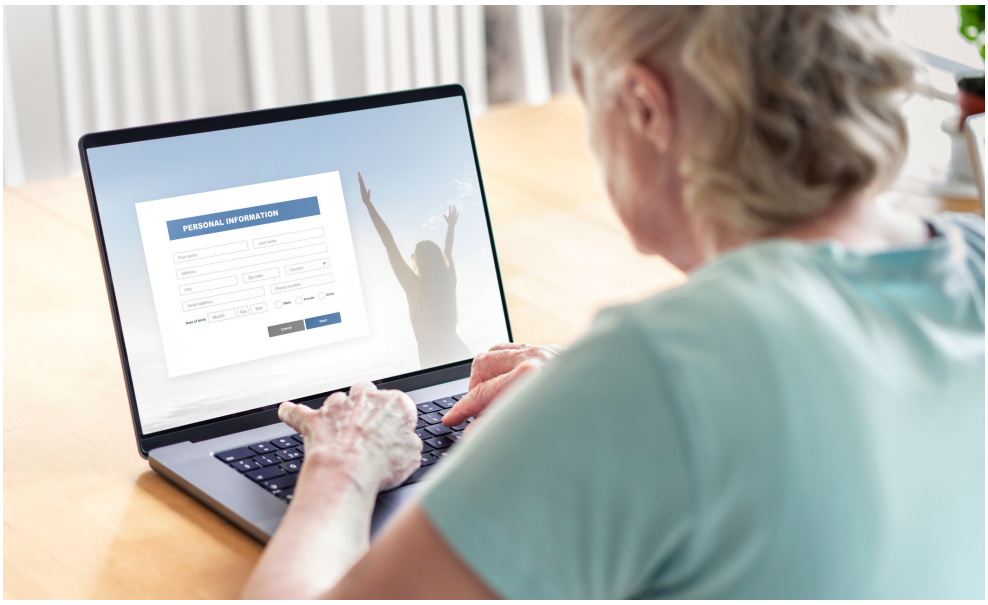
Case Study

My Health (Poland)

My Health (Moje Zdrowie) is Poland's latest national preventive health programme launched in May 2025, replacing the earlier Profilaktyka 40+ scheme. It introduces a life-course approach to periodic preventive health checks for all adults aged 20 years and older, aiming to identify cardiometabolic, oncological and mental health risks early.

Participants complete a comprehensive digital or in-clinic questionnaire covering lifestyle, physical activity, family history of chronic (including CVD) and oncological diseases, mental health screening and hepatitis risk. Based on the responses, participants are issued e-referrals for tailored diagnostic tests, with primary care centres being required to follow up within 30 days. This hybrid programme design – digital or in-person questionnaire before testing – facilitates a stepwise approach to risk stratification, enabling efficient identification of individuals requiring targeted diagnostic follow-up or intervention.

The programme is seeing encouraging uptake with over one million questionnaires completed within 100 days, 87% of which proceeded to testing. Interestingly, ~70% of individuals submitting questionnaires are women and the proportion of participants aged 50+ is growing steadily (from 19% to 29% within three months). Experts and medical groups have welcomed the programme, noting its potential for the early detection of chronic diseases including CVDs [74, 75].



1.4 Barriers to the adoption of CVHCs and implementation challenges

Despite broad agreement on the importance of early cardiovascular prevention, the effectiveness and impact of CVHCs across Europe are constrained by persistent factors related to population engagement, follow-up after risk identification and perceptions of their cost-effectiveness and proportional value for population health management.

First, uptake remains uneven, with lower participation among socio-economically disadvantaged groups, people with lower health literacy and those less engaged with healthcare services [14]. Key drivers include limited disease awareness, low perceived personal risk and uncertainty about the benefits of participation [15].

Second, gaps in timely follow-up, treatment adjustments and sustained support further weaken long-term impact. Even when high-risk individuals are identified, the initiation of guideline-recommended therapy can be delayed or inconsistent, with sustained behavioural change remaining difficult to achieve. Limited integration between screening activities, primary care and chronic disease management further reduces the translation of detection into effective risk reduction [16].

Finally, ongoing concerns about overdiagnosis, medicalisation and variable cost-effectiveness influence both public and professional perceptions. Broad or one-off programmes risk identifying large numbers of low-risk individuals without generating meaningful benefit. Conversely, more intensive screening approaches may add complexity or considerable upfront investments and resource utilisation requirements to identify those at elevated cardiovascular risk. Uncertainties about long-term economic value further contribute to hesitancy among policymakers [17].

Despite these concerns, emerging trial evidence and learnings from real-world programmes offer insights into how challenges associated with suboptimal CVHC programme implementation can be overcome. If well designed and executed, CVHCs have the potential to produce clinical benefits through earlier intervention and improved outcomes, economic benefits by strengthening technical and allocative efficiency and supporting workforce productivity, and societal benefits by improving resilience and reducing persistent health inequalities.

02 Policy momentum and opportunity for action

The EU policy landscape for cardiovascular health has reached a pivotal moment. The EU Safe Hearts Plan establishes, for the first time, a dedicated EU-level framework, creating a window of opportunity for Member States to introduce, strengthen or align cardiovascular health check programmes in a coordinated and evidence-based way.

2.1 The opportunity created by the European Safe Hearts Plan

The policy landscape for cardiovascular health management in Europe has shifted significantly in recent years, reflecting both the scale of the challenge and the growing recognition that fragmented or inconsistent approaches are

insufficient to reverse current trends. For the past few years, programmes such as EU4Health (2021–2027) and the Healthier Together EU Non-Communicable Diseases Initiative have laid important policy, methodological and funding foundations for tracking major non-communicable diseases and supporting targeted actions.

The launch of the Safe Hearts Plan by the European Commission on 16 December 2025 marks a major step forward in improving cardiovascular health across the EU [11]. The Safe Hearts Plan is the first EU-level strategy dedicated exclusively to CVD health and associated conditions such as diabetes and obesity, with explicit attention to vulnerable populations including children, young people and women. It provides a coordinated framework to support progress towards Sustainable Development Goal 3.4, which aims to reduce premature mortality from non-communicable diseases by one third by 2030. Importantly, the Plan also positions cardiovascular health management as an economic and competitiveness priority, recognising the broader societal and productivity impacts of cardiometabolic diseases.

Among the ten flagship initiatives of the Safe Hearts Plan, the establishment of an EU Protocol on Health Checks for Cardiovascular Diseases creates a concrete opportunity for action, offering Member States a structured framework to implement or strengthen national programmes for cardiometabolic risk assessment through early detection and diagnosis.

For Member States, this policy context represents a clear window of opportunity. The combination of EU-level guidance, shared tools and financial support enables countries to strengthen cardiovascular health programmes in line with evidence-based principles. At the same time, it supports greater consistency across Europe, helping reduce gaps between regions with long-standing structured approaches and those where prevention remains opportunistic or fragmented. The emerging EU framework provides both the policy mandate and the practical means to improve health, strengthen system resilience and reduce health inequities.

03 Approach, scope and evidence base

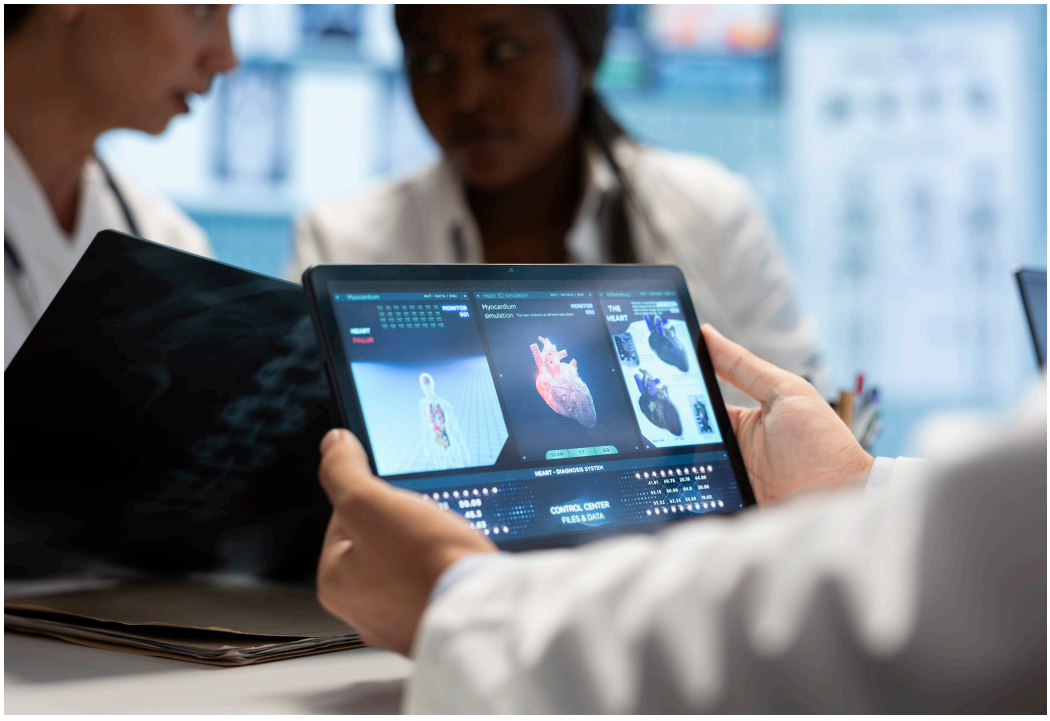
The evidence reviewed in this report provides a policy-relevant assessment of the clinical, economic and societal value of cardiovascular health checks, with a focus on recent European experience and key design and implementation factors.

This report reviews the **clinical, economic and societal value of cardiovascular health checks (CVHCs)** in order to support policy and programme implementation decisions in the context of the EU Safe Hearts Plan. The assessment draws on a structured review of recent European evidence, combining a systematic screening of scientific and grey literature with a targeted review of high-relevance studies. The scope is focused on the evidence generated in the European region over the last ten years and on interventions that include a structured CVHC component. The assessed evidence was generated across cohort studies, randomised controlled trials, observational studies, modelling studies, cost-effectiveness analyses and systematic literature reviews. The detailed methodology is described in **Appendix 2**.

Briefly, the evidence emerging from the literature review was organised across three value domains – clinical, economic and societal – reflecting the main dimensions of interest for policymakers. Within each domain, outcomes were grouped into short-term and long-term effects, ranging from early risk factor detection and treatment initiation to impacts on cardiovascular events, healthcare costs and broader societal outcomes. Overall, 41 papers were included in the analysis, comprising 24 studies reporting clinical outcomes, 15 addressing economic outcomes and nine examining societal outcomes **(Appendix 3)**. Although these domains are examined separately for analytical purposes, they are closely interlinked. Clinical outcomes and economic gains reinforce each other, and together shape broader societal value. A thematic analysis was applied to identify recurring value drivers and common implementation challenges, providing a consistent structure for synthesising findings across diverse programme designs and country contexts.

This review is not intended to be exhaustive. It does not cover evidence from non- European settings, nor does it assess the value of individual biomarkers or emerging insights, including from personalised and omics-based risk profiling, as these are considered out of scope of an assessment focused on holistic cardiovascular health checks[1].

Taken together, this evidence base provides a robust foundation to assess where CVHCs have demonstrated value, and which design and implementation features appear most critical from a policy perspective.



1 Compare with the definition of a cardiovascular health check recorded in the glossary (page 8).

04 The value of cardiovascular health checks

European evidence indicates that cardiovascular health checks can generate clear clinical, economic and societal value, provided they are systematically linked to timely and effective follow-up care and monitoring. The strength and scale of impact vary by programme design, target population and integration into care pathways.

4.1 Clinical value

The clinical value of CVHCs lies in their ability to identify elevated cardiovascular risk earlier and to enable timely action before CVD becomes clinically manifest. Evidence reviewed in this report shows that CVHCs generate clinical benefits across a continuum of outcomes, from earlier detection and diagnosis of cardiovascular risk factors to longer-term reductions in cardiovascular events

and premature mortality **(Table 2)**. Clinical gains achieved via CVHCs span across CVD and interconnected cardiometabolic conditions such as diabetes, chronic kidney disease and obesity, thereby amplifying the overall health impact of CVHC-based prevention strategies.

Table 2

Availability of evidence related to the clinical domain.

The table summarises the main clinical outcome areas assessed in the evidence base, indicating the typical data collection timeframe, the availability of evidence (♡ Low: 1–2 studies, ♡♡ Medium: 3–5 studies, ♡♡♡ High: >5 studies) and the types of data sources.

Clinical outcome area	Data collection timeframe	Evidence availability	Data sources
Risk factor detection and diagnosis	Short-term	♡♡♡	Real-world and observational evidence, interventional clinical evidence
Treatment initiation and diagnosis	Short-term	♡♡♡	Real-world and observational evidence, interventional clinical evidence
Risk factor management and behavioural change	Long-term	♡♡	Real-world and observational evidence, interventional clinical evidence
Cardiovascular outcomes and mortality	Long-term	♡	Systematic literature review, real-world and observational evidence, interventional clinical evidence

Risk factor detection and diagnosis

Out of the 41 reviewed papers, 15 papers focused the evaluation on risk factor detection and diagnosis. Consistent evidence emerges that structured CVHCs improve the detection of cardiometabolic risk factors and related diagnoses [16, 18–29]. Overall, the studies show that CVHCs are a valuable approach for detecting individuals with manageable risk factors such as diabetes and obesity, potentially averting future cardiometabolic diseases.

CVHCs improve the detection of cardiometabolic risk. Multiple studies, including the NHS Health Check rapid review, demonstrate that CVHCs reliably improve the identification of increased blood pressure, elevated cholesterol, diabetes and chronic kidney disease [22], therefore indicating that systematic assessments outperform routine care. Direct comparisons between attendees and non-attendees further confirm this finding. For example, in an observational matched study, attendees were significantly more likely to receive new diagnoses of diabetes (odds ratio (OR) 1.30), hypertension (OR 1.50) or chronic kidney disease (OR 1.83) [21], demonstrating the diagnostic advantage of participating in a formal assessment.

Stepwise approaches allow population-wide screening programmes to adapt assessment and follow-up according to individual risk. Stepwise, targeted prevention programmes yield even greater diagnostic returns, identifying individuals most in need of healthcare interventions among the general population. For example, the Dutch INTEGRATE randomised controlled trial used a stepwise approach to risk stratification, consisting of an initial risk scoring[2] for all participants (step 1) followed by a clinical risk assessment for individuals classified as higher risk (step 2), and finally an individualised follow-up treatment where indicated (step 3) [16]. This structured sequence resulted in substantially higher detection of previously undiagnosed cardiometabolic conditions, including but not limited to CVD and type 2 diabetes. Individuals receiving the stepwise assessment were nearly three times more likely than those in the control group[3] to receive a new diagnosis of cardiometabolic disease after a 12-month follow-up. Additionally, hypertension was diagnosed twice as frequently in the intervention group compared to the control group, and hypercholesterolemia three times more frequently [16].

Sustained monitoring of cardiovascular risk factors over time is central for long-term health outcomes. Long-term observational evidence reveals the importance of systematic, repeated identification of major cardiovascular risk factors over time. The Finnish FINRISK study, which ran for 40 years (1972–2012), monitored longitudinal changes in risk factors for chronic diseases (e.g. CVD, diabetes, obesity, cancer) and health behaviours in the working-age population [18]. Over the four decades of follow-up, the levels of three major risk factors for coronary heart disease (smoking prevalence, serum cholesterol and systolic blood pressure) attenuated over time. Modelling analyses showed that the risk factor reductions accounted for most of the observed decrease in coronary heart disease mortality – a significant 82% in men and 84% in women aged 35–64 years [18]. These findings underscore the central role of sustained, population-level monitoring and management of risk factors in driving long-term mortality decline, illustrating the cumulative impact of early detection and continuous risk factor control over decades (see also paragraph 7.1.4, Clinical outcomes, cardiovascular events and mortality).

2 The screening programme included an online risk score assessment consisting of questions regarding sex, age, body mass index (BMI) (increased if ≥25 kg/m2), waist circumference (increased if ≥80 cm for women and ≥94 cm for men) and a family history of premature CVD and type 2 diabetes.

3 Participants allocated to the control group were invited to complete a health questionnaire including questions about demographic characteristics, cardiometabolic disease (CMD) risk factors and lifestyle. These participants did not receive a risk score, a personal CMD risk estimate, or tailored lifestyle advice or treatment. During follow-up, the control group individuals received care as usual until they were invited for the CMD prevention programme one year later.

Implementation levers matter for enhancing detection rates. Response-enhancing strategies, such as GP-led face-to-face invitations that encourage participation in primary prevention programmes, have been shown to improve participation and screening completion in selective prevention programmes [16]. Similarly, opportunistic invitations are helpful to increase uptake among higher risk groups, including men, younger adults and individuals in more deprived areas [22], thus supporting more equitable participation.

Treatment initiation and timely follow-up

Out of the 41 reviewed papers, ten papers reported evidence on treatment initiation upon structured CVHCs [16, 19–22, 24, 27, 28, 30, 31]. Across the ten studies, there is consistent evidence that structured CVHCs lead to increased initiation of guideline-directed preventive therapy, particularly lipid-lowering therapies and antihypertensive medications[4]. Certain studies also report the need for greater adherence to clinical guidelines in relation to treatment initiation. Large, age-based programmes generate substantial treatment volumes due to scale [19], with treatment initiation rates generally greater[5] in health checks that incorporate risk stratification or target higher-risk populations [20].

4 To clarify, treatment initiation alone does not equate to reaching treatment targets. Treatment guidelines generally emphasise the importance of follow-up and monitoring after treatment initiation or intensification (for example, 4 to 6 weeks of LDL-C monitoring after treatment initiation).

5 Statistical significance of between-group differences (attendees vs. non attendees) is not consistently reported across all studies.

Systematic CVHCs drive substantial treatment initiation. Large population-based CVHCs lead to meaningful initiation of statins and antihypertensive therapies, primarily due to their wide reach. In the UK-based NHS Health Check targeted at people aged 40 to 74 years, almost 26% of participants with a documented CVD risk score had a 10-year CVD risk ≥ 10%, of whom 20.3% were prescribed a statin [19]. Consistently, an observational matched study related to the NHS Health Check found that participants were 40% more likely to be prescribed statins than non-participants [21]. Similar patterns were observed in the GENVASC study, a large prospective cohort study embedded in the NHS Health Check, which reported that 5.4% of participants initiated a statin therapy within 12 weeks of the first visit, increasing to 7.1% after 18 months; a further 5.4% began antihypertensive therapy, increasing to 8.4% after 18 months [30].

Stepwise, risk-stratified programmes achieve the highest treatment initiation rate. In the above-mentioned Dutch INTEGRATE randomised clinical trial, the stepwise risk assessment approach, recruiting adults aged 45 to 70 years with or without cardiometabolic disease, resulted in 2.85-fold higher initiation of antihypertensive therapy and 3.23-fold higher initiation of lipid-lowering therapy compared with usual care at one-year follow-up [16]. These findings illustrate that risk enrichment of the invited population enhances the efficiency and therapeutic yield of prevention programmes.

Risk factor management and behavioural change

Out of the 41 reviewed papers, ten report findings about risk factor reduction and behavioural changes upon participation in CVHCs [20, 26, 30–36].

Across relevant evaluations and trials, structured CVHCs implemented in primary care, workplace and community settings consistently demonstrate improvements of modifiable cardiometabolic and lifestyle-related risk factors, as well as composite cardiovascular risk scores. Evidence from large NHS Health Check evaluations shows modest but durable improvements in blood pressure, BMI, smoking prevalence and cholesterol among individuals with elevated baseline values [20, 26, 30, 31, 33, 36]. Moreover, stepwise or score-based programmes report per-participant improvements in blood pressure, lipid ratios, waist circumference and composite risk scores [20, 34, 37]. Programme-level evaluations in Ireland and Italy further document improvements in biometric and lifestyle risk factors under structured follow-up [31–33].

Improvement in metabolic risk factors is consistently observed across structured CVHCs. Across the evidence base, structured CVHCs are associated with measurable improvements in blood pressure, lipid parameters and obesity. In the GENVASC prospective observational cohort study, systolic blood pressure declined markedly among participants with elevated baseline values, reaching –15.7 mmHg in grade 2 hypertension and –33.4 mmHg in grade 3 hypertension. In the same study, total cholesterol decreased on average by 0.38 mmol/L in patients with initial cholesterol >5 mmol/L, and even larger reductions were observed among individuals with higher baseline cholesterol (–1.71 mmol/L in those with baseline cholesterol >7.5 mmol/L) [30]. Similar findings are reported in the INTEGRATE randomised controlled trial, which observed significant reductions within one year in systolic blood pressure (–2.26 mmHg), cholesterol ratio (–0.11) and waist circumference (–3.08 cm) among participants completing the targeted assessment [16, 20]. Evidence from longer-term, structured follow-up in primary prevention settings further demonstrates sustained lipid control, including durable reductions in LDL cholesterol and increases in HDL cholesterol over more than a decade [32]. Population-level improvements have also been reported in national programmes. The LitHiR Programme, i.e. Lithuania's primary prevention strategy for CVD, found that the prevalence of obesity and metabolic syndrome gradually declined from 2009 to 2017 among participants, with obesity prevalence decreasing from 58% to 51.2% among women and from 29.2% to 26.7% among men[6] [24].

Population-level averages may conceal significant improvements in high-risk individuals. While average improvements at population level may appear modest, this reflects the population risk mix rather than limited effectiveness. In GENVASC, individuals with normal or mildly elevated blood pressure and cholesterol values showed little absolute change, whereas participants with the highest baseline risk reductions experienced pronounced reductions [30]; the same has been observed in studies conducted in Ireland [31] and Italy [33]. This pattern is mirrored in large population analyses of the UK NHS Health Check, where six-year follow-up showed modest but statistically significant average reductions in systolic blood pressure (–1.43 mmHg) and BMI (–0.30 kg/m^2) across the full cohort [26]. Modelling based on real-world CVHC data similarly reported a mean BMI reduction of 0.27kg/m2, an average that reflects the broad and inclusive reach of these programmes [36]. Together, these findings show that, while population-wide programmes reviewed achieve apparently small average shifts at scale, they deliver meaningful, sustained metabolic improvements for individuals at highest risk.

6 Notably, the LitHiR Programme dedicates specialised resources to people diagnosed with metabolic syndrome or diabetes mellitus.

Lifestyle and behavioural risk factors improve more gradually and less uniformly. Changes in lifestyle-related risk factors, such as smoking, dietary habits and physical activity tend to be smaller and slower than changes in pharmacologically modifiable parameters, but remain detectable under structured follow-up. In the six-year NHS Health Check cohort, participants showed lower smoking prevalence over time compared with matched controls [26]. Also, a longitudinal evaluation of the Swedish Sollentuna Prevention Programme with a mean follow-up period of 22 years found that participants maintained lower average blood pressure and lipid levels relative to controls through continued lifestyle activities and evidence-based lifestyle advice [34]. However, evidence from other evaluations indicated that, in the absence of continuous support, lifestyle modifications were not sustained in the long term [35]. Overall, these findings suggest that lifestyle risk factors respond to structured interventions, though with greater heterogeneity and more limited effect sizes than metabolic risk factors.

Clinical outcomes, cardiovascular events and mortality

Out of the 41 reviewed papers, nine report evidence about cardiovascular events, mortality and other long-term clinical outcomes [17, 18, 25, 28, 29, 34, 38–40]. Collectively, the reviewed studies indicate that the effectiveness of CVHC programmes in reducing non-fatal and fatal CVD events[7] varies depending on the target population, the design of the CVHC and the follow-up duration. Overall, CVHCs embedded in long-standing European programmes, such as those implemented in Finland, Sweden, the UK and Denmark, consistently show reductions in cardiovascular events and mortality [18, 29, 38, 39].

7 A non-fatal cardiovascular event is a clinically diagnosed cardiovascular acute episode that does not result in death, such as a stroke or other acute cardiovascular complication requiring medical care. A fatal cardiovascular event is a death directly attributable to a cardiovascular cause, occurring within a defined follow-up period.

Case Study

North Karelia Project (Finland)

The North Karelia Project (1972–1997) was a pioneering, community-based CVD prevention programme, launched in response to exceptionally high heart-disease mortality in the region. It targeted major, modifiable risk factors driving coronary heart disease – especially high serum cholesterol, high blood pressure and smoking – and became a model that later informed broader national prevention efforts in Finland [29, 78].

The implementation approach combined population-wide interventions with high-risk strategies to identify and support people at elevated risk. The target group included the entire provincial population of about 180,000 residents, with direct enrolments based on independent, cross-sectional adult surveys every five years of roughly 3,000–4,000 participants. Approximately 22,000 individuals registered and monitored through the hypertension programme. Actions included public education and community mobilisation, diet change campaigns, hypertension detection and follow-up, and smoking reduction efforts [78, 79].

Over 35 years, coronary heart disease mortality among men aged 35–64 in North Karelia declined by approximately 85%, with most of the reduction attributable to preventive actions rather than treatment alone. Beyond health outcomes, the project triggered lasting environmental, health and food policy changes (e.g. food reformulation and labelling), establishing a scalable model for community-based chronic disease prevention [79, 80].

Lower rates of non-fatal and fatal cardiovascular events are observed among CVHC participants. Evidence from the UK NHS Health Check's long-term health impact study, based on the analysis of UK Biobank health records with an average follow-up of nine years, found that participants who attended the Health Check had lower rates of atrial fibrillation (9% lower), heart attacks (15% lower), acute kidney problems (23% lower), liver cirrhosis (44% lower) and death (23% lower) compared with non-participants [38]. Similar findings emerge from the Finnish Harmonica Project, a primary-care-based screening programme assessing adults aged 45–70. Individuals with screen-detected hypertension had a 60% lower CVD mortality hazard than those with pre-existing, treated hypertension [28].

Most significant and sustained reductions occur when CVHCs are embedded in long-term, population-wide prevention programmes. CVHCs embedded within population-wide, multi-component prevention and sustained follow-up show measurable reductions in first cardiovascular events and mortality over long time horizons. This impact is most clearly demonstrated in Finland's North Karelia Project, a population-wide primary prevention strategy that initially included screening among adults aged 45–55 years, where coronary mortality declined by more than 80% over forty years [18]. Comparable long-term benefits are seen in Sweden's Sollentuna Prevention Programme, a primary healthcare prevention programme screening adults aged 18 years and older, in which the intervention group experienced significantly lower risks across all major clinical outcomes, with hazard ratios of 0.88 for first cardiovascular events, 0.79 for cardiovascular deaths and 0.83 for all-cause deaths relative to the reference population [34]. Similarly, the previously cited, multi-component, prevention-oriented Harmonica Project also indicates that early identification, when coupled with prompt lifestyle and pharmacological interventions triggered by the CVHC screening, can normalise long-term cardiovascular risk, while individuals with established hypertension continued to have higher CVD mortality despite treatment [28]. Conversely, the Ebeltoft Health Promotion Project, an early risk-detection trial programme initiated in Denmark in 1991 and targeting individuals aged 30 to 49 years, was implemented without a structured follow-up or long-term management component, relying instead on repeated screening at defined intervals. In the associated 24-year longitudinal follow-up, no statistically significant reduction in cardiovascular or all-cause mortality was observed compared to the control group [40].

Clinical value summary

Short-term clinical value

Across the evidence reviewed, CVHCs consistently improve the early detection of previously undiagnosed cardiovascular and cardiometabolic risk factors, including high blood pressure, abnormal lipid levels, diabetes, obesity and chronic kidney disease. Participation in structured CVHCs is associated with higher rates of diagnosis and initiation of guideline-recommended preventive treatment, particularly among individuals with elevated baseline risk. Stepwise and risk-stratified approaches further enhance detection by focusing follow-up assessments on those most likely to benefit.

Long-term clinical value

When CVHCs are integrated into sustained prevention and follow-up pathways, evidence shows durable improvements in key risk factors and – over longer follow-up periods – reductions in cardiovascular events and mortality. Long-standing European programmes demonstrate that the greatest and most consistent health gains occur where early risk identification is combined with ongoing risk factor management over time. In contrast, one-off or weakly linked screening initiatives show limited impact on long-term clinical outcomes.

Overall, the clinical evidence indicates that CVHCs deliver meaningful health benefits for individuals when they move beyond risk detection alone and are embedded in structured, longitudinal prevention pathways.

4.2 Economic value

The economic value of CVHCs lies in their ability to translate earlier and systematic identification of cardiovascular risk into population-level changes in healthcare use that can be assessed economically. The reviewed evidence shows that CVHCs generate economic outcomes across a continuum of effects, from short-term changes in healthcare resource use to longer-term cost-effectiveness and return-on-investment estimates **(Table 3)**. The health economic evidence is primarily derived from modelling studies and programme evaluations conducted in European settings.

Table 3

Availability of evidence related to the economic domain.

The table summarises the main economic outcome areas assessed in the evidence base, indicating the typical data collection timeframe, the availability (♡ Low: 1–2 studies, ♡♡ Medium: 3–5 studies, ♡♡♡ High: >5 studies) and the types of data sources.

Economic outcome area	Data collection timeframe	Evidence availability	Data sources
Healthcare resource utilisation	Short-term/long-term	♡♡	Real-world and observational evidence, interventional clinical evidence, modelling evidence
Cost-effectiveness	Long-term	♡♡♡	Modelling evidence
Return on investment (ROI)	Long-term	♡	Modelling evidence
Healthcare system sustainability	Long-term	♡	Real-world and observational evidence, modelling evidence

Healthcare resource utilisation

Out of the 41 reviewed papers, four papers report findings about the utilisation of healthcare resources on CVHCs [27, 31, 36, 41], revealing that quantitative assessments on this topic are limited for the geography and time period in scope for the review. Overall, the evidence indicates a consistent pattern across programmes: higher healthcare use in the short term, the potential for reductions in selected high-cost services over time, and the greatest economic value when CVHCs effectively identify and engage populations at highest cardiovascular risk.

Case Study

Structured Chronic Disease Management Programme (Ireland)

Ireland's Structured Chronic Disease Management (CDM) Programme – launched in 2020 – is a GP-delivered, structured care programme designed to prevent and manage chronic disease using a population-based approach, including type 2 diabetes, asthma, COPD and cardiovascular disease (such as heart failure, ischaemic heart disease, stroke and atrial fibrillation).

The programme is organised into three linked components: (1) Opportunistic Case Finding (OCF), which assesses eligible individuals who may have an undiagnosed chronic disease or elevated risk of developing one; (2) the Structured Chronic Disease Treatment Programme for individuals diagnosed with one or more chronic conditions; and (3) the Prevention Programme, which includes annual reviews for adults at high risk of cardiometabolic diseases [59].

The programme has become notably popular with both general practitioners (approximately 97% participation) and the eligible population (over 400,000 cumulative enrolments, with around 80% uptake across age groups). Longitudinal programme data show that participants experienced 30% fewer emergency visits and 26% fewer hospital admissions, with marked improvements in blood pressure, LDL cholesterol and HbA1c [59, 81].

CVHCs are associated with increased healthcare utilisation in the short term. By their nature, CVHCs increase short-term healthcare utilisation by triggering an increase in primary care consultations, diagnostic testing, advice sessions, referrals and initiation of preventive medications. Initial increases in utilisation largely reflect early diagnostic activity and entry into structured care pathways for individuals with newly identified risk factors. In a quasi-randomised study related to the NHS Health Check, age- and sex-adjusted odds ratios for weight advice and referral ranged between five and ten times higher than controls depending on the socioeconomic status of the participants [27]. A matched cohort study also found that attendance at a CVHC was associated with increased delivery of risk factor management interventions over six years of follow-up[8] [26]. Modelling related to the NHS Health Check estimated the per-patient cost of delivering the CVHC at 179GBP[9] [36].

Over the longer term, CVHCs may enable a reduction in high-intensity healthcare use. Evidence from programmes linked to structured follow-up pathways suggests that initial increases in utilisation may be accompanied by reductions in selected forms of primary and specialised care over time. For example, Ireland's Chronic Disease Management Programme (CDMP) showed encouraging increases in routine follow-up visits, vaccination rates and lifestyle counselling as newly identified, at-risk patients enter long-term care, alongside reductions in both primary and specialised care. Reported impacts included 33% fewer out-of-hours GP visits among more than 400,000 participants, as well as 30% fewer emergency visits and 26% fewer hospital admissions within the first years of programme implementation [31]. Despite the expected short-term costs, real-world programme data indicate the potential for long-term reductions in selected high-cost services.

The largest potential economic gains emerge when CVHCs identify individuals with high cardiovascular risk. One modelling study estimated that if all individuals with one or more high-risk conditions – including hypertension, high cholesterol, type 1 and 2 diabetes, non-diabetic hyperglycaemia, atrial fibrillation and chronic kidney disease – were detected through NHS Health Check and complementary diagnostic interventions[10] and then treated according to current practice, 68bnGBP[11] could be saved over 25 years across the NHS

8 Potential adaptations in the need for specialist healthcare resources were not assessed in the study.

9 Corresponding to approximately 207EUR using the average exchange rate for March 2026 (European Central Bank (ECB) reference exchange rate GBP to EUR = 1.1543).

10 Complementary interventions include annual review for people with a pre-existing, high-risk condition, cascade testing for familial hypercholesterolaemia and opportunistic diagnosis.

11 Corresponding to approximately 78.5bnEUR billion using the average exchange rate for March 2026 (see footnote 9).

and the social care system [41]. Identified drivers of value included high level of engagement with the initial health check and follow-up, guideline-informed care and subsequent prevention of CVD and microvascular complications of diabetes. Similarly, modelling related to Lipoprotein(a) [Lp(a)], a genetically determined risk factor, assessed that its testing in primary prevention could enhance risk stratification and lead to the prevention of 60 myocardial infarctions, 13 incident strokes and 26 deaths in a population of 10,000 individuals aged between 40 and 69 years without a CVD diagnosis [42].

Cost-effectiveness

Cost-effectiveness evaluations show whether an intervention provides good value for money by comparing its costs with the health benefits it delivers – the latter being typically expressed as gain in quality-adjusted life years (QALYs).

In this section, evidence from twelve studies is reviewed to examine how CVHCs perform against commonly applied cost-effectiveness thresholds under different programme designs and assumptions and across multiple health systems. Several studies examine England's NHS Health Check programme, including modelling of case-finding strategies [43], systematic literature reviews to identify optimal prevention approaches [44], microsimulation analyses of long-term and equity impacts, national economic modelling [45] and distributional comparisons of population-wide versus targeted screening [46]. Broader UK-focused evidence evaluates the cost-saving potential of improved management of high-risk conditions [41] and assesses the overall value of population health checks [36]. Complementing UK studies are EU evaluations of CVHCs in specific clinical populations [47], as well as trial-based population programmes in Croatia [23], Denmark [48] and Sweden [49]. A detailed list is included in **Appendix 4**.

Across these diverse contexts[12], the studies reviewed indicate that structured, population-level CVHCs – whether broad or targeted – can be cost effective, particularly when implemented at scale and linked to timely diagnosis and evidence based follow-up care. Differences in results predominantly arise from variations in population risk profiles, programme design and modelling assumptions.

12 While cost-effectiveness estimates are context specific and not directly transferable across countries due to differences in costs, service delivery organisation and epidemiology, the underlying drivers of economic value identified in each study are likely to be broadly applicable across European health systems.

CVHCs generally emerge as cost-effective interventions when delivered at scale and linked to evidence-based treatment pathways. Across the studies reviewed, the evidence indicates that CVHCs can be cost effective, although estimates vary depending on population risk, programme design and key modelling assumptions. Several UK modelling studies suggest that structured assessment followed by evidence-based management can achieve incremental cost-effectiveness ratios (ICERs)[13] within or below commonly accepted cost-effectiveness thresholds [36, 43–45]. These models typically project measurable gains in QALYs and reductions in future cardiovascular events when health checks successfully identify individuals with untreated hypertension, elevated lipids, diabetes risk, BMI or multimorbidity. Evidence also comes from Sweden, where economic modelling of Uppsala County's targeted health check for 40 year olds found the programme to be cost effective, with an estimated cost of 29,757SEK per QALY[14] over a 45-year horizon – a level described as low by the authors, based on local standards [49]. The intervention was projected to generate 62 QALYs through avoided illness and delayed mortality, and its cost-effectiveness compared favourably with other preventive measures examined by the authors.

13 ICER is a measure used to compare two health interventions. It shows how much extra cost is needed to gain one extra unit of health benefit when moving from e.g. routine care to the proposed/tested intervention e.g. dedicated health check.

14 Corresponding to approximately 2,764EUR using the average exchange rate for March 2026 (ECB exchange rate SEK to EUR = 0.0929).

Cost-effectiveness increases when CVHCs are followed by timely treatment initiation and ongoing follow-up. A consistent finding across the reviewed literature is that the value of CVHCs depends heavily on what happens after the initial intervention. The most favourable cost-effectiveness results occur in scenarios where screening is tightly linked to timely treatment initiation, risk factor control and ongoing follow-up. For example, in modelling scenarios with varying treatment initiation probability, it was observed that increased treatment initiation (for example, statin and/or antihypertensive medication tailored to risk profile) was associated with greater QALY gains [41, 43, 50]. Overall, the evidence supports the view that CVHCs can provide good value for money, particularly when implemented as part of a coherent pathway that moves individuals from initial risk identification to consistent, clinical guideline-recommended management. Variability in cost-effectiveness arises mainly from differences in assumptions about uptake, adherence, baseline risk and programme intensity rather than from the concept of health checks themselves.

Targeting and risk stratification tend to improve the cost-effectiveness of CVHCs. Targeted strategies, such as focusing on individuals in higher-risk quintiles or those in socioeconomic deprivation, usually deliver greater efficiency per person screened – or lower ICERs – by concentrating resources where baseline risk, and therefore absolute health gain, is greatest [43, 46]. Distributional cost-effectiveness analyses further indicate that targeting deprived groups can simultaneously improve equity and strengthen cost-effectiveness compared with uniform population coverage, particularly with constrained budgets [46]. Related evidence from targeted screening approaches in specific high-risk or biomarker-defined populations, while operationally distinct from population-wide CVHC programmes, illustrates the same underlying economic mechanism. Screening strategies focused on specific high-risk groups – such as individuals with rheumatoid arthritis, obesity, elevated Lp(a) or women identified with high-sensitivity troponin I – tend to show a favourable economic profile when screening triggers effective risk-reducing therapies, with ICERs often reported within or below conventional thresholds [42]. For example, the Lp(a) modelling study showed that Lp(a) testing to identify high-risk individuals was cost saving in the UK, reducing overall healthcare costs by 3,491GBP per QALY[15] gained.

15 Corresponding to approximately 4,030EUR using the average exchange rate for March 2026 (see footnote 9).

Combining CVHCs with structural policies that enable lower population-level risk can accelerate the realisation of economic value. An additional driver of cost-effectiveness is the combination of CVHCs with population-level structural policies that reduce modifiable cardiovascular risk factors, such as obesity and diabetes. Economic modelling of the NHS Health Check programme in Liverpool showed that, when implemented alone, the programme was unlikely to become cost effective before 2040; however, when combined with wider structural interventions – such as mandatory salt reformulation, a 20% tax on sugar sweetened beverages, increased fruit and vegetable consumption and stricter tobacco control – the cost-effectiveness of the programme improved substantially and could be achieved within shorter, medium-term time horizons [50]. The modelling further indicated that the value of the Health Check increased more strongly when population-wide structural policies were combined with higher coverage and uptake in deprived areas, where individuals tend to have higher baseline risk [50].

CVHC design and implementation elements can shape the cost-effectiveness of CVHC programmes. Across the evidence base, several factors consistently shape the cost-effectiveness of CVHCs, predominantly based on UK-generated evidence. First, population-risk targeting strategy is a major determinant: programmes that reach higher-risk or more deprived groups achieve more favourable ICERs because each participant has greater potential for risk reduction – and therefore they enable an effective use of resources [43, 50]. In parallel, broader population-level approaches generate the largest absolute health gains overall due to the fact that they cover far more people – even if the average benefit per person is smaller. Second, cost-effectiveness is strongly influenced by uptake and treatment adherence, with lower attendance or poor follow-through markedly reducing expected QALY gains [45, 50]. Third, the quality of post-screening management is another central driver: modelling shows that large health and economic gains are realised when detection is accompanied by effective management of hypertension, lipid levels, obesity and diabetes [41, 44]. Finally, cost-effectiveness also varies with test and delivery costs, as biomarker-based additions such as Lp(a) or high-sensitivity troponin I are only cost-effective when tests are affordable and linked to clear treatment pathways [23, 42]. Overall, the most favourable outcomes arise when programmes combine appropriate targeting with high uptake, timely treatment initiation and effective engagement of individuals at elevated cardiovascular risk.

Return on investment

Of the twelve health economic studies reviewed, only one explicitly estimated the return on investment (ROI) of a CVHC, focusing on the NHS Health Check and drawing on the Liverpool microsimulation model [50]. The analysis shows that, while the programme increases costs in the short term, it generates clear, long-term economic returns, as avoided heart attacks, strokes and other cardiovascular events reduce the need for emergency and specialised care.

CVHCs can generate positive ROI over the long term, with value strengthening under targeted and well-managed implementation. The available evaluation shows that net financial savings emerge progressively as avoided cardiovascular events reduce downstream healthcare use, reflecting long-term savings that accumulate over extended time horizons. For the current NHS Health Check, the modelling indicated that the ROI would become positive (ROI>1) by 2040 and that the estimated long-term return would reach 2.93GBP for every GBP invested when compared with a no-programme scenario. Scenario analyses further demonstrated that refining programme design can markedly enhance these returns: for example, the economic value of the NHS Health Check was shown to be greatest when higher uptake and effective post-check management are achieved **(Table 4)** [50]. In other words, although short-term costs and service use rise, longer-term savings accrue as major cardiovascular events are averted, with ROI improving over extended horizons and selected implementation scenarios.

Table 4

Societal return on investment (ROI) of alternative NHS Health Check implementation scenarios.

The table compares lifetime societal return on investment (ROI) across selected programme design scenarios and indicates whether a positive return (ROI > 1) is likely to be achieved within the first 20 years (by 2040). Adapted from Office for Health Improvement & Disparities, 2021 [45].

NHS Health Check Scenario	ROI societal perspective over a lifetime horizon	Likely (80%) that a ROI >1 will be reached by 2040
Current NHSHC	2.93	**Yes**
Invite people from age 30 (vs current age 40)	1.96	No
Increase uptake in most deprived areas	5.81	No
Increase health check uptake to 60% (vs current 52%)	3.55	No
Increase health check uptake to 75%	2.95	**Yes**
Increase health check uptake to 90%	3.27	**Yes**
Improve the effectiveness of follow-up behavioural interventions	5.18	**Yes**

Healthcare system sustainability

Evidence on the broader, system-level impact of CVHCs is limited, and most studies focus primarily on clinical or cost-effectiveness outcomes rather than direct measures of system resilience or population-wide economic gains. Still, the available evidence provides indicative insights into potential system-level value, while also highlighting important gaps.

CVHCs are promising strategies to improve system resilience and sustainability by enabling more efficient allocation of healthcare resources. Modelling studies using the IMPACT-NCD framework [45, 50] suggested that larger reductions in cardiovascular events could translate into lower long-term demand for healthcare services [50]. Scenarios that combine CVHCs with stronger treatment initiation, follow-up support or structural risk reduction policies projected substantial reductions in coronary heart disease and stroke, which are major drivers of downstream healthcare costs [50]. These projections showed large cumulative savings from a healthcare and social care perspective, but they did not directly measure system resilience or capacity effects; rather, they implied that fewer acute events could ease future service pressure. Moreover, real-world evidence from Ireland's Chronic Disease Management Programme showed short-term reductions in emergency visits and hospital admissions among participants [31]. This suggests that strengthening cardiovascular risk management may reduce unplanned care. Similarly, modelling of improved detection and treatment of high-risk cardiovascular conditions in England estimated long-term savings to the health and social care system.

Economic value summary

Short-term economic value
CVHCs are associated with higher short-term healthcare costs, reflecting programme delivery, diagnostic testing, treatment initiation and follow-up care. These upfront investments are typical of preventive programmes and precede the realisation of economic returns.

Long-term economic value
Over extended time horizons, CVHCs can generate positive economic returns as earlier identification and management of cardiovascular risk reduce major cardiovascular events and the need for costly emergency and specialised care. Modelling evidence indicates that returns on investment strengthen over time, with cumulative savings exceeding costs over the medium to long term.

Key drivers of cost-effectiveness and ROI
Economic outcomes depend strongly on programme design and implementation. Cost-effectiveness and ROI improve when CVHCs are delivered at scale, achieve high uptake and are linked to timely treatment initiation and effective follow-up. Targeting higher-risk populations further enhances economic value by increasing health gains per participant.

Programme design and policy context
Economic modelling indicates that the value of CVHCs is enhanced when embedded within broader prevention strategies including population-level risk reduction policies, which bring forward economic benefits and amplify long-term returns compared with CVHCs delivered in isolation.

Taken together, the evidence indicates that CVHCs represent a long-term investment in health system efficiency rather than a short-term, cost-saving intervention, with value emerging gradually and strengthening under well-designed programmes that prioritise reach, follow-up and risk-appropriate care.

4.3 Societal value

CVHCs create value that extends beyond clinical and economic outcomes by influencing equity, productivity, quality of life and broader societal outcomes. While economic evaluations traditionally focus on cost-effectiveness and healthcare savings, the wider evidence base shows that prevention programmes also shape how benefits and risks are distributed across populations, support individuals' ability to work and participate socially, and contribute to long-term well-being through reductions in morbidity and improved quality of life. Together, these three dimensions provide a structured framework for assessing the full societal value of cardiovascular prevention **(Table 5)**.

Table 5

Availability of evidence related to the societal domain.

The table summarises the main societal outcome areas assessed in the evidence base, indicating the typical data collection timeframe, the availability (♡ Low: 1–2 studies, ♡♡ Medium: 3–5 studies, ♡♡♡ High: >5 studies) and the types of data sources.

Societal outcome area	Data collection timeframe	Evidence availability	Data sources
Equity	Short-term/long-term	♡♡	Real-world and observational evidence, interventional clinical evidence, modelling evidence
Productivity	Long-term	♡	Modelling evidence
Quality of life	Long-term	♡♡	Modelling evidence

Equity

Out of the 41 reviewed papers, six report findings related to equity of CVHCs [14, 35, 45, 46, 49, 50]. The evidence indicates that CVHCs have meaningful potential to reduce health inequalities. The strongest equity gains arise when programmes prioritise high-risk or socioeconomically deprived groups, employ tailored outreach strategies and ensure effective treatment initiation after risk identification [35, 45, 46, 50]. Without targeted engagement, population-wide programmes may risk reinforcing existing inequalities [14].

CVHCs that include a targeted approach are associated with the strongest equity gains. UK modelling evidence shows that CVHCs can strengthen equity when programmes include a deliberate focus on socioeconomically deprived or high-risk groups [51]. The Liverpool microsimulation demonstrates

that increasing uptake and treatment follow-up among the most deprived quintile leads to substantially greater QALY gains per participant, reflecting the higher baseline cardiovascular risk in these populations [50]. Similarly, a cost-effectiveness analysis found that directing additional programme effort towards the most deprived fifth of the population generates more favourable ICERs due to larger absolute risk reduction in those communities [46]. Together, these studies show that, while CVHCs can be delivered broadly, additional targeting of high-risk or underserved groups enhances their potential to reduce health inequalities.

Improving participation among underserved groups requires tailored outreach. Equity of access critically depends on who actually attends health checks, and the available evidence points to persistent participation gaps. Modelling based on real-world data showed that participation in CVHCs tended to be lower among more socioeconomically deprived groups, indicating that those at highest cardiovascular risk are often hardest to reach. An evaluation of IQWiG[16] similarly found that that participation in health checks varied by socioeconomic status, migration background and health literacy, leading the authors to conclude that target-group-specific outreach is necessary to improve uptake among underserved populations[17][14]. Behavioural evidence further suggested that engagement following the CVHC is uneven: the Inter99 trial indicated that the response to screening and lifestyle counselling can differ across genders both in extent of behavioural change and maintenance over time [35].

16 IQWiG (Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen) is the German national health technology assessment body, responsible for evaluating the clinical effectiveness of medical interventions, the cost-effectiveness of drugs, diagnostics and preventive programmes, and the quality and robustness of evidence used in decision making.

17 Target groups identified by IQWiG include adults with low socio-economic status, women, men with health risks (e.g. nicotine consumption and suboptimal diet and physical activity) and adult immigrants.

Productivity

CVHCs can contribute to productivity by improving mental health and reducing the burden related to type 2 diabetes, obesity, coronary heart disease, stroke and other conditions that limit work capacity through premature mortality, disability or recurrent absenteeism. Out of the 41 reviewed papers, one quantified productivity gains [50], suggesting that preventing or postponing cardiovascular events in working-age adults yields meaningful long-term economic gains.

Preventing coronary heart disease, obesity and stroke can reduce long-term productivity losses. Productivity losses arise when individuals lose working years due to cardiovascular-related morbidity and premature mortality. The Liverpool microsimulation incorporated these productivity losses into disease-cost inputs and showed that delaying or preventing CVD onset gradually produces productivity savings as individuals age into higher-risk periods [50]. Over a 30-year horizon, all programme scenarios tested in the modelling generated productivity gains, with the largest effect seen in the scenario combining the current NHS Health Check with targeted engagement and structural diet and tobacco-related interventions. This scenario produced approximately 26mGBP in productivity savings by 2040, representing a 23mGBP[18] improvement compared with the current programme alone [50].

Quality of life

Preventing major cardiovascular events through CVHCs can deliver meaningful improvements in health-related quality of life. Across the reviewed evidence, quality of life benefits are primarily captured through gains in QALYs or life years lived in better health, reflecting both increased survival and reduced morbidity. These gains arise when earlier identification of cardiovascular risk leads to timely treatment, avoidance of severe events, and prolonged periods of independent and symptom-free living, with particularly pronounced effects among individuals at higher baseline risk.

Health-related quality of life improves when major cardiovascular events are prevented. Modelling studies consistently show that avoiding or postponing cardiovascular events translates into measurable improvements in health-related quality of life. For example, the Liverpool microsimulation estimated meaningful QALY gains across all implementation scenarios, with larger improvements

18 Corresponding to ≈ 30mEUR, representing a ≈ 26.4mEUR improvement, based on the European Central Bank's monthly average exchange rate for March 2026 (0.8688GBP = 1EUR).

observed when treatment initiation, follow-up and structural risk reduction policies were incorporated, reaching several thousand cumulative QALYs by 2040 [50]. These long-term improvements reflect not only gains in survival, but also additional years lived with fewer symptoms, reduced disability and better functional capacity.

Targeted and high-risk screening strategies deliver marked improvements in health-related quality of life. Several evaluations show that individuals with elevated cardiovascular risk experience substantial QALY or life-year gains when early detection leads to timely treatment. In rheumatoid arthritis, cardiovascular screening improved QALYs by preventing events in a group with markedly higher baseline risk [47]. The Lp(a) testing evaluation similarly showed 217–255 QALYs gained per 10,000 adults compared with no programme, reflecting the quality-of-life benefit of identifying genetically elevated risk before symptoms develop [42]. High-sensitivity troponin I-guided assessment in women produced additional QALY gains by improving identification of cardiovascular risk compared with no risk assessment [23]. Lastly, trial-based evidence from the Danish DANCAVAS study among older men reported 0.034 life-years gained per invitee; while modest at the individual level, these gains reflect the avoidance of severe, life-altering events such as heart attacks or strokes, improving both the length and quality of remaining life [48].

Case Study

NHS Health Check (UK)

The NHS Health Check, launched in 2009, is a population-based preventative programme designed to assess cardiovascular risk and identify related conditions such as type 2 diabetes and kidney disease among adults aged 40–74 years. Eligible individuals are invited every five years, with the primary aim of detecting 'silent' risk factors – most notably, high blood pressure and high cholesterol – at an early stage, thus enabling timely preventive action to reduce future disease risk [76].

In practice, local councils or general practitioners invite eligible individuals to attend a health check, which typically lasts around 20–30 minutes. The assessment includes core measurements and tests, alongside structured questions on lifestyle and family medical history. Results are used to estimate a 10-year cardiovascular risk score, which informs follow-up actions such as lifestyle advice, referral or initiation of preventive treatment, depending on the level of risk identified [77].

Between 2011 and 2020, more than 11.7 million individuals attended an NHS Health Check, corresponding to a cumulative uptake of approximately 48%. Accumulating evidence suggests that participation is associated with improvements in risk factor management, including BMI, smoking, blood pressure and total cholesterol. Moreover, people who attended the health check experienced a 20% lower likelihood of hospital admission for CVD and a halved likelihood of hospital admission for type 2 diabetes, death from CVD and all causes of death at five years after attending a check [45].

Societal value summary

Broader societal value
CVHCs shape how benefits and risks are distributed across populations, support individuals' ability to remain socially and economically active and reduce the long-term burden of morbidity and functional impairment.

Equity and access
CVHCs can contribute to reducing health inequalities, with the strongest distributional benefits arising when programmes prioritise higher-risk and socioeconomically disadvantaged groups, actively address participation barriers and ensure effective follow-up after risk identification. In contrast, population-wide delivery without targeted engagement may risk reinforcing existing inequalities if uptake remains socially patterned.

Productivity and participation
By preventing or delaying cardiovascular disease during working age, CVHCs can reduce productivity losses associated with premature mortality, disability and recurrent absenteeism. Modelling evidence suggests that these productivity gains accumulate gradually over time and are greatest when health checks are combined with targeted engagement and broader risk reduction policies.

Quality of life
Across settings, CVHCs are associated with gains in health-related quality of life, reflected in increased QALYs or life-years lived in better health. These benefits arise from both longer survival and extended periods free from major cardiovascular events, disability and loss of functional independence, with particularly pronounced gains among individuals with higher baseline cardiovascular risk.

05 Recommendations and way forward

Evidence indicates that cardiovascular health checks generate value primarily when they are well designed and linked to care pathways. Broad access, effective follow-up and integration into primary care emerge as critical enablers, while weak implementation limits impact.

5.1 What the evidence tells us about the value of cardiovascular health checks

The review of clinical, economic and societal evidence indicates that CVHCs targeted at the adult population[19] can deliver substantial value when they are

19 Across the evidence base, CVHCs are most commonly implemented from mid-life onwards, with programmes typically targeting adults between approximately 30–40 and 75 years of age, reflecting the progressive increase in cardiovascular risk across the adult life course.

designed and implemented as part of a structured and sustained approach to cardiovascular health management. Across the evidence base, the measured impact varies by programme design, target population and degree of integration into care pathways, but the overall direction of findings is consistent.

From a clinical perspective, the evidence indicates that the principal value of CVHCs lies in their ability to enable earlier identification and management of cardiovascular and cardiometabolic risk. Across the studies reviewed, CVHCs consistently improve the detection of previously undiagnosed risk factors and interlinked conditions, including hypertension, dyslipidaemia, diabetes, obesity and chronic kidney disease, compared with routine or symptom-based care [30]. Clinical benefits are most evident when health checks are linked to structured follow-up and ongoing prevention pathways. Programmes that combine broad access with risk-stratified or stepwise approaches – allowing more intensive follow-up for individuals at higher baseline risk – show higher diagnostic yield and stronger treatment initiation [16, 20, 27, 34]. Longer-term evidence further suggests that sustained CVHC programmes, embedded within integrated prevention strategies, are associated with reductions in cardiovascular events and mortality, whereas isolated or one-off screening initiatives deliver limited long-term impact. Overall, the clinical evidence indicates that CVHCs deliver meaningful health gains when early risk detection is accompanied by timely treatment initiation and sustained risk factor management over time.

From an economic perspective, the evidence indicates that CVHCs lead to a short-term increase in healthcare utilisation, reflecting higher diagnostic activity, referrals and treatment initiation. Over the medium to long term, however, the evidence indicates reductions in emergency visits, hospital admissions and high-cost acute events [52]. Cost-effectiveness evaluations across different countries generally find that CVHCs fall within accepted thresholds when implemented at scale and supported by evidence-based follow-up [49, 50]. Evidence on return on investment remains limited, but available analyses suggest that existing programmes can generate positive long-term returns, which may be further strengthened through more refined targeting strategies and improved follow-up after risk identification [50]. Although direct evidence on wider health-system sustainability is still scarce, modelling studies and programme evaluations indicate that preventing major cardiovascular events can reduce long-term pressure on healthcare systems [53, 54] while also improving quality of life for patients and supporting workforce participation and broader societal resilience.

From a societal perspective, the reviewed evidence highlights the potential of CVHCs to generate value that extends beyond clinical outcomes and healthcare costs, most notably by advancing equity. Several studies show that CVHCs can help reduce health inequalities when programmes explicitly address barriers to participation and prioritise outreach to underserved populations, who often carry a higher baseline cardiovascular risk [43, 45, 50]. Evidence further suggests that

targeting higher-risk or socioeconomically disadvantaged groups can enhance societal returns, as greater absolute risk reduction translates into larger gains in quality of life and longer periods lived in good health [50]. While evidence on productivity effects is more limited, preventing or delaying cardiovascular events may also contribute to sustained participation in work and social life, particularly in working-age populations [50]. Overall, the societal value of CVHCs appears greatest when programmes succeed in reaching those most likely to benefit and in maintaining engagement over time.

Overall, the evidence presents a coherent picture: CVHCs can produce meaningful clinical, economic and societal gains when they are part of structured, risk-focused and longitudinal integrated prevention pathways that acknowledge the interconnectedness of chronic diseases such as CVD, diabetes, obesity and kidney disease. While the magnitude of benefit varies across programme designs and populations, the direction of effect across the evidence base is consistent – indicating that well-implemented CVHCs represent a valuable component of comprehensive cardiovascular health management strategies for the adult population, with value delivered to individuals, healthcare systems and society overall **(Figure 4)**.

Figure 4

The value of cardiovascular health checks across individuals, health systems and society.

Cardiovascular health checks have the potential to deliver value for individuals, health system performance and wider social and economic outcomes.

Value to individuals

- Earlier identification of previously undiagnosed conditions
- Timely and higher rates of treatment initiation
- Meaningful improvements in risk factor management, particularly among individuals with elevated baseline values
- Reduction in preventable cardiovascular events and lower cardiovascular and all-cause mortality over the long term

Value to health systems

- Shift from reactive, acute care to proactive, prevention-oriented management of chronic cardiometabolic conditions
- Earlier identification and management of high-risk individuals, helping avert future cardiovascular events and complications
- Opportunity for medium- and long-term savings across primary and secondary care resources
- Opportunity for stronger health system sustainability and resilience over time

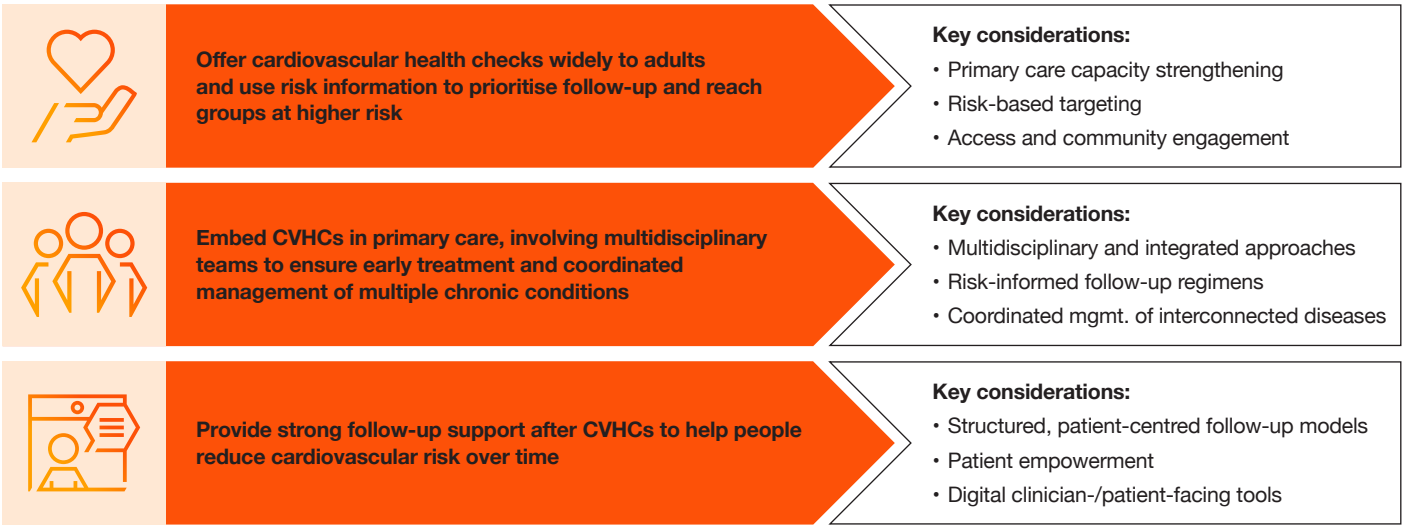
Value to society

- Productivity gains from the prevention or delay of cardiovascular events among working-age adults
- Increased social and economic participation driven by improved quality of life and more years lived in good health
- Long-term economic returns from healthier, more productive populations
- Opportunity for equitable outcomes, particularly through targeted programmes

Figure 5

Evidence-based recommendations to unlock the value of CVHCs.

CVHCs can deliver additional clinical, economic and societal benefits if their design and delivery are informed by accumulated evidence and implementation experience. CVHC: Cardiovascular Health Check.



5.2 Evidence-informed recommendations for cardiovascular health check design and implementation

The evidence reviewed in this report demonstrates that the impact of CVHCs depends less on the screening activity itself and more on the design features that determine who is reached, how individuals are managed after detection and how programmes connect with broader prevention policies. Building on this evidence and informed by established policy discussions and broader principles of chronic disease prevention and management, this section translates clinical, economic and societal insights into three policy-relevant recommendations to support Member States in strengthening the design and implementation of CVHCs **(Figure 5)**.

1 Offer cardiovascular health checks widely to adults and use risk information to prioritise follow-up and reach people at higher risk

Broad, age-based CVHC programmes remain an essential foundation for cardiovascular prevention in many Member States. In practice, the ability to proactively identify individuals at high cardiovascular risk is often constrained by limited data availability, incomplete primary care records and the lack of fully interoperable digital health systems [55, 56]. As a result, offering CVHCs to broad adult populations from mid-life onwards is frequently the most feasible and equitable entry point for early risk identification, particularly where prevention would otherwise depend on opportunistic contact with the health system [57, 58].

Within such broad approaches, Member States can apply risk-stratified and targeted strategies to guide follow-up, intervention intensity and resource allocation, using information generated through the health check itself. This layered model, which combines broad population access with risk-proportionate action, allows programmes to balance feasibility, scale and efficiency – especially in a context of constrained resources and workforce shortages – while avoiding the exclusion of individuals whose risk is not yet recognised in routine care. Given that uneven uptake remains a key limitation of CVHC programmes, Member States should therefore complement broad access with targeted and measurable outreach strategies for socioeconomically disadvantaged populations, migrants, individuals with lower health literacy and those less engaged with healthcare services. This may include the use of tailored communication, community-based delivery models, flexible access points and collaboration with patient organisations, community leaders and civil-society actors to actively engage underserved and higher-risk groups.

2 Embed CVHCs in primary care, involving multidisciplinary teams to ensure early prevention, treatment and coordinated management of multiple chronic conditions

The evidence presented in Chapter 7 shows that CVHCs deliver the largest clinical benefit when they are embedded within primary care and linked to consistent follow-up, rather than as stand-alone screening activities. Integration into routine care pathways ensures that risk factors identified during screening lead to timely initiation of guideline-recommended therapies, sustained monitoring and coordinated referral across multidisciplinary care professionals, alongside relevant specialists, including GPs, cardiologists, endocrinologists, nurses and dietitians [16, 20, 45, 59].

Embedding CVHCs within routine primary care pathways also supports the early identification and integrated management of interconnected chronic conditions, including obesity, diabetes, chronic kidney disease and liver disease, which often coexist and amplify cardiovascular risk. As shown across the reviewed clinical and economic evidence, continuity of care and structured follow-up are central to achieving durable improvements in risk factor control and downstream health outcomes.

For Member States, this points to the importance of strengthening the delivery context in which CVHCs are implemented. Investments in robust primary care capacity, multidisciplinary team models, adherence to clinical guidelines, and interoperable data systems for follow-up and monitoring are central to

translating early risk identification into sustained risk reduction. When CVHCs are implemented within such integrated care models, they trigger a shift from reactive, episodic care towards proactive, longitudinal cardiovascular risk management, with benefits extending beyond detection to more consistent prevention and management of chronic disease over time.

3 Provide strong follow-up support after CVHCs to help people reduce cardiovascular risk over time

Long-term outcomes depend heavily on how effectively patients are supported after a health check. Without targeted support, adherence to preventive therapies and lifestyle interventions declines over time [60]. Member States should prioritise structured, patient-centred follow-up models and referral protocols that provide clear guidance, ongoing motivation and timely adjustments to treatment. In addition to provider-led follow-up, empowering individuals to play an active role in their own risk management – including proactively engaging in follow-up actions – can strengthen adherence and continuity of care [61, 62].

Aligning care with clinical guidelines is essential, alongside the use of digital and organisational tools including automated reminders, remote monitoring, structured follow-up pathways and risk-based triggers, to support adherence and facilitate early action when risk factors remain uncontrolled. Such tools increasingly include clinician-facing decision support with patient-facing self-management and monitoring platforms, strengthening continuity of care and reinforcing shared responsibility between individuals and care teams [63, 64].

Following a diagnosis of CVD, timely and effective interventions are required (e.g. timely diagnosis of acute myocardial infarction and the provision of cardiac rehabilitation and post-acute care) to reduce the risk of further complications and improve patient outcomes.

Altogether, these recommendations reflect a clear conclusion from the evidence: CVHCs achieve the greatest impact when they are embedded in primary care, based on integrated approaches and designed to maximise equitable impact. Implementing these principles will enable Member States to make full use of the EU Safe Hearts Plan, reduce premature cardiovascular deaths and improve health system resilience and long-term societal well-being.

5.3 Dealing with contrasting data and scepticism

While the evidence summarised in the previous section points to the potential benefits of CVHCs, some studies report limitations or mixed findings [17, 39, 40, 48, 65–67]. In particular, the Cochrane systematic review concluded that general health checks do not reduce all-cause or cardiovascular mortality or morbidity [17]. While this review continues to shape perceptions among policymakers and clinicians, its findings must be interpreted in context. The review synthesises general and often one-off health checks conducted several decades ago and published between 1965 and 1999, with follow-up time for total mortality outcomes varying from four to 30 years. This implies that follow-up times may have not been sustained enough to measure long-term outcomes; furthermore, structured follow-up, guideline-aligned treatment protocols and risk-based management pathways may not have been consistently implemented and comparable to today's standards and practice. As such, the interventions assessed differ substantially from contemporary cardiovascular-specific, risk-stratified prevention programmes that emphasise longitudinal follow-up and integration into routine care.

However, the scepticism reflected in such reviews cannot be dismissed. Evidence from contemporary studies also shows inconsistent impact on clinically meaningful outcomes when health checks are poorly structured, implemented as single encounters or not linked to systematic follow-up. For example, advanced imaging-based screening such as in DANCAVAS demonstrated modest reductions in non-fatal cardiovascular events, but no mortality benefit and some measurable harm [48]. Similarly, programme evaluations emphasise challenges that limit real-world effectiveness, including suboptimal treatment initiation

and adherence, limited behavioural change and variable uptake – often lower in high-risk groups [14, 16, 35]. These issues are reflected in broader critiques questioning the 'medicalisation' of healthy individuals, risks of overdiagnosis and persistent uncertainties about long-term cost-effectiveness [68–70].

At the same time, more recent and programme-specific evidence shows a clearer pattern: structured, risk-stratified and longitudinally supported CVHCs generate earlier detection, higher treatment initiation, better risk factor management and – when embedded within community-based prevention – reductions in cardiovascular events and mortality (see **Chapter 7.1**). This divergence highlights that the debate is not about whether CVHCs 'work' in the abstract, but under which conditions they deliver value.

The presence of contrasting evidence therefore reinforces – rather than contradicts – the key implication of Chapter 7: programme design and approach to implementation are the determinants of impact. Negative or null findings usually derive from CVHCs without adequate follow-up, targeting or system integration. Conversely, positive findings across multiple recent European contexts show that when these intervention components are in place, CVHCs can contribute meaningfully to earlier intervention, improved outcomes and long-term prevention [28, 29, 34, 38].

5.4 Limitations of this research

Limited long-term outcome data are available for EU Member State CVHCs. Several EU Member State CVHC programmes report data on programme uptake and risk factor prevalence; however, long-term evaluations are less common. Longitudinal data are more complex to generate, costly and require specialised expertise in health economics and biostatistics to analyse and interpret linked short- and long-term data. This is an important consideration for decision-makers as the limitations in data generation do not equate to an absence of programme – or biomarker – value. Furthermore, the evidence around the ideal scope of measurements for CVHCs – especially on recently emerging biomarkers – is rapidly evolving and not fully captured within the scope of this study.

Data heterogeneity demands caution when drawing conclusions. CVHCs, both in routine practice across Europe and in trial settings, vary widely in design, target populations, actual uptake and implementation features. This heterogeneity, coupled with different healthcare system contexts, limits the ability to draw Europe-wide conclusions. In addition, the lack of standardised data collection and outcome measures or varying follow-up duration limits generalisability of findings.

Observational evidence is subject to recognised limitations. In the context of CVHCs, several studies note that participation in voluntary health checks is not random: individuals who attend tend to be more health conscious, healthier at baseline or more engaged with healthcare services than non-attendees. This introduces self-selection bias. In addition, other confounding factors – such as underlying care-seeking behaviour or concurrent preventive interventions – make it difficult to attribute observed outcomes solely to the health check programme itself.

Lack of real-world data requires greater reliance on modelling approaches. In the absence of extensive long-term programme data, many studies resort to modelling approaches to estimate future health outcomes and cost-effectiveness of health checks. In addition, cost-effectiveness evaluations provide results that are context specific (including national utility values and healthcare system costs) and results are therefore assumption dependent with varying uncertainty. Furthermore, willingness-to-pay thresholds for health checks across Europe are heterogenous, meaning that what is considered cost effective or equitable in one context may not be in another. A formal critique on modelling approaches, costs and long-term health benefits of screening the general population for CVD risk has been carried out elsewhere [71].

5.5 Implications for future research

From a policy-making perspective, this study highlights the need for further research:

- Undertake long-term evaluations of EU Member State CVHC programmes, beyond short-term process measures, to support a 'health system learning' approach that quantifies value and identifies opportunities for improvement;
- Conduct robust return on investment studies that quantify the value delivered by CVHC programmes, including their role in enabling the early detection of other chronic diseases such as chronic kidney disease, diabetes and obesity;
- Assess how aligning CVHC programmes with wider and intersecting public health efforts could unlock clinical, economic and societal value synergies;
- Investigate how multi-sector partnerships can effectively improve public awareness of CVD prevention across diverse European populations given that cardiovascular risk remains widely undetected.

From an implementation perspective, this study highlights the need for further research:

- Investigate how best to integrate CVD health checks into routine care pathways;
- Identify cost-effective ways to reach and engage with high-risk groups, thus addressing the current lack of systematic targeting of those most at risk;
- Investigate how integrated disease approaches that acknowledge the interlink between major chronic conditions such as obesity, diabetes, chronic kidney disease and CV can be augmented in a standardised way across Europe.

Conclusions

CVD remains the leading cause of mortality in Europe, with progress in prevention and outcomes stalling in several Member States and inequalities widening both within and between countries. This persistence of a high and unequal cardiovascular burden points to a gap between what is clinically and economically feasible and what is currently delivered in practice. In this context, CVHCs represent a key population-level tool capable of systematically identifying risk early and enabling timely action before disease becomes clinically manifest.

This report shows that CVHCs can deliver meaningful clinical, economic and societal value. At the same time, this value is highly conditional on programme design and implementation: well-designed CVHCs deliver value when they function as entry points into sustained and coordinated prevention and care pathways, rather than as isolated screening events.

The adoption of the EU Safe Hearts Plan creates a timely opportunity for Member States to act on this evidence. By aligning CVHC programmes with strong primary care, multidisciplinary care models, structured follow-up and targeted outreach, Member States have an opportunity to strengthen early detection, support improved long-term cardiovascular outcomes and address persistent inequalities in CVD burden. Implemented in this way, CVHCs are not merely preventive checks but a strategic investment in population health, health system resilience and Europe's long-term social and economic well-being.

Bibliography

1. European Society of Cardiology, EU-27 Cardiovascular Realities [Internet]. 2026 [cited 27 January 2026]. Available from: https://www.flipsnack.com/escardio/eu-27-cardiovascular-realities-2025/full-view.html.
2. Eroglu, T., Capone, F. and Schiattarella, G.G., The evolving landscape of cardiometabolic diseases. EBioMedicine, 2024. 109: p. 105447.
3. Irish Heart Foundation, Summary of Primary Prevention of Cardiovascular Disease: Best Practices and Lessons for Ireland [Internet]. 2023 [cited 27 January 2026]. Available from: https://irishheart.ie/wp-content/uploads/2023/11/IHF_CVD_PP_Summary_SCREEN.pdf.
4. Organisation for Economic Co-operation and Development (OECD), The State of Cardiovascular Health in the European Union [Internet]. 2025 [cited 27 January 2026]. Available from: https://www.oecd.org/en/publications/the-state-of-cardiovascular-health-in-the-european-union_ea7a15f4-en.html.
5. Vervoort, D., et al., Addressing the Global Burden of Cardiovascular Disease in Women: JACC State-of-the-Art Review. J Am Coll Cardiol, 2024. 83(25): p. 2690-2707.
6. Khraishah, H., et al., Climate Change and Cardiovascular Disease: Who Is Vulnerable? Arterioscler Thromb Vasc Biol, 2025. 45(1): p. 23-36.
7. Luengo-Fernandez, R., et al., Economic burden of cardiovascular diseases in the European Union: a population-based cost study. Eur Heart J, 2023. 44(45): p. 4752-4767.
8. WifOR Institute, Healthy Returns: A Catalyst for Economic Growth and Resilience [Internet]. 2025 [cited 27 January 2026]. Available from: https://www.wifor.com/en/healthy-returns-a-catalyst-for-economic-growth-and-resilience-download-form/.
9. Hindricks, G., et al., Corrigendum to: 2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS): The Task Force for the diagnosis and management of atrial fibrillation of the European Society of Cardiology (ESC) Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC. Eur Heart J, 2021. 42(40): p. 4194.
10. Tokgozoglu, L. and Torp-Pedersen, C., Redefining cardiovascular risk prediction: Is the crystal ball clearer now? Eur Heart J, 2021. 42(25): p. 2468-2471.
11. European Commission, EU Cardiovascular Health Plan: The Safe Hearts Plan [Internet]. 2025 [cited 27 January 2026]. Available from: https://health.ec.europa.eu/non-communicable-diseases/cardiovascular-health_en.
12. Score 2 Working Group and ESC Cardiovascular risk collaboration, SCORE2 risk prediction algorithms: new models to estimate 10-year risk of cardiovascular disease in Europe. Eur Heart J, 2021. 42(25): p. 2439-2454.
13. European Society of Cardiology, Recommendations for EU-wide Cardiometabolic Health Checks [Internet]. 2026 [cited 27 January 2026]. Available from: https://www.escardio.org/news/news-room/recommendations-for-eu-wide-cardiometabolic-health-checks/.
14. Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (IQWiG), Zielgruppenspezifische Ansprache von Versicherten bei der Allgemeinen Gesundheitsuntersuchung. [Internet]. 2023 [cited 27 January 2026]. Available from: https://www.iqwig.de/download/p23-01_inanspruchnahme-allgemeine-gesundheitsuntersuchung_rapid-report_v1-0.pdf.
15. Sommer, I., et al., Stakeholders' perceptions and experiences of factors influencing the commissioning, delivery, and uptake of general health checks: a qualitative evidence synthesis. Cochrane Database Syst Rev, 2025. 3(3): p. CD014796.
16. Badenbroek, I.F., Evaluation of a Stepwise Prevention Program for Cardiometabolic Diseases in Primary Care [Internet]. 2020 [cited 27 January 2026]. Available from: https://www.nivel.nl/sites/default/files/bestanden/1003864.pdf.
17. Krogsboll, L.T., Jorgensen, K.J., and Gotzsche, P.C., General health checks in adults for reducing morbidity and mortality from disease. Cochrane Database Syst Rev, 2019. 1(1): p. CD009009.
18. Jousilahti, P., Primary prevention and risk factor reduction in coronary heart disease mortality among working aged men and women in eastern Finland over 40 years: population based observational study. BMJ, 2016. 352: p. i721.
19. Patel, R., et al., Evaluation of the uptake and delivery of the NHS Health Check programme in England, using primary care data from 9.5 million people: a cross-sectional study. BMJ Open, 2020. 10(11): p. e042963.
20. Stol, D.M., et al., Effectiveness of a stepwise cardiometabolic disease prevention program: Results of a randomized controlled trial in primary care. Prev Med, 2020. 132: p. 105984.
21. Robson, J., et al., NHS Health Check comorbidity and management: an observational matched study in primary care. Br J Gen Pract, 2017. 67(655): p. e86-e93.
22. Tanner, L., et al., NHS Health Check programme: a rapid review update. BMJ Open, 2022. 12(2): p. e052832.
23. Krstacic, G., et al., A cost-effectiveness evaluation of a high-sensitivity troponin I guided voluntary cardiovascular risk assessment program for asymptomatic women in Croatia. Int J Cardiol Cardiovasc Risk Prev, 2024. 20: p. 200244.
24. Laucevicius, A. et al., Primary prevention strategy for cardiovascular disease in Lithuania. Semin Cardiovasc Med, 2019. 25: 14-39.
25. Vilacosta I. and Villares J.E., PreveCardio: Cribado de los Factores de Riesgo Cardiovascular en CardioRed1 [Internet]. 2023 [cited 27 January 2026]. Available from: https://cardiored1.org/d3scargas/ORIGINAL-INTERNET-4.pdf.
26. Alageel, S. and Gulliford, M.C., Health checks and cardiovascular risk factor values over six years' follow-up: Matched cohort study using electronic health records in England. PLoS Med, 2019. 16(7): p. e1002863.
27. Kennedy, O., et al., Evaluating the effectiveness of the NHS Health Check programme in South England: a quasi-randomised controlled trial. BMJ Open, 2019. 9(9): p. e029420.
28. Kuneinen, S.M., et al., Multifactorial prevention program for cardiovascular disease in primary care: hypertension status and effect on mortality. J Hum Hypertens, 2024. 38(4): p. 322-328.

29. Vartiainen, E., The North Karelia Project: Cardiovascular disease prevention in Finland. Glob Cardiol Sci Pract, 2018. 2018(2): p. 13.
30. Debiec, R., et al., Evaluating the clinical effectiveness of the NHS Health Check programme: a prospective analysis in the Genetics and Vascular Health Check (GENVASC) study. BMJ Open, 2023. 13(5): p. e068025.
31. Health Service Executive, Structured Chronic Disease Management Treatment Programme [Internet]. 2025 [cited 27 April 2026]. Available from: https://www.hse.ie/eng/services/publications/primary/third-chronic-disease-report.pdf.
32. Meireles-Brandao, J.A., et al., Long-term outcomes of primary cardiovascular prevention: A retrospective study at a referral center in Portugal. Rev Port Cardiol, 2022. 41(8): p. 681-688.
33. Bordin, P., et al., Cardiovascular prevention in 50-year-old adults: An Italian intervention study. J Cardiovasc Med (Hagerstown), 2018. 19(8): p. 422-429.
34. Journath, G., et al., A Swedish primary healthcare prevention programme focusing on promotion of physical activity and a healthy lifestyle reduced cardiovascular events and mortality: 22-year follow-up of 5761 study participants and a reference group. Br J Sports Med, 2020. 54(21): p. 1294-1299.
35. Baumann, S., et al., The long-term effect of screening and lifestyle counseling on changes in physical activity and diet: The Inter99 Study - a randomized controlled trial. Int J Behav Nutr Phys Act, 2015. 12: p. 33.
36. Hinde, S., et al., The cost-effectiveness of population Health Checks: have the NHS Health Checks been unfairly maligned? Z Gesundh Wiss, 2017. 25(4): p. 425-431.
37. Gysan, D.B., et al., Substantial improvement of primary cardiovascular prevention by a systematic score-based multimodal approach: A randomized trial: The PreFord-Study. Eur J Prev Cardiol, 2017. 24(14): p. 1544-1554.
38. McCracken, C., NHS Health Check attendance is associated with reduced multiorgan disease risk: a matched cohort study in the UK Biobank. BMC Med, 2024. 22(1): p. 1.
39. Diederichsen, A.C.P., et al., User-defined outcomes of the Danish cardiovascular screening (DANCAVAS) trial: A post hoc analyses of a population-based, randomised controlled trial. PLoS Med, 2024. 21(5): p. e1004403.
40. Bernstorff, M., et al., A randomised trial examining cardiovascular morbidity and all-cause mortality 24 years following general health checks: The Ebeltoft Health Promotion Project (EHPP). BMJ Open, 2019. 9(10): p. e030400.
41. Thomas, C., et al., What are the cost-savings and health benefits of improving detection and management for six high cardiovascular risk conditions in England? An economic evaluation. BMJ Open, 2020. 10(9): p. e037486.
42. Morton, J.I., et al., Lp(a) testing for the primary prevention of cardiovascular disease in high-income countries: a cost-effectiveness analysis. Atherosclerosis, 2025. 409: p. 120447.
43. Crossan, C., et al., Cost effectiveness of case-finding strategies for primary prevention of cardiovascular disease: a modelling study. Br J Gen Pract, 2017. 67(654): p. e67-e77.
44. Mistry, H., et al., Determining optimal strategies for primary prevention of cardiovascular disease: systematic review of cost-effectiveness analyses in the United Kingdom. Health Technol Assess, 2022. 29(37): p. 1-61.
45. Office for Health Improvement & Disparities, Review of the NHS Health Check: Annex E: Health Economic Modelling [Internet]. 2021 [cited 27 January 2026]. Available from: https://assets.publishing.service.gov.uk/media/61af4e0fe90e07043e8ff4e9/annex-e-health-economic-modelling.pdf.
46. Collins, B., et al., Universal or targeted cardiovascular screening? Modelling study using a sector-specific distributional cost effectiveness analysis. Prev Med, 2020. 130: p. 105879.
47. Kievit, W., et al., Cost-Effectiveness of Cardiovascular Screening in Patients With Rheumatoid Arthritis. Arthritis Care Res (Hoboken), 2017. 69(2): p. 175-182.
48. Sogaard, R., et al., Cost effectiveness of population screening vs. no screening for cardiovascular disease: the Danish Cardiovascular Screening trial (DANCAVAS). Eur Heart J, 2022. 43(41): p. 4392-4402.
49. Region Uppsala, Är det Kostnadseffektivt att Erbjuda Riktade Hälsosamtal Till 40-åringar i Uppsala län? [Internet]. 2025 [cited 27 January 2026]. Available from: https://opengov.360online.com/Meetings/regionuppsala/File/Details/1322025.PDF?fileName=Uppskattning%20av%20kostnadseffektivitet%20riktade%20h%C3%A4lsosamtal&fileSize=540951.
50. Kypridemos, C., et al., Future cost-effectiveness and equity of the NHS Health Check cardiovascular disease prevention programme: Microsimulation modelling using data from Liverpool, UK. PLoS Med, 2018. 15(5): p. e1002573.
51. Mytton, O.T., et al., The current and potential health benefits of the National Health Service Health Check cardiovascular disease prevention programme in England: A microsimulation study. PLoS Med, 2018. 15(3): p. e1002517.
52. Irish College of GPs, GPs Welcome Success of Chronic Disease Management Programme [Internet]. 2025 [cited 27 January 2026]. Available from: https://www.irishcollegeofgps.ie/News/gps-welcome-success-of-chronic-disease-management-programme.
53. Ademi, Z., et al., Highlights from the manifesto on the health economics of cardiovascular disease prevention. Pharmacoeconomics, 2025. 43(11): p. 1281-1292.
54. PwC, Towards a New Normal: Why Boosting Cardiovascular Health is Critical [Internet]. 2022 [cited 27 January 2026]. Available from: https://www.pwc.ch/en/publications/2022/towards-a-new-normal.pdf.
55. World Heart Federation, World Heart Federation Roadmap for Digital Health in Cardiology [Internet]. 2022 [cited 27 January 2026]. Available from: https://world-heart-federation.org/wp-content/uploads/WHF_Digital_Health_Roadmap.pdf.
56. Tolani, E., et al., Mind the gaps: Literature survey reveals shortcomings in handling missing data in Clinical Practice Research Datalink (CPRD), a UK primary care health records database. Clin Epidemiol, 2025. 17: p. 875-889.
57. European Alliance for Cardiovascular Health (EACH), European Cardiovascular Health Plan: The Roadmap [Internet]. 2025 [accessed 23 January 2026]; Available from: https://www.cardiovascular-alliance.eu/wp-content/uploads/2025/04/EACH-A-EUROPEAN-CARDIOVASCULAR-HEALTH-PLAN-THE-ROADMAP_FINAL_WEB.pdf.
58. Robson, J., et al., NHS Health Checks: An observational study of equity and outcomes 2009-2017. Br J Gen Pract, 2021. 71(710): p. e701-e710.

59. Buckley, S., Flynn, J.O., and Foley, T., Exploring the experiences of GPs in establishing and operating the chronic disease management programme in clinical practice in Ireland. A qualitative study. Eur J Gen Pract, 2024. 30(1): p. 2430521.
60. Deslippe, A.L., et al., Barriers and facilitators to diet, physical activity and lifestyle behavior intervention adherence: a qualitative systematic review of the literature. Int J Behav Nutr Phys Act, 2023. 20(1): p. 14.
61. Yu, D.S., et al., Effectiveness and cost-effectiveness of an empowerment-based self-care education program on health outcomes among patients with heart failure: A randomized clinical trial. JAMA Netw Open, 2022. 5(4): p. e225982.
62. Moons, P., Empowerment: Why trajectories matter in chronic heart failure care. Eur J Cardiovasc Nurs, 2026. p. zvag014.
63. American College of Cardiology, The Future of Digital Health in Cardiovascular Disease: Bridging Innovation and Clinical Practice [Internet]. 2025 [cited 27 January 2026]. Available from: https://www.acc.org/Latest-in-Cardiology/Articles/2025/07/01/01/Cover-Story-The-Future-of-Digital-Health-in-CVD.
64. Pedroso, A.F. and Khera, R., Leveraging AI-enhanced digital health with consumer devices for scalable cardiovascular screening, prediction, and monitoring. NPJ Cardiovasc Health, 2025. 2(1): p. 34.
65. Eriksen, C.U., Rotar, O., Toft, U., Jørgensen, T., What is the Effectiveness of Systematic Population-Level Screening Programmes for Reducing the Burden of Cardiovascular Diseases [Internet]. Copenhagen: WHO Regional Office for Europe. 2021 [cited 27 January 2026]. Available from: https://www.who.int/europe/publications/i/item/9789289055376.
66. Mahase, E., Health checks: no convincing evidence in favour exists, argue academic GPs. BMJ, 2019. 366: p. l5504.
67. Si, S., et al., Effectiveness of general practice-based health checks: A systematic review and meta-analysis. Br J Gen Pract, 2014. 64(618): p. e47-53.
68. Andersen, N.H., T. Jorgensen, and J.B. Brodersen, More costs than benefits from screening for cardiovascular disease with computed tomography in the DANCAVAS study. Eur Heart J, 2023. 44(1): p. 68-69.
69. Corliss, J., Are Heart Attacks Overdiagnosed? [Internet]. 2024 [cited 27 January 2026]. Available from: https://www.health.harvard.edu/heart-health/are-heart-attacks-overdiagnosed.
70. Kherad, O. and Carneiro, A.V., General health check-ups: To check or not to check? A question of choosing wisely. Eur J Intern Med, 2023. 109: p. 1-3.
71. Epstein, D., et al., Modeling the costs and long-term health benefits of screening the general population for risks of cardiovascular disease: a review of methods used in the literature. Eur J Health Econ, 2016. 17(8): p. 1041-1053.
72. European Commission, National Public Health Prevention Programme / Cardiovascular Risks Prevention [Internet]. 2025 [cited 27 January 2026]. Available from: https://reforms-investments.ec.europa.eu/projects/national-public-health-prevention-programme-cardiovascular-risks-prevention_en.
73. ProtoThema, “Prolamvano” Program: 65,000 Citizens Discovered Undiagnosed Conditions Thanks to Preventive Screenings [Internet]. 2025 [cited 27 January 2026]. Available from: https://en.prototothema.gr/2025/05/26/prolamvano-program-65000-citizens-discovered-undiagnosed-conditions-thanks-to-preventive-screenings/.
74. Pacjent.gov.pl, Program Moje Zdrowie / My Health Programme [Internet]. 2025 [cited 27 January 2026]. Available from: https://pacjent.gov.pl/program-moje-zdrowie.
75. Centrum e-Zdrowia, Już Ponad Milion Uczestników Programu Moje Zdrowie! Polacy Uwierzyli, że Profilaktyka ma Sens [Internet]. 2025 [cited 27 January 2026]. Available from: https://cez.gov.pl/pl/page/o-nas/aktualnosci/juz-ponad-milion-uczestnikow-programu-moje-zdrowie-polacy-uwierzyli-ze.
76. National Health Service (NHS), What is an NHS Health Check? [Internet]. 2025 [cited 27 January 2026]. Available from: https://www.nhs.uk/tests-and-treatments/nhs-health-check/.
77. McCracken, C., et al., NHS Health Check attendance is associated with reduced multiorgan disease risk: a matched cohort study in the UK Biobank. BMC Med, 2024. 22(1): p. 1.
78. University of Minnesota – Division of Epidemiology & Community Health (CVDEPI), North Karelia Project [Internet]. 2012 [cited 27 January 2026]. Available from: http://www.epi.umn.edu/cvdepi/study-synopsis/north-karelia-project/.
79. Puska, P. and Jaini, P., The North Karelia Project: Prevention of Cardiovascular Disease in Finland Through Population-Based Lifestyle Interventions. Am J Lifestyle Med, 2020. 14(5): p. 495-499.
80. Institut National de Santé Publique du Québec, The North Karelia Project in Finland: A societal shift favouring healthy lifestyles [Internet]. 2013 [cited 27 January 2026]. Available from: https://www.inspq.qc.ca/sites/default/files/publications/1624_northkareliaprojectfinland.pdf.
81. Health Service Executive, GP chronic disease programme makes a difference for 400,000 people in Ireland [Internet]. 2025 [cited 27 January 2026]. Available from: https://about.hse.ie/news/gp-chronic-disease-programme-makes-a-difference-for-400000-people-in-ireland/.

Acknowledgements

This report was authored by Natalia Bilo, Jane Elizabeth Carolan, Manu Tiwari and Claudia Vittori, Advisory Health Industries, PwC Switzerland. The authors retained full and independent editorial control over the analysis, content and conclusions presented.

The authors gratefully acknowledge the EFPIA Cardiovascular Health Platform for constructive engagement and support during the course of the study, as well as Etienne Dreyer and Bodo Baumeister, Advisory Health Industries, PwC Switzerland, for their review and thoughtful input.

About PwC

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 149 countries with more than 370,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.ch.

Contacts

Dominik Hotz
Managing Partner
Advisory and Consulting Leader, PwC Switzerland
dominik.hotz@pwc.ch

Etienne Dreyer
Partner
Advisory Health Industries, PwC Switzerland
etienne.d.dreyer@pwc.ch

Claudia Vittori, PhD MPH
Director
Advisory Health Industries, PwC Switzerland
claudia.vittori@pwc.ch