



Towards better cardiovascular health in Spain

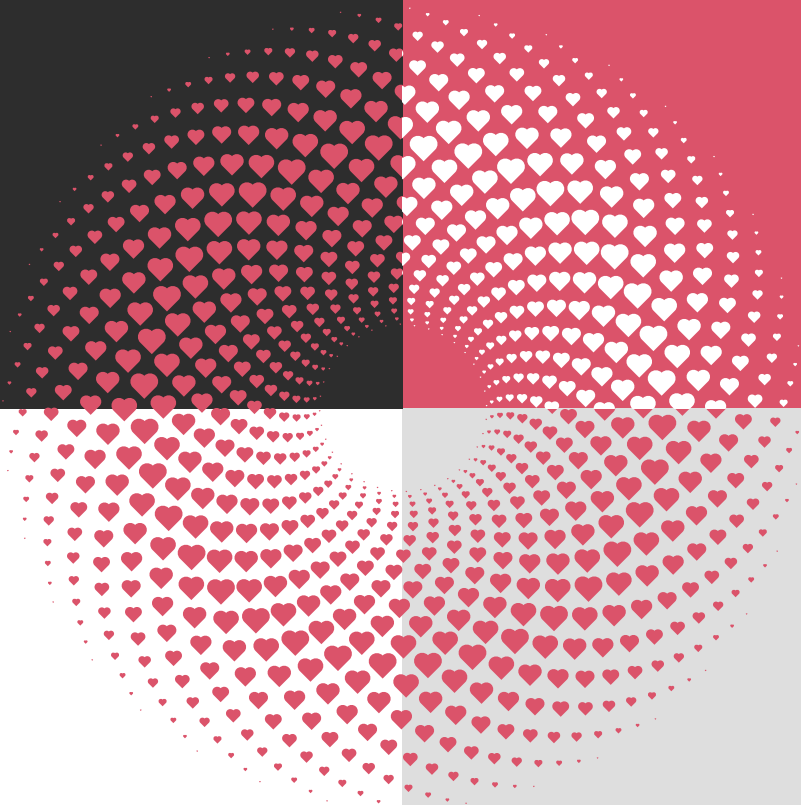
Insights from a multi-stakeholder roundtable discussion

June 2023



Contents

Foreword	03
Introduction	04
Challenges in cardiovascular health management in Spain	05
Towards better cardiovascular health in Spain	09
Bringing the Spanish vision to life: implementation examples	16
Synergies with European initiatives	18
Conclusion	19
About this research	20
Acknowledgements	21
Bibliography	22



Foreword

The European Union has initiated first efforts to address non-communicable, chronic diseases with the €156 million funded Healthier Together initiative. For cancer, a comprehensive 'Beating Cancer Plan' already exists, including multi-billion Euro funding, but the equally big challenge of cardiovascular disease (CVD) remains unaddressed. CVD poses a significant challenge and financial burden for every healthcare system in the EU, and currently kills 5,000 EU citizens per day.

The reluctance to act is based on a false sense of optimism that CVD is no longer a public health threat. Why false? First, CVD-related mortality had decreased until around 2015, suggesting that the problem would become smaller over time. But this trend has reversed: death rates have been plateauing and even rising in some countries since then. Furthermore, cardiovascular diseases are often perceived as a lifestyle issue, preventable through better diet and exercise alone. But the best available evidence clearly contradicts this.

Over the past decades, many national governments have deprioritised cardiovascular health (CVH), leading to declining public investment. Financial support for research and development, infrastructure and healthcare delivery, staff capacity and access to equipment has not been proportionate to the burden that CVD represents.

Yet a closer look reveals that CVD is a complex issue in need of more attention. For example, heart attacks and strokes contribute to health inequity both within and across European countries, as evidenced by significant differences in outcomes by gender, socio-economic status and geographical location. Furthermore, the lack of better CVD policy shows that policymakers tend to prioritise the working population and downplay health issues that are related to age.

Spain is no exception to these epidemiological and economic trends. According to Spain's National Statistics Institute (Instituto Nacional de Estadística), 119,196 people died in 2021 as a result of cardiovascular diseases – with women disproportionately affected, as almost 7,500 more women than men die from cardiovascular diseases each year in Spain.¹ Furthermore, one in three fatalities in Spain can be attributed to CVD, making it the leading overall cause of death and hospitalisation,¹ as well as linking it causally to premature mortality and disability.² Finally, the economic burden of CVD in Spain is growing: it is estimated that the total CVD-related cost rose by 20% from €6.4 billion in 2014 to €7.7 billion in 2020.³

However, in the face of these alarming developments, Spain has shown how to actively address and promote cardiovascular health, issuing a highly acclaimed national Cardiovascular Health Plan in early 2022. This is a pivotal move, as Spain will also take over the Presidency of the Council of the EU in the second half of 2023, and initial steps towards a joint action on cardiovascular disease and diabetes are already under way.

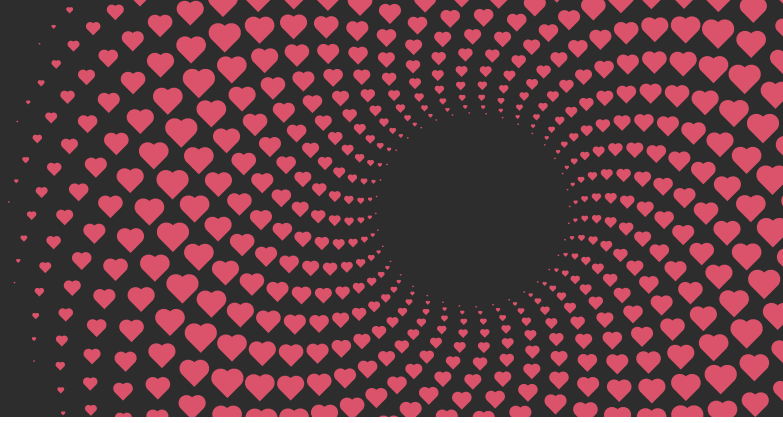
Against this background, EFPIA and Farmaindustria have teamed up with PwC to bring stakeholders from government, academia, civil society and industry to the table and shine a light on CVD in Spain, learn from one of the European model countries and explore how these learnings could be transferred further afield.

The EFPIA CVH Platform Farmaindustria

The EFPIA Cardiovascular Health (CVH) Platform consists of ten pharmaceutical companies fighting to reduce premature mortality in Europe through better data, better access to treatments, better health literacy, higher awareness and a focused collaborative effort to save tens of thousands of lives in the coming years.

Farmaindustria is the National Trade Association of the Spanish-based pharmaceutical industry. It represents member companies in Spanish society and its public administrations, collaborates with them, fosters the commitment to R&D in the sector, informs public opinion about the pharmaceutical industry and offers members value-added services.

Introduction



Spain is one of the few countries in the EU to recently publish a national strategy fully focused on cardiovascular (CV) health. This document sets out to preserve and improve the CV health of all people living in Spain.⁴

National CV health strategies are – and will increasingly become – crucial for two compelling reasons. The first is the inevitable increase in CVD-related care needs arising in Europe from an ageing population, climate risks, epidemiological trends (e.g. increase in obesity and diabetes) and the threat from future pandemics. And the second is the crucial role that better CV population health will play in making health systems more resilient and equitable in the future, as discussed in the recent report authored by EFPIA and PwC on cardiovascular health in Europe.⁵

Spain's CV health strategy is now entering a critical stage as it evolves from ideation to implementation. With discussions on next steps currently under way, EFPIA, Farmindustria and PwC took the opportunity to convene a multi-stakeholder roundtable, with the aim of reviewing the status quo, illuminating the Spanish CV health strategy vision and discussing the key considerations for the successful implementation of measures to improve health across Spain.

This paper summarises the status of CV health in Spain along with the insights from the roundtable discussion. It also highlights the interdependency between CV policies in Spain and at EU level.



Challenges in cardiovascular health management in Spain

Between 1990 and 2019, Spain had the second lowest age-standardised CVD mortality rate among EU 27 countries.⁶ What's more, Spain's life expectancy at birth is one of the highest in the world.⁷ However, CVD remains a key public health issue for Spain. It is the leading cause of death (26.4% of all deaths in 2021) and, despite having significantly declined over the past 20 years, CVD prevalence has recently started to plateau.⁸

CVD has only recently become a renewed focus of national policymaking in Spain. There is a national CV health strategy, the implementation plan of which is currently under discussion.⁴

Moving from epidemiological and policymaking trends to health system response, Spain – and European countries overall – face severe challenges in managing cardiovascular diseases effectively, chiefly revolving around the need to detect, prevent and manage CV conditions in all at-risk people.

CVD screening and prevention

As is the case in most of Europe, CVD management in Spain has been predominantly focused on treating – rather than preventing – acute CVD events (such as heart attacks and strokes). In 2015, emergency and in-patient care accounted for 37% (or €3.4 bn) of the €9.24 bn in CVD-related total healthcare costs, while only 25% (or €2.35 bn) was spent on primary and outpatient care for CVD.⁹ In 2022, ischemic heart disease alone accounted for €694m of hospital-care costs.¹⁰

These data point to the main issues concerning screening and prevention: identifying the at-risk population and effective secondary prevention after an acute CVD event. In the absence of a systematic screening programme for CVD and its risk factors, a significant proportion of the disease burden goes undetected. For example, estimates suggest that more than 3 million cases of hypertension (6% of the Spanish population) fall into this category.¹¹

The data on secondary prevention also give cause for concern. Only two thirds of cardiology units in Spain provide cardiac rehabilitation,¹² and only one in ten people is aware of their target cholesterol levels.¹³ Data published in 2015 showed that only 56% of people suffering from acute coronary syndrome and 29% of those with ischemic stroke achieved acceptable control of LDL cholesterol levels (**Figure 1**).¹⁴ More recent data collected from 2017 to 2020 paint an even bleaker picture, with 86% of patients with atherosclerotic cardiovascular disease not achieving cholesterol target levels within two years of diagnosis.^b Meanwhile, 10-12% of patients with stroke or peripheral arterial disease die during that time.^{15, 16}

^aBased on 2015 recommendations on LDL cholesterol level targets by the European Society of Cardiology (i.e. 100 mg/dl or lower).

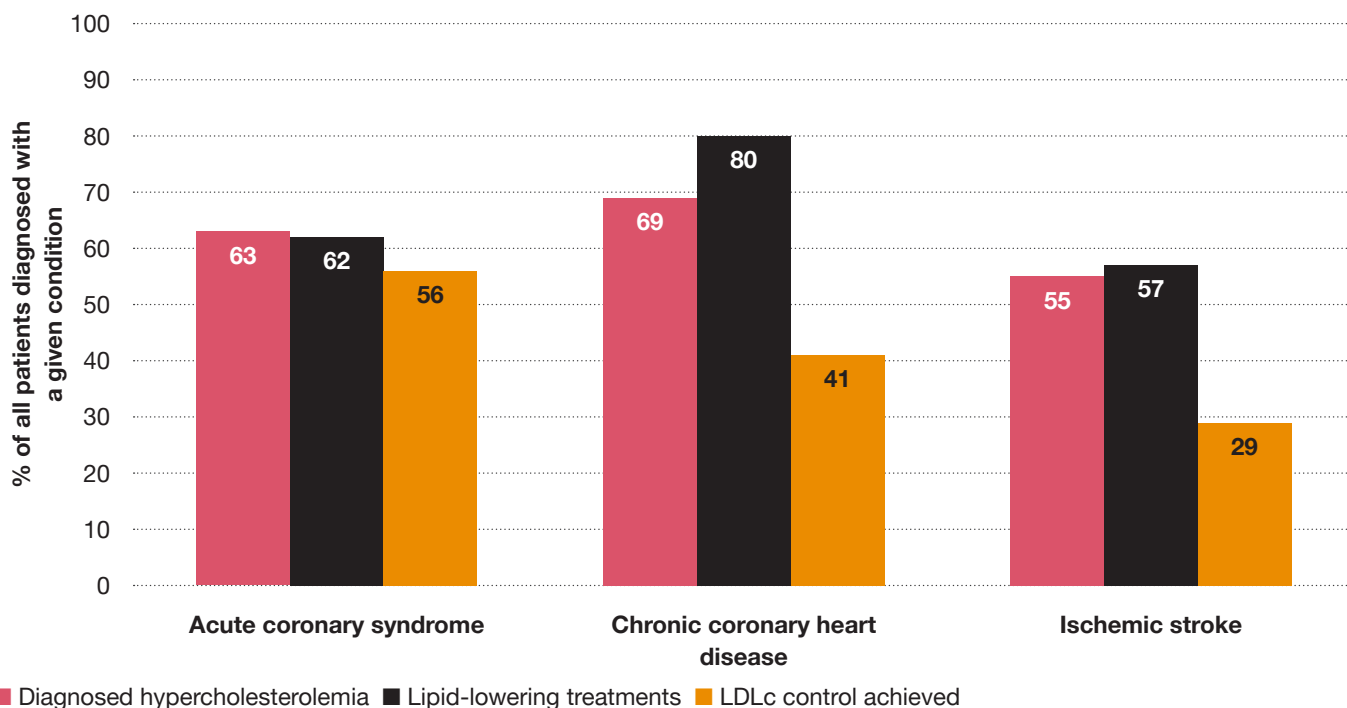
^bBased on 2016 recommendations on LDL cholesterol level targets by the European Society of Cardiology (i.e. 70 mg/dl or lower). Notably, in the 2021 review, target levels were further lowered to 55 mg/dl or lower.



The need for greater prevention efforts is exacerbated by Spain's ageing population and rising life expectancy. For example, a 65-year-old woman today can expect to live for 21 more years, but only 11 of those years will be healthy – which points to the enormous potential of prevention.²

In summary, most of the underlying CV disease burden remains undetected until an acute event occurs, which then requires urgent and expensive care, with uncertain outcomes. In addition, once the acute phase is over, short-term and long-term management of people affected by a CV condition is not always coordinated and sustained, with many patients left with a sub-optimally managed condition and higher risk of a repeat event.

Figure 1: Cholesterol control in Spain (as part of secondary prevention)



Source: De la Sierra et al., 2015; PwC analysis.

CV data collection, sharing and use

Cardiovascular data in Spain is subject to regional disparities in the quantity and quality of data collected. Most regions face data-related challenges, with CVD data typically not standardised, shared or leveraged for further use. Only six of the 19 autonomous communities and cities in Spain collect CVD-specific data through registries and, of those, only three use the data for purposes beyond annual reports or health promotion (Figure 2).

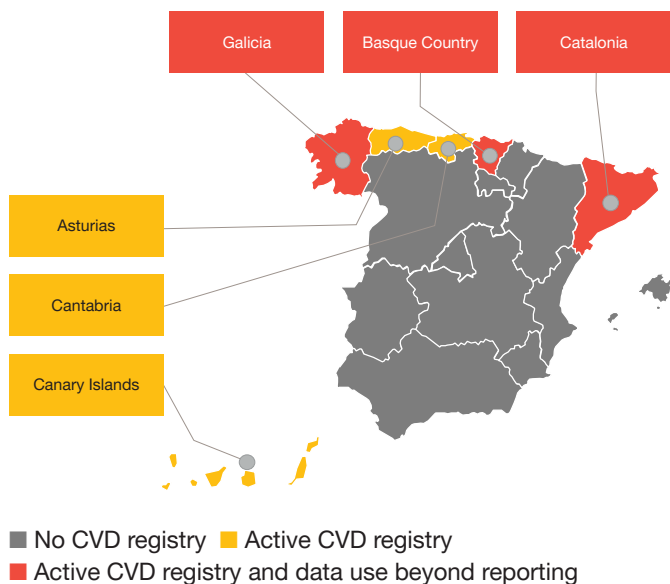
At present, most healthcare professionals face a considerable administrative burden to collect and manage data. In

addition, most of the accessible data are aggregated at the population level and concern epidemiology and processes; rarely are data available that could feed applications to support clinical decision-making, let alone train AI algorithms. Therefore, stakeholders and decision-makers lack the opportunity, capability and/or motivation to focus on streamlining processes and solutions to unlock the full value of data.

The regionalisation of the Spanish system accentuates data-related issues, especially when it comes to the design and maintenance of the data infrastructure, as well as data interoperability between care settings, autonomous communities, and other European countries.

Figure 2: CVD data collection in Spain

Regional CVD registries



National registries not shown. PwC analysis

CVD-related equity

Although more data is ideally needed to describe and understand the issues around equity in Spain (and beyond), existing evidence shows CVD-related inequities along several interconnected dimensions (**Figure 3**).

Firstly, geographic location: CVD mortality, the prevalence of risk factors and intra-hospital mortality vary markedly between regions (or autonomous communities). This suggests that there are significant differences in risk factor exposure, awareness and access to quality prevention, therapeutic options and healthcare services.

Furthermore, socioeconomic status plays a key role: individuals from less privileged socioeconomic groups are at a higher risk of metabolic risk factors such as high cholesterol, hypertension, diabetes and obesity.¹⁷ What's more, the number of households at risk of poverty increased during the COVID-19 pandemic, which in turn affects the ability to follow healthy habits, both for adults and children.^{18, 19}

Finally, gender matters, as CVD is the leading cause of death for women in Europe. Women face distinctive challenges along the entire care pathway: from prevention and seeking care to disease management and outcomes. Moreover, women's specific risk factors (i.e. pre-eclampsia, gestational diabetes, breast cancer treatment-related cardiotoxicity, etc.) are often ignored in clinical practice. Spanish women are highly likely to face the same issues.

While multiple factors drive unequal patterns of CV diseases, these are compounded by care-related challenges for CVDs and other chronic conditions, in a vicious cycle that is hard to break.⁵

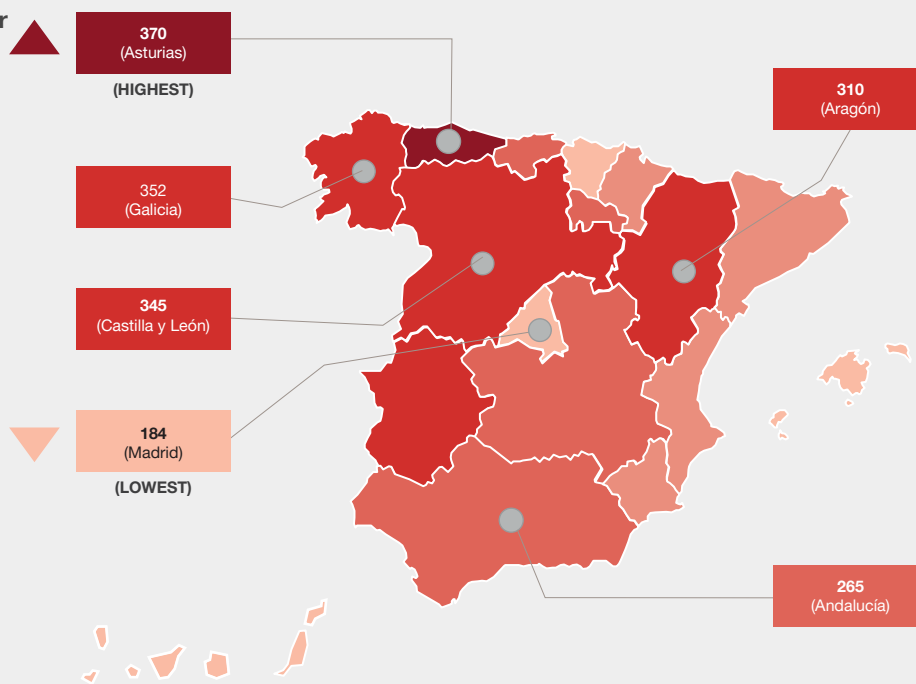


Figure 3: Patterns of inequity concerning cardiovascular health

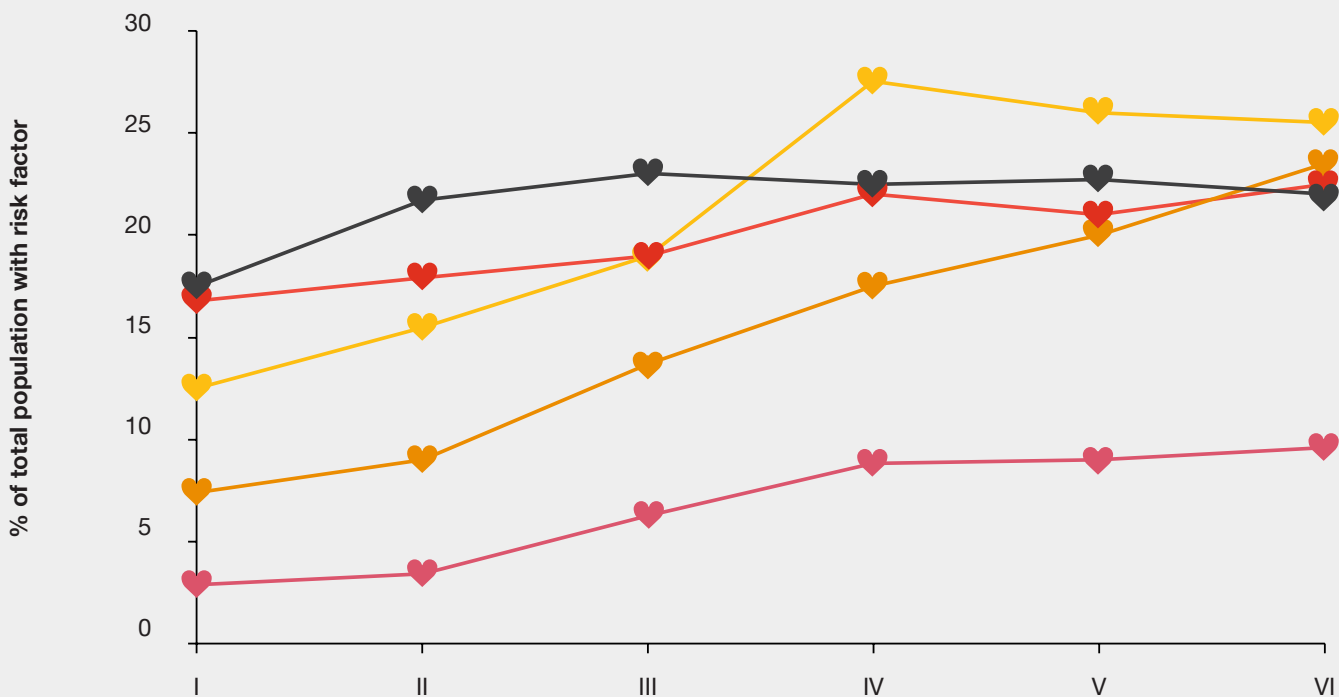
I. Disparities in cardiovascular disease mortality across geographic regions

Cardiovascular mortality by region, 2020 (age-standardised rate per 100,000)

- 185 - 216
- 217 - 260
- 261 - 280
- 281 - 355
- > 360



II. Differences in exposure to cardiovascular risk factors across social class



■ High Cholesterol ■ Diabetes ■ Hypertension ■ Obesity ■ Current smoking

Occupational social class (simplified):

- I Higher grade professionals
- II Lower grade professionals
- III Intermediate occupations
- IV Lower technical occupations
- V Skilled workers and semi-skilled
- VI Non-skilled workers

Source (for both visualisations): Gullón et al., 2021; Spanish National Statistics Institute. PwC analysis.

Towards better cardiovascular health in Spain

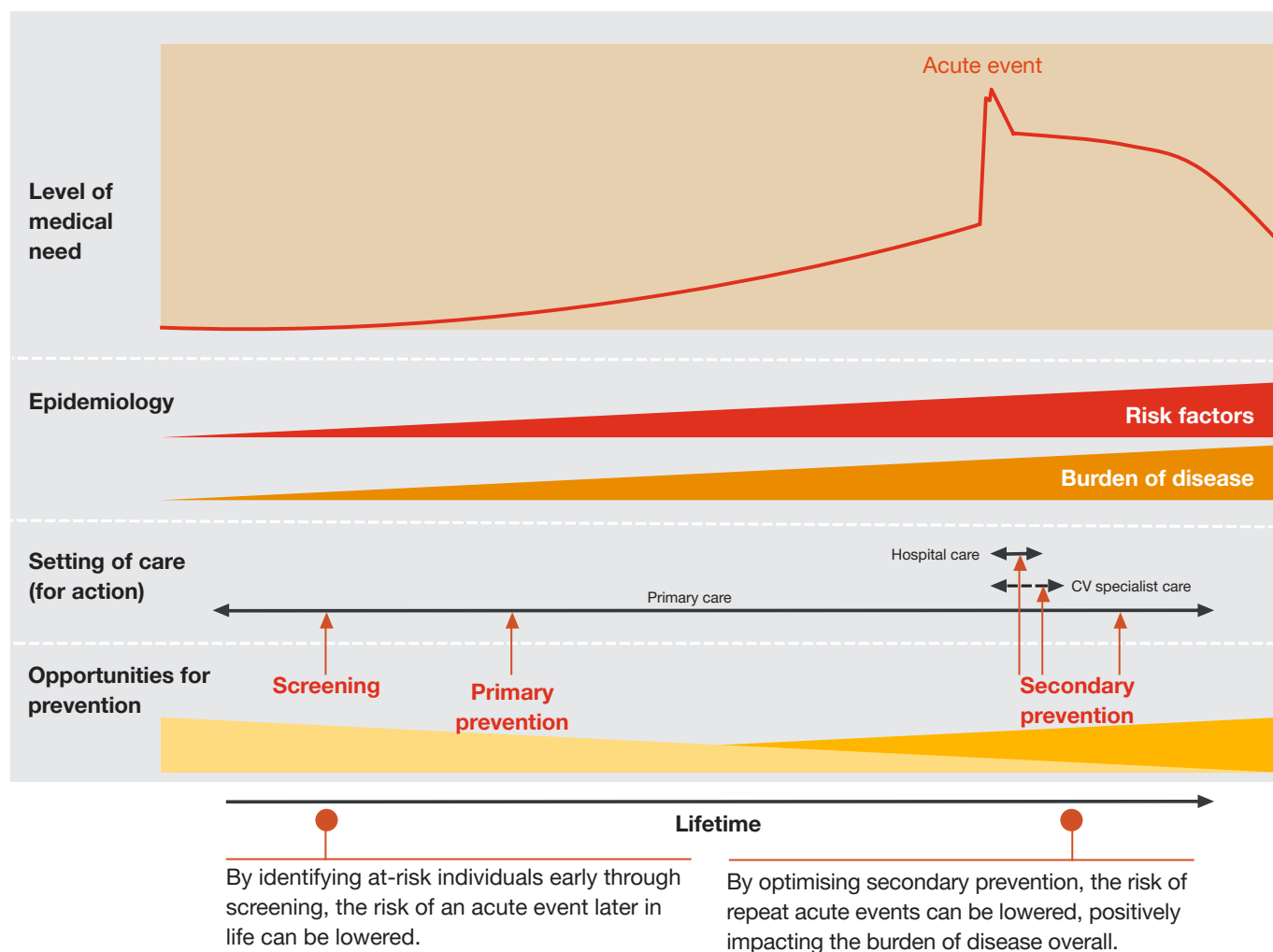
As set out above, CVD-related challenges are complex and interconnected. Addressing them therefore requires a comprehensive, collaborative and multi-disciplinary approach. This is in line with the vision that emerged from the convened expert roundtable, and is the spirit which animates Spain's national CV health strategy.⁴ Above all, a holistic approach is required that unlocks the full value of real-world data to improve detection and prevention while focusing on the need to reach the most vulnerable.

The following sections set out the three critical areas involved in moving towards better CV health in Spain, as indicated by the experts convened.

Enable a shift from acute CVD care to prevention

The Spanish health system should consider a shift from acute CVD care in hospitals to prevention across all settings of care, and particularly in primary care. This is essential in order to improve CV population health and increase the resilience of the health system in future health crises. Achieving this shift, however, requires putting in place some fundamental components (**Figure 4**).

Figure 4: Opportunities to improve CVD burden management



Source: Courtesy of Prof. Héctor Bueno, 2022 (see acknowledgements)

Identifying at-risk individuals and reshaping secondary prevention pathways

Initiating the shift towards CVD prevention at scale requires three measures, which are also highlighted in the Spanish national CV health strategy:^{4 c}

- The early identification/screening and management of modifiable CVD risk factors;^d
- The early detection of heart failure, valve heart disease and atrial fibrillation among the Spanish population in primary care, as these have a comparably high prevalence and population health impact, but are often diagnosed late or not at all;
- The development (and implementation) of multi-disciplinary, integrated secondary prevention programmes (along with redrawn patient pathways), managed collaboratively between primary care, hospitals and, eventually, social care.^e

As is the case for many other European countries, COVID-19 overwhelmed primary care in Spain and the system is still in the process of overcoming the pandemic's impact. Given primary care's critical role in the identification/management of modifiable CVD risk factors and follow-up care after an acute CVD event, there is a clear and pressing need to strengthen Spanish primary care.

These measures have been successfully implemented elsewhere in Europe, proving their benefit. Instructive examples include an Italian CVD screening programme (**Case study 1**) and secondary prevention efforts in Poland (**Case study 2**).



Case study 1: Cardio 50

Cardio 50 was established in Italy in 2014 with the aim of identifying asymptomatic individuals aged 50+ who have hypertension, high blood sugar and/or high cholesterol. Once identified, these individuals are prescribed lifestyle changes, such as smoking cessation. The pilot showed promise, detecting hypertension and/or high blood sugar in 12% of the study population. Recognised as a best practice by the European Commission, the screening initiative – under the label 'Young 50' – is now being rolled out in Romania, Lithuania and Luxembourg.^{20, 21}



Case study 2: Polish Managed Care in Acute Myocardial Infraction programme ('KOS-zawał')

This secondary prevention programme was established in 2017. It centres on a fully reimbursed, best-practice pathway to improve post-discharge care for heart attack patients and prevent repeat events. The initiative optimises acute intervention, cardiac rehabilitation and 12-month follow-up care in an outpatient setting. Early results indicate a considerable increase in participation in cardiac rehabilitation (from 14% to 98%), reduction of major CVD events by 40% – and high levels of patient satisfaction.²²

^c Amongst other things, the Spanish strategy recommends the promotion of CVD prevention through the monitoring of biological/metabolic risk factors and the development of cardiac rehabilitation as well as secondary prevention programs in hospitals and primary care settings according to the patients' risk level.

^d In line with the recent EU level discussions on a Joint CV and Diabetes Health Check, modifiable risk factors include (but are not limited to) hypercholesterolemia, hypertension, diabetes mellitus, obesity and smoking.

^e Note that developing multi-disciplinary programs was also highlighted as an effective measure by Spanish stakeholders in a recent ESC survey on secondary prevention published in March 2020.



In supporting the preventative efforts just described, and beyond that, there is an opportunity for Spain to collect more, higher-quality and more reliable/accessible CVD data, especially on epidemiology, quality of care and patterns of access. These efforts might include:

- The definition of a minimum set of nationally defined and locally implemented CVD indicators, with the possibility of future expansion;
- The integration of the collected data with electronic health records (EHRs) across all care settings, facilitating personalised access to reference figures or clinical decision support systems for the most relevant situations;
- The building up of data infrastructure around user needs, for example by minimising the strain on healthcare professionals through automated data entry or system-wide alerts.

Organising data collection around these principles will not only result in more and better CVD data, but will also ensure that data can be readily shared (e.g. between care settings or across regions) and leveraged most effectively by healthcare professionals and policymakers. Sharing of data between primary, hospital and social care settings might, in turn, result in improved coordination across levels and better follow-up.

The Spanish national CV health strategy highlights the importance of collecting and using CVD data. It recommends improved access to reliable information to identify the status of cardiovascular health and CVD care in the Spanish population. This is in addition to developing models for virtual care and better CVD outcomes within the framework of the National Health System's Digital Health Strategy.⁴ One example of this kind of effort comes from Sweden, i.e. the CVD registry SWEDEHEART (**Case study 3**).



Case study 3: SWEDEHEART

SWEDEHEART is the Swedish CVD registry, set up to develop evidence-based therapies for acute and chronic CVD, monitor quality of care and develop risk-prediction tools. To achieve its goals, SWEDEHEART collects a wide range of data on CVD patients and has demonstrably shaped clinical practice via registry-based studies and incentivised quality of care through public reporting (with improvement rates in the average quality-index score rising from 13% to 22% per year).^{23, 24}

For a successful shift towards CVD prevention and a boosting of CV health outcomes for all, Spanish stakeholders may also focus on making CVD screening and secondary prevention accessible to all, and especially to those in highest need.

Achieving this means tailoring the identification of at-risk populations in primary care and delivering integrated secondary prevention programmes to vulnerable communities. These initiatives need to take into account current patterns of burden driven by socio-economic status, geographic location and gender.

Equity (especially around gender) is, in fact, one of the eight critical points of the Spanish national CV health strategy. The strategy formulates the aim of training all health system professionals in CVD diagnosis and treatment in women, and of addressing gender inequality in CV care. More generally, the strategy strives to address social inequalities in CV health through a multi-disciplinary approach.⁴

In practice, tailoring CVD screening to vulnerable populations might also mean raising their awareness of CVD risk factors. One example of this is the 'Farmers Have Hearts' project in Ireland (**Case study 4**).



Case study 4: Farmers Have Hearts

Farmers Have Hearts is a workplace intervention programme that targets Irish farmers, who are at disproportionate risk of developing CVD, yet are often underserved and underrepresented. Nurses visit local farmers' markets to offer a free, 30-minute CVD health check (measuring blood pressure, cholesterol, glucose, etc.) and provide lifestyle advice. The results look encouraging, with 41% of the farmers improving their CVD risk factor profile after one year.²⁵





Key opportunities for successfully implementing this vision

The roundtable discussion brought to the surface some key opportunities to enable the shift from acute care to prevention and long-term risk management, and therefore achieve better CV health for all people in Spain. These include:

Allocating resources to implement and/or scale up CVD programmes (or committing resources more generally for implementing the national CV health strategy) both nationally and regionally

Promoting stronger collaboration/alignment between multiple stakeholders and across various regions, including public-private partnerships (e.g. to promote best practices for CV data collection)

Piloting and scaling up CVD screening programmes across regions and the country, aligned with the EU-wide initiative for a joint health check for cardiovascular diseases and diabetes

Strengthening the role of primary care in cardiovascular prevention and the control of cardiovascular risk factors, as well as enhancing the role of the family doctor and nurse in all stages of the care process for patients with very high cardiovascular risk

Enhancing nurse role with regard to the identification of at-risk individuals, disease management and health promotion (e.g. self-care, healthy lifestyle, adherence) in primary care settings



Boosting continuity of CVD care between healthcare settings and fostering effective, safe coordination, from admission to discharge planning and the definition of joint therapeutic plans for follow-up

Relieving health professionals of the burden of administrative tasks by rolling out automated data entry and advanced analytics

Scaling up integrated e-consultation models for secondary prevention (as developed and successfully implemented in Galicia and under discussion in Valencia, Catalunya and Andalucía) across Spain

Pursuing a comprehensive approach to reducing CVD-related inequalities through educational, social, economic and health policies (e.g. raising awareness among and training health professionals), factoring in various barriers to better CV health in disadvantaged populations and leveraging digital health/data

Continuing to promote healthy lifestyles as well as raising awareness of the links between diet, exercise and CVD – and strengthening these efforts with the use of technology to achieve greater impact





Bringing the Spanish vision to life: implementation examples

The Spanish vision of accessible, data-enabled CVD prevention is far from being a theoretical exercise. Efforts to bring the vision to life are already under way.

1

Screening for CVD risk factors in women

Cardiovascular disease still disproportionately affects Spanish women, especially when it comes to mortality from heart attacks. In response, Fundación MAPFRE, Fundación Pro CNIC, the Spanish Heart Foundation and the Community of Madrid jointly led the initiative *Mujeres por el corazón* (Women for the Heart) from 2016 to 2020.²⁶ Its aim was to raise awareness of the distinctive symptoms of heart attacks in women, screen the female population opportunistically for cardiovascular risk factors and promote heart-healthy lifestyles. To achieve this, a travelling bus toured the Community of Madrid, offering women free health check-ups,

lifestyle advice and emergency guidance. The health checks consisted of a questionnaire and simple tests for cholesterol, blood pressure and body mass index (BMI).²⁷

Mujeres por el corazón was deemed a success, carrying out 170,000 check-ups on Spanish women and being rolled out in several Latin American countries such as Brazil, Colombia, Panama and the Dominican Republic. The initiative is an instructive example of how to tailor screening to vulnerable populations in order to render it as accessible and as equitable as possible.

2

CVD screening at Quirónsalud hospitals in Madrid

Four hospitals in Madrid, members of the Spanish private hospital network Quirónsalud, are using Big Data and AI to develop a CV risk map for early detection and management of CVD. A predictive model collects clinical and demographic data from patients (e.g. age, sex, blood pressure, cholesterol), either from medical records or through an app that allows patients to input data themselves. The model then calculates the individual probability of developing CVD. Such information can be used to inform the responsible primary care physicians, educate patients and map cardiovascular

risk at the population level.²⁸ More specifically, the CV risk map can be visualised by location, health centre or family physician in the form of a 'heatmap' of low, medium or high-risk individuals.

By the reporting date of June 2022, the initiative had covered 180,000 people, i.e. all the patients that had visited Quirónsalud hospitals in the previous six months and had provided their data – which corresponds to 20% of the joint reference population of the four hospitals.

3

Integrated, data-enabled CVD secondary prevention in Galicia

The Integrated Health Care Area of Santiago de Compostela (Área Sanitaria Integrada de Santiago de Compostela (ASISC)), part of the public health system of Galicia, serves 446,000 people across a wide geographic area, with nearly a quarter of them over the age of 65. ASISC uses electronic medical records that are integrated across the different levels of healthcare.^{29, 30}

In 2013, the ASISC's cardiological service, divided between three hospital centres, developed and implemented universal electronic consultation (e-consultation) in agreement with health area managers, primary care physicians and cardiologists.

This model features an initial (not face-to-face) consultation between primary care physician and cardiologist, which is initiated by the primary care physician. This is where medical records are shared to determine CVD diagnostic/therapeutic strategy or the need for further, in-person examination.

From its introduction in 2013 until 2019, the new approach realised some notable gains. Compared with the traditional approach of a one-off, face-to-face meeting with a cardiologist, the new outpatient model decreased waiting times from 33 days to seven days on average. It also decreased hospital admissions from 1.2% to 0.9% (or 142 fewer CVD patients admitted) and lowered mortality for the first year from 3.9% to 2.5% (or by 663 deaths). In addition, e-consultation improved access to cardiological care for all patients – and especially for those geographically furthest from the referral hospital.

To sum up, the cardiological e-consultation model in Galicia is a prime example of a multi-disciplinary, secondary prevention programme, which re-shapes care pathways and integrates electronic health record data across settings, resulting in better accessibility (especially for rural residents), shorter waiting times and fewer deaths.



Synergies with European initiatives

The Spanish vision of data-enabled, integrated and equitable CVD prevention was developed in response to challenges around prevention, data and equity. It intersects with and corresponds to European ambitions and trends in various ways.

The Spanish approach offers Europe useful lessons and insights into the importance of CVD-related equity. In particular, Spain explicitly factors equity considerations (e.g. gender) into the national CV health strategy – something that other European countries might consider emulating when tackling their own challenges around equitable access to CVD prevention and care.

Spain's decentralised model of healthcare organisation with regional coordination and delivery is also shared by several other European countries. Initiatives to navigate the complexities of regional governance and reduce the risk of regional inequities are needed, both in Spain and

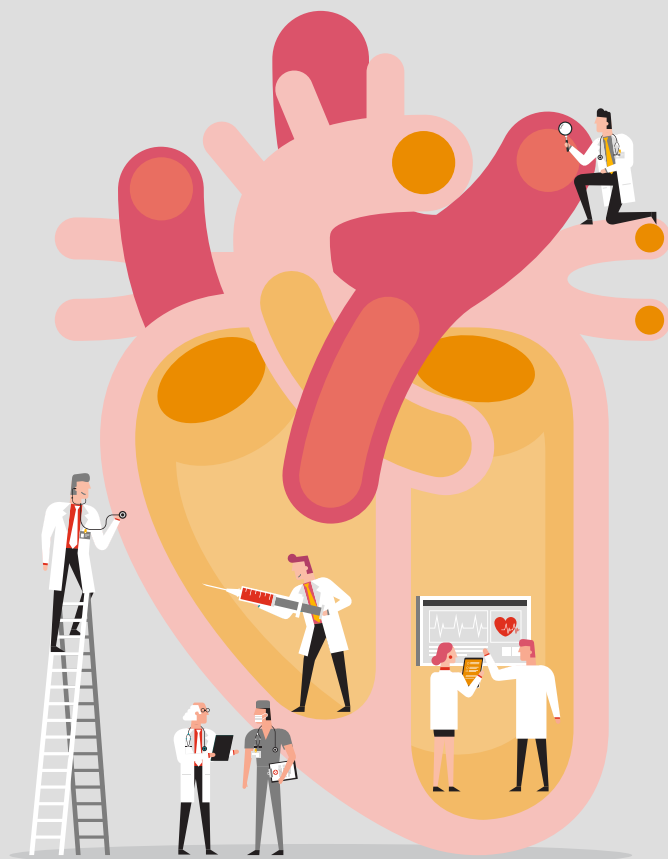
beyond. One approach can be found in Spain's national CV health strategy: automatic sharing, analysis and reporting of key epidemiological and clinical indicators related to cardiovascular health and disease across regions. This can help with the development of common policies to tackle ongoing or incoming priorities at the national and regional levels, circumvent the administrative intricacies involved in the decentralisation of health management models across regions, and even leverage Spain's Digital Health Strategy, which is linked to the European Health Data Space mentioned below.³¹

Europe could also look to Spanish attempts for upscaling its model. The ASISC programme in Galicia may offer a blueprint for CVD data management (e.g. close integration of primary and specialist care) – and Europe would benefit from a clear commitment to using CVD data as laid out in Spain's CV health strategy and piloted by the EuroHeart initiative described below.

Conversely, EU-wide initiatives present a powerful driver for local implementation, in Spain and elsewhere. First and foremost, the EU can achieve an overarching approach to better screening and prevention. European stakeholders and multilateral alliances are advocating for a joint, EU-wide health check for CVD and diabetes, as recently discussed during an event at the European Parliament.³² This health check would help identify people at risk of CVD and diabetes by detecting the main causal and modifiable risk factors, such as LDL cholesterol, blood pressure, blood sugar (haemoglobin A1c) and smoking habits. A systematic approach to detection is needed in Spain as it is across Europe. For example, high cholesterol is responsible for almost 30% of all CVD-related ill health, disability and deaths in Europe, but most adults either do not know their cholesterol levels or have never had them tested.³³

EU-level initiatives based on real-world evidence are also essential in order to drive local investments. The expansion of the EuroHeart initiative, for example, will be important for generating relevant data, strengthening surveillance, increasing cross-country collaboration, defining common standards and, finally, improving care and outcomes in people living with CVD.³⁴

Finally, the European Health Data Space aims to provide a safe, overarching "ecosystem comprised of rules, common standards and practices, infrastructures and a governance framework" that will empower individuals, healthcare professionals and decision-makers to make the most of the health data at their disposal.³⁵



Conclusion

Spain – just like many other European countries – faces severe challenges in managing cardiovascular diseases effectively, revolving around the need to detect, prevent and manage CV conditions in all at-risk people. For example, estimates suggest that more than 3 million cases of hypertension (6% of the Spanish population) remain undiagnosed, as systematic screening programmes for CVD and its risk factors are missing.

In response, the roundtable discussion as well as Spain's national CV health strategy advocate for a shift from acute CVD care in hospitals to prevention across all settings of care, and particularly in primary care. To achieve this shift and move towards better CV health in Spain, three areas are critical:

1. Prevention

The identification of at-risk individuals (e.g. by screening for modifiable CVD risk factors) and the re-shaping of secondary prevention pathways towards collaborative management between primary care, hospitals and social care

2. Data

The collection of more, higher quality and more reliable/accessible CVD data (especially on epidemiology, quality of care and patterns of access) and their integration with electronic health records (EHRs) across all care settings

3. Equity

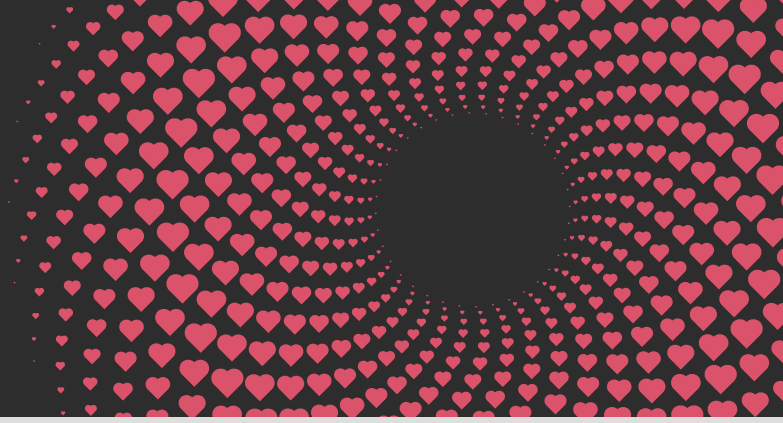
Tailoring the identification of at-risk populations in primary care and delivering integrated secondary prevention programmes to vulnerable communities, factoring in patterns of inequity around gender, socio-economic status and geographic location.

The roundtable discussion also raised some key opportunities for realising this Spanish vision of data-enabled, integrated and equitable CVD prevention. These opportunities range from setting aside CVD-specific funding and rolling out screening programmes to empowering primary care and nursing personnel, as well as leveraging digital technology to streamline CVD management.

The Spanish vision also interfaces with European trends and ambitions. Spain's national CV health strategy and its efforts around CVD data management can inspire other European countries, while EU-wide initiatives around screening and real-world evidence can powerfully drive local implementations in Spain and elsewhere.



About this research



This report is based on the expert roundtable discussion held at the PwC Tower in Madrid on 13 December 2022, thanks to the support of the European Federation of Pharmaceutical Industries and Associations (EFPIA) Cardiovascular Health Platform, in collaboration with Farmaindustria and PwC Spain. The roundtable featured clinical experts, regional as well as national decision-makers, and representatives from patient as well as nursing organisations and industry (see Acknowledgements).

Ahead of the roundtable, three priority themes (screening/prevention, data and equity) were identified, based on secondary research and initial expert discussions. After the roundtable, PwC, EFPIA and Farmaindustria teams jointly reviewed the discussion outcomes, confirmed findings and identified key areas for further engagement.

The final draft report was reviewed and finalised in March 2023, based on the input from all roundtable participants, EFPIA and Farmaindustria teams, as well as local industry representatives.

This report was written by Silvan Wittwer, Senior Consultant, PwC Switzerland (project management, research & analysis) and Claudia Vittori, Senior Manager, PwC Switzerland (supervision & project leadership). Research and local engagement was led by the Healthcare & Pharma team at PwC Spain.



Acknowledgements

We thank the following experts for their contribution to the roundtable discussion and the PwC assessment of cardiovascular health in Spain:

Emilio Bautista

CardioAlianza

Prof Héctor Bueno

Cardiology Department, Hospital Universitario 12 de Octubre, Madrid; Centro Nacional de Investigaciones Cardiovasculares (CNIC)

Dr. Isabel Egocheaga Cabello

Spanish Society of General Practitioners and Family (SEMG)

Tomás Fajardo

CardioAlianza

Dr Javier García del Pozo

General Directorate of Portfolio of the SNS, The Interministerial Commission on Medicine Prices (CIPM)

Pilar García Fernández

Nurse Care Planning, The Madrilenian Health Service (SERMAS)

Dr Fernando Garza

Rehabilitation and Secondary Prevention Unit, Regional Ministry of Aragon

Prof. José R. González Juanatey

Cardiology Department, University Hospital, Santiago de Compostela

Dr Luis Martínez Hervás

Health Assistance, Andalusia

Sonia Peláez Moya

Ministry of Science and Innovation

Jesús Ponce

Farmaindustria

Dr Germán Seara

Innovation Unit, Hospital Clínico San Carlos, Madrid

Prof. Juan Tamargo

School of Medicine of the University Complutense, Madrid

We are also grateful to EFPIA and Farmaindustria representatives for their input and support throughout the study. Finally, we are grateful to PwC Spain for their strong collaboration and kind hospitality.

Bibliography

1. Spanish National Statistics Institute Press Release: Death by Cause 2021 [Internet]. 2021 [cited 27 February 2023]. Available from: https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176780&menu=ultiDatos&idp=1254735573175.
2. Cardiovascular prevention: A pragmatic and incremental strategy (November 2021) [Internet]. 2021 [cited 27 February 2023]. Available from: <https://www.sihealth.es/archivos/202205/documento-zoom-prevencion-cdv-una-estrategia-pragmatica-e-incremental-web-1.pdf?1>.
3. Fundación Alternativas: La situación de las enfermedades cardiovasculares en España [Internet]. 2022 [cited February 2023]. Available from: <https://fundacionalternativas.org/wp-content/uploads/2022/07/6e1bc9e423bb5f72e46194ff263928.pdf>.
4. Estrategia en Salud Cardiovascular del Sistema Nacional de Salud (ESCAV) [Internet]. 2022 [cited 21 March 2023]. Available from: https://www.sanidad.gob.es/organizacion/sns/planCalidadSNS/pdf/Estrategia_de_salud_cardiovascular_SNS.pdf.
5. PwC/EFPIA: Towards a new normal - why boosting cardiovascular health is critical [Internet]. 2022 [cited 13 July 2022]. Available from: <https://www.pwc.ch/en/insights/health-industries/towards-a-new-normal.html>.
6. Our World in Data: Death rate from cardiovascular disease, 1990 to 2019 (per 100,000 people) [Internet]. [cited 13 April 2023]. Available from: https://ourworldindata.org/grapher/cardiovascular-disease-death-rates?tab=chart&country=OWID_WRL~AUT~BEL~BGR~HRV~CYP~CZE~DNK~EST~FIN~FRA~DEU~GRC~HUN~IRL~ITA~LVA~LTU~LUX~MLT~NLD~POL~PRT~ROU~SVN~SVK~ESP~SWE.
7. World Bank Data: Life Expectancy at birth, total (years) - Spain [Internet]. 2023 [cited 28 February 2023]. Available from: <https://data.worldbank.org/share/widget?indicators=SP.DYN.LE00.IN&locations=ES>.
8. Timmis A, Townsend N, Gale CP, Torbica A, Lettino M, Petersen SE, et al. European Society of Cardiology: Cardiovascular Disease Statistics 2019. *Eur Heart J*. 2020;41(1):12-85.
9. European Heart Network: Cardiovascular Disease Statistics [Internet]. 2017 [cited 30 March 2023]. Available from: <https://ehheart.org/cvd-statistics/cvd-statistics-2017.html>.
10. Darbà J, Marsà A. Burden of ischemic heart disease in Spain: incidence, hospital mortality and costs of hospital care. *Expert Review of Pharmacoeconomics & Outcomes Research*. 2022;22(7):1147-52.
11. NCD Risk Factor Collaboration (NCD-RisC): Spain Country Profile - Blood Pressure [Internet]. [cited 30 January 2023]. Available from: <https://ncdrisc.org/country-profile.html>.
12. RECALCAR Register - Annual Report 2022 [Internet]. 2022 [cited 28 February 2023]. Available from: https://secardiologia.es/images/institucional/sec-calidad/sec-recalcar/Informe_RECALCAR_2022_FINAL.pdf.
13. Desconocer los niveles de colesterol LDL en sangre puede contribuir a desarrollar hasta el 60% de los infartos y el 40% de los ictus [Internet]. 2022 [cited 28 February 2023]. Available from: <https://www.phmk.es/i-d/desconocer-los-niveles-de-colesterol-ldl-en-sangre-puede-contribuir-a-desarrollar-hasta-el-60-de-los-infartos-y-el-40-de-los-ictus>.
14. De la Sierra A, Pintó X, Guijarro C, Miranda JL, Callejo D, Cuervo J, et al. Prevalence, Treatment, and Control of Hypercholesterolemia in High Cardiovascular Risk Patients: Evidences from a Systematic Literature Review in Spain. *Advances in Therapy*. 2015;32(10):944-61.
15. Campuzano R, Barrios V, Mostaza JM, Egocheaga I, Perez Roman I, Martinez Lopez A, et al. Preliminary results from REALITY: a nation-wide study of a database with 1.8 million real-life patients to study atherosclerotic cardiovascular disease and familial hypercholesterolemia in Spain. *European Heart Journal*. 2022;43 (Supplement_2).
16. Banach M, Reiner Z, Cicero AFG, Sabouret P, Viigimaa M, Sahebkar A, et al. 2022: the year in cardiovascular disease - the year of upfront lipid lowering combination therapy. *Arch Med Sci*. 2022;18(6):1429-34.
17. Gullón P, Díez J, Cainzos-Achirica M, Franco M, Bilal U. Social inequities in cardiovascular risk factors in women and men by

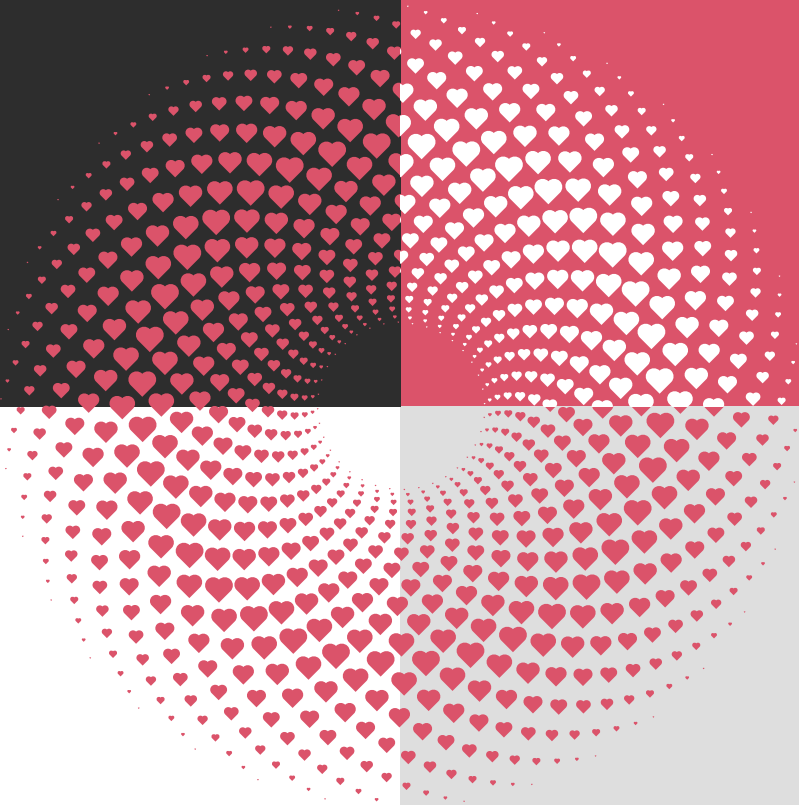
autonomous regions in Spain. *Gac Sanit.* 2021;35(4):326-32.

18. Human Rights Watch: “We Can’t Live Like This” - Spain’s Failure to Protect Rights Amid Rising Pandemic-Linked Poverty [Internet]. 2022 [cited 27 March 2023]. Available from: <https://www.hrw.org/report/2022/07/14/we-cant-live/spains-failure-protect-rights-amid-rising-pandemic-linked-poverty>.
19. OECD: The Changing Profile of Spanish Families [Internet]. 2022 [cited 27 March 2023]. Available from: <https://www.oecd-ilibrary.org/sites/527d563b-en/index.html?itemId=/content/component/527d563b-en#wrapper>.
20. CHRODIS+ EU: A Sustainable, Active, Primary Prevention Strategy for Cardiovascular Diseases in Italy for Adults 50+ - ‘Projects Cuore and Cardio 50’ [Internet]. 2017 [cited 30 March 2022]. Available from: <http://chrodis.eu/wp-content/uploads/2017/03/projects-cuore-and-cardio-50.pdf>.
21. Local Adapted YOUNG50 Programmes and Implementation Action Plans [Internet]. 2021 [cited 13 February 2023]. Available from: https://www.young50.eu/wp-content/uploads/2021/08/Deliverable-4.1_FV_uploaded.pdf.
22. Secondary prevention of heart attack and stroke in Europe: consensus report [Internet]. 2021 [cited 31 January 2023]. Available from: <https://www.healthpolicypartnership.com/app/uploads/Secondary-prevention-of-heart-attack-and-stroke-in-Europe.pdf>.
23. Annual Report 2021 (English) [Internet]. 2022 [cited 1 February 2023]. Available from: <https://www.ucr.uu.se/swedeheart/dokument-sh/arsrapporter-sh/1-swedeheart-annual-report-2021-english/viewdocument/3384>
24. The Economist Intelligence Unit: Healthcare in Sweden - Reaching the next level [Internet]. 2019 [cited 30 March 2022]. Available from: <https://impact.econ-asia.com/perspectives/sites/default/files/value-basedhealthcareinswedenreachingthenextlevel.pdf>.
25. Farmers Have Hearts Cardiovascular Health Programme: Summary Impact Report [Internet]. 2022 [cited 13 February 2023]. Available from: <https://www.teagasc.ie/media/website/publications/2022/Farmers-Have-Hearts---Cardiovascular-Health-Programme---Summary-Impact-Report.pdf>.
26. Fundación MAFRE: Mujeres por el corazón [Internet]. [cited 29 March 2023]. Available from: <https://www.fundacionmapfre.org/en/education-outreach/health-wellness/mujeres-por-el-corazon/>.
27. Universidad Carlos III de Madrid: CAMPAÑA MUJERES POR EL CORAZÓN [Internet]. 2019 [cited 29 March 2023]. Available from: <https://www.uc3m.es/prevencion/mujeres-por-el-corazon>.
28. Los Hospitales de Quirónsalud integrados en la red pública madrileña elaboran un “mapa de riesgo cardiovascular” de sus áreas de referencia gracias al Big Data [Internet]. 2022 [cited 1 February 2023]. Available from: <https://www.quironsalud.es/en/virtual-press-room/press-releases/hospitales-quironsalud-integrados-red-publica-madrilena-ela>.
29. Rey-Aldana D, Cinza-Sanjurjo S, Portela-Romero M, López-Barreiro JL, García-Castelo A, Pazos-Mareque JM, et al. Universal electronic consultation (e-consultation) program of a cardiology service. Long-term results. *Revista Española de Cardiología (English Edition)*.
30. Rey-Aldana D, Mazón-Ramos P, Portela-Romero M, Cinza-Sanjurjo S, Álvarez-Álvarez B, Agra-Bermejo R, et al. Longer-Term Results of a Universal Electronic Consultation Program at the Cardiology Department of a Galician Healthcare Area. *Circulation: Cardiovascular Quality and Outcomes*. 2022;15(1):e008130.
31. Spain’s Digital Health Strategy - National Health System [Internet]. 2021 [cited 27 March 2023]. Available from: https://www.sanidad.gob.es/ciudadanos/pdf/Digital_Health_Strategy.pdf.
32. European Parliament event: Let’s make a joint health check for CVD and diabetes happen, 28 February – 2 March 2023 [Internet]. 2023 [cited 14 March 2023]. Available from: <https://www.efpia.eu/news-events/events/efpia-event/let-s-make-a-joint-health-check-for-cvd-and-diabetes-happen/>.
33. Catapano AL, Wiklund O. Think Again About Cholesterol Survey. *Atheroscler Suppl*. 2015;20:1-5.
34. Wallentin L, Gale CP, Maggioni A, Bardinet I, Casadei B. EuroHeart: European Unified Registries On Heart Care Evaluation and Randomized Trials: An ESC project to develop a new IT registry system which will encompass multiple features of cardiovascular medicine. *European Heart Journal*. 2019;40(33):2745-9.
35. European Commission: European Health Data Space [Internet]. 2019 [cited 30 March 2022]. Available from: https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space_en.

About PwC

At PwC, our purpose is to build trust in society and solve important problems.

We're a network of firms in 156 countries with over 295,000 people who are committed to delivering quality in assurance, advisory and tax services. PwC Switzerland has over 3,380 employees and partners in 14 locations in Switzerland and one in the Principality of Liechtenstein. Find out more and tell us what matters to you by visiting us at www.pwc.ch.



Contacts



Dominik Hotz

Partner,
EMEA Health Industries Leader
PwC Switzerland
dominik.hotz@pwc.ch



Leticia Rodríguez Vadillo

Partner, Retail, Consumer
Goods & Healthcare
PwC Spain
leticia.rodriguez.vadillo@pwc.com



Claudia Vittori, PhD MPH

Senior Manager,
Advisory Health Industries
PwC Switzerland
claudia.vittori@pwc.ch

www.pwc.ch/pharma

This publication includes information obtained or derived from a variety of publicly available sources and expert opinions. PricewaterhouseCoopers AG has not sought to establish the reliability of those sources or verified such information. PricewaterhouseCoopers AG does not give any representation or warranty of any kind (whether expressed or implied) as to the accuracy or completeness of the information contained in this publication.

This publication has been prepared solely for general informational and discussion purposes. Nothing in this publication should be construed as advice to set up a topic-related project. Recipients of this publication must conduct their own appraisals.

Accordingly, regardless of the form of action, whether in contract, tort or otherwise, and to the extent permitted by applicable law, PricewaterhouseCoopers AG, its members, employees and agents do not accept or assume any liability, responsibility or duty of care for any consequences of any person acting, or refraining to act, in reliance on the information contained in this presentation or for any decision based on it.

© 2023 PwC. All rights reserved. In this document "PwC" refers to PricewaterhouseCoopers AG which is a member firm of PricewaterhouseCoopers International Limited, each member firm of which is a separate legal entity.