Summary of the Ischaemic Heart Disease Strategy of the Spanish National Health System

HEALTHCARE 2009
MINISTRY OF HEALTH AND SOCIAL POLICY

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Update approved by the Interterritorial Council of the Spanish National Health System on 22 October 2009.

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SPANISH NHS ISCHAEMIC HEART DISEASE STRATEGY

Foreword

The Ischaemic Heart Disease Strategy, like the other strategies implemented by the Quality Agency of the Spanish Ministry of Health and Social Policy (Cancer, Mental Health, Diabetes, Palliative Care, Strokes, Rare Diseases and COPD), is part of the **Quality Plan for the Spanish National Health System (NHS) of the Ministry of Health and Consumer Affairs (MSC).** The strategies are based on the powers granted to the Ministry of Health and Social Policy (MSPS) under Article 70 of the Spanish General Health Law, as well as under Article 64 of the Spanish Law on Cohesion and Quality of the NHS, according to which "without affecting the autonomous competencies with regard to healthcare planning and the organisation of services, the Ministry of Health and the competent authorities of the Autonomous Communities, through the Interterritorial Council of the National Health System, and in collaboration with the scientific societies, *draw up Comprehensive Health Plans on the most prevalent or relevant pathologies, or those that entail a high family and social burden*, guaranteeing comprehensive healthcare covering the disease's prevention, diagnosis, treatment and rehabilitation".

The Strategy was first approved by the Interterritorial Council of the Spanish NHS on 28 June 2006. The first Strategy Evaluation Report, drawn up by the Strategy's Monitoring and Evaluation Committee, was approved in November 2008. The completion of that first evaluation made it possible to assess the proposed indicators and review the objectives and recommendations according to the results achieved, as well as according to newly available knowledge. **This update is based on the conclusions of that first evaluation and on the review of current scientific evidence.** It is the result of consensus and collaboration between the Autonomous Communities, scientific societies, patient organisations, the independent experts involved and technicians from this Ministry.

Care for Ischaemic Heart Disease in Spain has been a strategic objective of the Ministry of Health and Social Policy since 2004. That is explained by the fact that in Spain cardiovascular disease, and more specifically ischaemic heart disease, is the leading cause of death and constitutes one of the main causes of morbidity and loss of health-related quality of life. And yet experts agree that cardiovascular diseases are entirely preventable. Firstly, before the onset of the disease, by following a healthy lifestyle and taking cardiovascular risk factors into account; secondly, through their early detection; and, finally, after the disease has manifested itself, since its negative impacts are also preventable.

Therefore, the Ischaemic Heart Disease Strategy is divided into 4 lines of action, i.e. health promotion and protection, healthcare, rehabilitation and research.

A rigorous approach to ischaemic heart disease calls for a set of actions that establish evidence-based, agreed criteria regarding the guidelines to be followed in any one of the strategy lines set out herein, in order to enhance the effectiveness and quality of the management of this pathology in all the health services of the Spanish health system. Accordingly, this document establishes a series of objectives and recommendations to

help improve the quality of the interventions and outcomes of the services and of healthcare.

Lastly, I would like to express my gratitude to all the people who helped draw up this document, and especially to Dr Alfonso Castro-Beiras, the Strategy's Scientific Coordinator. Without his dedication and efforts it would not have been possible to create a tool which, undoubtedly, will contribute to improving the quality of the healthcare provided to patients and their families.

Dr Trinidad Jiménez García-Herrera

Minister of Health and Social Policy

Introduction

This document is the first update of the Ischaemic Heart Disease Strategy of the Spanish National Health System, approved in June 2006, and represents another step forward in the Comprehensive Plan on Ischaemic Heart Disease. The aim was to provide continuity to the work already done, not by claiming to have created a document that is original, but rather one that is consistent with the progress made so far, aimed at continuous improvement and clinical excellence in ischaemic heart disease.

The Strategy was created with the idea of laying the foundations that would make it possible to reduce the burden of ischaemic heart disease on Spanish society. Since the implementation of the original document, which identified the main obstacles and suggested actions to overcome them, specifying objectives in different areas, certain specific and important achievements have been made. They include the intensification of the battle against tobacco; the promulgation of the Royal Decree on the use of defibrillators to enable care within the first few minutes of a heart attack; and the efforts made to reduce the time it takes to establish real contact with the health system by channelling all the coronary alarms through the centralised emergency services. Other noteworthy items included in the previous document and on which progress has been made are: the need for network collaboration regarding care for acute coronary syndrome; use of the best therapeutic option depending on the place and time, with emphasis on primary angioplasty for the treatment of acute myocardial infarction; the focus on gender differences; the identification of the existence of low-volume heart surgery units, which lead to disparate results (this corresponds to one of the key drivers of the parallel initiative of the MSPS, namely the creation of CSURs –Reference Centres, Services and Units of the Spanish NHS); and the consolidation of research networks as an essential strategy line for the management of this pathology.

Two years after the approval of the Strategy by the Interterritorial Council the results achieved and advances made were analysed by the Monitoring Committee at a meeting in Saragossa, and that same Council later approved the conclusions of the meeting. In view of the analysis and of the evolution of scientific knowledge over that period of time, it was agreed to update the document, both in terms of the current situation of ischaemic heart disease, and in terms of the objectives and recommendations. Accordingly, the document reflects the results of that agreement and, just like the original, will hopefully help improve the situation of ischaemic heart disease in Spain. In two years' time it will be re-evaluated and a new update will be made, and time as well as our overall capacity as a country will show how things are progressing and what direction we need to take.

Apart from the actual document, I would like to stress certain aspects of the process of creating it, which turned out to be enriching not only for the final product but also for us, the people who had the chance to work more directly on the day-to-day development of the Strategy.

Firstly, the original structure of two working groups, i.e. a “scientific” and an “institutional” group, quickly turned into the homogeneous work of a single team which, thanks to the many work meetings and the common determination to progress and improve, was enhanced by the sum of the parties. This consensus-based way of working, enriched by the different points of view and strengths in teams of varying

origins, sets this initiative apart and provides it with significant added value. Moreover, it is a positive example of how to work within the health system and facilitate the transfer of knowledge to real life.

The main principles that guided the discussions were the search for quality and equity, qualities at first offered by the scientific and institutional committee, but soon adopted by all, and guided by the comprehensive and integrating approach of the Ministry of Health and Social Policy. In addition to all of that, the work was appropriately filtered through the inclusion of citizens in drawing up the document.

I would like to sincerely thank everyone who helped make this initiative a reality, all those who generously contributed to it and who are mentioned as members of the Strategy's committees. Worthy of special mention is the assistance provided by all the Autonomous Communities as well as by the Ministry of Health and Social Policy through its different bodies, especially the Quality Agency of the National Health System and the Health Planning and Quality Office.

Personally, I felt very comfortable and grateful to be able to share concerns, propose solutions and enjoy the progress -sometimes small, sometimes large- that has been made. As I said at the start of this introduction, I hope that this document will represent another step forward, although not the last, in the continuous process of improving the prevention and care of ischaemic heart disease as a service to the people of Spain who, ultimately, are the focus of our efforts.

ALFONSO CASTRO BEIRAS

Scientific Coordinator of the Ischaemic Heart Disease Strategy

Justification

Spanish General Health Law 14/1986, of 25 April, defines the National Health System as the group of health services provided by the Central Government and the Autonomous Communities, integrating all the functions and healthcare benefits under the responsibility of the public powers for due fulfilment of the right to health protection. In addition, the General Health Law establishes universal coverage as one of the basic characteristics of the Spanish system, by stating that public healthcare shall be provided to the entire population. Likewise, it states that equity, as a general principle of the National Health System, is understood as the guarantee that the access to and provision of healthcare benefits will take place in conditions of effective equity.

The Spanish National Health System is currently characterised by its wide-ranging decentralisation, which reached completion in 2002. Since then, all the Autonomous Communities have been vested with authority over the health matters set forth under the Spanish legal system. That decentralisation contributes to ensuring that the public health services are focussed on the health needs of the citizens, patients and users, making it possible for the Autonomous Communities to take into account the specific and particular characteristics of the territories in which the service providers are established. This National Health System, the decentralisation of which facilitates a better adaptation to the health needs of patients and users, also requires cohesion and coordination actions to be carried out in order to ensure the suitable application of common strategies and measures throughout the entire country.

Among other tasks, the Ministry of Health and Social Policy (MSPS) is in charge of coordinating the National Health System, strengthening cohesion and ensuring equity in the access and quality of the services offered, in keeping with Law 16/2003 of 28 May. When all the Autonomous Communities (AC) are concerned, the MSPS, together with the competent authorities of the AC, through the Interterritorial Council of the National Health System and in collaboration with the scientific societies, draws up joint strategies on the most prevalent or relevant pathologies, or those that entail a high family and social burden, thereby guaranteeing comprehensive healthcare covering the disease's prevention, diagnosis, treatment and rehabilitation. Ischaemic heart disease is among those pathologies.

In view of all the above, the Ministry of Health and Social Policy decided to drawn up the Spanish NHS Ischaemic Heart Disease Strategy, basing it on the Comprehensive Plan on Ischaemic Heart Disease approved by the plenary session of the Interterritorial Council in the year 2003. The first Spanish NHS Ischaemic Heart Disease Strategy was approved by the Interterritorial Council of the Spanish NHS (CISNS) on 28 June 2006, on the agreement that a first evaluation would be made two years later. For that purpose the Monitoring and Evaluation Committee (MEC) was created, made up of representatives of the Autonomous Communities (AC) and the National Health Management Institute (INGESA), as well as the scientific societies that are most relevant in the context of the Strategy. The evaluation methodology was established by general consensus.

As agreed in 2008, an analysis was made of the indicators, the sources of which were the actual AC and the Health Information Institute (IIS). The result is reflected in an evaluation report which was approved by the CISNS on 26 November 2008.

On the basis of the evaluation report, which provides an insight into the current situation of ischaemic heart disease in Spain, and the study of current scientific evidence on the said subject, the strategy on ischaemic heart disease was updated, thereby making it possible to continue improving care for this pathology.

That led to the creation of a new document which sets out the knowledge currently available on this disease, and which enjoyed the generous collaboration of the most renowned experts in each of the lines of action, as well as the approval of the MEC.

This document is presented for a period of four years. In the framework of the continuous monitoring of the Strategy, a partial evaluation will be made in two years' time (2011) and an overall evaluation in four years' time (2013). Accordingly, the Monitoring and Evaluation Committee will continue its activities.

We hope that this update will continue to help positively transform the prevention, diagnosis, treatment and research of coronary heart disease in Spain.

Structural Technical Note

This document consists of four parts:

1. General Aspects, which covers the document's methodology, the definition of concepts and the current situation of heart disease in Spain.

2. Development of the strategy lines, which sets out the technical support objectives and recommendations to help improve the quality of interventions and outcomes in ischaemic heart disease.

3. Evaluation and information systems, which sets out the indicators for the monitoring of actions taken towards the achievement of the Strategy's objectives.

4. Index of abbreviations and acronyms.

GENERAL ASPECTS

1.1. ANALYSIS OF THE CURRENT SITUATION OF HEART DISEASE IN SPAIN

1.1.1. Magnitude and distribution of the problem

Mortality

In Spain, cardiovascular diseases constitute one of the leading health problems for the population. Most of the avoidable deaths are due to coronary diseases, and occur in the out-of-hospital environment. According to estimates, approximately 24,500 cardiac arrests occur per year in Spain, which is equivalent to an average of one every 20 minutes, causing four times more deaths than traffic accidents, and ventricular fibrillation is the initial cause of up to 85% of out-of-hospital cardiac arrests.

Cardiovascular diseases are the leading cause of death for the Spanish population as a whole. In 2007 they claimed 124,126 lives (56,998 men and 67,128 women), accounting for 32.21% of total deaths (28.33% in men and 36.43% in women), with a crude mortality rate of 276 per 100,000 population (257 in men and 295 in women). (INE, 2007)

In 2007 ischaemic heart disease was responsible for 37,222 deaths, accounting for 9.65% of all deaths, 15,974 of which occurred in women (8.67%) and 21,248 in men (10.56%).

In Spain, ischaemic heart disease currently causes the largest number of cardiovascular deaths (29.98% in total; 37.28% in men and 23.79% in women). Within the ischaemic heart disease group, acute myocardial infarction is the most frequent subgroup, with 48.01% (59.10% in men and 59.39% in women). (INE, 2007)

Age-adjusted cardiovascular mortality rates and age-specific rates are higher in men (until 85 years of age). Nevertheless, the proportionate mortality rate, the crude mortality rates and the absolute number of deaths are higher in women.

The apparent paradox described above is the result of two well known facts. Firstly, the higher cardiovascular risk in men, reflected in the age-specific rates. In fact, the coronary risk in men is similar to that in women who are 10 years older than those men. Secondly, cardiovascular disease is much more common in later stages of life, when the number of women far outweighs the number of men. That explains why women, despite having a lower cardiovascular risk than men, have higher proportionate and crude mortality rates, and a higher number of deaths due to this cause (Villar Alvarez et al, 2007).

Morbidity

Hospitalisations for the group of diseases of the circulatory system accounted for 12.8% of the total. In terms of most common diagnosis groups, men had a higher rate of hospital discharges per 100,000 population than women.

The hospital morbidity rate for diseases of the circulatory system was 1360 per 100,000 population (1,535 in men and 1,190 in women) in 2007 in Spain (INE, 2007). The hospital morbidity rate of ischaemic heart disease was 317 per 100,000 population (447 in men and 189 in women), and the subgroup of other forms of ischaemic heart disease was much more frequent (165 per 100,000 population) than acute myocardial infarction (122 per 100,000 population).

Morbidity from ischaemic heart disease is nearly twice as high as cerebrovascular morbidity in men, whereas in women cerebrovascular morbidity is slightly higher than cardio-ischaemic morbidity (Villar Alvarez et al. 2007). Furthermore, the main cause of hospitalisation for cardiovascular diseases in both sexes is the group of remaining cardiovascular diseases, which in many cases present with cardiac insufficiency. That syndrome is the primary cause of hospitalisation in people over the age of 65 years. All the information set out above illustrates the enormous impact of cardiovascular diseases on hospital care in Spain. Moreover, mortality from acute myocardial infarction (AMI) is higher in the out-of-hospital environment than in hospitalised patients. In fact, many deaths from AMI occur in patients who fail to reach the hospital.

An interesting aspect of the analysis by REGICOR is that the improvements in AMI attack rates only occur in the group of men aged between 35 and 64 years, but not in those aged between 65 and 74 years, which means that we are simply helping (or contributing) to delay the age of the onset or recurrence of the AMI. Thankfully, the lethality of AMI is also reduced in this older group because of hospital treatments. In women aged between 35 and 74 years, both the attack rate as well as the lethality of AMI was reduced. However, there is a lack of population information on the incidence and lethality of AMI in people aged over 74 years who, in certain hospital registers (PRIMVAC, observation not yet published), account for more than 25% of people hospitalised in coronary care units (known as UCIC in Spain) for AMI. (Cabadés O'Callaghana, A. The REGICOR registry and the epidemiology of myocardial infarction in Spain: forging a path [in Spanish] 2007)

Lifestyles

Estimates have been made based on regional or national level prevalence studies of the population risk for ischaemic heart disease attributable to various risk factors (proportion of ischaemic heart disease cases that could have been avoided through the elimination of various population risk factors), in the Spanish adult population over the age of 16 years (Villar Alvarez et al, 2006). The results obtained for the modifiable risk factors, according to gender, were as follows: tobacco accounts for 42% in men and 27% in women; physical inactivity for 40% in men and 50% in women; hypertension (values greater than or equal to 140/90 mmHg) for 35% in men and 35% in women; dyslipemia (cholesterol levels greater than or equal to 200 mg/dl) for 50% in men and 50% in women; diabetes for 5% in men and 7% in women; and obesity (BMI greater than or equal to 30 kg/m2) for 13% in men and 15% in women. It must be noted that the sum of the aforementioned percentages exceeds 100% because the deaths may be due,

simultaneously, to various risk factors. The fundamental message is that interventions to tackle the risk factors, many of which are linked to lifestyles, may delay the onset of the majority of ischaemic heart disease cases.

Differences between Autonomous Communities

According to Bertomeu et al. (2008) the mortality rate from cardiovascular disease (CVD) in Spain varies substantially between the different regions. Those with the highest cardiovascular mortality rate, both for ischaemic heart disease (IHD) as well as for cerebrovascular disease, are the Community of Valencia, Extremadura, Andalusia and Murcia, only exceeded by the Canary Islands as regards mortality from IHD. Moreover, Madrid, Navarre, Castile and Leon and Aragon are the communities with the lowest adjusted cardiovascular mortality rates, with less than 190 cases/100,000 population. The Basque Country and Galicia can be added to the aforementioned communities as regards IHD mortality, and the Basque Country as regards mortality from cerebrovascular disease as well. The exact reasons behind the geographical pattern of cardiovascular mortality in Spain are not known, but the differences found between the regions are likely to be due to modifiable environmental factors, like socioeconomic status, tobacco consumption, physical activity and dietary factors, which emphasises the achievable prevention potential (Bertomeua V; Castillo-Castilloa J. Situación de la enfermedad cardiovascular en España. Del riesgo a la enfermedad).

Summary table of cardiovascular diseases in Spain. Population-based studies in adults.

Diseases	Total	Men	Women	Source and comments
Total cardiovascular disease				
Deaths (2007)	**124,126**	**56,998**	**67,128**	Deaths by cause
Hospitalisations (2007)	**610,449**	**340,165**	**270,284**	Hospital morbidity survey
IHD				
Deaths IHD (2007)	**37,222**	**21,248**	**15,974**	Deaths by cause
Deaths MI (2007)	**21,594**	**12,559**	**9,035**	Deaths by cause
Hospitalisations IHD (2007)	**142,074**	**99,067**	**43,007**	Hospital morbidity survey
Hospitalisations MI (2007)	**54,878**	**38,342**	**16,537**	Hospital morbidity survey
Hospitalisations AP (2007)	**13,250**	**7,930**	**5,320**	Hospital morbidity survey
Incidence MI (age-adjusted/10^5)				
MONICA-Catalonia (1985-1997)		**209**	**56**	People aged 35-37 years
IBERICA (1997-1998)		**207 (175-252)**	**45 (36-65)**	**People aged 25-74 years (interval in the 7 IBERICA registers)**
Lethality MI (in first 28 days)				
MONICA-Catalonia (1985-1997)		**46%**	**53%**	People aged 35-37 years
REGICOR (1990-1998)		**41.60%**	**45.30%**	People aged 25-74 years
Prevalence MI, ≥ 16 years (2006)	**2.39%**	**3.30%**	**1.62%**	ENS
Prevalence AP, 45-75 years (1995-1996)	**7.50%**	**7.30%**	**7.70%**	PANES study
Stroke				
Deaths (2007)	**33,034**	**14,070**	**18,964**	Deaths by cause
Hospitalisations (2007)	**115,683**	**62,050**	**53,634**	Hospital morbidity survey
Prevalence, ≥ 16 years (2006)	**0.95%**	**0.80%**	**1.10%**	ENS. Estimated based on embolism
Prevalence, ≥ 70 years (1991-2002)	**6.70%**	**7.50%**	**6.10%**	Set of studies of the centre and north of Spain.
Cardiac insufficiency				
Deaths (2007)	**20,092**	**7,032**	**13,060**	Deaths by cause
Hospitalisations (2007)	**96,820**	**43,866**	**52,954**	Hospital morbidity survey
Prevalence, ≥ 75 years (2006)	**0.187**	**(?)**	**(?)**	M.Anguita (personal communication)

AP: angina pectoris; IHD: ischaemic heart disease; ENS: National School of Public Health; MI: myocardial infarction.
Source: Rodríguez Artalejo et al. 2008.

1.1.2. The burden of ischaemic heart disease in Spain (2006)

The objective of burden of disease studies is to measure and compare populations' loss of health caused by different diseases and risk factors, taking into account their fatal and non-fatal outcomes, through the synthetic indicator Disability Adjusted Life Years (DALYs). DALYs are the result of the combination of the Years of Life Lost (YLL) or premature mortality and the Years Lived with Disability (YLD) or poor health (Pereira J, Cañón J, Álvarez E, Gènova R. La medida de magnitud de los problemas de salud en el ámbito internacional: los estudios de carga de enfermedad and Gènova-Maleras R, Álvarez-Martín E, Morant-Ginestar C. Carga de enfermedad y tendencias de morbilidad de la población española).

In Spain, cardiovascular diseases constitute the third leading cause of disease burden (12.5% of total DALYs), with an important mortality component. Of the nearly 602 thousand DALYs lost in 2006 due to cardiovascular diseases, 84% correspond to years of life lost due to premature mortality (YLL) and 16% to years lived with disability or poor health (YLD). Within this group of diseases, ischaemic heart disease stands out as the primary cause of DALY losses, with approximately 227 thousand (4.5% of the total DALYs and 38% of the total burden from circulatory diseases), making it the third leading disease burden on the population (see Table 1). For every 100 DALYs lost due to ischaemic heart disease, 86% correspond to premature mortality (YLL) and 14% to disability or poor health (YLD). In men, ischaemic heart disease is the leading cause of the number of DALYs lost (5.7% of the total). Meanwhile, in women it accounts for 3.2% of DALYs lost (see Table 2), after unipolar depression (11.6%), dementias (9.5%), hearing losses (4.1%) and cerebrovascular disease (3.8%) (Catalá López F, Álvarez Martín E, Gènova Maleras R, Morant Ginestar C. Relationship between Research Funding in the Spanish National Health System and the Burden of Disease [in Spanish]). As regards ages, in men a greater loss in terms of health is observed as of the age of 45 years, and in women as of the age of 70 years.

Table 1. The ten leading specific causes of disease burden (in DALYs) and mortality in Spain in the year 2006. Proportion of total DALYs and of total deaths due to all causes.

	DALY	%	Mortality	%
1.	**Unipolar depression**	8.8	**Ischaemic heart disease**	10.4
2.	**Dementias**	7.6	**Cerebrovascular disease**	9.2
3.	**Ischaemic heart disease**	4.5	**Dementias**	5.9
4.	**Alcohol abuse**	4.1	**Lung cancer**	5.7
5.	**Hearing disorders**	3.9	**COPD**	4.5
6.	**Lung cancer**	3.4	**Colon and rectum cancer**	3.8
7.	**Cerebrovascular disease**	2.9	**Infections of the lower resp. tract**	2.4
8.	**Traffic accidents**	2.6	**Hypertensive heart disease**	1.9
9.	**Arthrosis**	2.5	**Breast cancer**	1.8
10.	**COPD**	2.3	**Nephritis, nephrosis**	1.8
	All causes	100	**All causes**	100

DALY: Disability Adjusted Life Year; COPD: Chronic Obstructive Pulmonary Disease

Source: own preparation based on Catalá López F, Álvarez Martín E, Gènova Maleras R, Morant Ginestar C. Relationship between Research Funding in the Spanish National Health System and the Burden of Disease [in Spanish].

Table 2. Burden of disease (in DALYs) attributable to cardiovascular disease in Spain in the year 2006 (by gender). Proportion of total cardiovascular diseases and of total causes.

	DALY (%) of total causes			DALY (%) of total cardiovascular diseases		
	Both sexes	Men	Women	Both sexes	Men	Women
Cardiovascular diseases	12.3	13.2	11.3	100.0	100.0	100.0
Ischaemic heart disease	4.5	5.7	3.2	36.7	43.1	28.0
Cerebrovascular disease	2.9	2.7	3.1	23.5	20.3	27.8
Inflammatory heart disease	1.0	1.2	0.8	8.1	9.0	7.0
Hypertensive disease	0.5	0.4	0.7	4.2	2.9	6.0
Rheumatic heart disease	0.2	0.1	0.3	1.4	0.8	2.3
Other cardiovascular diseases	3.2	3.1	3.3	26.0	23.9	28.9

DALY: Disability Adjusted Life Year

Source: own preparation based on Catalá López F, Álvarez Martín E, Gènova Maleras R, Morant Ginestar C. Relationship between Research Funding in the Spanish National Health System and the Burden of Disease [in Spanish].

2. DEVELOPMENT OF THE STRATEGY LINES

The objectives, indicators and recommendations of the Strategy are set out below. They have been reviewed, prioritised and agreed by consensus by the Technical Committee and the Institutional Committee, and are the result of the evaluation process of the document, as well as the systematic review of the strategy lines by experts appointed by the MSPS.

2.1. HEALTH PROMOTION AND PROTECTION

2.1.1. OBJECTIVES

Objective 1:
To reduce the prevalence of tobacco consumption among young people (aged 16-24 years) in Spain (or any Autonomous Community), achieving a level below 23% (21% in men, 25% in women).

Objective 2:
To delay, by half a year, the age at which tobacco consumption starts among the population aged between 14 and 18 years.

Objective 3:
To reverse the current trend of the increasing prevalence of obesity among the population, achieving a level below 8.94% for child obesity (9.13% in boys, 8.74% in girls) and below 15.37% for adult obesity (15.55% in men, 15.19% in women).

Objective 4:
To increase the percentage of the population that engages in physical activity. The percentage of people who are physically inactive must be below 35% (31% in men, 37% in women).
To design specific programmes targeted at women, since the percentage of physical inactivity is higher among women than among men.

Objective 5:

a) To promote the design of a system to monitor the quality of care in the Autonomous Communities. It must include at least one of the following aspects, considered to be of key importance in relation to the Risk Factors.

b) To raise awareness among health professionals so that they acknowledge ischaemic heart disease as a disease that greatly affects women.

2.1.2. RECOMMENDATIONS

• Autonomous Communities are advised to offer tobacco cessation programmes to the entire population, with particular focus on the following categories: role models (in the fields of education and health) and special risk groups (pregnant women and women planning a pregnancy, the population of smokers with a pathology caused or aggravated by tobacco consumption, etc.).

- Create a health programme for boys and girls, with a gender-sensitive approach to tobacco cessation.

- Increase information among the population about the effects of tobacco consumption on the health of both smokers and people exposed to environmental tobacco smoke. Promote awareness raising campaigns adapted to specific target groups according to age, gender and role.

- Improve health professionals' training in the prevention and treatment of tobacco addiction, thereby promoting the provision of anti-smoking health advice to all users.

- Improve teaching professionals' training on the effects of tobacco on health and the prevention of tobacco addiction in schools.

- Teach pupils about tobacco addiction as part of the health education content in schools, involving the entire educational community (parents, teachers and pupils) in the prevention of tobacco consumption.

- Raise awareness among parents, teachers, healthcare workers and social leaders about their position as role models with regard to the acquisition of the smoking habit among children and teenagers.

- Ensure enforcement of current legislation on tobacco advertising, sales and consumption.

- Action in the field of food education and education on consumption for the general population. Provide the population with clear and accessible information about the contents of a healthy diet.

- Food-related training action for educators.

- Reinforce food education in classrooms.

- Offer healthy meals within the framework of institutional food establishments: in schools, institutional canteens, public and private.

- Encourage the Spanish Food Safety and Nutrition Agency (AESAN) to get involved and collaborate with the food industry in the preparation and promotion of heart-healthy foods, stressing the importance of controlling salt and fat contents, and of the information on the label.

- Improve the training of healthcare professionals.

- Early detection of habits that may lead to obesity in childhood and adolescence.

- Control advertisements that are misleading and induce bad habits with regard to food, dietary products and "miracle" diets, especially those that target children.

- Promote the practice of moderate physical exercise among the general population.

- Promote the practice of physical exercise in schools and during free time.

- Promote the practice of physical exercise using the resources available in the workplace and in daily life: walking to places whenever possible, taking the stairs, using public transport.

- Ensure enforcement of current legislation on alcohol consumption at national, regional and local level.

- Include the prevention of the consumption of alcoholic beverages in health education programmes at school, targeting pupils, parents, educators and other sectors involved.

- Apply the principles of preventive action established by Law 31/1995 on Occupational Risk Prevention.

- Ensure enforcement of current legislation on alcohol advertisements, sponsorship, sales and consumption, including sanctioning activities.

- Reinforce information and education aimed at the general population and specific population groups (children, adolescents, pregnant women) about the risks related to alcohol consumption.

- Promote strategies for alternative, healthy alcohol-free leisure activities among young people.

- Raise awareness among the population about the need to keep alcohol consumption moderate.

- Promote the early identification of at-risk drinkers through screening and brief intervention.

- Facilitate the training of professionals in how to approach alcohol-induced problems: early diagnosis, counselling, treatment, etc.

- Promote the brief intervention by emergency and primary care professionals in at-risk drinkers (assessment of alcohol consumption, provision of information and health advice), since available evidence has proven that to be the most cost-effective approach.

- The inclusion of strategies of proven efficacy, like the brief intervention strategy, in Primary Care programme contracts is highly recommendable.

- When installing defibrillators, prioritise public areas through which large numbers of people pass: train stations, airports, sports centres, etc.

2.2. HEALTHCARE

2.2.1. OBJECTIVES

Objective 6
To identify all people with a documented history of cardiovascular disease (coronary disease or any other occlusive arterial disease: cerebral or peripheral) and appropriately record that fact in their medical histories.

Objective 7
To identify all people with a cardiovascular risk factor (tobacco addiction, arterial hypertension, dyslipemia, diabetes mellitus and obesity) and appropriately record that fact in their medical histories.

Objective 8
To calculate and assess the cardiovascular risk of people in whom a risk factor has been detected (tobacco addiction, arterial hypertension, dyslipemia, diabetes mellitus and obesity) and who have not yet developed disease symptoms, offering them, in accordance with their level of risk, the preventive and therapeutic interventions necessary to control the risk factors and to reduce their cardiovascular risk.

Objective 9:
To provide in situ care, with the capacity to defibrillate as swiftly as possible, and provide prompt transport to a hospital, with qualified staff and appropriate equipment.

Objective 10:
a) To define a healthcare network in the Autonomous Communities regarding care for patients with acute coronary syndrome and chronic ischaemic heart disease, establishing the care pathways for those patients.
b) To design quality monitoring systems for acute coronary syndrome which include those aspects considered to be of key importance in relation to the care process.

Objective 11:
To improve the outcome of the interventions or actions of interventional cardiology services and cardiac surgery services. The achievement of the following results is prioritised:
• Overall mortality after coronary angioplasty <2%. Mortality after angioplasty “in acute myocardial infarction” should be <6%, and in the event that it is “not in acute myocardial infarction” should be <1%.
• Re-intervention rates (new angioplasty or surgery) one year after the angioplasty <10%.
• Hospital mortality after coronary surgery <6%.
• Use of arterial grafts in revascularised patients >80%.
• Heart transplant mortality after one year <20%.

2.2.2. RECOMMENDATIONS:

• Design and launch a strategic communication plan targeting populations of interest, aimed at achieving a more efficient use of emergency services.

• Expand the medical transport system (medical staff and defibrillator) for the entire population, whether in rural or urban areas, with the shortest possible delays.

- Coordinate the care between the different emergency medical systems and receiving hospitals. An alert procedure must be established with the final destination units (coronary unit, intensive care unit, hemodynamic laboratory) so as to reduce inter-hospital transfer times.

- In order to perform out-of-hospital fibrinolysis, emergency service teams treating patients with acute myocardial infarctions in rural areas must be trained so as to make correct diagnoses and treatment indications; or, failing that, they must be provided with electrocardiogram transmission to the reference hospital in order to confirm the diagnosis before administering fibrinolytics, thereby avoiding diagnostic errors or possible complications.

- Primary angioplasties as the initial treatment for myocardial infarctions requires the creation of a tertiary hospital network with continuous availability of angioplasty, and another network for the transfer of patients from their homes, primary care centre or regional hospital with qualified staff and with external defibrillators. Transfer protocols agreed by consensus by the hospitals, centres of reference and transport systems (emergencies) must be established in order to avoid unnecessary delays.

- Every hospital should be assigned a reference hospital for the treatment of seriously ill patients or those who require special techniques, and there should be a clearly defined, stable and fluid referral circuit. Access to those centres should be immediate or within 24 hours, depending on the severity of the problem.

- Organise hospital emergency services in such a way that they can immediately treat patients with suspected acute coronary syndrome. They must have classification systems and observation areas with the necessary equipment to monitor the patients.

- Hospitals that treat patients with AMI must have at their disposal qualified medical staff and the necessary equipment and facilities. Accordingly, they must have an emergency service with monitoring facilities, a coronary unit or an intensive care unit and, in addition, an echocardiographer, stress test and a laboratory that determines troponin, total cholesterol and cholesterol fractions.

- Promote the use and application of clinical practice guides, the quality and utility of which must have been previously assessed and accepted. Mechanisms must be found to incentivise their correct use by all professionals concerned, and the management teams of the centres and institutions should be involved in that process.

- Healthcare organisations should develop systems to evaluate and record the quality of care activities in order to guarantee the good clinical practice of centres and professionals.

- Promote the design of a specific information subsystem for acute coronary syndrome that records the different time lapses between the onset of the symptoms and treatment with a defibrillator.

- Increase the number of cardiovascular health programmes aimed at women within existing health education programmes.

- Develop a system to record the time lapses from the onset of the symptoms until the request for medical assistance. This information system should include the possibility to disaggregate the data by gender and age.

- Develop a system to record the time lapses from the request for medical assistance until the adequate delivery of that assistance to the patient. “Adequate” is understood to mean that the patient can be defibrillated, regardless of whether it is performed in the patient’s home, an ambulance, a primary care centre or hospital, and that the medical treatment starts. This information system should include the possibility to disaggregate the data by gender and age.

- Develop a system to record the time lapses from the request for medical assistance until the start of the reperfusion (whether through a primary angioplasty or fibrinolysis). This information system should include the possibility to disaggregate the data by gender and age.

2.3. CARDIAC REHABILITATION

2.3.1. OBJECTIVES

Objective 12:
To provide access to secondary prevention and cardiac rehabilitation programmes for patients discharged from hospital, as well as for their families and/or carers.

2.3.2. RECOMMENDATIONS

The following recommendations are aimed at the development of actions and interventions that will help achieve the objective prioritised in this strategy line:

- Improve health professionals' knowledge of secondary prevention and cardiac rehabilitation. One way of improving that knowledge must be through the continuous training of professionals involved in secondary prevention and rehabilitation.

- During patients' hospital stay the status of their risk factors, physical, psychological and social problems will be evaluated, with the aim of improving the situation after hospital discharge. That information will be sent to the patient's GP or the people in charge of managing the patient's problem.

- Patients must be provided with detailed information about secondary prevention measures. The discharge report must contain advice about the importance of adopting healthy eating habits, giving up smoking, alcohol and other toxic substances, doing physical exercise and maintaining an adequate body weight. Likewise, the report should contain recommendations for a strict control of risk factors (arterial hypertension, dyslipemia, diabetes and obesity), as well as the correct use of the medication prescribed to the patient. All that information, in addition to verbally, must be provided in writing or in any another form deemed to be more appropriate.

- Create, implement and maintain multifactorial and interlevel secondary prevention and cardiac rehabilitation programmes, which should start during patients’ hospital stay, and provide patients with the necessary information to continue those programmes after hospital discharge.

2.4. RESEARCH

2.4.1. OBJECTIVES

Objective 13:
To reinforce research through structured networks for the conduct of longitudinal, collaborative and multicentre population-based epidemiological studies regarding cardiovascular risk factors.

Objective 14:
To reinforce and, like that, incentivise research in order to gain a better insight into inequalities (gender, social class, etc.) and promote the inclusion of a gender approach in all research into heart disease, and especially in clinical trials.

Objective 15:
To enhance the quality and degree of implementation of clinical practice guides on coronary syndromes, and establish one or several accredited clinical practice guides with a gender approach.

2.4.2. RECOMMENDATIONS

The following recommendations are aimed at the development of actions and interventions that will help achieve the objectives prioritised in this strategy line:

- Strengthen and expand thematic networks for research in the field of cardiovascular diseases.

- In public calls for research proposals prioritise the development of Health Prevention and Promotion Programmes in the Area of Cardiovascular Diseases by Primary Care from within the Spanish NHS.

- In public calls for research proposals prioritise the development of studies that analyse the handling of chronic coronary patients in primary care and of acute coronary patients in hospitals.

- Develop public calls for research proposals in which priority is given to the development of studies on survival, clinical events and quality of life in ischaemic heart disease.

- Promote and encourage the creation of a Spanish Clinical Practice Guide on Ischaemic Heart Disease.

3. STRATEGY EVALUATION AND INFORMATION SYSTEMS

3.1. SUMMARY TABLE OF INDICATORS

STRATEGY LINE	OBJECTIVE	INDICATOR	Sources
1. Health promotion and protection	Objective 1	Prevalence of tobacco consumption in young people	**ENSE. MSPS**
	Objective 2	Average age at which smoking starts	**ENSE. MSPS**
	Objective 3	Prevalence of obesity in children	**ENSE. MSPS**
		Prevalence of obesity in adults (older than 17 years)	**ENSE. MSPS**
	Objective 4	Prevalence of physical inactivity in adults	**ENSE. MSPS**
2. Healthcare	Objective 6	Treated prevalence of people with ischaemic heart disease	**PCCDB. PCIS. MSPS**
		Treated prevalence of people with cerebrovascular disease	**PCCDB. PCIS. MSPS**
	Objective 7	Detection of cardiovascular risk factors (CVRF): (needs to be disaggregated into 5 basic indicators): a) Percentage of people with hypertension treated in PC b) Percentage of people with diabetes treated in PC c) Percentage of people with hypercholesterolemia treated in PC e) Percentage of people with obesity treated in PC f) Percentage of people who smoke detected in PC *) More combinations of two or more of these factors	**PCCDB of the PCIS. MSPS**
	Objective 8	Percentage of people with quantification of cardiovascular risk	**PCCDB of the PCIS. MSPS**
	Objective 9	• Total no. of emergency ambulances per 100,000 population. • No. of advanced life support (ALS) ambulances per 100,000 population. • No. of basic life support ambulances with defibrillator per 100,000 population.	**AC. MSPS**
	Objective 10.a	Healthcare network for the care of patients with acute coronary syndrome (ACS)	**AC. MSPS**
		Healthcare network for the care of patients with chronic ischaemic heart disease	**AC. MSPS**
	Objective 11	Use of arterial grafts in revascularised patients	**MBDS. MSPS**
		Re-intervention rates in revascularised patients	**MBDS. MSPS**
		• Overall in-hospital mortality after coronary angioplasty. • In-hospital mortality after coronary angioplasty in patients with acute myocardial infarction (AMI). • In-hospital mortality after coronary angioplasty in patients with no acute myocardial infarction (AMI).	**MBDS. MSPS**
		Hospital mortality after coronary surgery	**MBDS. MSPS**
		Heart transplant mortality	**ONT. MSPS**
3. Rehabilitation	Objective 12	Percentage of health areas with a cardiac rehabilitation programme	**AC**

4. Research	Objective 13	Number of accredited research networks on ischaemic heart disease	**ISCIII. MCINN**
Overall Indicators		Hospitalisation rate for acute myocardial infarction	**MBDS. MSPS**
		Mortality rate from ischaemic heart disease	**INE and own preparation by the MSPS**
		Premature mortality due to ischaemic heart disease	**INE and own preparation by the MSPS**

AC: Autonomous Communities
ENSE: Spanish National Health Survey
ESCRI: Statistics of establishments with inpatient facilities
INE: National Statistics Institute
ISCIII: Carlos III Health Institute (RTICs and CIBER)
MBDS: Minimum Basic Data Set (hospital discharge register)
MICINN: Spanish Ministry of Science and Innovation
MSPS: Spanish Ministry of Health and Social Policy
ONT: National Transplant Organisation
PCCDB: Primary Care Clinical Database
PCIS: Primary Care Information System

3.2. INDICATORS

3.2.1. QUANTITATIVE INDICATORS:

3.2.1.1. STRATEGY LINE 1: Health Promotion and Protection

Objective 1:

Prevalence of tobacco consumption in young people aged between 16 and 24 years

- **Formula:** [a) / b)] * 100
  a) Number of people aged 16 years or over who reported that they were smokers at the time of the interview.
  b) People aged 16 years or over interviewed.
- **Definitions**: a smoker is defined as any person who consumes tobacco on a daily basis, regardless of the type and amount of that consumption.
- **Source**: National Health Survey. MSPS (col. INE).
- **Disaggregation**: by Autonomous Community and by gender.
- **Periodicity**: according to survey conduction.

Objective 2:

Average age at which the smoking habit starts

- **Formula**: average of the ages at which tobacco consumption is reported to have started, of the people who reported that they were smokers at the time of the interview.
- **Definitions**: a smoker is defined as any person who consumes tobacco on a daily basis, regardless of the type and amount of that consumption.
- **Source**: National Health Survey. MSPS (col. INE).
- **Disaggregation**: by Autonomous Community and by gender.
- **Periodicity**: according to survey conduction.

Objective 3:

Prevalence of obesity in children

- **Formula**: [a) / b)] * 100
  a) Number of people aged between 2 and 17 years, with a body mass index in the obese range.
  b) People of the above ages included in the survey.
- **Definitions**: the body mass index is calculated on the basis of the weight and height reported in the interview.
  The BMI applicable from 2 to 17 years is determined according to gender and age subgroups, and is equal to or greater than the cut-off points established by Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. (Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ 2000; 320: 1-6).
- **Source**: National Health Survey. MSPS (col. INE).
- **Disaggregation:** by Autonomous Community and by gender.
- **Periodicity**: according to survey conduction.

Objective 3:

Prevalence of obesity in adults (aged over 17 years)

- **Formula**: [a) / b)] * 100
  a) Number of people over the age of 17 years, with a body mass index in the obese range.
  b) Total number of people of the above ages included in the survey.
- **Definitions**: the body mass index is calculated on the basis of the weight and height reported by the person interviewed. A person is considered to be obese if his/her BMI is equal to or greater than 30 kg/m2, in the case of people aged 18 years or over.
- **Source**: National Health Survey. MSPS (col. INE).
- **Disaggregation:** by Autonomous Community or by gender.
- **Periodicity**: according to survey conduction.

Objective 4:

Prevalence of physical inactivity in adults

- **Formula**: [a) / b)] * 100
  a) Number of people aged 16 years and over with a level of physical activity that classifies them as physically inactive.
  b) People aged 16 years and over interviewed.
- **Definitions**: a physically inactive person is defined as any person who, in his/her spare time, does not usually engage in any type of physical activity like walking, doing sport, gym, etc.
- **Source**: National Health Survey. MSPS (col. INE).
- **Disaggregation:** by Autonomous Community and by gender.
- **Periodicity**: according to survey conduction.

3.2.1.2. STRATEGY LINE 2: Healthcare

Objective 6:

Treated prevalence of people with ischaemic heart disease

- **Formula**: [a) / b)] * 100
  a) Number of people over the age of 14 years registered in Primary Care as having ischaemic heart disease.
  b) Total personal health cards (PHCs) of people over the age of 14 years.
- **Definitions**: the numerator shall include all people registered in primary care medical histories, and coded, either according to the international classification of primary care (ICPC) versions 1 or 2, or according to the international classification of diseases (ICD), version ICD-9-CM. It includes codes: K74 - K 76 of the ICPC (1 and 2) or those of the ICD-9: 410 - 414
- **Source**: Primary Care Clinical Database (PCCDB). PCIS. MSPS. PHC data from the Primary Care Information System (PCIS). MSPS
- **Disaggregation:** by Autonomous Community, by gender and by age group.
- **Periodicity**: yearly
- **Observations**: these indicators will be obtainable upon the completion of the construction of the database of clinical data from primary care, which the Autonomous Communities are currently working on.

The Personal Health Card (PHC) population currently available in the Primary Care Information System (PCIS) is considered to be a temporary data source for use until the Population Database covered by the Spanish NHS has been completed and its use for this purpose has been agreed.

Objective 6:

Treated prevalence of people with cerebrovascular disease

- **Formula**: [a) / b)] * 100
  a) Number of people over the age of 14 years registered in Primary Care as having cerebrovascular disease.
  b) Total personal health cards (PHCs) of people over the age of 14 years.
- **Definitions**: the numerator shall include all people registered in primary care medical histories, and coded, either according to the international classification of primary care (ICPC) versions 1 or 2, or according to the international classification of diseases (ICD), version ICD-9-CM. Include the codes of the ICPC (1 and 2): K89 - K91 or of the ICD-9: 430 – 438.
- **Source**: Primary Care Clinical Database (PCCDB). PCIS. MSPS. PHC data from the Primary Care Information System (PCIS). MSPS
- **Disaggregation:** by Autonomous Community, by gender, by age group.
- **Periodicity**: yearly
- **Observations**: these indicators will be obtainable upon the completion of the construction of the database of clinical data from primary care, which the Autonomous Communities are currently working on.
  The Personal Health Card (PHC) population currently available in the Primary Care Information System (PCIS) is considered to be a temporary data source for use until the Population Database covered by the Spanish NHS has been completed and its use for this purpose has been agreed.

Objective 7:

Detection of cardiovascular risk factors (CVRF): (needs to be disaggregated into 5 basic indicators):

a) Percentage of people with hypertension treated in PC
b) Percentage of people with diabetes treated in PC
c) Percentage of people with hypercholesterolemia treated in PC
e) Percentage of people with obesity treated in PC
f) Percentage of people who smoke treated in PC
**) More combinations of two or more of these factors*

- **Formula:** [a) / b)] * 100
  - For the basic indicators:
    a) Number of people over the age of 14 years identified in primary care as having one or more cardiovascular risk factors.
    b) Total number of people with a PHC over the age of 14 years.
  - For the combinations of risk factors:
    a) Number of people with more than one CVRF (specifying which).
    b) Total number of people with a cardiovascular risk factor.
- **Definitions**: the risk factors included are those considered to be "major" risk factors, and which appear in the disaggregation of the formulation of the indicator.
  The existence of first-degree family histories is excepted since it was assessed that the said information, despite being stated on PC medical histories, is not usable.

- **Source**: clinical database of the Primary Care Information System (PCIS). MSPS. Population data of the personal health card (PHC). PCIS. MSPS
- **Disaggregation**: for each of the risk factors detected or their combinations: by gender and age group.
- **Periodicity**: yearly
- **Observations:** these indicators will be obtainable upon the completion of the construction of the database of clinical data from primary care, which the Autonomous Communities are currently working on.
  The Personal Health Card (PHC) population currently available in the Primary Care Information System (PCIS) is considered to be a temporary data source for use until the Population Database covered by the Spanish NHS has been completed and its use for this purpose has been agreed.
- **Note:** this file is valid for the five basic indicators.

Objective 8:

Percentage of people with quantification of cardiovascular risk

- **Formula**: [a) / b)] * 100
  a) Number of people over the age of 34 years, with cardiovascular risk factors, for whom a cardiac risk assessment and stratification has been carried out.
  b) Total number of people over the age of 34 years with no known cardiovascular disease, with one or more cardiovascular risk factors.
- **Definitions**: risk factors considered to be major risk factors are diabetes mellitus, hypercholesterolemia, arterial hypertension, obesity and tobacco addiction. Despite being another major risk factor, the existence of a first-degree family history of the disease is not included due to the difficulties involved in using those entries on the basis of medical histories (which are generally in non-coded text).
  The numerator includes all those people for whom the result of the quantification of that risk is provided.
  The denominator will be made up of the total number of people for whom there is a record of, at least, one risk factor.
  The method that should be used to calculate the cardiovascular risk factor is the quantitative method agreed by consensus by the scientific societies and which is being applied in the different Autonomous Communities. In any event, so long as there is no uniformity in the choice of the said method, the method used must be stated.
- **Source**: clinical database of the Primary Care Information System (PCIS). MSPS
- **Disaggregation**: by gender and age group.
- **Periodicity**: yearly
- **Observations**: these indicators will be obtainable upon the completion of the construction of the database of clinical data from primary care, which the Autonomous Communities are currently working on.

Objective 9:

Calculation of the delays in healthcare delivery (needs to be disaggregated into 3 basic indicators):

a) Total No. of emergency ambulances per 100,000 population.
b) No. of advanced life support (ALS) ambulances per 100,000 population.
c) No. of basic life support ambulances with defibrillator per 100,000 population.

- **Formula: [a) / b)] *** 100,000

- **For the basic indicators:**
  a) Total number of ambulances in the Autonomous Communities, in one year.
  b) Total number of people with a PHC in that AC and in that same year.
- **Definitions:** an emergency ambulance is defined as an ambulance that meets all the requirements set out in Royal Decree 619/1.998, of 17 April, which establishes the technical characteristics, medical equipment and the staff of medical road transport vehicles.
- **Source:** information systems of the AC
- **Disaggregation:** by AC
- **Periodicity:** yearly
- **Note:** this file is valid for the three basic indicators.

Objective 10.a:

Healthcare network for the care of patients with acute coronary syndrome (ACS)

- **Formula:** not applicable, concerns descriptive information.
- **Definitions**: in this case the indicator is the existence, as such, of an organised and documented reference healthcare network for ACS, both for the provision of care within each Autonomous Community, as well as to ensure that, when required in specific cases, the care is provided from a supra-community perspective, thereby guaranteeing the assistance that the Spanish NHS provides to all citizens in need thereof. In addition to the existence of a protocol, if there were sufficient time, an evaluation of the application of that protocol should have been made.
  So, on the one hand, an explanatory report must be drawn up of the circuits and the organisation of every Autonomous Community.
  On the other hand, the Spanish NHS will be deemed to have at its disposal that organised reference map once all the circuits for the care of patients with acute coronary syndrome on a supra-community level are set out therein.
- **Source:** Autonomous Communities and Ministry of Health and Social Policy (MSPS).
- **Disaggregation:** Autonomous Community on a community level and the Spanish NHS as a whole on a supra-community level.
- **Periodicity**: biennial update/approval
- **Observations:** before it can be obtained on a supra–community level the Interterritorial Council of the Spanish NHS must provide its approval.

Objective 10.a:

Healthcare network for the care of patients with chronic ischaemic heart disease

- **Formula:** not applicable, concerns descriptive information.
- **Definitions:** in this case the indicator is the existence, as such, of an organised and documented reference healthcare network for Chronic Ischaemic Heart Disease, both for the provision of care within each Autonomous Community, as well as to ensure that, when required in specific cases, the care is provided from a supra-community perspective, thereby guaranteeing the assistance that the Spanish NHS provides to all citizens in need thereof.
  So, on the one hand, an explanatory report must be drawn up of the circuits and the organisation of every Autonomous Community.
  On the other hand, the Spanish NHS will be deemed to have at its disposal that organised reference map once all the circuits for the care of patients with chronic ischaemic heart disease on a supra-community level are set out therein.
- **Source:** Autonomous Community and Ministry of Health and Social Policy (MSPS).

- **Disaggregation:** Autonomous Community on a community level and the Spanish NHS as a whole on a supra-community level.
- **Periodicity**: biennial update/approval
- **Observations:** before it can be obtained on a supra–community level the Interterritorial Council of the Spanish NHS must provide its approval.

Objective 11:

Use of arterial grafts in revascularised patients

- **Formula:** [a) / b)] * 100
  a) Number of patients revascularised with arterial grafts, in one year.
  b) Total number of patients revascularised by means of procedures that require the use of grafts, in that same year.
- **Definitions**: includes all discharges for which the procedure codes of the international classification of diseases (ICD), version ICD-9-CM, are provided:
  - Numerator: 36.15, 36.16, 36.17, 36.2
  - Denominator: 36.03, 36.10 to 36.17, 36.2
- **Source:** Register of hospital discharges (MBDS). MSPS.
- **Disaggregation:** by Autonomous Community, age group and gender.
- **Periodicity**: yearly
- **Observations**: the analysis of the variables related to this indicator will be further developed according to different adjustment lines, mainly age and the existence of comorbidity.

Objective 11:

Re-intervention rates in revascularised patients

- **Formula:** [a) / b)] * 100
  a) Number of discharges with coronary revascularisation procedures, either by means of an angioplasty or by means of coronary surgery, in patients who had already undergone a revascularisation procedure within the previous 12 months.
  b) Total number of discharges with revascularisation procedures.
- **Definitions:** this overall indicator can be subdivided, mainly into two, by taking into account the initial type of procedure that the patient underwent. That leads to the following **complementary indicators**:
  A) – The percentage of discharges of patients who, after having undergone an angioplasty, undergo a repeat revascularisation within the period of one year (either by means of another angioplasty or by means of surgical revascularisation procedures).
  B) – The percentage of discharges of patients who, after having undergone a surgical revascularisation procedure, undergo a repeat revascularisation within the period of one year (by means of an angioplasty or by means of new surgery).
  The ICD-9-CM codes to be used, according to the case in question: A), B), or Overall (sum of the previous codes and denominator in all indicators) are as follows:
  - For an angioplasty: 36.01, 36.02, 36.03, 26.05, 36.06 and 36.07
  - For the remaining revascularisations: 36.10 - 36.17, 36.19, 36.2, 36.31, 36.32, 36.39, 36.91, 36.99
- **Sources**: Register of hospital discharges (MBDS). MSPS.
- **Disaggregation**: by Autonomous Community, age group and gender.
- **Periodicity**: biennial.

Objective 11:

In-hospital mortality after coronary angioplasty

- *Overall in-hospital mortality after coronary angioplasty*
- *In-hospital mortality after coronary angioplasty in patients with acute myocardial infarction (AMI)*
- *In-hospital mortality after coronary angioplasty in patients with no acute myocardial infarction (AMI)*

- **Formula:** [a) / b)] * 100
  a) Number of people discharged from hospital due to death, after undergoing a coronary angioplasty procedure.
  b) Total number of people discharged after undergoing the abovementioned procedure.
- **Definitions**: the denominator includes, for the different categories, the following codes of the international classification of diseases (ICD), version ICD-9-CM: 36.01, 36.02, 36.03, 36.05, 36.06, 36.07

The numerator adds the Exitus criterion to the previous codes as the reason for the discharge.

In the case of mortality after an angioplasty in patients with acute myocardial infarction, all the cases in which, in addition to the given procedures, infarction coexists as the main diagnosis (code 410 of current version ICD-9-CM) will be included in the count.

- **Sources**: Register of hospital discharges (MBDS). MSPS.
- **Disaggregation:** by Autonomous Community, gender, age group and coexistence, or not, of AMI.
- **Periodicity**: yearly
- **Observations**: the analysis of the variables related to this indicator will be further developed according to different adjustment lines, mainly age and the existence of comorbidity.
- **Note:** this file is valid for the three basic indicators.

Objective 11:

In-hospital mortality after coronary surgery

- **Formula:** [a) / b)] * 100
  a) Number of patients who died during their stay in hospital, after undergoing coronary surgery, in one year.
  b) Total number of patients who underwent coronary surgery, in that same year.

Definitions: the denominator includes all discharges for which the procedure codes of the international classification of diseases (ICD), version ICD-9-CM, are provided: 36.10 – 36.17, 36.19, 36.2, 36.31, 36.32, 36.39

- The criterion of discharge due to death will be added for the numerator.
- **Source:** Register of hospital discharges (MBDS). MSPS.
- **Disaggregation:** by age group and gender.
- **Periodicity**: yearly
- **Observations**: the analysis of the variables related to this indicator will be further developed according to different adjustment lines, mainly age and the existence of comorbidity.

Objective 11:

Heart transplant mortality

- **Formula:** [a) / b)] * 100

a) Number of patients who underwent a heart transplant as a result of the fact that they suffered from ischaemic heart disease, in one year, and who died within one year of the intervention.
b) Total number of people transplanted in that same year for that reason.

- **Source**: Information System of the National Transplant Organisation (ONT). MSPS.
- **Disaggregation**: none, Spanish NHS as a whole.
- **Periodicity**: yearly

3.2.1.3. STRATEGY LINE 3: Rehabilitation

Objective 12:

Percentage of health areas with a cardiac rehabilitation programme

- **Formula:** [a) / b)] * 100
  a) Number of health areas (health areas and other designations equivalent in concept) with a cardiac rehabilitation programme coordinated between the two healthcare levels (Primary Care and Secondary Care).
  b) Total health areas.
- **Definitions**: a rehabilitation programme of this type will be deemed to exist once there is a programme that explicitly sets out, either separately or as part of a broader programme for the care of patients with cardiovascular disease or similar, the care criteria, contents and circuits required for the rehabilitation of those patients.
- **Source:** Autonomous Communities and data on health areas from the PCIS. MSPS.
- **Disaggregation:** Autonomous Community
- **Periodicity:** according to the strategy evaluation periods.

3.2.1.4. STRATEGY LINE 4: Research

Objective 13:

Number of accredited research networks on ischaemic heart disease

- **Formula:** number of networks of centres and number of networks of research groups on cardiovascular disease.
- **Definitions**: the Thematic Networks for Collaborative Research (RTICs) are defined as organisational structures created through the association to the Carlos III Health Institute of a varying selection of biomedical research centres and groups of a multidisciplinary nature, dependent on the different public administrations or the private sector and pertaining to a minimum of four Autonomous Communities, with the objective of undertaking collaborative research projects of general interest.
- **Source**: Carlos III Health Institute (ISCIII). MICINN.
- **Disaggregation**: none, Spanish NHS as a whole
- **Periodicity**: yearly

3.2.1.5. INDICATORS FOR THE OVERALL IMPACT OF THE STRATEGY

Rates of hospitalisation for acute myocardial infarction

- **Formula**: [a) / b)] * 100,000

a) Number of patients discharged with acute myocardial infarction (AMI) as main diagnosis, in one year.
b) Population in that same year.

- **Definition**: all discharges with a main diagnosis coded according to the International Classification of Diseases ICD (code 410 of current version ICD-9-CM) will be included in the count. Of the total discharges, the re-admissions were excluded.
- **Source**: Register of hospital discharges (MBDS). MSPS. Estimates based on current population. INE.
- **Disaggregation**: by Autonomous Community, gender and age group.
- **Periodicity**: yearly
- **Observations**: for the first evaluation the indicator "**age-adjusted rate** of AMI" was added, using the European population as the standard population. However, account must be taken of the fact that the data of the numerator correspond to the hospital in which the person received treatment, and that it does not refer to the place of residence of that person, whereas the population is that resident is each Autonomous Community. Therefore, the results need to be analysed with caution.

Mortality rates from ischaemic heart disease

- **Formula** [a) / b)] * 100,000
  a) Number of deaths from ischaemic heart disease that occurred during one year.
  b) Population in that same year.
- **Definition:** the age-adjusted rates are obtained using the European population as the standard population.
  Use is made of the codes of the International Classification of Diseases (ICD) 10th revision: 120–125.
- **Source**: deaths according to cause of death. INE and own preparation by the MSPS. Estimates based on current population. INE
- **Disaggregation**: for the overall and each of the main causes of death:
  by Autonomous Community, gender and age group
- **Periodicity**: yearly

Premature mortality rates from ischaemic heart disease

- **Formula**: [a) / b)] * 100,000
  a) Number of deaths in people under the age of 75 years from ischaemic heart disease, in one year.
  b) Population under the age of 75 years in that same year.
- **Definitions**: the deaths include the causes of death coded according to the International Classification of Diseases (ICD), 10th revision: I20-I25.
  Age-adjusted rates are obtained using the European population as the standard population.
- **Source**: deaths according to cause of death. INE and own preparation by the MSPS. Estimates based on current population. INE
- **Disaggregation**: for each of the selected pathologies:
  by Autonomous Community, gender and age group
- **Periodicity:** yearly

3.2.2. QUALITATIVE INDICATORS:

OBJECTIVE	INCLUDED IN THE		INCLUDED IN THE MANAGEMENT OBJECTIVE IN				BRIEFLY DESCRIBE THE ACTIONS IMPLEMENTED, THE DATES ON WHICH THEY WERE CARRIED OUT AND, WHERE APPROPRIATE, THE MEASURING SYSTEMS, EVALUATIONS MADE AND THE RESULTS
	HEALTH PLAN	SPECIFIC PLAN	2009	2010	2011	2012	
Objective 5.a: To promote the design of a system to monitor the quality of care in the Autonomous Communities, which includes at least one of the following aspects, considered to be of key importance in relation to the Risk Factors.							
Objective 5.b: To raise awareness among health professionals so that they acknowledge ischaemic heart disease as a disease that greatly affects women.							
Objective 7: To identify all people with a cardiovascular risk factor (tobacco addiction, arterial hypertension, dyslipemia, diabetes mellitus and obesity) and appropriately record that fact in their medical histories.							
Objective 9: To provide in situ care, with the capacity to defibrillate as swiftly as possible, and provide prompt transport to a hospital with experienced staff and appropriate equipment (regardless of whether the means of transport is by land, sea or air).							
Specific objective 9: Develop a system to record time lapses for their subsequent analysis and use (this information system must include the possibility to disaggregate the data by gender and age): -Time lapse from the onset of the symptoms until the request for medical assistance.							
-Time lapse from the request for medical assistance until the adequate delivery of that assistance to the patient. "Adequate" is understood to mean that the patient can be defibrillated, regardless of whether it is performed in the patient's home, an ambulance, a primary care centre or hospital, and that the medical treatment starts.							
-Time lapse from the request for medical assistance until the start of the reperfusion (whether through a primary angioplasty or fibrinolysis).							

Objective 10.b: To design quality monitoring systems for acute coronary syndrome which include those aspects considered to be of key importance in relation to the care process.							
Objective 13: To reinforce research through structured networks for the conduct of longitudinal, collaborative and multicentre population-based epidemiological studies regarding cardiovascular risk factors.							
Objective 14: To reinforce and, like that, incentivise research in order to gain a better insight into inequalities (gender, social class, etc.) and promote the inclusion of a gender approach in all research into heart disease, and especially in clinical trials.							
Objective 15: To enhance the quality and degree of implementation of clinical practice guides on coronary syndromes, and establish one or several accredited clinical practice guides with a gender approach.							

4. INDEX OF ABBREVIATIONS AND ACRONYMS

AC: Autonomous Communities
ACE Inhibitors: angiotensin-converting enzyme inhibitors
ACS: Acute Coronary Syndrome
AEEC: Spanish Association of Nursing in Cardiology
AMI: Acute Myocardial Infarction
AP: Arterial Pressure
BB: Beta-blockers
BMI: Body Mass Index
CIBER: Centre for Biomedical Network Research
CONESPACAR: Spanish Confederation of Cardiovascular Patients
COPD: Chronic Obstructive Pulmonary Disease
CVA: Cerebrovascular Accident
CVD: Cardiovascular Disease
CVR: Cardiovascular Risk
DALY: Disability-adjusted Life Year
EDADES: Household Survey on Alcohol and Drugs in Spain
ENSE: Spanish National Health Survey
ESCRI: Statistics of Establishments with Inpatient Facilities
EU: European Union
FAECAP: Federation of Community Nursing and Primary Care Associations
FEN: Spanish Nutrition Foundation
HbA1C: Glycated Haemoglobin
ICD: International Classification of Diseases
ICU: Intensive Care Unit
IHD: Ischaemic Heart Disease
INE: National Statistics Institute
ISCIII: Carlos III Health Institute (Spanish Ministry of Science and Innovation)
MAPA: Spanish Ministry of Agriculture, Fisheries and Food
MBDS: Minimum Basic Data Set (Register of hospital discharges)
MEC: Monitoring and Evaluation Committee
MICINN: Spanish Ministry of Science and Innovation
MSPS: Spanish Ministry of Health and Social Policy
NAOS: Spanish Strategy for Nutrition, Physical Activity and the Prevention of Obesity
NHS: National Health System
ONT: National Transplant Organisation
PCCDB: Primary Care Clinical Database

PCI: Percutaneous Coronary Intervention
PCIS: Primary Care Information System
PHC: Personal Health Card
RD: Royal Decree
RF: Risk Factor
RETICS: Thematic Networks for Collaborative Research in Health
RTICs: Thematic Networks for Collaborative Research
SEC: Spanish Cardiology Society
SEMERGEN: Spanish Society of Primary Care Physicians
SEMFYC: Spanish Society of Family and Community Medicine
SEMG: Spanish Society of General Medicine
SEMI: Spanish Society of Internal Medicine
STEACS: ST-Elevation Acute Coronary Syndrome
TC: Technical Committee
WHO: World Health Organization
YLD: Years Lived with Disability
YLL: Years of Life Lost