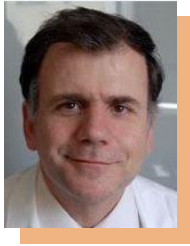# Country report Greece – August 2015

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Prepared for the EACPR "Country of the Month" initiative
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Health| Risk factors| Prevention methods| Prevention activities| Cardiac rehabilitation| Future

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Important contribution to the preparation of the report was also made by **Professors Christos Pitsavos and Christodoulos Stefanadis** of Athens University Medical School.

Baseline information about Greece

Greece is located in Mediterranean Sea, in the crossroads of Europe, Asia and Africa. Greece has the 11th longest coastal in the World, and a vast number of islands – approx. 2000 – that makes communication between them sometimes very difficult. According to the 2011 census, country's population is around 10.8 million. Athens is the nation's capital and largest city, followed by Thessaloniki the second largest city, which is commonly referred to as the co-capital. The modern Greece was established in 1830 following the war of independence from the Ottoman Empire, traces its roots to the civilization of Ancient Greece, which is considered the cradle of all Western civilization. Greece is a democratic and developed country with a high quality of life and a very high standard of living. A founding member of the United Nations, Greece was the tenth member to join the European Communities (precursor to the European Union) and has been part of the Eurozone since 2001. It is also a member of numerous other international institutions, including the Council of Europe, NATO, OECD, OSCE and the WTO. Greece, which is one of the world's largest shipping powers, has the largest economy in the Balkans, where it is an important regional investor.

I. Structure of Health care

Health care is provided through national health insurance, although private health care is also an option. According to the 2011 budget, the Greek healthcare system was allocated 6.1 billion euros, or 2.8% of gross domestic product (GDP). In a 2000 report by the WHO, the Greek healthcare system was ranked 14th worldwide in the overall assessment. However, since July 2011, with the implementation of austerity measures, unemployed Greeks receive benefits for a maximum of a year, and after that period,

health care is no longer universal and patients must pay for their own treatment. The Greek national health system is operated by the Social Insurance Institute (IKA). A social insurance number is given to all citizens, facilitating their insurance transactions. Free emergency treatment is provided for EU visitors/employment seekers, holders of the European Health Insurance Card from the country of origin.

Cardiologists in Greece are estimated - by a study performed by the University of Piraeus in 2010-, to be 2,763 out of the approximately 67.000 Greece physicians (this means 25 cardiologists per 100.000 inhabitants), which is approximately 3-times higher than the European average. On 1 July 2011, the [Ministry for Health and Social Solidarity](#) announced its intention to cut back the number of beds and hospitals in the country from 131 hospitals with 35,000 beds to 83 hospitals with 33,000 beds. Regarding pharmaceutical drugs in use, ~20% were generic at the end of 2013 and the government aims to a 60% generic use by the end of 2015. The Greek government in collaboration with scientific institutions, societies and the media has set prevention as one of the top priorities.

Finances

The Social Insurance Institute (IKA) is the largest insurance body in Greece and covers more than half the population. It provides health care for 5,550,000 insured persons, including family members, and pays pensions to 845,000 pensioners. It provides coverage for insured persons and pensioners throughout their life. Even unemployed individuals have access to the public health system if they have low income and no property. Dental care is free of charge, but only when provided by orthodontic and dental centers of National Health System (ESY) or by dentists contracted National Health System in their own surgeries. The cost of prosthetics and major appliances, such as pacemakers, hearing aids, wheelchairs, contact lenses, is covered by National Health System on receipt of a medical report from the attending physician. In private clinics most of the cost of prosthetics is covered and the individual has to pay about 15% of the cost. Individuals have to pay up to 25% of the cost of their medication; in specific chronic diseases like cancer medication therapy, is free of charge. Greece is lacking National Centers for cardiac rehabilitation and patients have to choose a private program. Only a limited percentage of the cost is covered by the state.

II. Risk factor statistics

Based on the ATTICA study there are some interesting changes in the prevalence of some lifestyle and clinical characteristics of the participants within the 10-year follow-up period. The prevalence of smoking decreased within the decade, as well as the level of adherence to a Mediterranean-type diet. Regarding the clinical characteristics, prevalence of obesity, hypertension, diabetes mellitus and hypercholesterolemia, were significantly increased within the 10-year period. At this point it should be noted that the increase in the prevalence of the aforementioned cardio-metabolic disorders, as well as CVD incidence, may also be attributed to population aging, and therefore should be interpreted with conscious, since the data were not age-adjusted. Finally, the prevalence of any CVD increased from 9% at 5-year follow-up to 16% at 10-year follow-up ($p<0.001$).

CVD Mortality

According to the ATTICA study, during the 10-year follow-up of the 3,042 participants, 5.7% men and 2.0% women died (i.e., overall 10-year all-cause mortality rate = 3.8%). The causes of death were: 51.1% due to CVD (i.e., 42.2% CHD, 4.4% due to stroke and 4.4% other CVD), 30.0% were due to malignancy, 7.8% were due to infections (mainly pulmonary), 6.7% were accidents and the rest 4.4% were due to various other reasons. No gender differences were observed ($p=0.55$).
The fatal or non-fatal 10-year CVD incidence was 15.7% (3.3% of the cases were due to stroke or minor stroke); of them, 19.7% cases were men and 11.7% cases were women (p for gender difference <0.001). Of the CVD events, 46 were fatal and, thus, the overall 10-year CVD mortality rate was 1.8% (3.4% for men and 1.2% for women). A linear trend was observed between age of the participants and incidence of CVD (p for trend <0.001). In particular, men who were between 65-75 y at baseline examination experienced almost 10-times higher risk of developing CVD compared to those who were between 35-45 y, while the aforementioned hazard ratio in 65-75 y women was about 14-times higher as compared to those who were between 35-45 y (p log-rank <0.001). The overall men-to-women CVD incidence ratio was 1.6; a gradual change according to participants' age was observed (p log-rank <0.001). In particular, the men-to-women ratio decreased consistently with age, starting from about 2:1 in younger people and became about 1:1 in people aged 65-75 y. For participants aged over 75 y, men had a 1.6-fold higher prevalence of CVD than women. Furthermore, the age-sex adjusted CVD risk increased 9.0% per year increase of age (p<0.001), whereas the CVD incidence had a 2.3-fold increase within the preceding decade (p for linear trend<0.001), independently of participants' gender.

Main CVD risk factors

Smoking appears to be the most prevalent risk factor in Greece. As regards the prevalence of smoking in adolescents, reports from local studies and the Hellenic Heart Foundation suggest that it is around 10-20% in boys and 5-15% in girls. Moreover, as regards smoking habit among post myocardial infarction (MI) patients, as reported by the multi-centre GREECS study, 33% reported active smokers and 33% reported that they have quitted smoking. The vast majority of smokers preferred smoking cigarettes (94%) and the rest tobacco or pipe. Of the non-smokers, 48% reported exposed to

second-hand smoke at workplace or home. During the 10-year follow up (2004-2014) of the GREECS study almost 50% of smokers at baseline continued smoking.

As regards the general population, despite the smoking ban held in Greece the past years, it seems that 33% of men and women are active smokers. Concerning the efforts are done to reduce the prevalence of smoking in Greece, the new and more comprehensive smoke-free legislation in work places is the Law 3730/23-12-2008, which has been enforced effectively, whereas in indoor public areas the law has not been completely implemented and in most cases has been ignored. Moreover, since 2008 several laws have been enacted regarding smoking ban in indoor public places, workplaces and transportation (i.e., Ministerial Decision 1-8-2002 (Government Gazette 1001, No. B), Ministerial Decision 1-9-2003 (Government Gazette 1001) however, they were partially implemented.

Further insight in the prevalence and development over time of common risk factors in the Greek general population can be obtained from the ten-year follow-up of the Attica study during the period 2001-2012, see table below:

% data	Survey 2001-2 N = 3042	Survey 2011-2 N = 2583
Smoking	43	33
Physical activity	40	25
Obesity	18	30
Hypertension	30	52
Hypercholesterolemia	39	62
Diabetes	7	20

Reference:
Ten-year (2002-2012) cardiovascular disease incidence and all-cause mortality, in urban Greek population: the ATTICA Study
Demosthenes B. Panagiotakos *et al.*
Int J Cardiol. 2015 Feb 1;180:178-84. doi: 10.1016/j.ijcard.2014.11.206. Epub 2014 Nov 26

III. Main actors and Prevention methods

Who delivers?

Primary and secondary CVD care is provided mainly through cardiologists, and in some cases family physicians - especially in the rural areas of the country and the islands -. There are primary care clinics, the Health Centres, located in major cities around the country, and at least one general hospital clinic located at the principal city of each region. Nurses, dietitians, physician's assistants, are a crucial part of the health system.

Where?

Hospitals, health centres, primary care units, specialised rehabilitation centres and private institutions deliver preventive services. The main bodies promoting prevention are cardiovascular institutions, scientific associations and societies. The Hellenic Cardiac Society organises more than 10 resuscitation lessons per year, more than 10 daily scientific sessions for general practitioners and cardiovascular nurses, open public meetings and activities like biking and walking in the centre of municipalities promoting awareness and providing basic cardiovascular examination and calculation of risk score.

In 2007, the Hellenic Society of Cardiology initiated the Hellenic Risk Score for the calculation of 10 year cardiovascular morality. The 10-year follow-up of ATTICA epidemiological study revealed a great accuracy of the initially developed Hellenic Score, with a 95.6% match for fatal CVD cases and 93.2% match for the fatal and non-fatal CVD cases; while, no gender, age group or co-morbidities interactions were observed. Furthermore, the Hellenic Society of cardiology has endorsed and implemented the White Paper of European Society of Cardiology about prevention among all members.

Guidance

The European guidelines are promoted and are highly used in daily clinical practise; they are included in education and are commonly presented in various scientific meetings as well as in educational courses for fellows organised each year by the Hellenic Society of Cardiology. Furthermore, on the web site of the Hellenic Society of Cardiology all European guidelines are translated in Greek and are available free of charge to anyone who visits the site. The Hellenic Atherosclerosis Society has also presented an updated version of hypolipidemic therapy for Greek patients based on the European guidelines and the Hellenic risk score.

Links:
http://www.hcs.gr/
http://www.atherosclerosis.gr
HeartScore (Greece): http://www.heartscore.org/greece/Pages/Welcome.aspx

Quality control

Unfortunately, there are very few measures taken concerning quality control of prevention activities. Some research studies have been contacted during the past years regarding the percentage of the population being screened for risk factors' prevalence and medication adherence.

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- Validation of the HellenicSCORE (a calibration of the ESC SCORE project) regarding 10-year risk of fatal cardiovascular disease, in Greece. Hellenic J Cardiol 2015 (in press)

IV. Main Prevention activities

Campaigns

I. CHALLENGE: A national prevention campaign on congenital heart disease:
This is a Greek registry of adult patients with congenital heart disease. CHALLENGE was initiated to make an inventory of the epidemiology and morbidity/mortality of adult congenital heart disease at a national level. A second goal of the campaign was to create a network between experts and non-experts on Acute Coronary Heart Disease (ACHD) in order to optimise the follow up of these patients, avoid complications and late referrals, and ultimately improve their prognosis. Currently more than 1,600 patients from 18 centers have been included. For further information visit the HSC website:
http://www.hcs.gr/admin/spaw/uploads/CHALLENGE%20news%20Oct%202013%20eng.pdf

II. The national public campaign on prevention, diagnosis and treatment of cardiovascular disease.
The main elements of this campaign are:
- Raising awareness of cardiovascular disease risk factors and prevention.
- Organising open discussion in mainland and insular Greece.
- Organising free cardiac examinations for elderly and children

III. The national antismoking campaign:
In this prevention activity social media, radio/TV spots and flyers /guides are used to reach the public.
Both campaigns, the national public campaign on prevention, diagnosis and treatment of cardiovascular disease and the national antismoking campaign, are organized by the Greek government for a specific period. Further development in the near future is planned.

IV. The HERHODOTOS registry:
A national registry for identifying and analysing cases of resistant hypertension in Greece.

V. The national public campaign on cardiopulmonary resuscitation (CPR):
organising free courses on basic life support (BLS) for the public in metropolitan cities and remote areas

VI. Stent4Life:
Greece is a member of "Stent for Life", the ESC, EAPCI and EuroPCR initiative. The aim is to improve the delivery of care and patient access to primary percutaneous coronary intervention (PCI) for patients with an acute coronary syndrome. The first results of the registry were published in EuroIntervention (2012;8:P116-120).

Reference:
Stent for Life Initiative – the Greek experience
J. Kanakakis *et al.*
EuroIntervention (2012;8:P116-120)

VII. *The ACT NOW. SAVE A LIFE public campaign*:
Launched in January 2014 by Stent for Life (SFL) Greece the purpose is to inform about the symptoms of an acute myocardial infarction and the need to act quickly in case of a heart attack. The goal of the campaign was to reduce the patient's delay from the symptoms onset to the first medical contact, which as we can see in table 2 is longer than 2 hours.
The public campaign's message was delivered to people through our TV spot, radio spot, leaflets and posters. You can learn more about SFL Greece through HSC website:
http://www.hcs.gr/content/articles/STENT_FOR_LIFE

Education

Regular courses about CVD prevention are given (such as the European Guidelines on CVD Prevention in Clinical Practice) in all Medical Schools as well as in other health academic departments, like Nutrition & Dietetics, Nursing, Public and Community Health. Furthermore specific educational efforts for cardiologists include:
- Free courses for all cardiac residents in house and on web in order to increase their knowledge and enrich their curriculum.
- Web courses on special issues available on the HCS web site
- Free access to all medical journals for all cardiologists, medical students and trainees
- Annual scholarships to young cardiologists to be trained in new technologies

Contact persons:
- Stent4Life, national campaign: Ioannis Kanakakis
- Educating trainees: K. Tsioufis
- Educating the public on CPR (BLS) and educating professionals (doctors, nurses, medical students) on advanced CPR (ALS): G. Latsios
- Organise and run a fully developed clinic free to the public, as a minimum bid to those needed: G. Giannoulidou

V. Cardiac rehabilitation

For whom

Cardiac rehabilitation is initiated mainly in heart failure patients and in small groups of hypertensive patients and patients with chronic obstructive pulmonary disease (COPD). National programs in large municipalities are available for COPD patients. There is lack of an organised national program for heart failure patients and most of the programs are private. Unfortunately, cardiac rehabilitation is currently provided only for heart failure patients.

By whom and how

In a recent registry concerning heart failure rehabilitation there was a 40% drop out from the program mainly due to logistics and financial reasons although the participation was free of charge. The referral rates are rather low, below 20%. There are a few highly specialised centres, such as Onassis Cardio Surgery Hospital and Sotiria Hospital respiratory unit providing organised staff training programs. All these centres, staffed by ergophysiologists, medical doctors, psychologists and nutritionists, use personalised approach for each patient.

Audit and costs

There is lack of any system qualifying and controlling outcomes. A recent study in heart failure patients showed that a high intensity, systematic aerobic training improved quality of life and favorably modified their fitness level; while it also improved hemodynamic parameters related with survival.

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VI. The Future

Needs
More funding is necessary in order to reach out all those living far from the two largest cities (Athens & Thessaloniki).

Possibilities
We strongly believe that the possibilities for success are high. The human resources and the high level of education ensure the achievement of our goals.

Obstacles
Nowadays the main obstacle is the stressful economic situation that hinders the achievement of our goals. **We strongly believe that the Greek medical society should join forces in order to overcome any difficulty.**

Plans
One of the main goals of the Hellenic Society of Cardiology is to continue education and to raise awareness of cardiovascular disease risk factors and prevention. One of our main efforts is to organise an integrated continuous education program for all cardiologists.
The HCS has a leading role in the scientific development of all the Greek cardiologists as well as the well-being of the Greek patients. In these difficult times it is even more important to renew our commitment to this cause. To this end it is extremely important to come together in order to maximise our efforts for the benefit of the professionals and ultimately the patients.