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Original Research Article

A cross sectional study on knowledge, attitudes, and practices of Greek cardiologists towards screening recommendations for cardiovascular diseases

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As the cardiovascular diseases (CVDs) remain the leading cause of morbidity and mortality the need for increased knowledge, awareness and implementation of evidence based guidelines for prevention in clinical practice is increasingly recognized. The aim of this study was to assess Cardiologists knowledge, attitudes and practices toward screening for cardiovascular diseases. The guidelines of United States Preventive Medicine Task Force (USPSTF) were used as reference. A descriptive cross sectional study in a random sample of Cardiologists was used to assess the Knowledge Attitude and Practices of Greek Cardiologists towards screening for cardiovascular diseases. Data collection through telephone interviews was the method of choice. Participants were queried on socio demographic characteristics, their knowledge and attitudes, regarding screening. Out of 371 Cardiologists invited to participate 297 completed the telephone survey,(response rate: 80%). The data were entered into a database created by the Epi Info software. Statistical software R version 3.2.0 was used to analyze data. Descriptive analysis was initially performed while variables found statistically significant were included in a backward logistic regression model. Latent class analysis was performed in R statistical software version 3.2.0 in order to identify significant risk factors of inappropriate practice regarding knowledge and attitudes towards screening. More than half of the Cardiologists (53.7 %) failed to screen for abdominal aortic aneurysm(AAA) in a man 67 years with smoking history. The vast majority of the Cardiologists were also found to incorrectly offer screening for dyslipidemia in a man 23 years (80%), in a woman 36 years (83.4%) as well as in a woman 46 years old (93.5%). Most of Cardiologists would inappropriately screen for coronary heart disease (CHD) in a man 47 years (83.6%) as well as in a woman 57 years old (82 %). Furthermore, contrary to USPSTF recommendation, the majority of Cardiologists would screen for carotid artery stenosis (CAS) in an obese hypertensive man 53 years old. Our study revealed not only a number of key gaps in knowledge but also certain socio-demographic characteristics that are related to inappropriate practices and attitudes. The present study indicates important opportunities to improve the evidence-based practices of Greek cardiologists towards screening of CVD.

Key words: Public health, evidence based medicine, screening, Cardiologists, Greece

Abbreviations

USPTF: U.S. Preventive Services Task Force
CVD; Cardiovascular disease
EBPH: Evidence based public health.
EBM: Evidence-based medicine
KAP: knowledge, attitude and practices
AAA: abdominal aortic aneurysm
CAS: Carotid artery stenosis.
PAD: Peripheral artery disease.
CHD: Coronary heart disease.
OD: Odd ratio
CI: Confidence Intervals

INTRODUCTION

Cardiovascular diseases (CVDs) include diseases of the heart, vascular diseases of the brain and diseases of blood vessels. Due to the high prevalence of CVD, controlling the promoting risk factors of diabetes, hypertension, dyslipidaemia and obesity represent priority in most developed countries.

CVDs are the leading cause of death worldwide and accounts for 31% (17.5 million) of global deaths in 2012. Of these deaths, an estimated 7.4 million were due to coronary heart disease and 6.7 million were due to stroke (WHO, 2015; Mozaffarian et al., 2015).

It is estimated that CVDs will remain the number one cause of death in the future, taking a heavy toll not only in terms of mortality but also in terms of financial burden and productivity (WHO, 2015; EU, 2014).

The European Cardiovascular Disease Statistics on CVD and CVD risk factor demographics, trends and distribution across Europe, showed that although mortality appears to decline in most of Northern, Southern and Western Europe, they are increasing in Central and Eastern Europe (Allender et al., 2008).

Greece has been considered as a country with low CVD risk (Chimonas et al., 2009). However, recent studies suggest that the burden of CVD risk factors in Greece is increasing at an alarming rate mainly due to deleterious behavioral characteristics including the lack of adherence to the Mediterranean diet but also in the increasing prevalence of traditional risk factors such us obesity and smoking in the general population (Kontogianni et al., 2008; Mihas et al., 2009; Panagiotakos et al., 2008; Chrysohoou et al., 2010).

Despite efforts to reverse those trends there is evidence showing that the burden from cardiovascular disease and risk factors for atherosclerosis remain alarmingly high (Mozaffarian et al., 2015).

Diagnosis of cardiovascular disease in asymptomatic patients and early detection of strong risk factors for atherosclerosis present the opportunity to institute secondary prevention and thus improving future outcomes (Sabouret et al., 2008).

As a growing body of research suggests that prevalence of CVD will significantly increase and the direct costs will increase almost 3-fold, the process of implementing evidence-based practices in the setting of the CVD prevention was soon recognized as an important step forward in improving public health (Heidenreich et al., 2008).

The need for development of standardized guidelines is rooted in the necessity to integrate the best available evidence from clinical research into clinical practice with the aim of improving public health.

Evidence based public health (EBPH) can be defined as the process of integrating science-based interventions with community preferences to improve the health of populations (Kohatsu et al., 2004).

Still, despite efforts to reduce the risk of CVD in population, there is evidence suggesting considerable gaps in knowledge and implementation of evidence based guidelines for prevention in clinical practice (Silva et al., 2010; Asch et al., 2006; Davidson et al., 2005;(Ma et al 2005; Mosca et al., 2005; Muntner et al., 2002; Rosamond et al., 2008).

Indeed, there is evidence that the quality of CVD preventive care is suboptimal (Mosca et al., 1999; Kim et al., 2003; Sueta et al., 1999; Pearson et al., 2000; Ford et al., 2003; Jha et al., 2003; CDC, 1998).

Screening and proper CVD risk management represent key factors in the setting of prevention CVD disease and are expected to have an important role in reducing mortality and morbidity from CVDs.

Clinical practice guidelines for screening and risk management represent an important tool in implementing evidence based medicine (EBM) to clinical work. Therefore, implementation of screening recommendations and the accurate risk assessment become a prerequisite in order to prevent and improve the outcome of CVDs.

Although numerous expert guidelines have been released to support doctors in delivering appropriate CVD preventive level, little is known about Cardiologists' compliance with CVD guidelines regarding prevention and risk management of CVD (Mosca et al., 2004).

The main objective of this study was to assess Cardiologists' knowledge attitude and practices towards screening and management of patients at risk for cardiovascular events in Greece. An understanding of the determinants associated to inappropriate practices could be targeted for improving public health.

MATERIAL and METHODS

Study design and settings

The survey was conducted within a six month period between October 2014 and March 2015. A descriptive cross sectional study in a random sample of Cardiologists was used to assess the Knowledge Attitude and Practices of Greek Cardiologists towards screening for cardiovascular diseases. All Cardiologists practicing in Greece in the period the study was conducted met the inclusion criteria of the study. Stratified random sampling per geographical area was applied. The prefectures in the country were considered as strata, based on the NUTS-3 (Nomenclature of Territorial Units for Statistics) classification.

It was estimated that the inclusion of approximately 10% of Greek Cardiologists would be satisfactory. In each of the 51 prefectures consisting the Greek state, 12% of the total number of Cardiologists was randomly selected.

Out of the 371 randomly selected cardiologists297 accepted to participate in our study (response rate 80%). Descriptive statistics of physician characteristics are presented in Table 1.

Data collection through telephone interviews was the method of choice.. All interviews were contacted by one particular interviewer who was a medical doctor specialized in Cardiology.

The questionnaire was pre-tested among 10 Cardiologists, in ten different prefectures, in order to ensure accuracy and consistency of the questions. The questionnaire includes 34 questions (Appendix A) based on international experience on the methodology of KAP studies and was adapted to the Greek culture. It is

Table 1. Descriptive statistics of cardiologists' characteristics

	Cardiologists (N=297)
Female (%)	14,1% (42)
Male (%)	85.9% (255)
Age (mean ± sd)	52, 1 years±8.8
Graduation from Greek medical schools (%)	77.1% (229)
Graduates of foreign medical schools (%)	22.9% (68)
Years in practice **(**mean ± sd)	17, 6 ±9.8
Postgraduatestudies (%)	47.6% (140)
Private practice (%)	95.9% (283)
Number of patients per week (mean±sd)	84,4±80.8

structured in three main sections: a) The characteristics of Cardiologists including personal information (age, sex, country and university of primary medical qualification, hospitals at which they were trained during specialization, postgraduate studies) and professional information (number of examined patients per week, years of practicing, health care setting they work and work in private or public sector), b) knowledge and practice patterns towards screening recommendations and risk management and c) the Cardiologists' attitude regarding the importance of implementation of EBM, their attitude towards the applicability and availability of EBM in health care setting and their point of view in regard to the usefulness of implementing clinical decision support systems. Responses were compared with the recommendations USPSTF at the time of the survey (USPSTF, 2015).

Statistical analysis

Univariate and logistic analysis

The data were entered into a database created by the Epi Info software. Statistical software R version 3.2.0 was used to analyze data from the questionnaire. Descriptive analysis was conducted by using frequencies of the variables. Statistically significant differences were considered when p value< 0.05. Relative risk analysis was initially performed while variables found statistically significant were included in a backward logistic regression model. The total number of wrong answers given by a cardiologist, to questions regarding knowledge/practice about screening (questions 8-30) was used as an outcome variable in the logistic regression analysis. For that purpose a categorical variable was created based on the median value of wrong answers which was 9. Since no significant factors were identified it was decided to use the 25% quartile of the wrong answers as a cut off for the categorical variable which was 8. Independent variables included were personal and professional characteristics of cardiologists.

Latent class analysis

Latent class analysis was performed in R statistical software version 3.2.0. Latent class analysis was chosen in order to identify unobserved response patterns or attitudes that are similar between individuals (Vermunt et al., 2004). The responses of Cardiologists to a total of 23 questions that were in line (correct answers) or not (wrong answers) with the USPSTF guidelines (as seen in Table 3, appendix A) were used as manifest variables in a latent class analysis and in a backward latent class logistic regression analysis with covariates. Latent class regression analysis was performed in order to evaluate which of the demographic characteristics best predict the probability of an individual to belong to a certain latent class.

Latent class analysis was divided into 3 sections/models: a) practice patterns towards screening for abdominal aortic aneurysm (AAA) (y=4 questions, Model A), b) practice patterns of responders who did not comply with screening recommendations (y=6 questions, Model B,) and c) attitudes towards screening guidelines (y=4 questions, Model C).

The final latent class model was chosen based on the Akaike information criterion (AIC) and Bayesian information criterion (BIC) as well as on the meaningful understanding of the latent class memberships. Only covariates found statistically significant in a backward elimination, remained in the model.

RESULTS

As shown in Table 1 total of 297 Cardiologists participated in the study including 14,1% women and 85.9% men. The mean age of the physicians was 52 years and 77.1% of them graduated from Greek medical schools. The mean duration of practice in years was 17.6. Less than half (47.1%) of the Cardiologists were holders of Postgraduate studies and 95.9% were employed in private sector. The mean number of patients examined per week by the participants was 84.4.

Knowledge and attitudes towards screening recommendations

The vast majority of Cardiologists (99%) agreed on the important role of population based screening in improving

patient care, and 69.4% of Cardiologists reported that their performance would be facilitated by the use of computer based decision support systems in clinical practice. The majority of Cardiologists (72.2%) claimed availability of explicit screening guidelines and also that guidelines were widely disseminated among health professionals practicing in primary care setting. Furthermore, 85.8% of the participants reported that their recommendations are based on major international guidelines.

Univariate and logistic regression analysis - of the questions (8-30) related to Cardiologists knowledge.

Although Cardiologists' screening recommendations appeared to be in line with USPSTF in clinical domains such us hypertension (Table 2), major gaps remain in Cardiologists' screening practices (Table 3).

As illustrated in Table 3, the most common error made by Cardiologists, was erroneously recommending screening for dyslipidemia in a woman 46 years old in the absence of risk factors (93.5%).

Incorrectly recommending aspirin therapy in a woman 60 years old with smoking history in the absence of other risk factors was the least common mistake observed in our study (53.4%).

In addition, 53.7% of the Cardiologists failed to screen for Abdominal Aortic Aneurysm (AAA) in a man 67 years with smoking history. On the other hand, 53.6% of the respondents would erroneously recommend screening for AAA in a woman 70 years old. The vast majority of the Cardiologists would also incorrectly recommend screening for dyslipidemia in a man 23 years (80%), in a woman 36 years (83.4%) as well as in a woman 46 years (93.5%) despite the absence of risk factors.

Moreover, our survey revealed that most Cardiologists would inappropriately screen for coronary heart disease in an man 47 years (83.6%) as well as in an woman 57 years old (82%). Without any known risk factors. In addition , the majority of the Cardiologists was also found to run counter to USPSTF recommendation regarding screening for carotid artery stenosis (CAS) given that 84.1% of the respondents would recommend screening for CAS in an obese hypertensive man 53 years old. On average, cardiologists' wrong responses to questions regarding knowledge/practices towards screening recommendations, were 8.89±2.05 with a minimum of four and a maximum of fourteen. Male cardiologists have significantly higher odds (OR: 2.21, CI: 1.07-4.44, p-value=0.03) of responding wrong to more than or equal to eight questions compared to female cardiologists, hence be less compliant to USPSTF screening guidelines. In addition, it seems that cardiologists working in the private sector are more likely (OR: 2.73, CI: 0.78-8.93, p-value=0.1) to respond wrong to more than or equal to eight questions compared to those working in the public sector. However, the latter was not found statistically significant.

In case of screening for peripheral artery disease (Q24, Q25) where USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening the majority of the Cardiologist appeared reluctant to screen (86.5%, 87.2% respectively).

Univariate and logistic regression analysis of the questions (31-34) related to Cardiologists' attitude.

No significant risk factors of inappropriate practice regarding attitude towards screening guidelines were identified from logistic regression analysis of the questions 31-34.

Latent class analysis

Latent class analysis of the questions related to Cardiologist knowledge (8-30). The knowledge and attitude of Cardiologists towards AAA screening was evaluated and a latent model of 3 classes was selected. Class 1(61.5%) was labeled "appropriate ", class 2 (30.2%) was labeled "inappropriate" and class 3 (8.2%) was labeled "fairly appropriate". Gender was the only statistically significant predictor of class membership regarding screening for AAA. In particular, female cardiologists have significantly lower odds of belonging to the inappropriate class than the appropriate class (OR: 0.39, CI: 0.16-0.99, p=0.05) compared to their male colleagues. No difference in odds between fairly appropriate and appropriate class was observed among female and male Cardiologists (OR: 1.75, CI: 0.53-5.44, p=0.4).A latent model with 4 classes was selected in order to evaluate profile that showed non-compliance with specific guidelines. Class 1 (13.9%) was labeled poorly appropriate attitude, class 2 (14.8%) fairly appropriate, class 3 (1.4) appropriate and class 4 (69.8%) was labeled inappropriate behavior. Age was the only statistically significant predictor of class membership. Cardiologists below or equal to 50 years old have a 4 fold or a 2 fold increase in the odds of having a fairly (OR: 4.25,CI: 1.65-10.96, p=0.003) or an inappropriate knowledge OR: 2.35, CI: 1.07-5.15, p=0.03) compared to poorly Knowledge. No difference in odds between appropriate and inappropriate class was observed among younger and older Cardiologists (OR: 0.84, 95% CI: 0.08-8.97, p=0.9).

Latent class analysis of the questions related to Cardiologists s attitude (31-34).

A two latent class model was chosen for evaluating and attitude of Cardiologists towards screening and prevention strategies. The majority of Cardiologists who belonged to class 1 (86.7%) labeled "positive attitude", have a positive attitude towards screening guidelines and are favorable towards the use of logistic programs and guidelines for their decision making process. Class 2 (13.2%) labeled "negative attitude" comprises Cardiologists that have a false profile towards screening guidelines but almost all believe in the necessity of primary prevention programs. Cardiologists younger than 50 years are less likely to have a

Table 2. Cardiologists 'responses which are accordant with USPSTF guidelines

Questions	USPSTF guidelines	% of Cardiologists whose recommendations are consistent with of USPSTF guidelines
Q9: Would you recommend routine screening for abdominal aortic aneurysm in a man 67 years old without smoking history?	The USPSTF recommends screening adults in men aged 65 to 75 with smoking history	53.7%
Q10: Would you recommend routine screening for abdominal aortic aneurysm in a man 77 years?	The USPSTF recommends screening adults in men aged 65 to 75 with smoking history	60.2%
Q12 Would you recommend routine screening for dyslipidemia in a man 23 years with history of diabetes?	The USPSTF recommends screening men aged 20-35 for lipid disorders if they are at increased risk for coronary heart disease.	99.7%
Q14: Would you recommend routine screening for dyslipidemia in a man 40 years in the absence of risk factors?	The USPSTF recommends screening men aged 20-35 for lipid disorders if they are at increased risk for coronary heart disease.	94.6%
Q17: Would you recommend routine re-screening for dyslipidemia in a man 37 years without any known risk factors, with recent negative results?	The USPSTF recommends screening men aged 20-35 for lipid disorders if they are at increased risk for coronary heart disease.	74%
Q18: Would you consider treatment with aspirin in a man 50 years old with history of diabetes?	The USPSTF recommends the use of aspirin for men age 45 to 79 years when the potential benefit due to a reduction in myocardial infarctions outweighs the potential harm due to an increase in gastrointestinal hemorrhage.	69.3%
Q20: Would you consider treatment with aspirin in a hypertensive man 47 years old with smoking history?	The USPSTF recommends the use of aspirin for men age 45 to 79 years when the potential benefit due to a reduction in myocardial infarctions outweighs the potential harm due to an increase in gastrointestinal hemorrhage.	64.2%
Q21: Would you measure blood pressure in a man 22 years in the absence of risk factors?	The USPSTF recommends screening for high blood pressure in adults aged 18 and older	93.6%
Q22: Would you consider re-screening for hypertension in a man 25 years without any known risk factors, shortly after a blood pressure testing showing 110/70 mmHg?	Adults aged 18 to 39 years with normal blood pressure (<130/85 mm Hg) who do not have other risk factors should be rescreened every 3 to 5 years	63.1%
Q23: Would you consider re-screening for hypertension in a woman 25 years without any known risk factors whose blood pressure reading was 140/90 mmHg?	The USPSTF recommends rescreening with properly measured office blood pressure and, if blood pressure is elevated, confirming the diagnosis of hypertension with ambulatory blood pressure monitoring.	98.3%
Q27: Would you recommend screening for CHD in an asymptomatic woman 56 years old without any known factors for which sudden death may endanger the safety of others?	The USPSTF recommends against routine screening for either the presence of severe coronary artery stenosis (CAS) or the prediction of coronary heart disease (CHD) events in adults at low risk for CHD events.	92.9%
Q30: Would you recommend routine screening for carotid stenosis in a man 53 years old in the absence of risk factors?	The USPSTF recommends against screening in the general adult population.	80.%

poor attitude towards screening guidelines than older Cardiologists (OR: 0.25, CI: 0.07-0.86, p=0.03).

DISCUSSION

The results of our study raise serious concern about the promotion of screening guidelines for AAA in Greece. Indeed, contrary to the guidelines of USPSTF, more than half of the participants (53.7%) do not offer screening for AAA abdominal in a man 67 years old with smoking history. Our findings are consistent with a recent study, carried out in a defined geographic area in both Canada and Ireland, showing that only 40% of physicians were acquainted with AAA screening guidelines (Wooster et al., 2012). Regarding CHD and dyslipidemia our study showed that targeted interventions are required in order to promote Cardiologists' compliance with USPSTF guidelines. One

Table 3. Cardiologists 'responses which are contradicting with USPSTF guidelines

Questions	USPSTF guidelines	Guidelines from other scientific societies	% of Cardiologists whose recommendations
Q8: Would you recommend routine screening for abdominal aortic aneurysm in a man 67 years old with smoking history?	The USPSTF recommends screening adults in men aged 65 to 75 with smoking history	The ACC and the AHA jointly recommend one-time screening for AAA with physical examination and ultrasonography in men ages 65 to 75 years who have ever smoked and in men age 60 years or older who are the sibling or offspring of a person with AAA (WHO, 2015).	53.7 %
Q11: Would you recommend routine screening for abdominal aortic aneurysm in a woman 70 years old?	The USPSTF recommends against routine screening for AAA in women.	The ACC and the AHA jointly recommend one-time screening for AAA with physical examination and ultrasonography in men ages 65 to 75 years who have ever smoked and in men age 60 years or older who are the sibling or offspring of a person with AAA (WHO, 2015).	53.6%
Q13: Would you recommend routine screening for dyslipidemia in a man 23 years without any known risk factors?	The USPSTF recommends screening men aged 20-35 for lipid disorders if they are at increased risk for coronary heart disease.	A fasting lipoprotein profile in all adults over the age of 20 once every 5 years is recommended by NCEP' Adult Treatment Panel III, endorsed by the AHA (Mozaffarian et al., 2015). The AAFP strongly recommends periodic cholesterol measurement in men aged 35 to 65 and in women aged 45 to 65(EU, 2014).	80%
Q15: Would you recommend routine screening fordyslipidemia in a woman 36 years in the absence of risk factors?	The USPSTF recommends screening women aged 20-45 for lipid disorders if they are at increased risk for coronary heart disease.	A fasting lipoprotein profile in all adults over the age of 20 once every 5 years is recommended by the NCEP' Adult Treatment Panel III , endorsed by the American Heart Association (Mozaffarian et al., 2015). The AAFP strongly recommends periodic cholesterol measurement in men aged 35 to 65 and in women aged 45 to 65 (EU, 2014). The ESC recommends that risk factor screening, including the lipid profile, may be considered in adult men ≥40 years of age, and in women ≥50 years of age or post-menopausal, particularly in the presence of other risk factors (Allender et al., 2008).	83.4%
Q16: Would you recommend routine screening fordyslipidemia in a woman 46 years in the absence of risk factors?	The USPSTF strongly recommends screeningwomen aged 45 and older for lipid disorders if theyare at increased risk for coronary heart disease.	A fasting lipoprotein profile in all adults over the age of 20 once every 5 years is recommended by the NCEP' Adult Treatment Panel III,endorsed by the AHA (Mozaffarian et al., 2015). The AAFP strongly recommends periodic cholesterol measurement in men aged 35 to 65 and in women aged 45 to 65(EU, 2014). The ESC recommends that risk factor screening, including the lipid profile, may be considered in adult men ≥40 years of age, and in women ≥50 years of age or post-menopausal, particularly in the presence of other risk factors (Allender et al., 2008).	93.5%
Q19: Would you consider treatment with aspirin in a woman 60 years old with smoking history in the absence of other risk factors?	The USPSTF recommends the use of aspirin for men age 45 to 79 years when the potential benefit due to a reduction in myocardial infarctions outweighs the potential harm due to an increase in gastrointestinal hemorrhage.	Along with the ASA, the AHA further recommended the use of aspirin for cardiovascular prophylaxis among persons whose risk is sufficiently high for the benefits to outweigh the risks associated with treatment (a 10-year risk for cardiovascular events of 6% to 10%) (Chimonas et al., 2009). The ESC advise against the use of aspirin in individuals without cardiovascular or cerebrovascular disease due to the risk of major bleeding (Kontogianni et al., 2008).	53.4%

Table 3 Cont.

Q26: Would you recommend screening for CHD in an asymptomatic man 47 years old without any known risk factors, whose new occupation requires intense physical labor?	The USPSTF recommends against routine screening for either the presence of severe coronary artery stenosis (CAS) or the prediction of coronary heart disease (CHD) events in adults at low risk for CHD events.	The ACC and the AHA state that exercise ECG "may be considered for cardiovascular risk assessment in intermediate-risk asymptomatic adults (including sedentary adults considering starting a vigorous exercise program"(Mihas et al., 2009) The AAFP does not recommend use of routine ECG in asymptomatic adults at low risk for CHD and found insufficient evidence for adults at increased risk for CHD (Panagiotakos et al., 2008)	83.6%
Q28: Would you recommend screening for CHD in an asymptomatic woman 57 years old without any known risk factors whose new occupation requires intense physical labor?	The USPSTF recommends against routine screening for either the presence of severe coronary artery stenosis (CAS) or the prediction of coronary heart disease (CHD) events in adults at low risk for CHD events.	The ACC and the AHA state that exercise ECG "may be considered for cardiovascular risk assessment in intermediate-risk asymptomatic adults (including sedentary adults considering starting a vigorous exercise program" (Mihas et al., 2009) AAFP does not recommend use of routine ECG in asymptomatic adults at low risk for CHD and found insufficient evidence for adults at increased risk for CHD (Panagiotakos et al., 2008).	82%
Q29: Would you recommend routine screening for carotid stenosis to an obese hypertensive man 53 years old?	The USPSTF recommends against screening in the general adult population	The ACC and the AHA, in collaboration with several other organizations, recommended against the use of carotid DUS for routine screening of asymptomatic patients with no clinical manifestations of or risk factors for atherosclerosis (Chrysohoou et al., 2010)	84.1%

ACC:The American College of Cardiology.
AHA: American Heart Association.
NCEP: National Cholesterol Education Program.
AAFP: The American Academy of Family Physicians.
ESC: European Society of Cardiology.
ASA: American Stroke Association.
ACCF: American College of Cardiology Foundation

possible explanation may lie in the fact that in certain clinical entities, such as dyslipidemia and CHD, USPSTF recommendations run counter to the guidelines released by other scientific societies (AAFP, 2008; Reiner et al., 2011; AAFP, 2012). Indeed, there is evidence suggesting that the presence of differing recommendations on the same topic could lead to inappropriate variation in clinical practice (Han et al., 2011; Meissner et al., 2011).

In terms of screening for dyslipidemia, our study showed that the majority of Cardiologists, in contrast with USPSTF guidelines, screen a man 23 years (80%), a woman 36 years (83.4%) as well as a woman 46 years (93.5%) regardless the presence of risk factors for CHD. Nonetheless, Cardiologists' practice pattern was proved to be in line with the guidelines issued by third report of the national cholesterol education program expert panel on detection, evaluation, and treatment of high blood cholesterol in adults (Adult Treatment Panel III) according which screening for dyslipidemia should start over the age of 20 years. (NCEP,2002) . That could justify the higher degree of screening that was found also in a previous study that the age at which family physicians begin screening lies between the ages recommended by the ATP III guidelines and the USPSTF (Eaton et al., 2006).

As far as screening for CHD is concerned, most old Cardiologists were in favor of screening for a man 47 years old (83.6%) as well as in a woman 57 years old (82%). This is in contrast with USPSTF guidelines. This finding could be related once again to differing recommendations given that both American College of Cardiology Foundation and the American Heart Association, state that exercise electrocardiogram may be considered for cardiovascular risk assessment in sedentary adults considering starting a vigorous exercise program (Greenland et al., 2010). Our findings are consistent with the results of a previous study which revealed that physicians practicing in primary care

need more information and support on the implementation of guidelines in regard to CHD prevention (Hobbs and Erhardt, 2002). Concerning screening for CAS in an obese hypertensive man 53 years old , most Cardiologists (84.1%) were found to be favorable, but not in line with USPSTF guidelines, indicating that the favorable attitude towards screening in this case may enclose a tendency to over screen and over diagnose patients. Regarding risk factor management, the majority of the participants (53.4%), erroneously, indicated that would prescribe aspirin in low-risk women, to reduce the risk of CV events. On the other hand, when asked about aspirin prescription in patient at higher risk of MI (Q18, Q20) the majority of the respondents were in accordance with USPSTF recommendations. These findings are similar to previous studies reporting inappropriate practices in regard to the management approach on risk level assessment by physicians (Hira et al., 2015). Interestingly, in a study of US family physicians, Doroodchi et al found that the majority would prescribe aspirin in an asymptomatic 45-year-old woman with metabolic syndrome at lower risk for CVD (Framingham 1%), to prevent myocardial infarction (Doroodchi et al., 2008). In another study which included 100 Cardiologists among 500 randomly selected physicians it was shown that the vast majority of the Cardiologists will prescribe aspirin for an intermediate risk patient (Mosca et al., 2005). The most important predictor of non-compliance as well as of poor attitude regarding screening guidelines was age. Older Cardiologists not only were found to have much poorer knowledge compared to younger Cardiologists towards USPTF screening guidelines but also they were more likely compared to younger Cardiologists to state that they do not consult nor do they think that guidelines are clear and widespread. In addition although Cardiologists' opinion converged on the importance of population based screening in order to promote public health, Cardiologists older than 50 years do not consider that the introduction of computer based decision support systems in clinical practice would be a good tool to promote EBPH. Younger Cardiologists may be more familiar with the idea to integrate screening guidelines in to their practice perhaps due to a greater familiarity with online resources which in turn allow them to keep themselves up to date on the most recent evidence and current recommendations. In addition, taking into consideration the exponential growth of research in the last years it is plausible that Cardiologists who graduated from medical school more recently were more likely not only to be better trained in EBM but also have more recent guidelines incorporated in their educational programs. Another possible explanation for the underuse is "simple clinical inertia (Cabana et al., 1999; Phillips et al., 2001). Thus physicians tend to base their medical decision more on their acquired experience than the external research evidence. Our findings are consistent with the results of a recent study that revealed that knowledge and attitude of young physicians were more based on EBM compared to old physicians (Rashidbeygi et al., 2013). Reverse relationship between guideline adherence and age was also found in a previous study on knowledge and attitudes of primary care physicians in the management of patients at risk for cardiovascular events (Hira et al., 2015). Educational interventions including the integration of online risk estimation tools or risk prediction charts in clinical practice may improve strategies of preventive care. Despite the efforts that have been made, the cross-sectional design of the study are associated with the risk of bias introduction. Moreover, there is a risk of social desirability bias. In addition, our study is based on self-reports and thus information bias may have occurred. Furthermore, the small number of the pilot testing could eliminate the possibility to improve the questionnaire. However most of the comments on the questionnaire were the same from the responders and the interviewer. In addition, by using only one interviewer we avoided the inter observer differences. Finally, the representation of certain demographic characteristics groups especially those working in the public sector compared to those working in the private sector was limited. This might be the reason why no statistically significant differences could be detected. Although the response rate of our survey was considered satisfactory (80%), it was lower than those reported in previous studies that assessed KAP of primary health care physicians towards EBM (Al-Ansary et al., 2007).

Conclusion

In conclusion the present study demonstrated, major gaps regarding Greek Cardiologists' screening and risk management practices. Educational intervention-especially among Cardiologists at age group>50 years old with didactic components including medical education seminars and screening courses is required to reduce practice variation and promote the integration of evidence based screening guidelines in clinical practice. Use of application designed to help physicians identify clinical preventive services that are appropriate for their patients, such as Electronic Preventive Services Selector (ePSS), could also increase clinician adherence to guideline-based care. In addition, computerized decision support systems with electronic alerts linked to electronic health records together with the use of Risk Estimator of 10-year risk for atherosclerotic cardiovascular disease which incorporate recommendations from the USPSTF guidelines for when to start aspirin therapy may represent a helpful approach that should be considered in the clinical practice in Greece. The present study indicates important opportunities to improve the evidence-based practices of Greek Cardiologists towards screening of CVD.

Author Contributions: CD participated in study design, data collection and drafted the paper. GR participated in data analysis and revised the manuscript for important intellectual content, XR analyzed data, SP revised the manuscript for important intellectual content, VM analyzed data and revised the manuscript for important intellectual

content, CH supervised study design, statistical analysis and revision of the manuscript for important intellectual content. All authors have read and approved the manuscript.

Conflicts of interest

The authors declare no conflict of interest

REFERENCES

Al-Ansary LA, Khoja TA (2007). Attitudes to evidence-based medicine of primary care physicians in Asir region, Saudi Arabia. EastMediterr Health., 13(2):408-419.

Allender, Steven, Scarborough, Peter, Peto, Vito, Rayner, Mike, Leal, Jose, Luengo-Fernandez, Ramon and Gray, Alastair (2008). European cardiovascular disease statistics, European Heart Network, Brussels, England.http://dro.deakin.edu.au/eserv/DU:30020501/allender-europeancardiovascular-2008.pdf

American Academy of Family Physicians. Guide to clinical preventive services. Lipid disorders. 2008. Available on line: http://www.aafp.org/patient-care/clinical-recommendations/all/lipid-disorders.html.

American Academy of Family Physicians. Recommendations for Clinical Preventive Services: Coronary Heart Disease. Leawood, KS: American Academy of Family Physicians; 2012. Accessed at www.aafp.org/online/en/home/clinical/exam/coronary heartdisease.html.

Han PK, Klabunde CN, Breen N, Yuan G, Grauman, A, Davis WW, Taplin SH (2011). Multiple clinical practice guidelines for breast and cervical cancer screening: perceptions of US primary care physicians.Med Care., 49(2):139-148.

Asch SM, Kerr EA, Keesey J, Adams JL, Setodji CM, Malik S, McGlynn EA (2006): Who is at greatest risk for receiving poor-quality healthcare? N Engl J Med., 354(24):2617-2619.Crossref

Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, Rubin HR (1999). Why don't physicians follow clinical practice guidelines? A framework for improvement. JAMA., 282(15):1458-1465.Crossref

CDC. Missed opportunities in preventive counseling for cardiovascular disease—United States 1199099991995. Morb Mortal Wkly Rep. 1998; 47:91–5. Available on line: http://www.cdc.gov/mmwr/preview/mmwrhtml/00051377.htm

Chimonas T, Fanouraki I, Liberopoulos EN, Chimonas E, Elisaf M (2009). Diverging trends in cardiovascular morbidity and mortality in a low risk population. Eur J Epidemiol., 24(8): 415-423.Crossref

Chrysohoou C, Panagiotakos DB, Pitsavos C, Skoumas J, Toutouza M, Papaioannou I, Stefanadis C (2010). Renal function, cardiovascular disease risk factors' prevalence and 5-year disease incidence; the role of diet, exercise, lipids and inflammation markers: the ATTICA study. QJM.,103(6): 413-422.Crossref

Davidson MH, Maki KC, Pearson TA, Pasternak RC, Deedwania PC, McKenney JM, Fonarow GC, Maron DJ, Ansell BJ, Clark LT, Ballantyne CM (2005). Results of the National Cholesterol Education Program Evaluation Project utilizing novel E-technology (NEPTUNE) II survey and implications for treatment under the recent NCEP Writing Group recommendations. Am J Cardiol., 96(4): 556-563.Crossref

Doroodchi H, Abdolrasulnia, M, Foster JA, Foster E, Turakhia MP, Skelding KA, Sagar K, CasebeerLL (2008). Knowledge and attitudes of primary care physicians in the management of patients at risk for cardiovascular events. BMCFamPract.,9(1): 42.Crossref

Eaton CB, Galliher JM, McBride PE, Bonham AJ, Kappus JA, Hickner J (2006). Family physician'sknowledge, beliefs, and self-reportedpracticepatterns regarding hyperlipidemia: a National Research Network (NRN) survey. J Am. Board Fam Med., 19(1):46-53.Crossref

EU-funded project sheds light on cardiovascular diseases 27 Feb 2014. Available at http://www.escardio.org/The-ESC/Press-Office/Press-releases/Last-5-years/EU-funded-project-sheds-light-on-cardiovascular-diseases.

Ford ES, Mokdad AH, Giles WH, Mensah GA (2003). Serum total cholesterol concentrations and awareness, treatment, and control of hypercholesterolemia among US adults: findings from the National Health and Nutrition Examination Survey, 1999 to 2000. Circulation., 107(17):2185-2189.Crossref

Greenland P, Alpert JS, Beller GA, Benjamin EJ, Budoff MJ, Fayad ZA, Foster E, Hlatky MA, Hodgson JM, Kushner FG, Lauer MS, Shaw LJ, Smith SCJr, Taylor AJ, Weintraub WS, Wenger NK, Jacobs AK, Smith SCJr, Anderson JL, Albert N, Buller CE, Creager MA, Ettinger SM, Guyton RA, Halperin JL, Hochman JS, Kushner FG, Nishimura R, Ohman EM, Page RL, Stevenson WG, Tarkington LG, Yancy CW (2010). ACCF/AHA guideline for assessment of cardiovascular risk in asymptomatic adults: a report of the American College of Cardiology Foundation/American Heart Association task force on practice guidelines. J Am. Coll. Cardiol., 56(25): 50-103. Crossref

Heidenreich PA, Trogdon JG, Khavjou OA, Butler J, Dracup K, Ezekowitz MD, Finkelstein EA, Hong Y, Johnston SC, Khera A, Lloyd-Jones DM, Nelson SA, Nichol G, Orenstein D, Wilson PW, Woo YJ (2008). Forecasting the future of cardiovascular disease in the United States: a policy statement from the American Heart Association. Circulation, 123 (8):933-944.Crossref

Hira RS, Kennedy K, Nambi V, Jneid H, Alam M, Basra SS, Ho PM, Deswal A, Ballantyne CM, Petersen LA, Virani SS (2015). Frequency and practice-level variation in inappropriate aspirin use for the primary prevention of cardiovascular disease: insights from the National Cardiovascular Disease Registry's Practice Innovation and Clinical Excellence registry. J Am Coll. Cardiol., 65(2): 111-121. Crossref

Hobbs FD, Erhardt L (2002). Acceptance of guideline recommendations and perceived implementation of

coronary heart disease prevention among primary care physicians in five Europe countries: the Reassessing European Attitudes about Cardiovascular Treatment (REACT) survey. Fam Pract., 19(6):596-604.Crossref

Jha AK, Varosy PD, Kanaya AM, Hunninghake DB, Hlatky MA, Waters DD, Furberg CD, Shlipak MG (2003). Differences in medical care and disease outcomes among black and white women with heart disease.Circulation,.108(9):1089-1094.Crossref

Kim C, Hofer TP, Kerr EA (2003). Review of evidence and explanations for suboptimal screening and treatment of dyslipidemia in women. A conceptual model. J Gen Intern Med., 18(10):854-863.Crossref

Kohatsu ND, Robinson JG, Torner JC (2004). Evidence-based public health: an evolving concept. Am J Prev Med.,27(5):417-421.Crossref

Kontogianni MD, Vidra N, Farmaki AE, Koinaki S, Belogianni K, Sofrona S, Magkanari F, Yannakoulia M (2008). Adherence rates to the Mediterranean diet are low in a representative sample of Greek children and adolescents. J Nutr. 138(10):1951-1956.

Ma J, Sehgal NL, Ayanian JZ, Stafford RS (2005). National trends in statin use by coronary heart disease risk category. PLoS Med.,2(5):123.Crossref

Meissner HI, Klabunde CN, Han PK, Benard VB, Breen N (2011). Breast cancer screening beliefs, recommendations and practices: primary care physicians in the United States. Cancer., 15;117(14):3101-3111.

Mihas C, Mariolis A, Manios Y, Naska A, Panagiotakos D, Arapaki A, Alevizos A, Mariolis-Sapsakos T, Tountas Y (2009). Overweight/obesity and factors associated with body mass index during adolescence: the VYRONAS study. Acta Paediatr., 98(3): 495- 500.Crossref

Mosca L, Appel LJ, Benjamin EJ, Berra K, Chandra-Strobos N, Fabunmi RP, Grady D, Haan CK, Hayes SN, Judelson DR, Keenan NL, McBride P, Oparil S, Ouyang P, Oz MC, Mendelsohn ME, Pasternak RC, Pinn VW, Robertson RM, Schenck-Gustafsson K, Sila CA, Smith SC Jr, Sopko G, Taylor AL, Walsh BW, Wenger NK, Williams CL (2004). Evidence-based guidelines for cardiovascular disease prevention in women.J Am Coll. Cardiol. 43(5):900-921.Crossref

Mosca L, Manson JE, Sutherland SE, Langer RD, Manolio T, Barrett- Connor E (1999). Cardiovascular disease in women: a statement for healthcare professionals from the American Heart Association. Writing Group. Circulation.96(7):2468-2482.Crossref

Mosca, Linfante, AH, Benjamin EJ, Berra K, Hayes SN, Walsh BW, Fabunmi RP, Kwan J, Mills T, Simpson SL (2005). National study of physician awareness and adherence to cardiovascular disease prevention guidelines. Circulation.,111(4): 499-510.Crossref

Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M, de Ferranti S, Després J-P, Fullerton HJ, Howard VJ, Huffman MD, Judd SE, Kissela BM, Lackland DT, Lichtman JH, Lisabeth LD, Liu S, Mackey RH, Matchar DB, McGuire DK, Mohler ER 3rd, Moy CS, Muntner P, Mussolino ME, Nasir K, Neumar RW, Nichol G, Palaniappan L, Pandey DK, Reeves MJ, Rodriguez CJ, Sorlie PD, Stein J, Towfighi A, Turan TN, Virani SS, Willey JZ, Woo D, Yeh RW, Turner MB; American Heart Association Statistics Committee and Stroke Statistics Subcommittee.(2015). Heart disease and stroke statistics— 2015 update: a report from the American Heart Association. Circulation. 139(4): 434-441.Crossref

Muntner P, He J, Roccella EJ, Whelton PK (2002): The impact of JNC-VI guidelines on treatment recommendations in the US population. Hypertension.,39(4):897-902.Crossref

Panagiotakos DB, Pitsavos C, Chrysohoou C, Skoumas I, Stefanadis C (2008). Five-year incidence of cardiovascular disease and its predictors in Greece: the ATTICA study. Vasc Med. 13 (2): 113-121.Crossref

Pearson TA, Laurora I, Chu H, Kafonek S (2000). The lipid treatment assessment project (L-TAP): a multicenter survey to evaluate the percentages of dyslipidemic patients receiving lipid-lowering therapy and achieving lowdensity lipoprotein cholesterol goals. Arch Intern Med.,160:459–467.Crossref

Phillips LS, Branch WT, Cook CB, Doyle JP, El-Kebbi IM, Gallina DL, Miller CD, Ziemer DC, Barnes CS (2001). Clinical inertia. Ann Intern Med., 135(9):825-834.Crossref

Rashidbeygi M, Sayehmiri K, Knowledge and attitudes of physicians towards evidence based medicine in ilam, iran (2013). Iran Red Crescent Med J., 15(9):798-803.Crossref

Reiner Z, Catapano AL, De Backer G, Graham I, Taskinen MR, Wiklund O, Agewall S, Alegria E, Chapman MJ, Durrington P, Erdine S, Halcox J, Hobbs R, Kjekshus J, Filardi PP, Riccardi G, Storey RF, Wood D (2011). .ESC/EAS Guidelines for the management of dyslipidaemias: the Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS). Eur Heart J.,32(14): 1769-1818.Crossref

Rosamond W, Flegal K, Friday G, Furie K, Go A, Greenlund K, Haase N, Ho M, Howard V, Kissela B, Kittner S, Lloyd-Jones D, McDermott M, Meigs J, Moy C, Nichol G, O'Donnell CJ, Roger V, Rumsfeld J, Sorlie P, Steinberger J, Thom T, Wasserthiel-Smoller S, Hong Y (2008). Heart Disease and Stroke Statistics–2007 Update: A Report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee Circulation.,115(5): 69-171.

Sabouret P, Cacoub P, Dallongeville J, Krempf M, Mas JL, Pinel JF, Priollet P, Steg G, Taminau D, Montalescot G (2008). REACH: International prospective observational registry in patients at risk of atherothrombotic events Results for the French arm at baseline and one yearArch Cardiovasc Dis., 101(2): 81-88. Crossref

Silva H, Hernandez-Hernandez R, Vinueza R, Velasco M, Boissonnet CP, Escobedo J, Silva HE, Pramparo P, Wilson E (2010). Cardiovascular risk awareness, treatment, and control in urban Latin America. Am. J. Ther.,17(2):159-166.Crossref

Sueta CA, Chowdhury M, Boccuzzi SJ, Smith SC Jr, Alexander CM, Londhe A, Lulla A, Simpson RJ Jr (1999). Analysis of

the degree of undertreatment of hyperlipidemia and congestive heart failure secondary to coronary artery disease. Am J Cardiol., 83(9): 1303-1307.Crossref

Third Report of the National Cholesterol Education Program (2002). Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report. National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). Circulation, 106(25): 3143–3421.

US Preventive Services Task Force. http://www.uspreventiveservicestaskforce.org/ Accessed Oct, 2015.)

Vermunt JK, Magidson J, Lewis-Beck M, Bryman A, Liao TF (2004). Latent class analysis. The Sage Encyclopedia of Social Sciences Research Methods. (pp.549–553). Thousand Oakes CA: Sage Publications.

Wooster DL, Wooster EM, Moneley D, Ryan L, Dueck A (2012). Comparison of knowledge and attitudes of primary care physicians toward abdominal aortic aneurysm screening in Canada and Ireland. Can J Surg., 55(5): 34.

World Health Organization. Cardiovascular Diseases (CVDs), fact sheet updated January 2015. Available from: http://www.who.int/mediacentre/factsheets/fs317/en/.

Appendix 1. Questionnaire used in our study.

Questions

Q1: a)Sex

Female

Male

b)Age in years:

Q2: University of graduation:

Graduation from Greek medical schools

Graduation from foreign medical schools

Q3: Training in the specialty of general medicine:

In university hospitals

In non-university hospitals

Q4: How many years have you been employed since your graduation.?

Q5: Postgraduates studies

Yes

No

Q6Are you employed in private sector:

Yes

No

Q7: How many patients do you review in a week on average?

Q8: Would you recommend routine screening for abdominal aortic aneurysm in a man67 years old with smoking history?

What test would you recommend?
Would you repeat screening in case of negative results?

Appendix 1 Cont.

Q9: Would you recommend routine screening for abdominal aortic aneurysm in a man67 years old without smoking history?

What test would you recommend?

Would you repeat screening in case of negative results?

Q10: Would you recommend routine screening for abdominal aortic aneurysm in a man 77 years?

What test would you recommend?

Would you repeat screening in case of negative results?

How often would you repeat screening ?

Q11: Would you recommend routine screening for abdominal aortic aneurysm in a woman 70 years?

What test would you recommend?

Would you repeat screening in case of negative results?

How often would you repeat screening ?

Q12 Would you recommend routine screening fo*r* dyslipidemia in a man23 years with history of diabetes?

What test would you recommend?

Q13 Would you recommend routine screening fo*r* dyslipidemia in a man23 years without any known risk factors?

What test would you recommend?

Q14: Would you recommend routine screening fo*r* dyslipidemia in a man40 years in the absence of risk factors?

What test would you recommend?

Q15: Would you recommend routine screening fo*r* dyslipidemia in a woman36 years in the absence of risk factors?
What test would you recommend?

Q16 Would you recommend routine screening fo*r* dyslipidemia in a woman46 years in the absence of risk factors?

Q17: Would you recommend routine re- screening fo*r* dyslipidemia in a man37 years without any known risk factors , with recent negative results?

What test would you recommend?

Appendix 1 Cont.

Q18: Would you consider treatment with aspirin in a man 50 years old with history of diabetes?

How often would you reconsider?

Q19:Would you consider treatment with aspirin in a woman 60 years old with smoking history?

How often would you reconsider?

Q20:Would you consider treatment with aspirin in a hypertensive man 47 years old with smoking history?

How often would you reconsider?

Q21: : Would you measure blood pressure in a man 22 years in the absence of risk factors?

Q22: Would you consider re-screening for hypertension in a man 25 years without any known risk factors whose blood pressure reading was 110/70 mmHg?

How often would you repeat screening?

Q23: : Would you consider re-screening for hypertension in a woman 25 years without any known risk factors whose blood pressure reading was 140/90 mmHg?

How often would you repeat screening?

Q24: Would you recommend screening for peripheral artery disease in a man 45 years old in the absence of risk factors?

What test would you recommend?

Q25: Would you recommend screening for peripheral artery disease in a woman 55 years old in the absence of risk factors
?
What test would you recommend?

Q26: Would you consider screening for CHD in an asymptomatic man 47 years old whose new occupation requires intense physical labor?

What test would you recommend?

Q27: Would you recommend screening for CHD in an asymptomatic woman 56 years old without any known factors for whom sudden death may endanger the safety of others?

Q28: Would you consider screening for CHD in an asymptomatic woman 57 years old without any known factors old whose new occupation requires intense physical labor?

What test would you recommend?

Appendix 1 Cont.

Q29: Would you recommend routine screening for carotid stenosis in an obese hypertensive man 53 years old? What test would you recommend?
Q30: Would you recommend routine screening for carotid stenosis in a man 53 years old in the absence of risk factors? What test would you recommend? Would you repeat screening in case of negative results?
Q31: In your opinion, do you think that there is necessity of population based screening?
Q32: Do you follow screening guidelines in your daily clinical practice?
Q33: Do you think that there are explicit and disseminated screening guidelines among health professionals practicing in primary care setting?
Q34: Do you think that the implementation of computer based decision support systems in clinical practice would be helpful to improve the quality of care?