

# Selective prevention of cardiometabolic diseases: activities and attitudes of general practitioners across Europe

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**Background:** Cardiometabolic diseases (CMDs) are the number one cause of death. Selective prevention of CMDs by general practitioners (GPs) could help reduce the burden of CMDs. This measure would entail the identification of individuals at high risk of CMDs—but currently asymptomatic—followed by interventions to reduce their risk. No data were available on the attitude and the extent to which European GPs have incorporated selective CMD prevention into daily practice. **Methods:** A survey among 575 GPs from the Czech Republic, Denmark, Greece, the Netherlands and Sweden was conducted between September 2016 and January 2017, within the framework of the SPIMEU-project. **Results:** On average, 71% of GPs invited their patients to attend for CMD risk assessment. Some used an active approach (47%) while others used an opportunistic approach (53%), but these values differed between countries. Most GPs considered selective CMD prevention as useful (82%) and saw it as part of their normal duties (84%). GPs who did find selective prevention useful were more likely to actively invite individuals compared with their counterparts who did not find prevention useful. Most GPs had a disease management programme for individuals with risk factor(s) for cardiovascular disease (71%) or diabetes (86%). **Conclusions:** Although most GPs considered selective CMD prevention as useful, it was not universally implemented. The biggest challenge was the process of inviting individuals for risk assessment. It is important to tailor the implementation of selective CMD prevention in primary care to the national context, involving stakeholders at different levels.

## Introduction

Cardiometabolic diseases (CMDs) are the number-one cause of death in the world.<sup>1</sup> They include cardiovascular disease (CVD), diabetes mellitus and chronic renal failure. CMDs are mainly caused by an unhealthy lifestyle, the major risk factors being physical inactivity, smoking and an unhealthy diet.<sup>2–6</sup> The selective prevention of CMDs could help reduce the burden of these diseases in the general population.<sup>7,8</sup> This measure would entail the identification of individuals who are at high risk of CMD but who are currently asymptomatic, followed by interventions to reduce their level of risk.

The European Society of Cardiology's (ESC) 2016 guideline on cardiovascular disease prevention recommends that men above the age of 40 and women over 50 are actively screened for an increased risk of CVD at least once every 5 years.<sup>9</sup> So, ideally, everyone in a specific age group would be systematically and actively invited

to visit their GP for a CMD health check. This would supplement whole-population interventions, such as banning smoking in public places and creating healthy environments. Scientific evaluations have produced conflicting results concerning the effect of health checks on mortality.<sup>10</sup> Nevertheless, health checks in primary care have been shown to improve outcomes, such as reducing body mass index, blood pressure and cholesterol levels.<sup>7,11</sup>

In most countries, general practitioners (GPs) have a longstanding and continuous relationship with their patients and are up to date with their medical history.<sup>12</sup> Therefore, as the ESC guideline states, 'GPs have a unique role in identifying individuals at risk of, but without established CVD, and assessing their eligibility for intervention'.<sup>9</sup>

As yet, there are no data on how different European countries tackle the selective prevention of CMDs in primary care. Nor, indeed, is anything known about the attitudes of GPs throughout Europe towards selective CMD prevention. The aim of this present study is to summarise the current activities and attitudes of GPs in

five European countries towards the selective prevention of CMDs. We will focus on the first step of selective CMD prevention, which entails the identification of individuals who are at high risk of CMD. These results could provide a starting point for the (further) development and implementation of selective CMD prevention in primary care across Europe. This study is part of SPIMEU, a project co-funded by the European Commission. The project's goal is to identify the determinants of successful selective CMD prevention in primary care across Europe.<sup>13</sup>

## Methods

### *Study design and population*

A survey among GPs from five European countries was conducted from September 2016 to January 2017. Invitations were sent to GPs from the countries represented in the SPIMEU project (the Czech Republic, Denmark, Greece, the Netherlands and Sweden). A representative sample of GPs from each country was invited to participate. Various methods were used for the GP selection and invitation procedure (Supplementary appendix S1). Our target was to collect a minimum of 500 completed questionnaires, 100 from each individual country. In short, invitations were sent to eligible GPs, either by email or by letter, asking them to complete the questionnaire. At least one reminder was sent to each GP until the target of 100 GPs per country had been reached. Where necessary, a second sample of GPs was also invited to participate. In Greece, Denmark and the Netherlands, the GPs were offered a remuneration (€25 to €67) for completing the questionnaire.

### *Questionnaire*

We developed an English, semi-structured questionnaire to identify the GPs' current activities in the area of selective CMD prevention, and to discover their attitudes on the subject. The questionnaire, which was based on a previous questionnaire developed by our group in 2008,<sup>14</sup> consisted of five sections:

- (1) the GPs' characteristics;
- (2) statements about their attitude towards CMD prevention;
- (3) the methods used to identify high-risk individuals divided into an active approach (i.e. inviting individuals who are not attending the practice at that time to attend for CMD risk assessment, for example by phone or letter) or an opportunistic approach (i.e. inviting individuals who are attending for a routine consultation, for any reason);
- (4) the measurements made to assess the risk of CMD;
- (5) routine use of a disease management programme (DMP; the availability of systematic treatment) for individuals with one or more cardiovascular risk factors or with type 2 diabetes.

The questionnaire was tested by two GPs from the Netherlands, two from Greece and by each of the partners in the SPIMEU project. It was then translated into the national language of each participating country (with the exception of Sweden). Details of the translation procedure used are given in Supplementary appendix S3. The questionnaire was then made available (in Czech, Danish, Dutch, English and Greek) through an online link (in the Czech Republic, Denmark, the Netherlands, Greece and Sweden) and on paper (in Greece). The answers provided to the researchers were anonymized. An overview of the definitions used in the questionnaire and in this manuscript is provided in Supplementary appendix S2.

### *Ethical considerations and analysis*

Appropriate ethical procedures were followed in all five countries. The study was approved by ethical review boards in Sweden, Greece and the Czech Republic. The ethical review boards in Denmark and the Netherlands declared that no approval was required. In the case

of those questionnaires that were completed online, it was not possible to progress to the next question before the current question had been answered. As a result, proceeding from the beginning to the end of the questionnaire, the amount of data gathered decreased. We decided to include those questionnaires that contained a response to our main statement: 'Selective CMD prevention is useful'. Missing data were excluded from the analysis. SPSS version 22 was used for the purpose of descriptive analyses. Average frequencies were calculated for all countries combined, and for each individual country. Groups were compared using  $\chi^2$  tests. We considered a *P*-value of <0.05 to be statistically significant.

## Results

### *Response*

In all, more than 2750 GPs were invited to participate, 706 of whom started the questionnaire. A total of 575 GPs completed the questionnaire up to and including the main statement (Selective prevention is useful). These questionnaires were included in the analysis. The response rates were 9, 12, 39 and 53% for the Netherlands, Denmark, Greece and the Czech Republic, respectively. The overall response rate was 18%. We were unable to calculate a response rate for Sweden, as it was not possible to retrieve data on the number of GPs invited to participate. Overall, more female GPs completed the questionnaire than their male counterparts (45% were male; see table 1). When we compared the gender percentages of those GPs who completed the questionnaire with the national gender percentages for GPs in each participating country, we found that these values corresponded in the cases of Denmark, the Netherlands, Greece and the Czech Republic. In Sweden, the number of female GPs who completed the questionnaire (60%) exceeded the national percentage of female GPs (47%). The average ages of respondents in Sweden, the Netherlands and the Czech Republic were lower than the respective national average ages for GPs in these countries. In Denmark, the respondents' average age corresponded to the national average age for GPs. We were unable to obtain data on the average age of GPs in Greece (Supplementary appendix S4).

### *Attitudes of GPs towards selective CMD prevention and methods used to invite individuals to attend for risk assessment*

The vast majority of GPs (overall 82%, range between countries 71 and 93%) stated that selective prevention is useful. A minority considered it to be a waste of resources (6%, range 2–10%). Almost all GPs (84%, range 73–96%) agreed that selective prevention of CMD is part of their normal duties. Greek and Czech GPs had the most positive attitude towards selective CMD prevention. Ninety-two percent of Greek GPs stated that it was useful and 96% agreed that this is part of their normal duties (see table 2). The corresponding values for Czech GPs were 93 and 91%.

In total, 71% of GPs in these five countries indicated that they invite individuals to attend for CMD risk assessment, either using an active approach, e.g. by phone or letter (47%) or an opportunistic approach during a routine consultation (53%). On average, 29% used both active and opportunistic approaches to invite individuals to attend for CMD risk assessment.

The proportion of GPs inviting individuals to attend for risk assessment was highest in the Czech Republic (69% actively and 67% opportunistically) and lowest in Denmark (26 and 44%, respectively; see table 2). The majority of GPs who actively invite patients to attend for an initial CMD risk assessment (data not shown) base their assessment on characteristics (age, gender, family history), risk factors (physical activity, smoking), measurements (weight, height, blood pressure) and laboratory tests (lipids, glucose). Overall, the risk factors used for CMD risk assessment were largely the same from one country to another.

**Table 1** Characteristics GPs and practice characteristics

	The Czech Republic n = 133	Denmark n = 122	Greece n = 116	The Netherlands n = 112	Sweden n = 92	Total n = 575
Male (%)	36	54	48	45	40	45
Age (%)						
<40	47	4	43	33	27	32
40–49	22	30	42	31	34	32
≥50	31	66	16	36	39	37
Smoking <sup>a</sup> (%)	4	1	28	1	1	8
GP has CMD (%)	10	6	16	6	17	11
Self-employed <sup>b</sup> (%)	60	94	21	83	1	55
Location practice (%)						
Big city, suburbs	64	44	33	23	59	44
Town, mixed urban Rural, rural	36	56	67	77	41	56
Type practice (%)						
Single-handed	46	22	38	21	0	28
Dual practice, group practice <sup>c</sup>	36	78	17	60	20	43
PC centre with many disciplines	5	0	28	18	80	22
Outpatient clinic, hospital	12	0	18	0	0	7

a: At least one cigarette per day.

b: Other answer options: salaried employment or combination of self-employment and salaried employment.

c: Group practice: practice with more than two GPs.

GP, general practitioner; CMD, cardiometabolic disease; PC, primary care.

**Table 2** GPs' attitudes and their approach to patients in selective CMD prevention

	The Czech Republic n = 133	Denmark n = 122	Greece n = 116	The Netherlands n = 112	Sweden n = 92	Total n = 575
Selective prevention of CMD is useful (% agree)	93	71	92	80	71	82
Selective prevention of CMD is a waste of money (% agree)	2	10	4	6	9	6
Selective CMD prevention is part of a GP's normal duties (% agree)	91	77	96	73	83	84
Active approach (%)	69	26	53	38	45	47
Opportunistic approach (%)	67	44	66	44	39	53
Practice protocol available (%)	21	21	14	32	17	21

**Table 3** Comparison of GPs who agreed or disagreed with the statement 'Selective prevention of CMD is useful' or who answered 'I don't know'

	Selective prevention of CMD is useful			Overall P-value
	Agree n = 471	Disagree n = 35	Do not know n = 69	
Selective CMD prevention is part of a GP's normal duties (% agree)	91	20	70	<0.001
Active approach (%)	53	20	22	<0.001
Opportunistic approach (%)	59	17	26	<0.001
Practice protocol available (%)	23	3	19	0.017

### Comparison of GPs with positive or negative attitudes towards selective CMD prevention

We compared the group of GPs who agreed with the statement 'Selective prevention of CMD is useful' (82%) with those who did not agree (6%) and those who answered 'I don't know' (12%; see table 3). Significantly, more of the GPs who agreed that selective CMD prevention is useful saw it as part of their normal duties (91%) than those who disagreed (20%). Furthermore, of those GPs who agreed that selective prevention is useful, a significantly higher proportion reported that they invite patients to attend for assessment (53% actively and 59% opportunistically) than those who disagreed (20 and 17%, respectively) or who did not know (22 and 26%, respectively; see table 3).

Less than one quarter of the GPs (21%, range 14–32%) indicated that their practice routinely uses a protocol for the tasks and logistics involved in selective CMD prevention. Such protocols are more commonly used by GPs who consider selective CMD

prevention to be useful than by those who disagree (23 vs. 3%, respectively).

### DMPs and referral options

In most countries, more than 90% of the GPs confirmed that they have a DMP available for diabetic patients (the exception was Greece, where the figure was 55%). Fewer practices had DMPs available for individuals with risk factors for CMD than for diabetes patients (from 49 to 74%), except in the Czech Republic (93%; see table 4).

With regard to the management of CMD risk, GPs from every country in the study can refer patients to other medical and non-medical healthcare professionals. The most easily accessible of these in Denmark were the municipal health services whereas, in the Netherlands, it was pharmacists (48%). In the Netherlands and Sweden, allied healthcare professionals (dieticians or physiotherapists) and practice nurses were also readily available, as was referral to the gym in Sweden (see table 4).

**Table 4** Availability of DMP and consultation options

	The Czech Republic n = 133	Denmark n = 122	Greece n = 116	The Netherlands n = 112	Sweden n = 92	Total n = 575
DMP for individuals with $\geq 1$ risk factor for CMD (%)	93	72	49	74	59	71
DMP for individuals with diabetes (%)	94	94	55	95	91	86
<i>Readily available healthcare professional for CMD risk management (%<sup>a</sup>)</i>						
Medical specialist in primary care	59	28	16	8	32	29
Medical specialist in clinic/hospital	81	80	87	81	71	81
Other GPs outside practice	9	3	8	19	4	9
Allied healthcare professionals <sup>b</sup>	22	26	31	80	75	44
Pharmacist	6	4	6	48	5	14
Psychologist	9	12	28	31	40	23
Practice nurse	7	57	9	73	81	42
Municipal health service	2	72	16	5	7	21
Gym, other	5	24	27	19	31	20
I never refer patients for CMD management	3	5	4	0	7	3

a: Cells add up to more than 100% because more than one answer was allowed.

b: Dietician, physiotherapist etc.

DMP, disease management programme; CMD, cardiometabolic disease; CVD, cardiovascular disease; GPs, general practitioners.

## Discussion

The aim of this study was to provide an overview of European GPs' current activities and attitudes with regard to selective CMD prevention. Most GPs consider selective CMD prevention to be useful. On average, 47% of the GPs surveyed actively invite their patients to attend for risk assessment and 21% have a selective CMD prevention protocol available in their practice. The GPs who consider selective CMD prevention to be useful differ significantly—in several respects—from those who do not share this view. They are more likely to invite individuals to attend for risk assessment, and a higher percentage of them considers this work to be part of their normal duties and has a protocol available.

In all five participating countries, a substantial proportion of GPs considered selective prevention to be useful and part of their normal duties. This is in agreement with previous findings.<sup>14</sup> A previous study showed that GPs were enthusiastic about offering health checks for CMD, and that they preferred systematic screening to case-finding.<sup>15</sup> This indicates that motivated GPs can play a key role in selective prevention programmes. However, our survey demonstrates that, while European GPs are keen to underline the importance of their role in selective CMD prevention, their actual performance—in terms of inviting individuals to attend for risk assessment—falls far short of 100%.

The way in which primary care is organized and its involvement in prevention differ from one country to another,<sup>16,17</sup> as does progress in implementing CMD prevention programmes (Supplementary appendix S5). For example, the Czech Republic already has a nationwide selective prevention programme, to systematically check people's CMD risk. This involves biannual invitations to those aged 18 years and above to visit their GP.<sup>18</sup> The patients involved are reimbursed for the cost of these health checks, which are an important source of income for GPs. Proportionately more GPs invited patients to attend for risk assessment in the Czech Republic than anywhere else. This could indicate that selective prevention programmes (at national or any other level) can act as an incentive for GPs in this regard. Denmark had the lowest proportion of GPs inviting patients to attend for risk assessment, which might reflect the fact that this country has no programmes of this kind. However, 53% of the Greek GPs indicated that they actively issue invitations to patients, yet the country has no national selective prevention programme. Thus, while the availability of such programmes seems to improve GPs' readiness to engage in selective prevention, it is not a prerequisite for them to actively invite individuals to attend for risk assessment.

With respect to DMPs, we found that the Czech Republic scored well in terms of the availability of a DMP and of GPs actively issuing

invitations. In Denmark, the availability of a DMP for diabetes was relatively high (94%), yet relatively few GPs in that country actively invited individuals to attend for assessment (26%). Greece had the lowest levels of availability for the two DMPs (49 and 55%, respectively), yet the percentage of Greek GPs who actively issued invitations was relatively high (53%). Thus, there was no clear relationship between DMP availability and the percentage of GPs actively inviting individuals to attend for risk assessment.

Most GPs used the risk factors recommended in the SCORE chart, which is the risk assessment tool recommended in the ESC guideline for CVD prevention.<sup>9,19</sup> A survey among physicians (including primary care physicians) also showed that the ESC guideline and the SCORE were the most frequently used tools in CVD prevention.<sup>20</sup> Some of the countries use an adapted score, based on the SCORE chart. For instance, Greece has the 'Hellenic SCORE', Denmark the 'Danish SCORE', and the Netherlands the 'Dutch SCORE'.<sup>21–23</sup>

GPs have reported various barriers to selective CMD prevention. These included insufficient funding, lack of time and high workloads.<sup>24</sup> Unless these barriers can be overcome, it will be difficult or impossible to successfully implement selective CMD prevention.

One option is to reduce GPs' workloads by cutting the time they spend on preventive tasks. If nurses were to be involved, this could potentially reduce GPs' workloads. However, the scientific evidence for such an approach is inconclusive.<sup>25</sup> In countries where little use is made of practice nurses in this regard, such as Greece and the Czech Republic (9 and 7%, respectively) there might be an opportunity to involve them in selective CMD prevention. In countries such as Sweden, however, nurses are already highly involved in preventive tasks (81%).

Insufficient funding for selective prevention programmes could also act as a barrier. Structural funding could encourage GPs to engage in selective CMD prevention. Thus, GPs must have sufficient funding to support their activities in both the first step (identification of high-risk individuals) and the second (interventions such as DMP and chronic care). The countries in our study each have different ways of funding healthcare (Supplementary appendix S5). Thus, it is important to take each country's specific situation into account when considering funding options for selective CMD prevention programmes.

Another barrier may be the limited evidence for the effectiveness (and cost effectiveness) of health checks for CMD.<sup>7,10,26</sup> Large-scale studies will be needed to address this issue.

Barriers could arise in both the invitation step and the intervention step. This study shows that the invitation step is the most vulnerable part of the process in this regard, as fewer than half of the GPs actively invite individuals to attend for risk assessment. The

intervention step is less of a problem, as the majority of GPs already have a DMP available.

To properly understand a country's barriers and to find potential solutions, it is important to involve stakeholders at different organizational levels, and to cooperate with them. These could include insurance companies, national ministries of health, public health organizations and patient organizations. It might also be helpful to assign active roles to national colleges of general practice, such as developing procedural guidelines for selective CMD prevention.

One particularly robust aspect of this study is that we were able to collect information from 575 GPs in five countries across Europe. This enabled us to provide an overview of GPs' activities in selective CMD prevention, and of their attitudes to this effort in countries where they play different roles.<sup>17</sup> Another strength is that we collected information on several aspects of the selective prevention process, especially the invitation step and GPs' attitudes. We also gathered data on the specific risk factors assessed and on the intervention options.

We attempted to select a sample of GPs that was as representative of their own country as possible. This involved using a different approach in each setting, and ensuring that our sample included GPs from different regions and from different types of general practice.

One limitation of this survey is the possibility of non-response bias, which could have influenced our results.<sup>27</sup> The response rates differed from one country to another, and GPs with a more positive attitude towards prevention may have been overrepresented. This could result in an overestimation of ongoing activities and positive attitudes among GPs. We also performed a complete case analysis ( $n=503$ ), the results of which reflected the final results. Thus, it is unlikely that GPs who did not complete the entire questionnaire were significantly different to those that did. The average age of respondents from three of the countries in our study was lower than the corresponding national average age of GPs. We expect younger GPs to be more positive about prevention (and selective prevention). Thus, the GPs in our study may have had a more positive view of selective prevention than is typical of GPs in their country.

In general, European GPs have a positive attitude towards CMD prevention, which they see as part of their normal duties. Such individuals are more likely to engage in CMD prevention than GPs with a negative attitude in this regard. Despite this positive attitude, however, not all GPs actively issue invitations and systematically carry out CMD risk assessments. This is even the case in the Czech Republic, which has a national, fully reimbursed, systematic selective prevention programme. Accordingly, there may be barriers that prevent GPs engaging in selective CMD prevention. A better understanding of such barriers could help in the development and implementation of selective CMD prevention. As part of the effort to develop selective prevention programmes throughout Europe, we recommend that a range of stakeholders be involved, including ministries of health, public health organizations, insurance companies, GPs (and national colleges of general practice) and—especially—highly motivated GPs.

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## Supplementary data

Supplementary data are available at *EURPUB* online.

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## Disclaimer

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## Key points

- GPs are positive about the selective prevention of cardiometabolic disease (CMD)
- GPs are actively inviting patients to attend for selective CMD prevention
- Despite widely held positive attitudes, not all GPs have implemented CMD prevention
- GPs' activities in selective CMD prevention vary from one country to another
- Implementation of selective CMD prevention should be adapted to the national context

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