

# Primary Care Strength Linked to Prevention Programs for Cardiovascular Disease

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**A** growing body of evidence on prevention and treatment of cardiovascular disease (CVD) has resulted in large numbers of recommendations for cardiovascular risk management (eg, guidelines developed by the American Heart Association and the European Society of Cardiology). Despite these recommendations, CVD remains an important cause of mortality and morbidity in industrialized countries.<sup>1</sup> The risk factors for CVD are the same all over the world.<sup>2</sup> The age-standardized CVD mortality rate per 100,000 population in the United States is 188.<sup>3</sup> In Europe the mortality rate is 354 per 100,000 population, with marked differences between countries. In Eastern European countries rates are higher (eg, 688 in the Russian Federation), whereas rates in Western European countries are comparable to those in the United States (eg, United Kingdom, 182; Germany, 211; and France with a very low mortality rate of 118). Mortality rates remain high partly because of unfavorable lifestyles and partly because not all patients receive effective and recommended treatment.<sup>4-11</sup>

All developed countries have large-scale programs to improve prevention and management of CVD, but the content and focus of these programs vary substantially. For instance, some programs focus on improving the management of chronic care for patients with established CVD, including lifestyle change and pharmaceutical treatment. These programs generally are called disease management programs. Other programs focus on lifestyle improvement for patients or the public in general, irrespective of the presence of CVD or risk factors as hypertension. Primary care plays a crucial role in both the prevention and management of CVD. Primary care presents opportunities for disease prevention and health promotion as well as early detection of problems; it is a bridge between personal healthcare and patients' families and communities.<sup>12</sup> However, different countries' healthcare systems vary with respect to the strength and integration of their primary care systems.<sup>13</sup> In some systems (eg, the United Kingdom, the Netherlands), a primary care physician is the first point of contact for health problems for patients who register with a practice, and this physician coordinates access

to other care providers through gate keeping. Conversely, in other systems (eg, Germany, the United States) the primary care physician is not a gatekeeper and patients are not listed in a practice (see **Boxed List 1**).

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**Objective:** Primary care plays a central role in the prevention and management of cardiovascular disease. We expected that countries with strong primary care systems would have programs to improve management of disease, but wondered how they dealt with lifestyle interventions delivered in primary care.

**Study Design:** Observational comparative study.

**Methods:** Using country coordinators and key informants, we collected information on 42 programs to improve cardiovascular risk management in 11 countries (Austria, Belgium, Finland, France, Germany, Israel, the Netherlands, Spain, Slovenia, Switzerland, the United Kingdom).

**Results:** Most (95%) of the improvement programs were targeted at health professionals; 86% of these provided education. Evaluation was part of all programs. In countries with a strong primary care system, 63% of the programs focused exclusively on disease management, 29% on lifestyle interventions, and 8% on both. In countries with a weak primary care system, 22% of the programs focused on disease management and 78% on lifestyle improvement.

**Conclusions:** Our findings suggest that a strong primary care system is likely to make efforts to improve disease management, but not necessarily efforts to improve delivery of lifestyle interventions. This may be a missed opportunity, given the potential of primary care to influence lifestyle.

(*Am J Manag Care.* 2009;15(4):255-262)

**For author information and disclosures, see end of text.**

■ **Boxed List 1.** Orientation on Primary Care (Strong vs Relatively Weak)

**Countries with a strong primary care orientation (eg, the Netherlands, Spain, the United Kingdom)**

- Patients register with a specific practice or practitioner as the first point of contact
- Physician acts as a gatekeeper to other services and coordinates care
- Patients can be recalled for chronic care management
- Physicians keep good patient records
- Physicians monitor cardiovascular risk factors
- Centrally led insurance system
- Pay at least in part per capita

**Countries with a relatively weak primary care orientation (eg, France, Germany, Switzerland)**

- No patient registration
- No primary care physician gatekeeper or coordinating role for other services
- No physician/practice-initiated access to services
- No systematic recording of cardiovascular risk factors
- Pay for service

Previous studies on quality improvement of CVD management did not consider the organization and strength of primary care.<sup>14-19</sup> However, evidence on chronic care management suggests that healthcare systems with a strong primary care orientation provide more comprehensive chronic care services than systems with a weaker primary care orientation.<sup>20</sup> Moreover, high-income countries with stronger primary care systems generally achieve better health outcomes.<sup>21</sup> Although the “primary care-ness” model of Starfield et al looks at associations between primary care-ness and outcomes, it does not take into account wider health outcome determinants (eg, quality of services), nor does it attribute better outcomes to specific elements of the system rather than the system as a whole.<sup>22</sup>

Though primary care focuses on patients (in contrast to disease-focused secondary care), health system features in countries with a strong primary care orientation especially favor efforts to improve disease management. So we hypothesized that in these countries, efforts to improve cardiovascular care would predominantly focus on disease management, aligned to activities already being done. In addition, we wondered what efforts were being made to improve lifestyle interventions for patients without CVD in countries with either a strong or a weak primary care orientation.

This article describes and compares large-scale programs to improve cardiovascular risk management in primary care in 11 countries across Europe and Israel. The characteristics

of healthcare systems with a strong or weak primary care orientation are shown in Boxed List 1. Such differences across Europe and the United States provide an opportunity to learn from the experiences of different countries.

Our intention was to identify commonly shared features of successful programs for improving cardiovascular risk management and prevention, and to assess differences in these programs’ content and focus. In addition, we considered whether the focus of these programs was related to the strength of primary care.

## METHODS

### Design and Sample

The EPA-Cardiovascular project was conducted as part of the TOPAS-EUROPE Association, founded in January 2005, in collaboration with and funded by the Bertelsmann Foundation.<sup>23,24</sup> The aim of this international project is to help improve cardiovascular risk management and prevention in primary care, for instance, by identifying successful programs to improve CVD prevention and management in the participating countries. These countries were Austria, Belgium, Finland, France, Germany, Israel, the Netherlands, Slovenia, Spain (especially Catalonia), Switzerland, and the United Kingdom.

This is a descriptive observational study of existing programs. We asked project partners from each participating country to identify and describe all large-scale cardiovascular risk management improvement programs in their country with the help of national key persons from different disciplines (health policy, research, and primary care) who had expertise on improvement programs. Each country’s representative also was asked to provide information on additional regional or local projects. A maximum of 5 programs per country were included. As the goal was to learn from best practice, all programs had to have a positive evaluation, at least by preliminary results.

### Measures

The project partners used a standardized form to provide information on program features (**Boxed List 2**). A preliminary report with program information was discussed with all country coordinators and adapted where needed. They checked and approved the final results regarding completeness and accuracy.

We dichotomized the countries into those with a strong or weak primary care system. We used the classification published by Macinko et al for the countries analyzed in this article.<sup>22</sup> For the other countries we used information on the organization of care in general practice that was relevant for

delivery of preventive services. The countries were scored on 4 items (patients on practice list, physician-led patient recall allowed, systematic monitoring of risk factors, primary care involved in preventive activities) and judged strong scoring to be 3-4 and weak scoring to be 0-2. Country coordinators provided the necessary information.

### Data Analysis

Two researchers (JvL, MW) independently assessed the program features shown in Boxed List 2. When there was disagreement, consensus was reached by discussion after repeated inspection of the program descriptions. Researchers were not blinded to the program name or country because of knowledge of many of the programs.

Programs incorporating both disease management and lifestyle improvement were classified as either lifestyle improvement or disease management when a clear major focus was apparent. When both aspects were of great importance, this feature was scored as “both lifestyle interventions and disease management.”

Data analysis was descriptive, as the low numbers did not allow for statistical analysis. Features shared by more than 80% of the programs were considered to be commonly shared. The comparative analysis focused on the strength of primary care (weak vs strong). We used SPSS 14 (SPSS Inc, Chicago, IL) for cross-tabulation to identify potential associations between program features and strength of primary care, considering that a 20% difference indicated potential relevance.

## RESULTS

A total of 47 programs from 11 countries were identified. We included 42 programs; they are listed in the [eAppendix Table](#) (available at [www.ajmc.com](http://www.ajmc.com)). Excluded programs were small scale or missed an intervention. Countries with a strong primary care focus were Finland, Israel, the Netherlands, Slovenia, Spain, and the United Kingdom. Countries with a weak primary care focus were Austria, Belgium, France, Germany, and Switzerland.

The [Table](#) provides descriptive program information. Features shared by the programs included interventions targeted at professionals (95%), interventions aimed at education and motivation (86%), and inclusion of an evaluation (100%). A small majority of projects (62%) were targeted at the public and patients as well as at healthcare professionals.

### Strength of Primary Care

Differences between programs in countries with a strong versus a weak position of primary care are shown in the [Table](#)

#### ■ **Boxed List 2.** Features of Programs to Improve Cardiovascular Risk Management

- **Target population:** community and patients, professionals, or both
- **Goals:** education and motivation, organizational changes (eg, introduction of supportive staff, specialized staff), or both
- Inclusion of financial incentives (eg, Is there reimbursement for participating practices?)
- Inclusion of regulations (Do regulations make part of the program?)
- Professional involvement (medical organization or group of participants as stakeholders, rather than just individual involvement)
- Primary focus on lifestyle improvement in patients/public, disease management (including pharmaceutical risk factor management and lifestyle advice for patients with established cardiovascular disease and diabetes), or both
- **Guidance:** top down, bottom up, or mixed (Is there clear hierarchical top-down guidance, or is there autonomy at the practice level? Is the program tailored to local preferences?)
- **Focus:** exclusively on cardiovascular diseases or on cardiovascular disease as a part of a wider set of topics
- **Scope:** nationwide or smaller scale
- **Evaluation:** Are monitoring and evaluation part of the program or not?

also. Most programs (63%) in countries with a strong focus on disease management were exclusively focused on improving the management of CVD or risk. Additionally, another 2 programs had a disease management character that also had a clear goal of preventing the target disease (diabetes, coronary heart disease); this goal was being pursued through implementation of lifestyle improvement for the general public.

In contrast, in countries with a weak primary care system most programs (78%) were focused on lifestyle interventions. Of the 4 disease management programs in countries with weak primary care orientations, 3 were diabetes programs.

In countries with a strong primary care system, the 7 improvement programs with an exclusive focus on lifestyle were all more or less initiated by public health organizations outside primary care practices. In countries with a weak primary care system, however, 8 of the 14 programs on lifestyle improvement were oriented to general practice, whereas only 6 programs were initiated by public health organizations.

An example of a program that focuses on lifestyle improvement in a country with a weak primary care system is the Checkup 35—Health Examination (Gesundheitsuntersuchung) in Germany (see [Boxed Example 1](#)). [Boxed Example 2](#) presents the primary care disease management aspects of the

■ **Boxed Example 1.** Example of a Program With Emphasis on Lifestyle Interventions

**Checkup 35—Health Examination (Gesundheitsuntersuchung), Germany**

In this program (begun in 1989), people age 35 years and older in statutory sickness funds are offered a cardiovascular disease (CVD), diabetes, and kidney disease risk check every 2 years. General practitioners perform this check-up examination, which includes medical history, physical examination, blood pressure test, laboratory tests (cholesterol, glucose, and urine tests), and counseling.

One of the aims of the program with respect to CVD is to improve the cardiovascular risk and lifestyle of patients. Patients receive education by counseling methods.

There are no evaluation data for the screening program in general. Smaller studies showed that health-conscious people at low risk are especially likely to get the screening examination, whereas people at high risk do not receive appropriate therapy (eg, statins).

National Service Framework on Coronary Heart Disease as an example of a program run in the United Kingdom, which has a strong position on primary care. Lifestyle improvement also is a focus in this program, including primary preventive activities for the public. Disease management aspects in primary and secondary care were important in the first years of the program and have been evaluated positively.

Compared with programs in countries that have a weak primary care system, programs in countries that have a strong primary care system were more frequently focused on CVD exclusively (71% vs 44%) and were more likely to be nationwide (54% vs 28%). In countries with a weak primary care system, programs were targeted at the community more often (78% vs 58%). There were no differences between programs in financial incentives, regulations, professional involvement, guidance, and aim at organizational changes.

## DISCUSSION

In countries with stronger primary care–orientated systems, successful improvement programs were focused more frequently on patients with established CVD, while in the other countries most programs focused on improving the delivery of lifestyle interventions to the general population. Stronger primary care was associated with initiatives designed to improve disease management, but less with the improvement of lifestyle interventions irrespective of CVD or risk factors. Cardiovascular prevention ideally consists of both lifestyle improvement and disease management. Considering the importance of primary care in CVD prevention, countries with a strong primary care system should make extra effort to imple-

ment lifestyle improvement programs. In healthcare systems with a weak primary care orientation (Germany, France, and the United States for most patients), primary care should be strengthened to provide greater opportunities for disease management improvement programs. Of course, the relationship between the organization of the healthcare system and cardiovascular mortality is complex. Strength of primary care is just one factor, which is shown by the low cardiovascular mortality rate in France, which has a weak primary care system.

The included programs all are targeted at professionals, emphasize an educational/motivational approach, and have a formal process of evaluation integrated in the program. We included only successful programs and therefore cannot determine whether these features also can be components of unsuccessful programs. Successful programs do generally have these features. Only a few programs included financial incentives or regulations, without distinction between the countries with strong or weak primary care systems. Therefore, we cannot conclude from our findings that financial incentives are important facilitators in improvement programs.

### Strengths and Limitations

To dichotomize countries according to their primary care focus, we used published classification results from Macinko et al.<sup>22</sup> For countries not in that analysis (Austria, Israel, and Slovenia), we used information from our country coordinators. These criteria applied to the countries in the article by Macinko et al gave the same classification, indicating appropriateness.

The international sample of programs to improve cardiovascular risk management brought together in this study is unique. We used systematic methods to guarantee data integrity (eg, inclusion of several informants per country with repeated checking of their information). Analysis was not blinded because of familiarity with many of the programs, but 2 authors assessed features independently. Nevertheless, the study may suffer from inclusion bias and incompleteness. We purposefully sampled successful programs, although actual outcome data were not always available or mixed. Lifestyle improvement programs may especially suffer from this bias, as it may be harder to find positive evaluations. But disease management programs with positive evaluations did not prevent lifestyle programs from being included, as most countries did not supply information on the maximum of 5 programs.

Another type of selection bias in our sample was that all included countries have relatively low cardiovascular mortality, below the European average. In consequence, the findings may not generalize to areas or patient groups with a higher mortality rate. However, the countries included and the United States have mortality rates in the same range.

There is no bias associated with country size: both the strong and weak primary care groups contain large and small countries. Furthermore, both groups contain about even numbers of countries and programs.

### Interpretation

What can be learned by national health policy makers? Previous research showed that strong primary care is associated with better chronic care management.<sup>20</sup> Our findings regarding CVD management are consistent with this trend. There are several potential explanations for the lower frequency of programs to improve lifestyle interventions in countries with strong primary care systems. Primary care physicians may feel that lifestyle improvement in healthy individuals is not their responsibility or priority, that it is not effective or cost-effective, or that it is unfeasible as large population groups need to be addressed.<sup>25</sup> Disease management may be perceived as more relevant, evidence based, and aligned to priorities. These priorities may relate to the workload within primary care associated with registered patients and to the society burden of established disease. Disease management also may relate to the definition and values of primary care and to how well primary care is integrated within the wider healthcare system. For example, countries with a strong primary care orientation may simultaneously have a strong public health system.

We found that all lifestyle improvement programs in countries with a strong primary care system were launched by public health organizations outside primary care. This fits both with the explanation that primary care is taking care of disease management instead of lifestyle improvement and with the explanation that public health is strongly organized. The implication, paradoxically, is that the full potential of primary care for delivering preventive services is not used in strong primary care systems. This is a missed chance, especially considering trends toward larger practices and more supportive staff in several countries, because these developments increase the ability of primary care to deliver the full spectrum of cardiovascular preventive services and by doing so, to deliver coherent, continuous care. Supported adequately, primary care could deliver lifestyle advice to healthy patients; the advantage over public health interventions would be that these interventions would be tailor-made to individuals, because of familiarity with listed patients.

■ **Boxed Example 2.** Disease Management Characteristics of the UK National Service Framework on Coronary Heart Disease

### National Service Framework on Coronary Heart Disease, United Kingdom

The Department of Health leads the National Service Framework on Coronary Heart Disease (NSF CHD), a nationwide, ongoing program. It started in 2000. The focus of this program is entirely on CHD, but there also are frameworks for other diseases (eg, chronic obstructive pulmonary disease, mental health, etc). The overall aim of NSF CHD is to lessen the burden of CHD. For primary care, there are 2 steps:

1. The first and most important step is identifying, advising, and treating people who have clinical evidence of CHD (eg, history of heart attack, angina, or coronary revascularization) or who have other clinical manifestations of occlusive arterial disease (eg, peripheral vascular disease, transient ischemic attack, or ischemic stroke).
2. The second step is identifying, advising, and treating people without clinical evidence of CHD or other occlusive arterial disease but whose risk of a cardiac event is greater than 30% over 10 years.

In the NSF both primary care and secondary care are involved; lifestyle improvement in patients and in the public is part of the program. Healthcare professionals and their organizations have to meet minimum standards for the delivery of health services in England. The Healthcare Commission, a national health regulator, is responsible for evaluating the implementation of NSF guidance.

In countries with a weaker primary care system, implementation of disease management programs requires extra efforts to enhance the delivery of preventive services. Interesting disease management initiatives are being undertaken in Germany and France, with regulations that reinforce the role of the family practitioner in delivering preventive services. In several US programs for improving disease management in primary care, baseline data collection showed marked room for improvement.<sup>26-28</sup> There is little information on large programs in primary care that have been evaluated as successful, although small programs show clear results.<sup>29</sup> The American Heart Association and the American Stroke Association have a “Get With the Guidelines” program on implementation, but this is based on hospital care.<sup>30</sup>

What can be learned by program developers? We analyzed the content and focus of improvement programs in 10 European countries and Israel. Because the sample included countries from all over Europe, except Eastern Europe, trends were robust for variations across health systems and cultures. However, the effectiveness of a specific improvement program may not be generalizable to other countries. Implementing a successful program in another country needs a systematic approach, taking the national context into consideration.<sup>31</sup> Assessing generalizability to another country needs groups of experts focusing on the professionals, the target population, and the healthcare system. When an intervention is considered effective, the next step is to examine whether the

■ **Table 1.** Features of the Improvement Programs (n = 42)

Feature	Total No. (%)	No. (%)	
		Weak Primary Care System (n = 18)	Strong Primary Care System (n = 24)
<b>Target population</b>			
Community	2 (5)	1 (6)	1 (4)
Professionals	14 (33)	4 (22)	10 (42)
Both the community and professionals	26 (62)	13 (72)	13 (54)
<b>Goal</b>			
Education/motivation	26 (62)	12 (67)	14 (58)
Organizational changes	6 (14)	1 (6)	5 (21)
Both education/motivation and organizational changes	10 (24)	5 (28)	5 (21)
<b>Inclusion of financial incentives</b>			
	8 (19)	3 (17)	5 (21)
<b>Inclusion of regulations</b>			
	4 (10)	1 (6)	3 (13)
<b>Professional involvement</b>			
Yes	30 (71)	12 (67)	18 (75)
No	12 (29)	6 (33)	6 (25)
<b>Nationwide</b>			
Yes	18 (43)	5 (28)	13 (54)
No	24 (57)	13 (72)	11 (46)
<b>Exclusive focus on CVD</b>			
Yes	25 (60)	8 (44)	17 (71)
No	17 (40)	10 (56)	7 (29)
<b>Focus</b>			
Lifestyle interventions	21 (50)	14 (78)	7 (29)
Disease management	19 (45)	4 (22)	15 (63)
Both lifestyle interventions and disease management	2 (5)	0 (0)	2 (8)
<b>Evaluation performed or planned</b>			
Yes	42 (100)	18 (100)	24 (100)
No	0 (0)	0 (0)	0 (0)
<b>Guidance</b>			
Top down	30 (71)	13 (72)	17 (71)
Mixed	8 (19)	2 (11)	6 (25)
Bottom up	4 (10)	3 (17)	1 (4)

CVD indicates cardiovascular disease.

intervention can be implemented, again considering professionals, population, and system. This is acknowledged in both European and US guidelines. In the European guidelines on CVD prevention in clinical practice, only general remarks are made on implementation; national colleges are expected to organize implementation in accordance with local needs.<sup>32</sup> The American Heart Association and the American Association of Cardiovascular and Pulmonary Rehabilitation defined core elements of implementation programs.<sup>33</sup> It is considered essential to the success of any program that each interven-

tion is performed in concert with the patient's primary care provider and/or cardiologist, who will supervise and refine interventions. Interventions are adapted and tailored at the patient level, not at the level of the implementation program. The American Heart Association Guide for Improving Cardiovascular Health at the Community Level presents recommendations to achieve their goals.<sup>34</sup> The guide provides assistance with cardiovascular prevention on a community level without making recommendations regarding implementation. The American Heart Association Guidelines for

Primary Prevention of Cardiovascular Disease and Stroke also make general remarks about implementation for individual patients.<sup>35</sup> These guidelines state that implementation needs acceptance and a physician-patient partnership. They provide tools for risk assessment and communication, and for general information.

Optimal prevention and treatment programs require knowledge about both CVD and successful implementation.<sup>36</sup> To reduce the burden of CVD, both lifestyle improvement in the general public and disease management improvement for patients with established CVD are mandated. A balanced approach is needed to create comprehensive programs across the risk spectrum.<sup>37</sup>

## CONCLUSIONS

We found that in countries with weaker primary care systems successful cardiovascular preventive programs are more often lifestyle oriented rather than focused on patients with established disease. As such, the infrastructure and culture for successful disease management programs may be missing. The key message may be that before the start of a disease management program, the position of primary care should be strengthened. Several countries with weak primary care systems have been making interesting strides in this direction.

A strong primary healthcare system seems beneficial for improving chronic care management of patients with established CVD but, paradoxically, not for deliverance of lifestyle interventions to the wider population. Such a system (Boxed List 1) offers opportunities for the delivery of lifestyle counseling to relevant target groups. Nevertheless, lifestyle improvement programs are underrepresented, even though research evidence suggests they have a high impact on mortality and morbidity in the population.<sup>38-40</sup> Developments in primary care organization (increasing practice size, involvement of supportive staff) increase the feasibility of delivering large-scale lifestyle interventions. Policy makers should consider how to create the necessary conditions for these interventions to happen.

Our survey sample was restricted to improvement programs for CVD. Further research might address the relation between the strength of primary care and implementation programs concerning other conditions such as chronic obstructive pulmonary disease, osteoarthritis, and malignancies.

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### Take-Away Points

Primary care plays a central role in prevention and management of cardiovascular diseases. We describe an observational comparative study of 42 successful programs to improve primary care management of cardiovascular risk in 11 countries and analyzed program features in relation to whether the primary care systems were weak or strong. This study showed that:

- A weak primary care system may need strengthening to implement disease management programs.
- A strong primary care system seems beneficial for disease management programs but not for lifestyle improvement programs.
- Policy makers should consider how to create conditions for delivering preventive lifestyle services in a strong primary care system.

**Funding Source:** The study was funded by the Bertelsmann Foundation ([http://www.bertelsmann-stiftung.de/cps/rde/xchg/bst/hs.xml/prj\\_8519.htm](http://www.bertelsmann-stiftung.de/cps/rde/xchg/bst/hs.xml/prj_8519.htm)), which had no involvement in the study design or collection, analyses, or interpretation of data.

**Author Disclosure:** The authors (JvL, MW, SMC, RG) report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

**Authorship Information:** Concept and design (JvL, MW, SMC, RG); acquisition of data (JvL, SMC); analysis and interpretation of data (JvL, MW, SMC, RG); drafting of the manuscript (JvL, SMC, RG); critical revision of the manuscript for important intellectual content (MW); provision of study materials or patients (SMC); and supervision (MW).

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