

## Cardiovascular prevention in the Hartsлаг Limburg project: Effects of a high-risk approach on behavioral risk factors in a general practice population

Janneke Harting<sup>a,b,\*</sup>, Patricia van Assema<sup>a,b,c</sup>, Patrick van Limpt<sup>d,b</sup>, Ton Gorgels<sup>e</sup>,  
Jan van Ree<sup>d,b</sup>, Erik Ruland<sup>f</sup>, Frank Vermeer<sup>g</sup>, Nanne K. de Vries<sup>a,b,c</sup>

<sup>a</sup> Department of Health Education and Promotion, Maastricht University, The Netherlands

<sup>b</sup> Care and Public Health Research Institute, Maastricht University, The Netherlands

<sup>c</sup> Nutrition and Toxicology Research Institute, Maastricht University, The Netherlands

<sup>d</sup> Department of General Practice, Maastricht University, The Netherlands

<sup>e</sup> Department of Cardiology, University Hospital Maastricht, The Netherlands

<sup>f</sup> Regional Public Health Institute, Maastricht, The Netherlands

<sup>g</sup> Cardiologist, Bernhoven Hospital, Oss, The Netherlands

Available online 14 August 2006

### Abstract

**Background.** This study describes a general-practice-based high-risk cardiovascular prevention approach in Maastricht, The Netherlands (1999–2003). The intervention consisted of a complete registration of risk factors, optimization of medical treatment and health counseling on high fat consumption, smoking and physical inactivity.

**Methods.** Behavioral effects were assessed in a trial, randomization by practice and usual care as control. Validated questionnaires were completed by 1300 patients at baseline, 1174 after 4 months (90.3%) and 1046 (80.5%) after 18 months.

**Results.** After 4 months, intention-to-treat analyses revealed a decrease in saturated fat intake of 1.3 points (scale ranging from 7 to 30 points,  $p=0.000$ ). This was partly sustained after 18 months ( $-0.5$  points,  $p=0.014$ ). After 18 months, obese intervention patients were more likely to be sufficiently physically active than their control counterparts ( $OR=1.90$ ,  $p=0.023$ ). No intervention effects were found for smoking.

**Conclusion.** Given the multiple factor and multiple component high-risk approach, the intervention had modest effects on only some of the behavioral risk factors addressed. Process data showed that the registration of risk factors and the optimization of medical treatment were only partly implemented, that the health counseling component could be further improved and that the intervention could benefit from additional health promoting strategies.

© 2006 Elsevier Inc. All rights reserved.

**Keywords:** Preventive health services; Cardiovascular diseases; Counseling; Risk reduction behavior; Family practice

### Introduction

Cardiovascular disease (CVD) is one of the top ten causes of mortality worldwide (WHO, 2002). In The Netherlands, CVD causes 35% of all deaths (Van Oers, 2003). In the southern part of the country, prevalence of and mortality from CVD are relatively high, and behavior-related cardiovascular risk factors, such as obesity and smoking, are common among its

residents (GGD, 1999). These epidemiologic data were the reason for initiating the regional cardiovascular prevention project Hartsлаг Limburg (Dutch for Heartbeat Limburg) (Ruland et al., 1999). The project combined a community-based intervention with an individual high-risk approach (Rose, 1992). The present article focuses on the behavioral effects of the individual approach in a general practice setting.

In individual cardiovascular prevention strategies, priority should be given to patients with established CVD or healthy individuals who are at high risk of developing CVD (Rose, 1992; Ebrahim and Smith, 1997; De Backer et al., 2003). Among these groups, changing cardiovascular risk factors has the

\* Corresponding author. Department of Health Education and Promotion, P.O. Box 616, NL-6200 MD Maastricht, The Netherlands. Fax: +31 43 367 10 32.

E-mail address: [j.harting@gvo.unimaas.nl](mailto:j.harting@gvo.unimaas.nl) (J. Harting).

potential capacity to generate substantial health gains (CDC and National Center for Chronic Disease Prevention and Health Promotion, 1998; Van Oers, 2003). Since CVD has a multifactorial etiology and cardiovascular risk factors have a multiplicative effect, a multiple factorial prevention approach is expected to be most effective (Rose, 1992; Pyörälä et al., 1994). In addition, multiple components are required for effective CVD prevention (Rose, 1992; Pyörälä et al., 1994; Wood et al., 1998), such as a complete registration of risk factors, optimal treatment of biomedical risk factors and counseling on behavioral risk factors (Mullen et al., 1997; CDC and National Center for Chronic Disease Prevention and Health Promotion, 1998). In Dutch general practices, the implementation of these components has been found to be suboptimal (Drenthen, 1997; Hulscher et al., 1998; Van Drenth et al., 1998; Kromhout, 1999).

The potential effectiveness of an individualized high-risk approach in primary care has been acknowledged before (Ashenden et al., 1997; Ebrahim and Smith, 1997). Some intensive multiple risk factor interventions have indeed yielded a promising reduction of risk factors (e.g. Cutler et al., 1991; Wood et al., 1994; ICRF OXCHECK Study Group, 1995), though others have failed to do so (e.g. Burton et al., 1995; Lindholm et al., 1995, 1996). More extensive research has therefore been recommended, before substantial public funds are allocated to such health promotion efforts (Ashenden et al., 1997).

The main research question of the present study was whether the high-risk approach generated positive changes in saturated fat consumption, smoking, and physical activity level.

**Methods**

*Intervention*

The intervention protocol consisted of three components (see Fig. 1 for the causal intervention model as recommended by Rimer et al., 2001). First, a

complete computerized cardiovascular risk profile had to be drawn up to guide the drug treatment and lifestyle interventions (Wood et al., 1998). Second, the general practitioners (GPs) had to evaluate and, if necessary, optimize the treatment of biomedical risk factors in accordance with the national practice guidelines. Third, patients were invited to visit a health advisor to be counseled on healthy lifestyle changes and adherence to medical treatment. This was introduced as a new service in the Dutch health care system. The collaborative prevention efforts by the GPs and the health advisors were expected to reinforce their individual preventive effects.

The two health advisors, one a specialized practice assistant and the other a dietician, had been trained in behavior change and counseling techniques (Harting et al., 2004) and in the use of a theory-based and empirically guided stage-matched health counseling model (unpublished manuscript). In accordance with evidence-based international recommendations (Wood et al., 1998; WHO, 2003) and national guidelines (Voedingsraad, 1991; Kemper et al., 2000), they applied the following rules of life: patients' saturated fat consumption should preferably not exceed 10% of their total fat intake, which in turn should not exceed 35% of their total energy intake, patients should not smoke and they should be moderately active for at least 30 min a day on 5 to 7 days a week.

The health advisors were encouraged to consolidate their personalized information and advice with leaflets and booklets (Burke et al., 1997). Trial packages of nicotine replacement and bupropion therapy were available as additional strategies for smoking cessation (Hughes et al., 2004; Silagy et al., 2004). If patients were interested, the health counselors used a telephonic booster as a means of sustaining behavioral effects (Van Elderen-van Kemenade et al., 1994). Furthermore, the health advisors were expected to refer patients to health promoting activities in their neighborhood, to regularly consult with the GPs about their patients and to include written feedback information in the patient records.

*Design and participants*

The experimental design to study effects of the intervention included one pre-test questionnaire (T=0) and two post-tests questionnaires after 4 (T=4) and 18 months (T=18). After stratification for socioeconomic class of the neighborhood (high vs. low) and the GPs' preventive orientation (high vs. low), the 25 participating general practice units (each expected to include 45 patients) were randomized into 12 intervention and 13 control units (usual care). Participants had to have a greater than 20% risk of incurring a cardiovascular event within 10 years (Pyörälä et al., 1994; Wood et al., 1998). Cardiovascular risk was calculated using information from the patients'

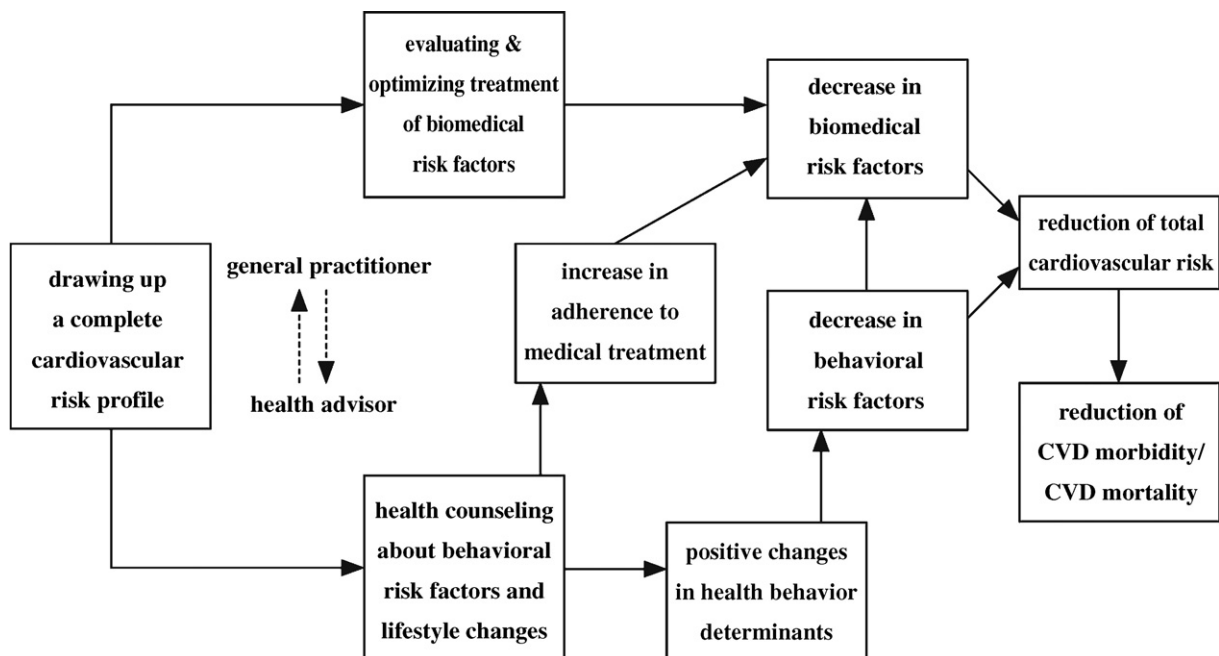


Fig. 1. Causal intervention model (Maastricht, The Netherlands, 1999–2003).

Download English Version:

<https://daneshyari.com/en/article/3101777>

Download Persian Version:

<https://daneshyari.com/article/3101777>

[Daneshyari.com](https://daneshyari.com)