

# Treated and untreated dyslipidemia: the NCEP Guidelines in a primary care sample in Germany: Degree of unmet needs



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## Background

A recent evaluation of the Framingham and the Third National Health and Nutrition Examination Survey (NHANES III) datasets revealed that more than 90% of coronary artery disease (CAD) events will occur in individuals with at least 1 of the 5 major CAD risk factors hypertension, elevated low-density lipoproteins, low high-density lipoproteins, glucose intolerance, and smoking<sup>1</sup>. Dyslipidemia thus is among the key risk factors for the development of cardiovascular disease. There is a remarkable lack of comprehensive data from large studies on the prevalence of dyslipidemia, its recognition and control in primary care practice prompted us to initiate a nationally representative large-scale epidemiological study<sup>2,3</sup> to assess the prevalence of dyslipidemia and other cardiovascular risk factors and management patterns in primary care.

## Aims

The epidemiological study DETECT<sup>2,3</sup> (Diabetes-Cardiovascular Risk Evaluation: Targets and Essential Data for Commitment of Treatment) was launched to identify the reasons, the extent and the short-term consequences of unmet needs in patients with high cardiovascular risk in a representative sample in primary care in Germany. The present analysis of the DETECT laboratory dataset focuses primarily on the prevalence and treatment of dyslipidemia in primary medical care in Germany.

## Methods

### Design:

DETECT is a large multistage cross-sectional study of 55,518 unselected consecutive patients (59% women; over 18 years, mean age 53.9 years) in 3,188 primary care offices in Germany (73% general medicine and 27% internal medicine) with a prospective 12-month component in a random subset of 7,519 patients, characterized additionally by an extensive standardized laboratory program with focus on CV risk assessment. Patients' self-assessments and physicians' assessments of each patient were obtained. Further details are available at <http://www.detect-studie.de>. The rationale and design for DETECT, the baseline characteristics and first prevalence data already have been published by Wittchen and Böhler et al<sup>2,3</sup>.

### Definitions:

CAD risk categories and subsequent LDL-C goals were determined according to the National Cholesterol Education Program (NCEP) ATP III Guidelines (Table 1). Ten-year risk for hard CAD (MI & CAD death) was calculated according to the Framingham risk score. Dyslipidemia was diagnosed if LDL-C levels exceeded the target values demanded by the NCEP risk categories I-III or if there was a clinical history of dyslipidemia (physician's diagnosis or being on lipid-lowering medication).

Diabetes has been defined according to the guidelines of the American Diabetes Association (fasting plasma glucose  $\geq 126$  mg/dl, no caloric intake for at least 8 h) or clinical history (physicians' diagnosis or being on antidiabetic medication). Blood pressure measurements were performed according to the guidelines of the German Hypertension Society.

Fasting blood samples were collected and shipped by courier within 24 hours to the central laboratory at the Medical University of Graz (Austria). Clinical chemical parameters as well as cholesterol, triglycerides, and lipoprotein (a) [Lp(a)] were determined on a Roche Modular automatic analyser. Lipoproteins (HDL, LDL, VLDL) were determined electrophoretically on the HELENA SAS-3/SAS-4 system.

## Results

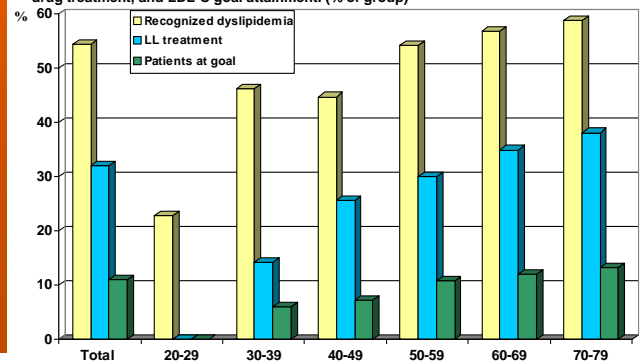
In 7,376 out of the random subset of 7,519 patients complete lipid and lipoprotein analysis were performed. Due to the lower and upper age boundaries of the Framingham risk score tables, Framingham risk scores just have been calculated in the subset of 6,815 patients within the age range from 20 to 79 years (in the following described as the 'complete cohort'). Table 1 summarizes the demographic characteristics.

Table 1: Demographic characteristics

	Total N=6.815			Current Smoker [%]	22.2%
Sex: Men [%]	2,837 (40.5%)			Systolic blood pressure [mmHg]	132.3 mmHg
Women [%]	3,978 (59.5%)			Diastolic blood pressure [mmHg]	80.2 mmHg
Age: $\leq 60$ years	3,730 (58.2%)			Total-cholesterin [mg/dl]	223.6 mg/dl
> 60 years	3,085 (41.8%)			HDL-cholesterin [mg/dl]	54.5 mg/dl
BMI:				LDL-cholesterin [mg/dl]	127.6 mg/dl
Overweight (BMI 25-29.99) [%]	2,702 (39.1%)			Triglycerides [mg/dl]	155.4 mg/dl
Obesity (BMI $\geq 30$ ) [%]	1,666 (22.5%)				
HbA1c > 6.5 %	627 (7.6%)				

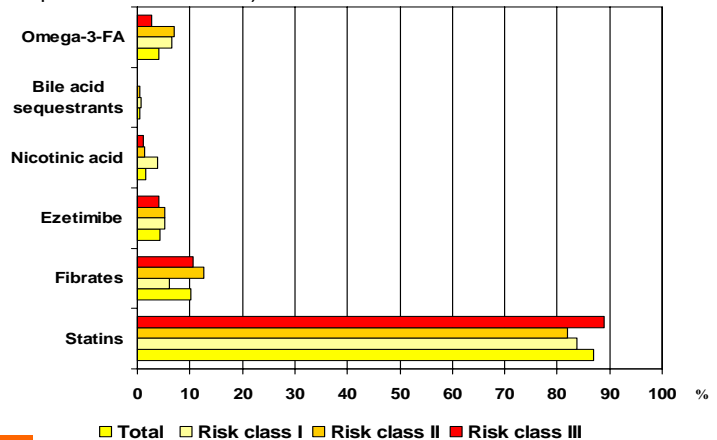
Of all patients, 54.3% had dyslipidemia. Only 54.4% of the NCEP classified dyslipidemic patients were diagnosed as 'dyslipidemic' by their physicians. Only 27% of all dyslipidemic patients (and 40.7% of the recognized dyslipidemic patients) were treated with lipid-lowering medications. 11.1% of all dyslipidemic patients (41.4% of the patients treated with lipid-lowering drugs) achieved their LDL-C treatment goals. In conclusion, undiagnosed, non-treated or undertreated dyslipidemia ('unmet needs') was present in 80.3% of all patients. (see Figure 1).

Figure 1: Age dependent rates for clinically diagnosed dyslipidemia, patients with lipid-lowering drug treatment, and LDL-C goal attainment. (% of group)



In the group of patients with treated dyslipidemia the most frequently used lipid lowering drug classes were statins (87%), followed by fibrates (10.2%), ezetimibe (4.4%), omega-3-FAs (4.1%), nicotinic acid derivatives (1.6%), and bile acid sequestrants (0.4%), the rates for fibrates were lower in the NCEP risk class I (6.1%), than in II and III (12.6% and 10.5% respectively), the rates for the use of statins were higher in the NCEP risk class III (88.9%) than in I and II (83.8% and 81.9% respectively). (see Figure 3).

Figure 2: of lipid-lowering medication is similar across the three cardiovascular NCEP risk classes (in % of patients with medical treatment).



## Summary

Our results indicate that a significant proportion of patients in primary care are dyslipidemic and thus at increased risk for cardiovascular events. However, lipid-lowering therapy in this group of patients seems to be not optimal, clearly indicating the need of concerted efforts to improve treatment rates for elevated blood lipids.