

## Editorials

### Cholesterol: To Screen Or Not To Screen, That Is The Question

Pity the poor cholesterol molecule. In 50 years it has gone from being heralded as the indispensable precursor of steroidogenesis, the building block for such prized products as estrogen and testosterone, to being vilified as public health enemy number one for its role in coronary atherosclerosis. *Angst* about cholesterol levels has joined traditional American preoccupation with such figures as the Dow Jones index, baseball batting averages, and waistlines. Announcements of new research findings about cholesterol appear regularly in the scientific and lay press, allowing the public to mull over whether to drip or boil when making coffee, to add more nuts to their oat bran muffins, and to indulge in that extra slice of Camembert cheese as long as it's washed down with a glass of red wine. Home cholesterol monitoring kits are about to find a place alongside early pregnancy detection packages on the shelves of United States pharmacies.

The biggest boost for cholesterol screening and treatment in the United States was the 1987 report of the National Heart, Lung, and Blood Institute sponsored National Cholesterol Education Program (NCEP).<sup>1</sup> The NCEP guidelines called for testing serum cholesterol in all adults and offered an algorithm for dietary and drug treatment based on lipid levels and risk factors for coronary artery disease. In this issue of *JABFP*, Hahn describes his implementation in office-based practice of a modified version of the NCEP guidelines.<sup>2</sup> He demonstrates how a policy of opportunistic health care maintenance,

utilizing acute care visits, as well as preventive care check ups, allowed him to screen nearly all the adult patients active in his practice. Cholesterol screening was well accepted by patients. Three quarters of his patients with high cholesterol levels (> 240 mg/dL) followed through with further lipid testing and received dietary and, in some cases, drug treatment.

This report is noteworthy in that it shows that cholesterol screening and follow-up are feasible in primary care practice. Americans are not receiving the amount of cholesterol screening and treatment recommended by the NCEP,<sup>3</sup> and the author sets an example of how well-motivated family physicians could put the NCEP guidelines into practice.

But if Hahn can show how physicians *could* do a more thorough job of cholesterol screening, the really important question remains: *should* physicians be screening all their patients? Are Americans likely to benefit from such efforts?

There is a troubling lack of evidence that an aggressive policy of cholesterol screening and treatment will clearly help those in the United States live longer or better. In all of the major randomized clinical trials of drug and dietary treatment of hypercholesterolemia for primary prevention of coronary artery disease, modest reductions in deaths from cardiac causes were offset by equivalent increases in noncardiac deaths.<sup>4</sup> In terms of morbidity, the reduction in nonfatal myocardial infarctions in the primary prevention drug studies was relatively small — on the order of needing to treat 50 patients for 10 years to avert 1 nonfatal cardiac event.<sup>5</sup> Krahn, et al.,<sup>6</sup> using a sophisticated decision analysis accounting for the side effects and other “disutilities” of screening and treatment, estimated that compared with a less aggressive policy, the NCEP guidelines result in a net decrease in quality of life.

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The problem with aggressively treating patients with high cholesterol is that elevated cholesterol alone has relatively low predictive value for anticipating which individuals will experience premature cardiac disease. In the above-mentioned clinical trials, approximately 90 to 95 percent of middle-aged men who had elevated cholesterol levels treated with placebo remained free of symptomatic coronary artery disease at the end of the 5 to 7 years of the study.<sup>5</sup> Elevated cholesterol has even less predictive power in asymptomatic women and in the young. Thus, although individuals with high cholesterol have a greater *relative* risk of coronary disease than individuals with lower levels, the *absolute* risk of developing disease remains relatively low in otherwise healthy persons. Measuring low-density lipoprotein (LDL) or the ratio LDL to high-density lipoprotein (HDL) improves the predictive value of lipid testing only marginally, although more specific markers, such as lipoprotein (a), might be more powerful predictors of coronary disease.<sup>7</sup>

Drug treatment as secondary prevention in patients with symptomatic coronary artery disease appears to be more effective than primary prevention. In the major clinical trial of secondary prevention, patients treated with niacin following myocardial infarction had reductions in both total mortality and nonfatal myocardial infarction compared with patients treated with placebo.<sup>5</sup>

Consideration of the benefit of mass cholesterol screening must weigh not only the tradeoffs and risks to quality of life but also the economic costs. Drug treatment of hypercholesterolemia in middle-aged men who do not have other coronary risk factors has been estimated to cost \$100,000 to \$200,000 for every additional year of life gained by treatment.<sup>8</sup> (These calculations assume primary prevention efforts reduce total mortality and therefore probably understate the true cost-benefit ratio.) Full implementation of the NCEP guidelines for primary prevention in adults would generate over \$35 billion in annual drug costs alone.<sup>9</sup> Lovastatin already heads the list of prescription drugs in the US in terms of dollars in total sales.

For whom, then, are the expenses and risks of cholesterol screening and follow-up treatment worthwhile? Investigation and treatment of ele-

vated cholesterol levels appear to be definitely warranted for patients with known coronary disease and for asymptomatic individuals who have especially ominous risk factors, such as a family history of early coronary disease or of frank genetic dyslipidemia. In my view (a view shared by other analysts from the discipline of family medicine, such as Froom<sup>10</sup>), the evidence is equally convincing against routinely screening asymptomatic elderly, children, or women. Falling in the gray area are asymptomatic middle-aged men. Routine cholesterol screening and drug treatment of high cholesterol levels might be of some modest benefit in this population; individual decisions about testing and treatment must incorporate patient preferences and education about effect on quality of life and the likelihood of benefit. At the societal level, more discussion is needed about whether the vast cost of such mass screening and treatment efforts constitutes a wise investment of the nation's health care resources.

Hahn's commitment to clinical preventive services is commendable, and many elements of his systematic health maintenance protocol, such as smoking cessation intervention, are unequivocally meritorious. The reader might glean from his comments about modifying the NCEP treatment protocol to avoid "the considerable costs of prescription medication and the overmedicalization of a diagnosis of hypercholesterolemia" that even he is not entirely convinced of the utility of drug treatment. Hahn suggests that detection of high cholesterol levels might nonetheless be valuable as a motivating factor to alter dietary habits.

At the heart of the cholesterol debate is this nagging question of what to do about the cholesterol-laden diet of the US population as a whole. The fault with America's unusually high levels of serum cholesterol and of coronary disease lies not primarily with our genes, after all, but with our diets and environment. Is the solution to this cultural norm more blood tests and ingestion of drugs or even encouragement about healthful diets from a prevention-oriented personal physician? Or is a shift in the population distribution of cholesterol more likely to be achieved by broader public health efforts less beholden to a biomedical paradigm? Creative thinking is needed about efficient routes to cre-

ating a healthy society. Should the US, as one analyst has suggested,<sup>11</sup> enact a "sin tax" on cholesterol-containing foods — a ctu (cholesterol tariff unit) tax to complement President Clinton's btu tax? Would a compromise between the public health model and the drug treatment approach be accomplished by increasing niacin fortification of refined flour to pharmacologic doses? Clearly, the cholesterol debate has just begun.

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## Cost-Effectiveness Of Care By Family Physicians

In recent years there has been growing interest in learning how to provide the most effective health care for the least amount of money. Hospital expenditures account for approximately 40 percent of the national health care bill. Although the increases in costs can be partially attributed to price inflation and population growth, physicians play a central role in influencing these expenditures as they manage patient care. Physicians are responsible for admitting and discharging patients from the hospital and ordering such hospital services as laboratory tests, radiographs, pharmaceuticals, and nursing and critical care, as well as surgery.<sup>1</sup> Because hospitalization rates have been shown to differ widely among physicians and these differences are related to factors other than the health status of the individual patients,<sup>2</sup> physicians are under increasing pressure to care for their patients with cost-effective utilization of health care resources.

There are important differences in patterns of utilization of health care resources by physicians of different specialties.<sup>3-6</sup> The Medical Outcomes Study (MOS) recently reported that, even after controlling for patient mix, specialists used significantly more resources than generalist physicians.<sup>7</sup> One important finding was that the patients of cardiologists and endocrinologists had considerably higher rates of hospitalization than those of family physicians and internists, with the rates of cardiologists and endocrinologists being significantly different from those in family practice. Whether this increased use of health care resources affects patient outcomes (health status and satisfaction) will be the subject of the final phase of the MOS.

"Outcome and Cost of Family Physicians' Care: Pilot Study of Three Diagnosis-related Groups in Elderly Inpatients" by MacLean<sup>8</sup> in this issue of *JABFP* compares the hospital care

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