Chemoprevention of Coronary Heart Disease

A Report by the American Council on Science and Health

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March 2002

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Executive Summary

The term *chemoprevention* refers to the use of drugs to reduce the risk of a disease. The use of cholesterol-lowering drugs to reduce the risk of coronary heart disease and other consequences of atherosclerosis is one example of chemoprevention.

Compelling scientific evidence indicates that cholesterol-lowering drug therapy can reduce the risk of heart attacks by about 30 percent. The benefits of cholesterol reduction have been demonstrated in both men and women, in people with a history of coronary disease and in those with no such history, and in people over the age of 65 as well as in younger people. For best results, cholesterol-lowering drugs should be used in combination with lifestyle changes designed to reduce risk factors for atherosclerosis. Because atherosclerosis is a generalized disease that affects all of the arteries, cholesterol-lowering drug therapy may be more beneficial than localized methods of treating coronary heart disease, such as angioplasty.

It is theoretically possible to reduce blood cholesterol levels substantially through changes in diet and lifestyle, but most people find this very difficult or impossible to achieve. Thus, they may need drug therapy in addition to diet and lifestyle modification.

Recent changes in the official U.S. guidelines for the assessment and treatment of elevated cholesterol levels have more than doubled the number of people eligible for cholesterol-lowering drug therapy. All adults should check with their physicians to learn their overall risk for a heart attack and to find out whether they need to take any action to lower their risk. Those who are eligible for cholesterol-lowering drug therapy should seriously consider this proven form of chemoprevention.

Introduction

Cardiovascular disease is the leading cause of death in this country, accounting for four out of every ten deaths. The number of people who die of cardiovascular disease is almost as great as the number who die from the next seven leading causes of death combined.

It was once believed that cardiovascular disease and its underlying cause, atherosclerosis, were inevitable consequences of aging. But this is no longer believed to be true. Atherosclerosis is now considered to be a preventable disease.

One of the most promising approaches to the prevention of atherosclerosis is *chemoprevention*—the use of cholesterol-lowering drugs to reduce the risk of atherosclerosis and heart disease. This approach to prevention, combined with efforts to achieve a healthier lifestyle, can substantially reduce the risk of heart attacks and other cardiovascular events.

This report by the American Council on Science and Health (ACSH) explains how lifestyle factors contribute to the causation of cardiovascular disease and how chemoprevention can help to prevent it. The report is based on an academic review prepared for ACSH by John C. LaRosa, M.D., of the State University of New York Health Science Center at Brooklyn. It is the second in a series of ACSH reports on the emerging topic of chemoprevention (the first was published in 2000: *Chemoprevention of Breast Cancer*).

The Concept of Chemoprevention

When doctors use medicines to treat a disease, they refer to it as *chemotherapy.* You've probably heard this word used mostly in connection with cancer treatment, but it can refer to drug treatment for other diseases as well. Similarly, the use of medicines to prevent or reduce the risk of a disease is called *chemoprevention.*

The word "chemoprevention" is easy to remember, but it can be misleading. When people hear that an agent "prevents" a disease, they may expect that it will provide nearly 100% protection, in the way that many vaccines provide nearly complete protection against infectious diseases. The chemoprevention of chronic

diseases such as cardiovascular disease and cancer is not that effective, however. A chemopreventive agent can reduce an individual's risk of becoming ill, but it does not eliminate that risk completely.

Several types of chemoprevention are currently in use. This booklet discusses one of the most common types: the use of cholesterol-lowering drugs to reduce the risk of coronary heart disease. Other examples include the use of estrogen replacement therapy or other medicines to reduce the risk of osteoporosis, and the use of the drugs known as "selective estrogen receptor modulators," or SERMs, such as tamoxifen and raloxifene, to reduce the risk of breast cancer.

Because chronic diseases, especially cardiovascular disease and cancer, are the leading causes of death in modern society, anything that can substantially reduce the risk of these diseases can be of great benefit to public health. However, the potential benefits of preventive measures must be weighed against their potential risks. Chemopreventive agents are usually taken for prolonged periods of time. Any agent that is used on a long-term basis and is strong enough to reduce the risk of a chronic, life-threatening disease is also likely to have other effects on the body, some of which may be undesirable. Thus, decisions about the use of chemoprevention should be based on an assessment of both the risks and benefits of therapy for a particular individual. In general, the benefits of chemoprevention are most likely to outweigh the risks for people who are at high risk of the disease against which the chemopreventive agent protects. To look at it another way, if a person has a very low risk of a particular disease, he or she will have very little to gain from a prolonged course of a chemoprevention drug. Therefore, an assessment of the individual patient's level of risk is an important part of the process of deciding whether chemoprevention is advisable.

Atherosclerosis: The Underlying Problem

Heart attacks are not caused by something wrong with people's hearts. People have heart attacks because there's something wrong with their arteries. That something is a disease called *atherosclerosis.*

Atherosclerosis begins when cholesterol that is being carried through the bloodstream by low-density lipoproteins (LDL) is deposited in the walls of the arteries. The presence of LDL cholesterol in the arterial wall starts a complex series of harmful changes that can eventually cause serious damage to the arteries. Elevated levels of LDL cholesterol are associated with increased risk of cardiovascular events; this is why LDL cholesterol is known as the "bad" cholesterol. Another cholesterol fraction, that carried among the high-density lipoproteins, or HDL cholesterol, is protective against heart events, and is known as the "good" cholesterol.

Atherosclerosis can progress for decades without producing any obvious symptoms. Then, often without warning, the arterial damage resulting from this disease may cause a major blood vessel to become blocked. When this happens in one of the coronary arteries (the arteries that supply blood to the heart), the result is *coronary artery disease* (CAD), or *coronary heart disease* (CHD), which can cause *angina*—chest pain—or a heart attack. When it happens in a brain artery, the result is a type of stroke called an atherosclerotic (or *ischemic*) stroke. When it happens in other arteries, such as those of the legs, the result is peripheral vascular disease and *claudication*, or leg pain when walking. If this becomes severe, it can lead to tissue damage and amputation.

The current scientific evidence indicates that lifestyle factors play a crucial role in determining whether a particular individual will develop atherosclerosis and CHD. Unfortunately, the typical lifestyle in modern urban societies tends to promote rather than prevent atherosclerosis. Humans are not ideally suited for the high-animal-fat diets that have become common in Western societies, or for the sedentary lifestyles that have resulted from urbanization. Diets high in animal fat raise LDL cholesterol levels, thus increasing the risk of atherosclerosis. Physical inactivity and the weight gain that's often associated with it can worsen the problem. Smoking is also a major lifestyle-related risk factor for premature CAD.

Because atherosclerosis is often associated with lifestyle and is not an inevitable result of genetics or aging, it should be a preventable disease. If people can adopt healthier lifestyles and/or use special methods such as chemoprevention to help reduce their risk, the huge death toll from this disease can be reduced.

The Concept of Risk Factors

When doctors assess cardiovascular risk, they no longer rely mainly on the total level of cholesterol in the blood. There are at least two different forms of cholesterol, the LDL or bad cholesterol, and the HDL or good form, so nowadays these fractions are also measured and their values are reported, both individually and as ratios (e.g., of total cholesterol to HDL, and of LDL to HDL). The lower these ratios, the lower the risk factor for CHD attributable to blood cholesterol is. These values are more reflective of risk than the total cholesterol. Drugs used to treat elevated cholesterol levels all lower LDL cholesterol, while they may raise, lower, or have no effect on HDL. Those that raise HDL are thought to be more effective at preventing CHD than those that just lower LDL and total cholesterol.

Table 1. **ATP III Classification of LDL, Total, and HDL Cholesterol (mg/dL)**

LDL Cholesterol - Primary Target of Therapy	
<100	Optimal
100-129	Near optimal/above optimal
130-159	Borderline high
160-189	High
≥190	Very high
Total Cholesterol	
<200	Desirable
200-239	Borderline high
≥240	High
HDL Cholesterol	
<40	Low
≥60	High

Ref: ATPIII Panel. JAMA2001;285(19):2486-2497

Unlike some other diseases, such as infections, long-term disease processes such as atherosclerosis and cancer usually result from the interaction of multiple factors. Researchers who study the causes of chronic diseases use the term *risk factor* to refer to anything that is associated with an increased chance of developing a particular disease.

Table 2 lists the major risk factors for atherosclerosis. All of these factors influence an individual's chances of developing the arterial damage that leads to a heart attack. However, one factor—LDL cholesterol—plays a particularly fundamental role because it is directly involved in the process of atherosclerosis. If blood levels of LDL cholesterol levels are low, as they still are in some of the world's less industrialized populations, CAD and heart attacks are uncommon even if some of the other risk factors are present. But if LDL cholesterol levels rise above the threshold at which arterial damage begins to take place, the addition of other risk factors makes the situation worse.

Table 2. **Risk Factors for Atherosclerosis and Coronary Heart Disease**

- Increasing age
- Male gender
- Heredity (family history of the disease)
- Cigarette smoking
- Hypertension (high blood pressure)
- High blood levels of cholesterol, especially low-density lipoprotein (LDL) cholesterol
- Other undesirable blood lipid levels, including low levels of high-density lipoprotein (HDL) cholesterol and high levels of triglycerides
- Obesity and overweight (obesity means extreme overweight, but even lesser degrees of overweight can increase heart disease risk)
- Diabetes
- Physical inactivity

For example, in some Asian populations, cigarette smoking is very common, but atherosclerosis is relatively rare. The people in these communities have low LDL cholesterol levels because they eat little animal fat and lead physically active lives. For them, the addition of another risk factor, such as smoking, is not likely to lead to a heart attack.[1] In Western societies, on the other hand, most people's diets contain substantial amounts of animal fat, and their LDL cholesterol levels are high enough to allow the process of atherosclerosis to take place. In this setting, other risk factors such as smoking can have a major impact. Cigarette smoking nearly doubles an American's risk of coronary heart disease, and the risk increases with the number of cigarettes smoked. Smoking is therefore one of the most important risk factors for heart attacks in the U.S.

Why Your Dog Doesn't Have a Cholesterol Problem

Did you ever wonder why your family vet doesn't recommend putting your dog on a cholesterol-lowering diet, even though your family doctor recommends this kind of diet for you? It's because a dog's body handles dietary fat and cholesterol very different from the way that the human body does. Dogs have abundant amounts of high-density lipoprotein (HDL)—the so-called "good" lipoprotein that can carry cholesterol through the bloodstream without contributing to atherosclerosis. We humans, on the other hand, carry most of our cholesterol in low-density lipoproteins (LDL)—the "bad" lipoproteins that can damage our arteries. Because dogs carry their cholesterol primarily in HDL, they almost never develop atherosclerosis or coronary heart disease. They can, however, develop other kinds of heart and circulatory problems.

[1] This does not mean that it's safe for people to smoke if their LDLcholesterol levels are low. Smoking greatly increases people's risk of many types of cancer, especially lung cancer, and it causes emphysema and other respiratory diseases. Low LDL cholesterol levels do NOT protect against these other consequences of smoking. It is never safe to smoke.

Reducing Cholesterol—Specifically LDL—Reduces Heart Attack Risk

Scientific studies have clearly established that lowering elevated LDL cholesterol levels through drug therapy reduces the risk of coronary "events," including heart attacks and sudden death. This is true in both men and women, in people with a previous history of coronary disease and in those with no such history, and in people over the age of 65 as well as in younger people. Several individual scientific studies and a combined analysis of multiple studies have all shown that cholesterol-lowering drug therapy can reduce LDL cholesterol by about 30 percent and that this in turn reduces the risk of coronary events by about 30 percent. All of these studies used the "statin" type of cholesterol-lowering drugs. There are five such drugs currently on the market in the U.S. (atorvastatin [Lipitor®], fluvastatin [Lescol®], lovastatin [Mevacor®], pravastatin [Pravachol®], and simvastatin [Zocor®]), and all of them appear to be equally effective. Several other types of drugs are also used to reduce cholesterol levels and/or produce desirable changes in levels of other lipids in the blood (HDL cholesterol or triglycerides). Table 3 lists the various types of drugs used for these purposes.

Cholesterol-lowering drug therapy is a long-term proposition; most patients will need to take their medicine for the rest of their lives. However, it does not take a long time for the benefits to begin. In one study of people who had already had a heart attack, the risk of new heart attacks began to decrease within six weeks after the patients started cholesterol-lowering drug therapy.

One important advantage of cholesterol-lowering drug therapy over other ways of treating atherosclerosis is that it works in all of the arteries at the same time. Recent research has shown that people who have atherosclerosis usually have widespread arterial damage. It isn't just one or two sites that are affected. Forms of treatment that open up or bypass one or a few damaged areas (such as angioplasty and coronary bypass surgery) can only work in the specific locations that are treated; they don't help to prevent future problems at other sites. But cholesterol-lowering drug therapy helps everywhere.

Several studies currently in progress are comparing choles-

terol-lowering drug therapy with angioplasty and other forms of treatment in patients who already have coronary disease. One such study has already indicated that cholesterol-lowering drug therapy may be at least as effective as angioplasty in preventing future coronary events. Of course, in practice, patients and physicians don't necessarily have to choose between these forms of treatment. Often, both methods of treatment are used together—angioplasty to relieve symptoms and cholesterol-lowering drug therapy to slow the further progression of atherosclerosis.

Cholesterol and Strokes

It used to be thought that blood cholesterol levels weren't a good indicator of whether a person was likely to have a stroke. However, scientists now realize that this was a misconception. The confusion was due to the fact that there are two different types of strokes, which have different risk factors. One type (hemorrhagic stroke) is caused by bleeding in the brain; high cholesterol levels don't increase the risk of this type of stroke. The other type of stroke (atherosclerotic stroke) is caused by the same process that causes heart attacks; high cholesterol levels do increase the risk of these strokes. There is evidence that cholesterol-lowering drug therapy can reduce the risk of stroke, but this evidence is not as conclusive as the evidence that it can reduce the risk of heart attacks.

Who Needs Cholesterol-Lowering Drugs?

If you have had a heart attack and your LDL cholesterol is above the target level, your doctor should prescribe a cholesterol-lowering drug for you as part of an overall treatment plan designed to reduce your risk of having another heart attack. The only exception to this rule would be a specific reason for an individual not to take statin drugs, such as an allergy; a reason like that is called a "contra-indication."

But people who have already had heart attacks aren't the only ones who may need cholesterol-lowering drug therapy. These drugs can also be very valuable for people who have not yet had a heart attack but are at high risk of having one. Because the first coronary event is fatal in one-quarter to one-third of all cases, wait-

Table 3. **Drugs Used to Modify Blood Lipoprotein Levels**

Drug Class	Examples of Drugs in this Group	Effects on LDL Cholesterol and other Lipids and Lipoproteins	Potential Side Effects	Who Shouldn't Take These Drugs
Statins (HMG CoA reductase inhibitors)	Atorvastatin, fluvastatin, lovastatin, pravastatin, simvastatin	Reduces LDL cholesterol 18-55%; Increases HDL cholesterol 5-15%; Reduces triglycerides 7-30%	Muscle pain; abnormalities in liver function (patients should have periodic blood tests to monitor liver function)	People with liver disease; people who are taking certain other medications that are incompatible with statins
Bile acid sequestrants	Cholestyramine, colestipol, colesevelam	Reduces LDL cholesterol 15-30%; Increases HDL cholesterol 3-5%; No change or increase in triglycerides	Gastrointestinal symptoms; constipation; decreased absorption of other medications	People with dysbetal ipoproteinemia (an inherited disorder in which blood levels of both cholesterol and triglycerides are high); people with high blood triglyceride levels

Table 3. **Drugs Used to Modify Blood Lipoprotein Levels** *(continued)*

Drug Class	Examples of Drugs in this Group	Effects on LDL Cholesterol and other Lipids and Lipoproteins	Potential Side Effects	Who Shouldn't Take These Drugs
Nicotinic acid*	Immediate release, extended release, and sustained release forms of nicotinic acid	Reduces LDL cholesterol 5-25%; Increases HDL cholesterol 15-35%; Reduces triglycerides 20-50%	Flushing; increases in blood sugar and blood uric acid levels (the latter can result in gout); upper gastrointestinal symptoms; liver problems	People with chronic liver disease or severe gout can never take it; those with diabetes, high blood uric acid levels, or peptic ulcer disease may also be advised not to take it
Fibric acids	Gemfibrozil; fenofibrate; clofibrate	Usually reduces LDL cholesterol 5-20% (but may increase it in patients with high triglycerides); Increases HDL cholesterol 10-20%; Decreases triglycerides 20-50%	Gastrointestinal symptoms; gallstones; muscle pain	People with severe liver or kidney disease

* Nicotinic acid is a form of the B vitamin niacin. At high doses–much higher than those obtainable from food–nicotinic acid acts as a cholesterol-lowering agent. The other form of niacin, which is called niacinamide or nicotinamide, does not have this effect. Nicotinic acid is readily available without a prescription as a dietary supplement. However, it should *not* be used as a cholesterol-lowering agent without a doctor's supervision. At the doses used for cholesterol reduction, nicotinic acid can cause significant side effects. Patients need to be monitored by a doctor in order to use this medicine safely.

ing until a person has already had one heart attack may be waiting too long.

For people who have not yet had a heart attack, physicians use a combination of blood cholesterol levels and assessments of other risk factors to determine whether cholesterol-lowering drug therapy is warranted. In the U.S., the National Cholesterol Education Program (NCEP) publishes guidelines that advise physicians on how to assess and treat patients with elevated cholesterol levels. These guidelines are designed to ensure that people who are at the highest risk of having a heart attack within the next few years receive therapy to lower their cholesterol levels and reduce their other risk factors.

The NCEP guidelines were revised in 2001; the new version substantially increased the number of people who are eligible for treatment (from about 15 million to about 36 million). This change may have important implications for you. If you have ever been told that your cholesterol levels are higher than they should be, or if you have several of the heart disease risk factors listed in Table 2, you may now be eligible for cholesterol-lowering drug therapy even if you weren't eligible a year or two ago. It would be a good idea for you to make an appointment with your doctor soon to reassess your situation.

Beyond Thirty Percent

A 30 percent reduction in heart attack risk is good. A greater reduction would be even better. Why isn't it possible to prevent 50 percent, or 70 percent, or even 100 percent of all heart attacks? There are three possible explanations.

First, current therapy may not be lowering cholesterol levels far enough. Several studies currently underway are investigating this possibility. In these studies, some patients are receiving especially aggressive cholesterol-lowering therapy in an effort to reduce their LDL cholesterol levels even farther than is currently recommended. The researchers will be following these patients to see whether they have fewer heart attacks than conventionally treated patients do.

The second possibility is that the benefit of cholesterol-

lowering therapy may be limited because other risk factors aren't being adequately controlled. For maximum benefit, it may also be necessary to use drugs to increase HDL cholesterol (high-density lipoprotein, or "good" cholesterol) and reduce triglycerides (another fatty substance in the blood), and to put greater effort into the control of other risk factors, such as smoking, high blood pressure, and obesity. It is also possible that additional risk factors that are not yet fully understood, such as high levels of blood homocysteine, may need to be treated in order to lower heart attack risk to the greatest possible extent.

The third possibility is that cholesterol-lowering therapy is being started too late in life and that too few people are being treated for maximum benefit. In high-risk people who have reached middle age—the age at which cholesterol-lowering therapy is usually begun—atherosclerosis may have already progressed to such an extent that nothing can really reverse it. If this turns out to be true, then it may be necessary to consider beginning cholesterol-lowering therapy earlier in life for maximum benefit.

The idea of starting cholesterol-lowering drug therapy in large numbers of relatively young people is understandably controversial. There are concerns about the cost of such extremely prolonged therapy and about the long-term safety of the drugs. In addition, there is resistance to the idea of using drugs to replace lifestyle changes, such

Medicines Don't Work if You Don't Take Them

If your doctor prescribes a cholesterol-lowering drug for you, you will need to take it every day for a long period of time—perhaps for the rest of your life—in order to get the greatest benefit. Unfortunately, a lot of people don't seem to understand this idea. About half of the people who receive a prescription for a cholesterol-lowering drug stop taking the drug sometime during their first year of treatment. That means that they're missing out on their best chance to reduce their risk of having a heart attack. The bottom line: If you're taking a cholesterol-lowering drug, make sure that you take it every day unless your doctor tells you to stop. If you have difficulty remembering to take your medicine or if some other problem is preventing you from taking it, discuss your situation with your doctor or pharmacist.

as alterations in dietary, exercise, and smoking habits. For these reasons, lifestyle changes rather than drug therapy will probably continue to be the main focus of prevention efforts in younger people, at least in the near future. But as more is learned about both the safety aspects and the benefits of cholesterol-lowering drug therapy, it may become appropriate to consider offering chemoprevention to younger and lower-risk people.

Do Antioxidants Help?

In recent years, there has been a lot of enthusiasm over the possibility that antioxidant nutrients, such vitamin E, vitamin C, selenium, and beta-carotene, might help to prevent heart attacks. But recent studies of antioxidants have had disappointing results. In two recent studies, antioxidant supplements did not produce any additional benefit in people who were also taking cholesterol-lowering drugs to reduce their risk of heart attacks. In fact, in one of the studies, the cholesterol-lowering drug didn't work as effectively in people taking antioxidants as it did in people who weren't taking them. The bottom line: if you're interested in taking antioxidants in addition to cholesterol-lowering drugs, discuss it with your doctor before you start. And don't take antioxidants instead of cholesterol-lowering drugs: antioxidants haven't been proven to work; cholesterol-lowering drugs have.

Lifestyle Changes vs. Drugs

As mentioned earlier, much of the high risk of atherosclerosis in modern society can be traced to lifestyle. It seems reasonable, therefore, to ask whether the problem could be solved by lifestyle changes. Can people lower their cholesterol levels by improving their diets and lifestyles, rather than by taking drugs?

The answer to this question is both "yes" and "mostly no." Yes, it is theoretically possible to lower cholesterol levels adequately through modifications of diet and lifestyle, and a few very highly motivated patients can do this successfully, thus avoiding the need for drug therapy. Most people, however, cannot achieve the kind of drastic dietary changes that would be needed to produce an adequate lowering of LDL cholesterol. Thus, they need drug therapy in order to reduce their LDL cholesterol to a healthy level.

In practice, the question of lifestyle changes vs. drugs is not

an "either/or" question. Both approaches can be used, one after the other, or even at the same time.

The NCEP guidelines call for Therapeutic Lifestyle Changes (TLC), including dietary changes, as the first step in therapy for people with high cholesterol levels. Table 4 lists the lifestyle changes that are currently recommended. The type of diet that's recommended for people with high LDL cholesterol levels is similar to the diet recommended for the general population, but with lower levels of saturated fat (less than 7 percent rather than 10 percent) and cholesterol (less than 200 mg/day rather than 300 mg/day), and with the possible addition of some specific food components (soluble fiber, plant stanols, and plant sterols) which may help to reduce cholesterol levels.

Patients who are at extremely high risk of having a heart attack may be started on TLC and drug therapy at the same time. For most other people, however, a three-month trial of TLC is recommended before a decision is made about whether to add drug therapy to the overall treatment plan. If, after three months, lifestyle changes alone have produced an adequate reduction in LDL cholesterol, drug therapy will not be needed, at least not in the short-term. But if LDL cholesterol hasn't decreased enough with TLC alone, the doctor will usually prescribe a cholesterol-lowering drug.

In addition to following the recommendations listed in Table 4, people who have other risk factors for heart disease need to have those factors addressed. For example, people with hyperten-

Table 4. **Therapeutic Lifestyle Changes (TLC) Recommended for People with Elevated LDL Cholesterol Levels**

TLC diet: Saturated fat <7% of calories, cholesterol <200 mg/day. Consider increased viscous (soluble) fiber (10-25 g/day) and plant stanols/sterols (2 g/day) as therapeutic options to enhance LDL lowering.
Weight management
Increased physical activity

sion or diabetes need to have these conditions treated properly, and people who smoke cigarettes should be counseled to stop smoking and given assistance in achieving this important goal. Although the scientific evidence in favor of controlling other risk factors is not as conclusive as the evidence in favor of cholesterol-lowering drug therapy, experts consider efforts to control other risk factors to be an important part of an overall regimen to prevent heart disease.

Future Directions

Many research studies on various aspects of the chemoprevention of atherosclerosis are now in progress or are planned for the next few years. Some of these studies will try to establish the optimum therapy for special population groups, such as diabetics, hypertensives, or the elderly. Other studies are investigating the effects of cholesterol-lowering drug therapy on peripheral vascular disease and stroke. Still others are testing the effects of more aggressive cholesterol-lowering therapy or evaluating the effects of agents that may improve other risk factors.

Although more research needs to be done, the value of cholesterol-lowering drug therapy has been clearly established. For those with established CAD, therapy to lower LDL-cholesterol is a proven approach. For those who are at high risk, chemoprevention with cholesterol-lowering drugs is a powerful way to reduce the risk of future heart attacks. All adults should check with their physicians to learn their overall risk for a heart attack and to find out whether they need to take any action to lower their risk. Those who learn that they are at high risk should seriously consider cholesterol-lowering drug therapy if it is recommended for them.