

Preventive Medicine Research Institute

A non-profit public benefit institute dedicated to research, education, and service

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Dear Colleagues,

Thank you for the opportunity to present by phone at the upcoming meeting of the Advisory Group on Prevention, Health Promotion, and Integrative and Public Health. Please accept my apologies for not being able to attend in person, but I was asked to present at the upcoming 2012 Asian Oncology Summit in Singapore (<http://www.asianoncologysummit.com/>) later this week, which is chaired by the editor-in-chief of *The Lancet Oncology*.

As you know, some people question whether or not prevention saves money, asking whether these approaches actually prevent or only delay the onset of disease. Part of the reason that preventive approaches are usually scored by the Congressional Budget Office as significantly increasing costs is that lifestyle changes are viewed only as primary prevention—paying money today in hopes of saving money later.

However, lifestyle changes also can be reframed not only as *preventing* chronic diseases but also as *reversing* the progression of these illnesses—i.e., an intensive non-surgical, non-pharmacologic intervention. As you know, chronic diseases such as coronary heart disease, prostate cancer/breast cancer, diabetes, and obesity account for 75% of health care costs, yet the progression of these diseases may often be stopped or even reversed by making intensive lifestyle changes.

What we eat, how we respond to stress, whether or not we smoke cigarettes, how much exercise we get, and the quality of our relationships and social support may be as powerful as drugs and surgery in treating (not just preventing) many chronic diseases—often, even better, at a fraction of the costs, and the only side-effects are good ones.

These choices are especially clear in cardiology. In 2006, for example, according to the American Heart Association, 1.3 million percutaneous coronary interventions such as angioplasties and stents were performed at an average cost of \$48,399 each, or more than \$60 billion. In addition, 448,000 coronary bypass operations were performed at a cost of \$99,743 each, or more than \$44 billion—i.e., more than \$100 billion for these two operations.

Despite these costs, a large randomized controlled trial found that angioplasties and stents do not significantly prolong life, reduce angina, or even prevent heart attacks in stable patients (i.e., in most patients who receive them).^{1 2} Earlier randomized controlled trials of coronary bypass surgery found that this procedure prolongs life in only a small fraction of patients—those with left main coronary artery disease or equivalent and left ventricular dysfunction (ejection fraction less than 30%).

In our research, 82% of people with severe coronary heart disease were able to stop or reverse it (as measured by quantitative coronary arteriography) by making intensive lifestyle changes, without drugs or surgery.³ There was some reversal of coronary atherosclerosis after one year and even more improvement after five years, and there were 2.5 times fewer cardiac events when compared to a randomized control group.⁴ Almost 80% of patients eligible for revascularization were able to safely avoid it by making comprehensive lifestyle changes instead, saving almost \$30,000 per patient in the first year.⁵

In addition to reversing coronary heart disease, changing lifestyle can usually prevent it. For example, the INTERHEART study showed that nine risk factors—all of which can be modified by changing diet and lifestyle—accounted for 90% of the population attributable risk in men and 94% in women.⁶

Thus, the disease that accounts for more premature deaths and costs Americans more than any other illness is almost completely preventable, and even reversible, simply by changing lifestyle. We don't have to wait for a new breakthrough in drugs or surgery; we just need to put into practice what we already know.

The same intensive lifestyle changes that may reverse the progression of coronary heart disease may also beneficially affect the progression of early-stage prostate cancer,⁷ whereas conventional treatments such as radical prostatectomy and radiation may not prolong life in most patients unless they have the most aggressive disease—which studies show is only 1/49 people who are treated.⁸

Lifestyle changes are even more effective than metformin in reducing the incidence of diabetes in persons at high risk with lower costs and fewer side-effects.⁹

As you know, Type 2 diabetes and pre-diabetes are now epidemic. UnitedHealth Group Inc. recently projected the following gloomy scenario:

<http://www.reuters.com/article/2010/11/23/us-unitedhealth-diabetes-idUUSTRE6AM0NH20101123>):

“More than half of Americans will have diabetes or be prediabetic by 2020 at a cost to the U.S. health care system of \$3.35 trillion if current trends go on unabated, according to analysis of a new report released on Tuesday by health insurer UnitedHealth Group Inc.

Diabetes and prediabetes will account for an estimated 10 percent of total health care spending by the end of the decade at an annual cost of almost \$500 billion -- up from an estimated \$194 billion this year, according to the report titled "The United States of Diabetes: Challenges and Opportunities in the Decade Ahead."

The average annual health care costs in 2009 for a person with known diabetes were about \$11,700 compared with about \$4,400 for the non-diabetic public, according to new data in the report drawn from 10 million UnitedHealthcare members.

The average annual cost nearly doubles to \$20,700 for a person with complications related to diabetes, the report said. Complications related to diabetes can include heart and kidney disease, nerve damage, blindness and circulatory problems that can lead to wounds that will not heal and limb amputations.

Diabetes, which is reaching epidemic proportions and is one of the fastest-growing diseases in the United States, currently affects about 26 million Americans.

Another 67 million Americans are estimated to have prediabetes, which may not have any obvious symptoms. More than 60 million Americans are unaware that they have the condition, according to UnitedHealth.”

Lifestyle changes work better than medications in *preventing* type 2 diabetes.¹⁰ The EPIC study showed that moderate lifestyle changes can prevent type 2 diabetes in at least 93% of people.¹¹

Lifestyle changes work better than medications in *treating* type 2 diabetes.¹² Two landmark studies in *The New England Journal of Medicine* showed that comprehensive lifestyle changes work better than drugs in both preventing and treating patients with type 2 diabetes. The accompanying editorial by David Nathan concluded:

“The prevention of diabetes remains a critical public health priority, but for now we should steer away from these two drugs and use effective lifestyle interventions and, in selected persons, metformin, to combat the epidemic.”

As you know, the complications of type 2 diabetes--heart disease, blindness, nerve damage, kidney damage, amputations, and impotence—can be prevented in most people when they reduce their blood sugar (hemoglobin A1C) below 7.0 by changing lifestyle.

In a study we published in the *American Journal of Health Promotion*, we reported data from 2,974 men and women who went through an intensive lifestyle program in 24 socioeconomically diverse hospitals in West Virginia, Pennsylvania, and Nebraska. Adherence was 85-90% in all hospitals after one year, even though West Virginia was #1 in the U.S. in coronary heart disease last year. Of these patients, 48.8% had coronary heart disease and 34.2% had type 2 diabetes (Table 2). Of the patients with type 2 diabetes, approximately 85% also had coronary heart disease if they were 65 years of age or older.¹³

As noted in Table 3 of the *American Journal of Health Promotion*, 329 patients with type 2 diabetes who went through this program showed an 11% reduction in hemoglobin A1C after 12 weeks from an abnormal level of 7.3% at baseline to a normal level of 6.5%. After one year, there was a 5.6% reduction from an abnormal level of 7.3% at baseline to a normal level of 6.9% after one year.

Thus, these patients were able to reduce their level of hemoglobin A1C sufficiently by making comprehensive lifestyle changes that they could minimize diabetic complications as well as the need for diabetes medications.

In a demonstration project, Highmark Blue Cross Blue Shield found that overall health care costs were reduced by 50% in the first year compared to a matched control group when people went through our lifestyle intervention.

Beginning January 2011, after 16 years of review, CMS began covering our program of comprehensive lifestyle changes for patients with coronary heart disease.

These lifestyle changes also may beneficially affect gene expression¹⁴ (upregulating disease-preventing genes and downregulating disease-promoting genes, e.g., *RAS* family oncogenes) and may significantly increase telomerase in men with prostate cancer after only three months.¹⁵

Our latest findings, which I'm presenting in Singapore this week, show that telomere length was increased, the first time that any intervention has been shown to lengthen telomeres (in collaboration with

Dr. Elizabeth Blackburn, who received the Nobel Prize in 2009 for discovering telomerase). Also, we found that angiogenesis was inhibited in these patients. (Please keep these findings confidential until published.)

In summary, I respectfully suggest that we give attention to lifestyle changes as treatment as well as prevention.

Thank you so much, and, again, please accept my apologies for not being able to participate with you in person.

With best wishes and warm personal regards,

Dean

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