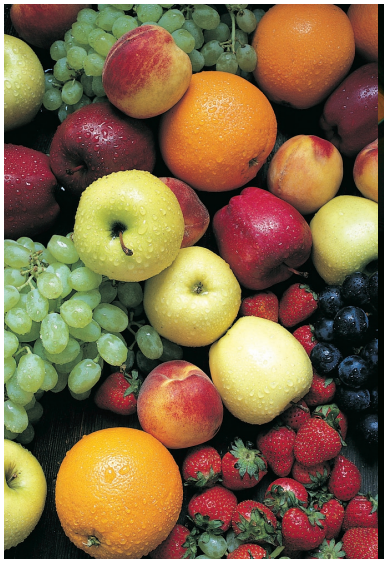
MILKEN INSTITUTE

AN UNHEALTHY AMERICA:

The Economic Burden of Chronic Disease

Charting a New Course to Save Lives and Increase Productivity and Economic Growth



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Executive Summary

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More than half of Americans suffer from one or more chronic diseases. Each year millions of people are diagnosed with chronic disease, and millions more die from their condition. By our calculations, the most common chronic diseases are costing the economy more than $1 trillion annually—and that figure threatens to reach $6 trillion by the middle of the century. Yet much of this cost is avoidable. This failure to contain the containable is undermining prospects for extending health insurance coverage and for coping with the medical costs of an aging population. The rising rate of chronic disease is a crucial but frequently ignored contributor to growth in medical expenditures.

Of course, the personal and financial consequences of avoidable illness are greatest for those who become ill and their families. In this research, however, we focused on the narrower, more tangible costs of chronic illness: the medical resources used to treat avoidable illness; the impact on labor supply (primarily through lower productivity), and thus GDP; and the drag on long-term economic growth. Specifically, we analyzed the impact of seven of the most common chronic diseases—cancer (broken into several types), diabetes, hypertension, stroke, heart disease, pulmonary conditions, and mental disorders—and estimated the economic costs that could be avoided through more effective prevention and treatment. Even before considering the suffering of those with these diseases, the magnitude of these potential economic benefits would justify increased investment in preventive health measures.

The news about Americans' health is a mixed bag. Dramatic improvements in therapies and treatment have led to higher quality of life, less disability, and lower rates of mortality. Fatality rates for colon cancer began to drop in the early 1980s, while breast, prostate, and lung cancers followed similar patterns in the early 1990s. The most dramatic improvements in morbidity and longevity have come from advances in the treatment and prevention of heart disease: the likelihood of dying from heart ailments began waning in the mid-1960s.

But while treatment outcomes and mortality have been improving, the rates of chronic disease are steadily increasing and, if left to grow unchecked, threaten to cancel out these gains.

The past twenty years have seen dramatic growth in the percent of the population diagnosed with diabetes and cardiovascular disease, driven in large part by increased rates of obesity. The incidence of stroke is rising, in large part because more people are surviving to old age. Rates of pulmonary disease have also risen in recent decades. And reported cases of mental disorders, including depression, are growing, too.

Reducing the avoidable costs associated with these conditions is central to meeting the twin challenges of promoting affordable health care and fostering continued economic growth. We have a choice: continue on the current path or alter it by changing our behaviors and focusing on prevention and early intervention.

Current Treatment Costs and Productivity Losses

Federal survey data allow us to catalog the number of cases of chronic illness and the costs of treating them. The latest available information shows that in 2003, expenditures to treat the seven selected diseases totaled $277 billion for *non-institutionalized* Americans.[1] This is a conservative figure because it excludes the considerable health expenditures of the institutionalized population and because it excludes the spending associated with follow-on health consequences of

1. Analysis used the Medical Expenditure Panel Survey (MEPS) data from 2003, the most recent year available at the time of the analysis. The 2004 MEPS data have since been released.

the seven listed conditions. The latest available data at the time of the analysis show that the total number of cases of these conditions is 162 million, but the number of Americans afflicted with these chronic diseases is smaller (109 million) because many have more than one condition—for example, diabetes, hypertension, and heart disease. Differences in lifestyles (smoking, alcohol abuse, diet, exercise), along with demographics (age distribution, ethnicity) and urbanization, partly explain differences in disease rates.

The potential savings on treatment represents just the tip of the proverbial iceberg. Chronically ill workers take sick days, reducing the supply of labor—and, in the process, the GDP. When they do show up for work to avoid losing wages, they perform far below par—a circumstance known as "presenteeism," in contrast to absenteeism. Output loss (indirect impacts) due to presenteeism (lower productivity) is immense—several times greater than losses associated with absenteeism. Last (but hardly a footnote), avoidable illness diverts the productive capacity of caregivers, adding to the reduction in labor supply for other uses. Combined, the indirect impacts of these diseases totaled just over $1 trillion in 2003.

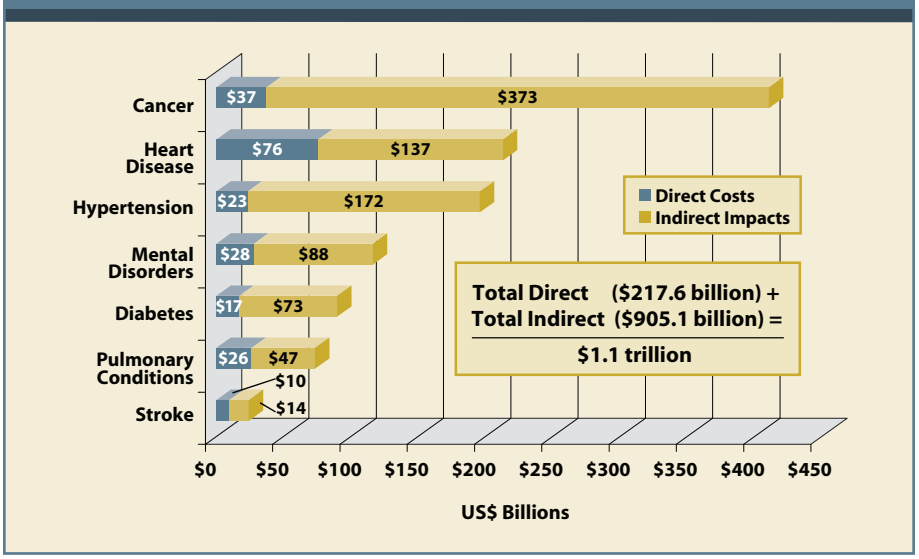
Avoiding Treatment Costs and Productivity Losses

To quantify the potential savings from healthier lifestyles and plausible but modest advances in treatment, we compared a "business-as-usual" baseline scenario with an optimistic scenario that assumes reasonable improvements in health-related behavior and treatment. The major changes contemplated here are weight control combined with improved nutrition, exercise, further reductions in smoking, more aggressive early disease detection, slightly faster adoption of improved therapies, and less-invasive treatments. The impacts of these factors vary widely by condition—gains against diabetes depend largely on reductions in obesity, while colon cancer advances depend heavily on wider early screening. A complete description of the assumptions on which these scenarios are based can be found in the full report.

Across the seven diseases, the optimistic scenario would cut treatment (direct) costs in 2023 by $217 billion (figure ES-1). And the cumulative avoidable treatment costs from now through 2023 would total a whopping $1.6 trillion. Note that this would be a gift that keeps on giving, saving hundreds of billions annually in the years beyond 2023.

For the broader impact on economic output, again we compared baseline and optimistic scenarios to estimate the potential gains (that is, avoided losses) associated with better prevention, detection, and treatment of chronic diseases. For all chronic diseases covered, the difference between the two scenarios in 2023 is a remarkable $905 billion (figure ES-1), while the cumulative difference in GDP over two decades is $6.9 trillion. Plainly, absenteeism and lower productivity on the job linked to chronic disease are major factors limiting economic growth and reducing living standards.

Figure ES-1 :: **Avoidable Treatment Costs and Output Losses, 2023**



Note: Treatment expenditures for individuals in nursing homes, prisons, or under other institutional care are not included. Treatment expenditures for comorbidities and secondary effects of listed disease are also excluded.

Sources: MEPS, NHIS, Milken Institute

Impacts of Major Behavioral Risk Factors

All told, our analysis implies that modest reductions in avoidable factors—unhealthy behavior, environmental risks, and the failure to make modest gains in early detection and innovative treatment—will lead to 40 million fewer cases of illness and a gain of over $1 trillion annually in labor supply and efficiency by 2023. Compared to the costs we project under the business-as-usual scenario, this represents a 27 percent reduction in total economic impact.

To get a clearer sense of the relative impact of the two most important behavior factors—obesity and smoking—we again compared alternate scenarios, holding all other factors at the baseline values. Lower

obesity is projected to reduce cases of illness by 14.8 million in 2023, which cuts $60 billion from the national treatment bill and improves GDP by $254 billion. A parallel calculation for smoking alone suggests that lower tobacco use is responsible for 9.4 million fewer illnesses in 2023, along with $31 billion less in treatment costs and $79 billion in added productivity.

Impacts at the State Level

Differences in lifestyles (smoking, alcohol abuse, diet, exercise), along with demographics (age distribution, ethnicity) and urbanization, partly explain differences in disease rates among the states. States with the highest rates of chronic disease also tend to have the worst readings on behavioral risk factors, the highest percentage of elderly residents, and a demographic mix predisposed to one or more chronic diseases.

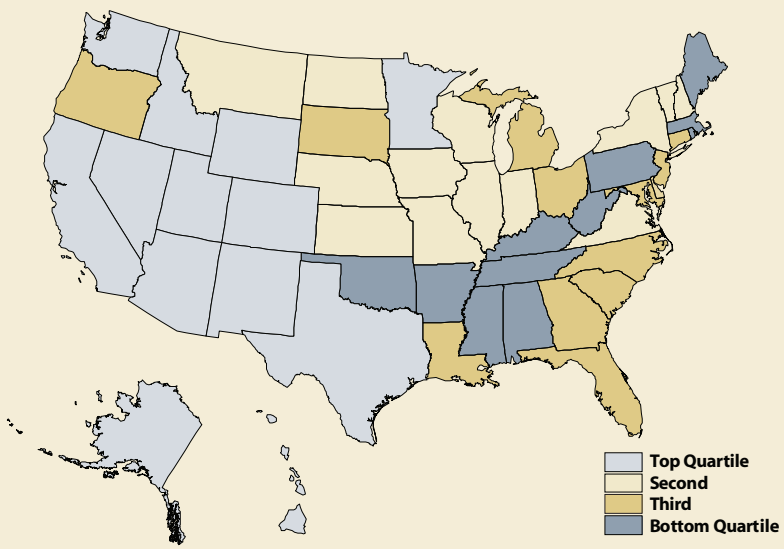
The map in figure ES-2 groups states according to their rankings on the Milken Institute State Chronic Disease Index, which measures the concentration of chronic diseases. As the map shows, the least healthy states lie in a belt of obesity and smoking that runs from the Northeast through Oklahoma. West Virginia, Tennessee, Arkansas, Kentucky, and Mississippi all fare poorly. The low scores for Massachusetts and Maine result from the high incidence of cancers and perhaps more complete reporting. Those with the healthiest populations are in the West, led by Utah, Alaska, Colorado, New Mexico, and Arizona.

We find that all states stand to gain in the optimistic scenario, with even the less-populous states, such as Alaska, avoiding 79,000 cases of chronic disease (a 16.4 percent reduction) and achieving benefits of $2.6 billion (27 percent) through lower treatment costs and higher productivity in 2023. Among the most populous states, California avoids 4.3 million (17.6 percent) cases of chronic disease and gains $117.1 billion through lower treatment costs and higher productivity in 2023.

Forgone Economic Growth Over the Long Term

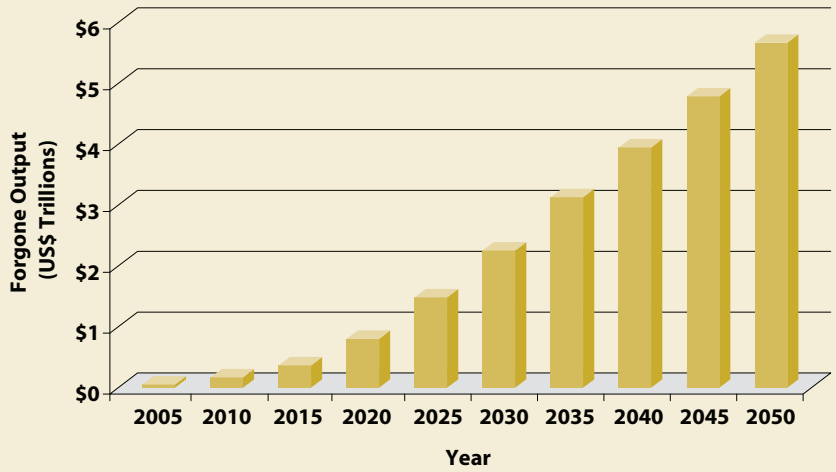
The long-term impact of chronic disease on economic growth—the consequence of less investment in human and physical capital—is likely to be of even greater magnitude than the impact of treatment costs and lost labor supply. This is because improvements in health today also yield increased investment in education and training a generation from now.

Figure ES-2 :: State Chronic Disease Index



Note: States in the top quartile have the lowest rates of seven common chronic diseases.
Source: Milken Institute

Figure ES-3 :: Long-Term Forgone Economic Output
Change in Real GDP Between Baseline and Optimistic Scenarios



Source: Milken Institute

Existing estimates of the economic impact of disease tend to ignore the productivity growth that results over the long term as returns on human capital investment accrue to subsequent generations.

We used a standard economic model of the relationship between inputs (capital, labor, skills) and output to simulate this impact, with health affecting the rate of investment and thus the rate of economic growth. Life expectancy at age 65 serves as a plausible proxy for this health variable, which affects decisions to invest both in human capital (education) and physical capital. An innovation from our research is the recognition of the dynamic feedback between health and human capital formation over time.

Comparing a baseline, business-as-usual scenario with an optimistic scenario assuming substantial (but plausible) reductions in chronic disease cases yields a gap of $1.2 trillion in real GDP terms in 2023, widening to $5.7 trillion in 2050 (a percentage difference of 17.6 percent). This represents a difference of about three-tenths of a percentage point in average annual economic growth resulting from lower rates of investment in education and physical capital. As a benchmark, over the past twenty years, real GDP growth has averaged 3.0 percent (see figure ES-3).

The Big Picture

While the avoidable treatment costs of less-than-optimal prevention and early intervention are large, the avoidable impact on GDP linked to reduced labor supply and lower rates of investment is gigantic. The good news implied is that the potential economic returns to initiatives that lead to a healthier population are enormous. To that end, we offer some guidelines for change.

Incentives in the health-care system should promote prevention and early intervention. Employers, insurers, governments, and communities need to work together to develop strong incentives for patients and health-care providers to prevent and treat chronic disease effectively. In many respects, we've gotten what we paid for: only a tiny fraction of health-care spending is devoted to the promotion of healthier behavior, despite the fact that preventable chronic diseases are linked to smoking, obesity, lack of exercise, and drug and alcohol use.

As a nation, we need to renew our commitment to achieving a "healthy body weight." Rising obesity rates threaten to send treatment costs for diabetes and related conditions, such as heart disease and stroke, soaring over the next twenty years. There needs to be a strong, long-term national commitment to promote health and wellness.

The rapid growth of chronic disease is costing us lives, quality of life, and prosperity. The current health-care debate rightly focuses on the extension of coverage to the uninsured and the design of a financing mechanism that is both fair and efficient. We suggest that the nature of services provided—the failure to invest in prevention and early intervention—deserves equal place in the debate. An increased emphasis on prevention would both improve the health of Americans and offset some of the costs of an aging population by increasing economic productivity.

This analysis should be seen as a contribution toward a sorely needed national discussion on health-care spending and chronic disease. Further research is necessary to bring additional precision and knowledge in measuring the economic, human, and social costs of preventable chronic disease and identifying opportunities to reduce or avoid them.

Milken Institute researchers Anita Charuworn, Anusuya Chatterjee, In Kyu Kim, Soojung Kim, and Kevin Klowden contributed to this report.

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