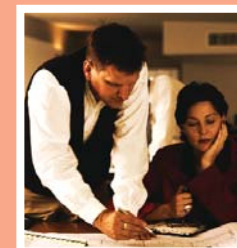
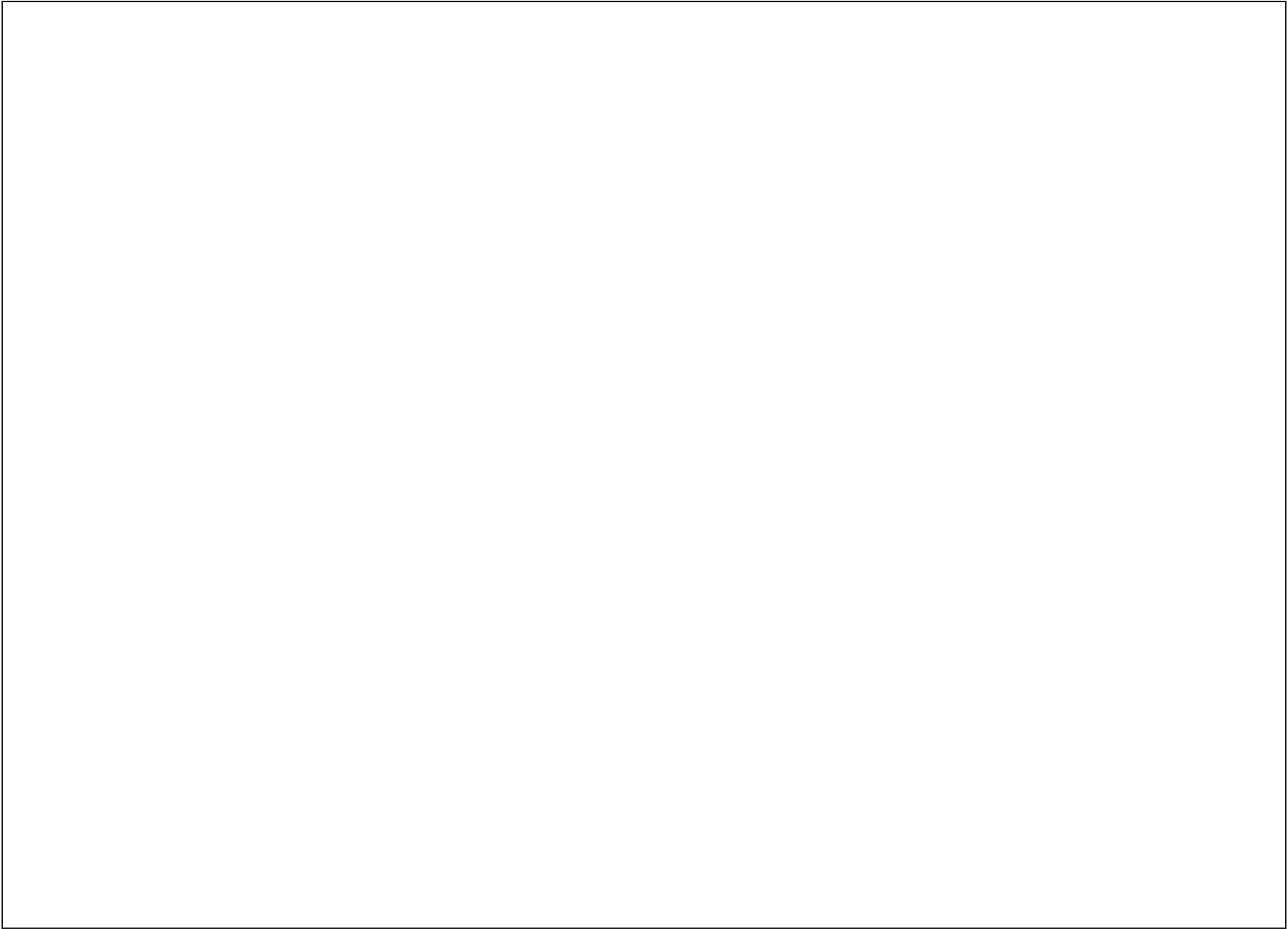


# V A L U E O F M E D I C I N E S



Facts and Figures 2006

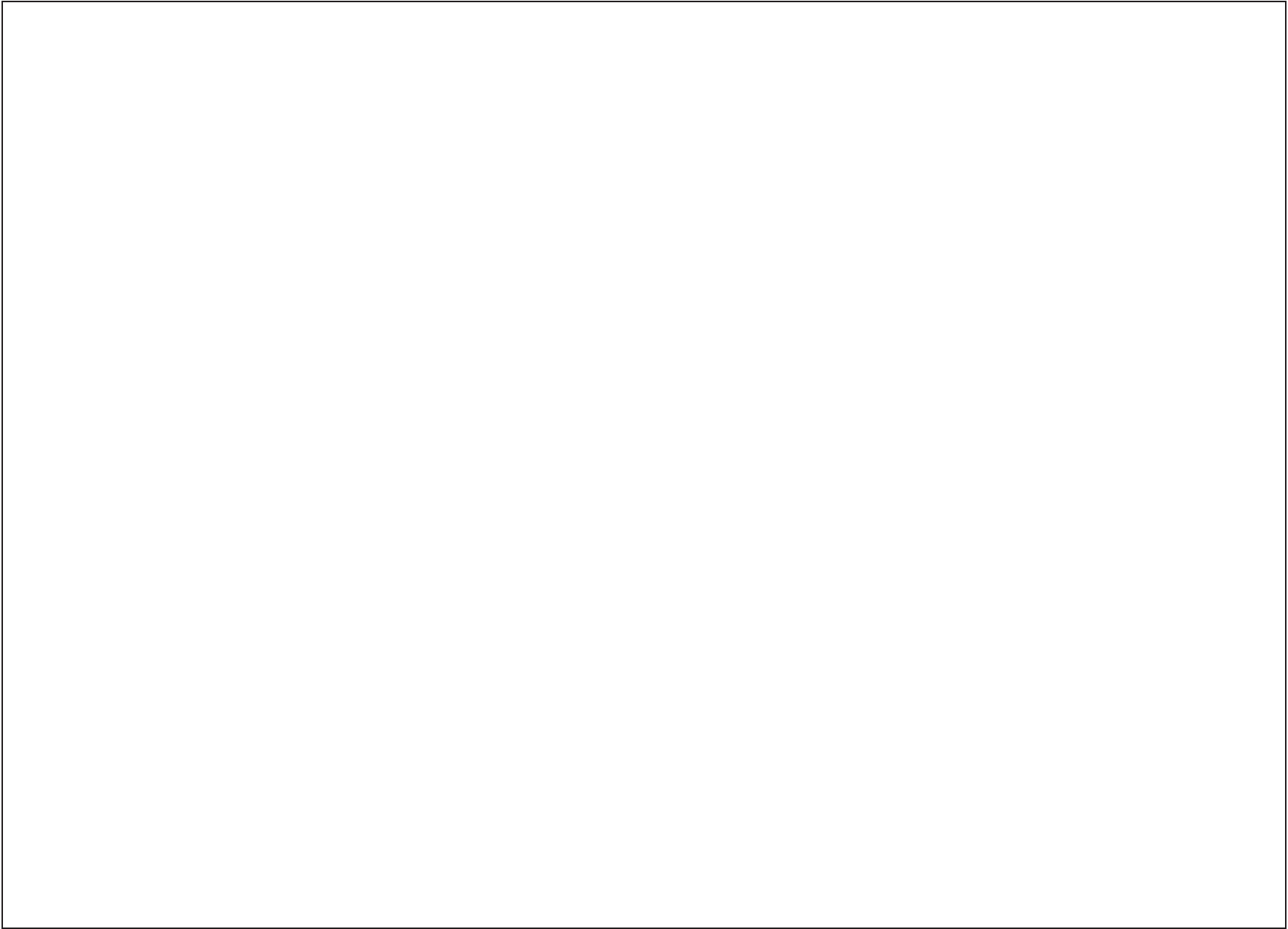
***Ph*RMA**



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*Please visit [www.pfizer.com](http://www.pfizer.com) or [www.innovation.org](http://www.innovation.org) to access the data presented in this publication as a PowerPoint presentation.*

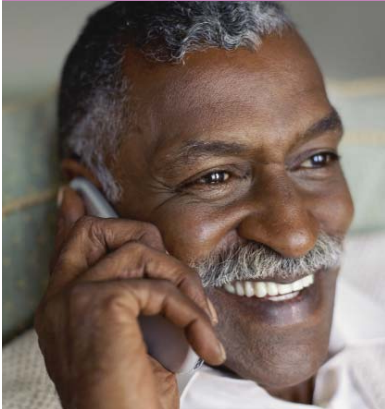




## Introduction

*“Drugs already developed have brought tremendous benefits: preventing hospitalizations, eliminating surgeries, or getting a patient out of an institution. And even more important are the benefits of these medicines in terms of saved lives, reduced suffering, and more productive and fulfilling lives.”<sup>1</sup>*

—Scott Gottlieb, M.D., Deputy Commissioner for Medical and Scientific Affairs, Food and Drug Administration, March 2006

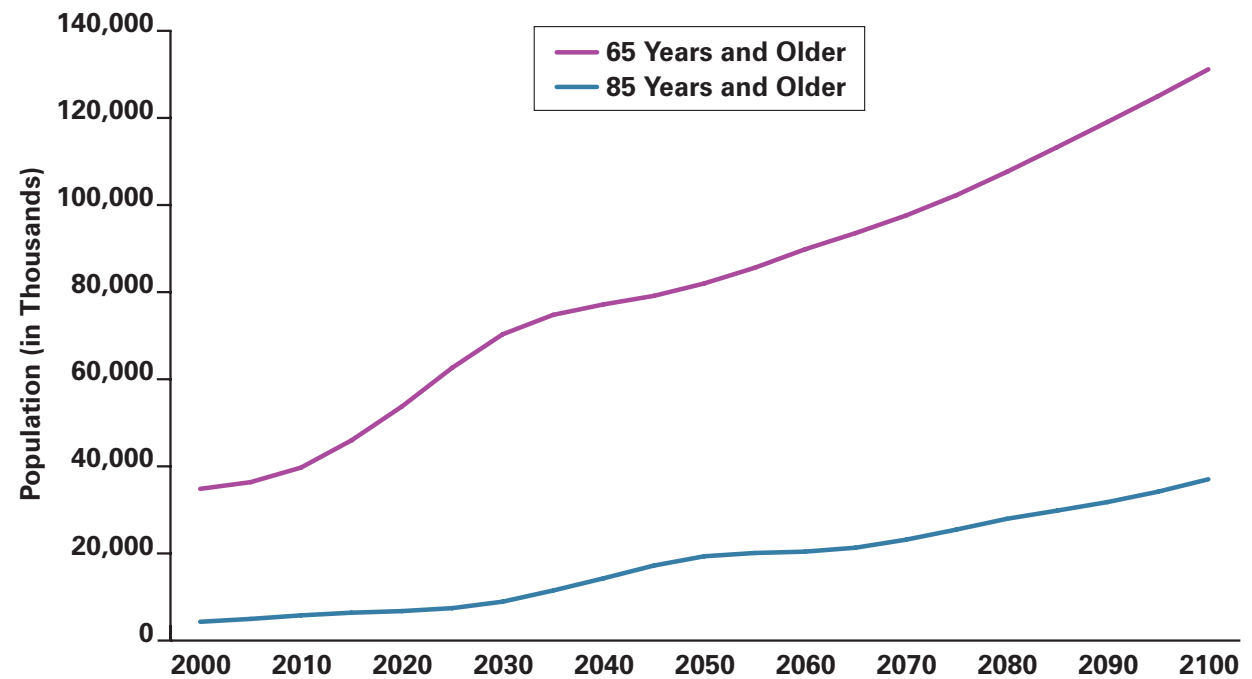


As the U.S. population grows and ages, its health care needs continue to expand. Diseases that affect the elderly, such as Alzheimer's, and chronic conditions, such as diabetes, are becoming increasingly prevalent. At the same time, health care spending is quickly rising.

Prescription medicines are key to improving both our health and our health care finances. Today's medicines make it possible to save and improve lives more than at any other time in human history. New medicines help avert surgeries and trips to the ER, prevent disability, and improve quality of life for patients everywhere. The benefits ripple beyond individual patients to society in general. The charts in this book illustrate the diverse and far-reaching benefits of prescription medicines.

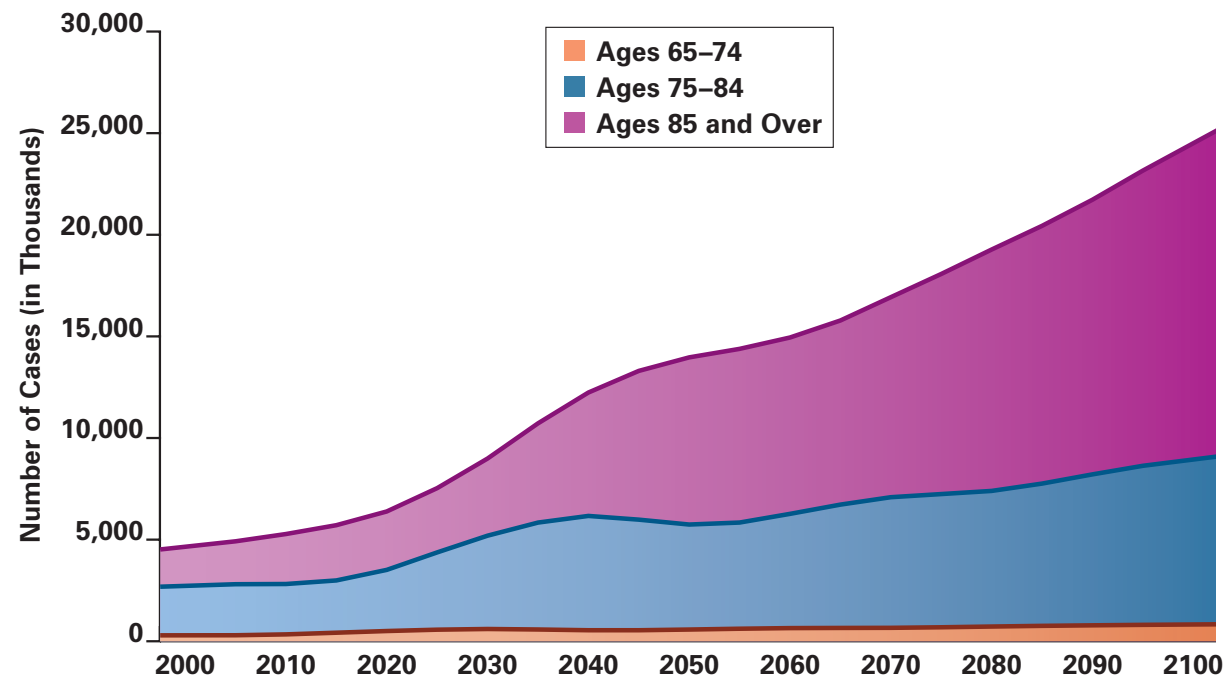
This section first gives context: the growing population, the aging Baby Boomers, and the growing prevalence of chronic disease.

## Changing Demographics of the U.S. Population, 2000–2100



Data source: U.S. Census Bureau<sup>2</sup>

## Projected Alzheimer's Disease Prevalence,\* 2000–2100

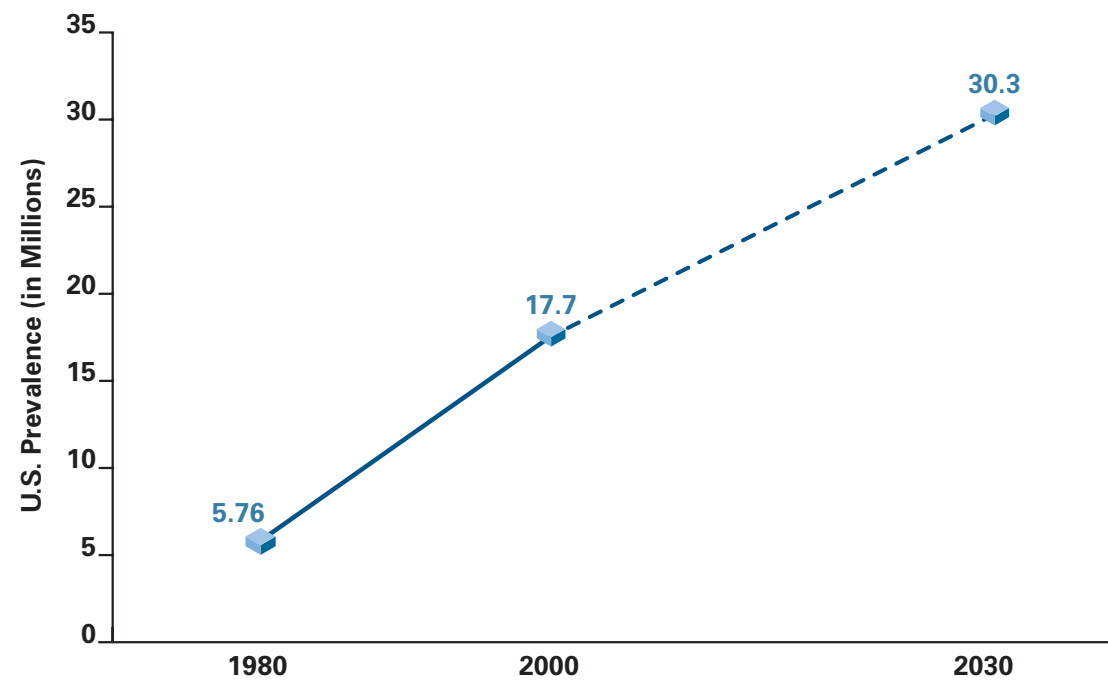


\*PhRMA projections calculated by applying current prevalence rates to population projections.

Data sources: U.S. Census Bureau<sup>2</sup>; Hebert et al.<sup>3</sup>

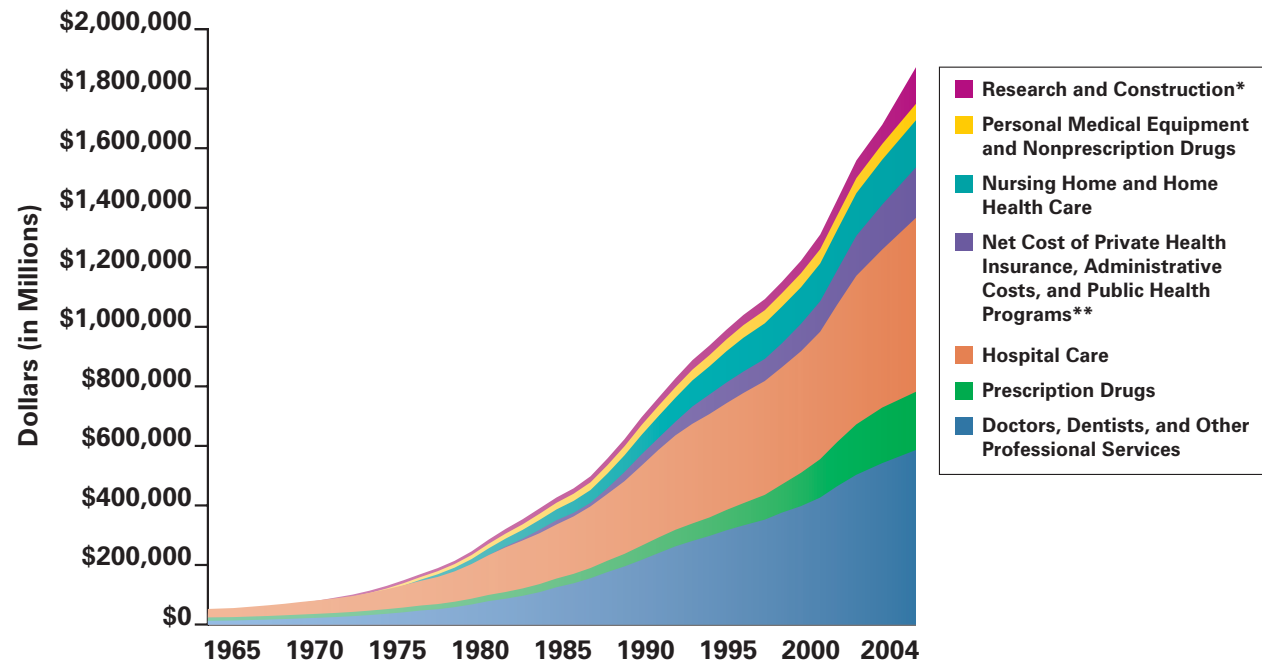
## Chronic Diseases Projected to Become More Prevalent

*Prevalence of Diabetes Is Projected to Nearly Double 2000–2030*



Data sources: Wild et al.<sup>4</sup>; Centers for Disease Control and Prevention<sup>5</sup>

## Health Care Costs: 1965–2004



\* Now revised to Structures and Equipment

\*\* Now revised to Government Public Health Activities

Note: Total health care expenditures for 2004 were \$1.9 trillion.

Data source: U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, Office of the Actuary<sup>6</sup>



## Extending Life

*“They can mean an extra three months or five months or a year—another Christmas with the family, another season to plant a garden, another passage in the life of a child.”<sup>7</sup>*

—Donna St. George on new targeted cancer therapies, *The Washington Post*

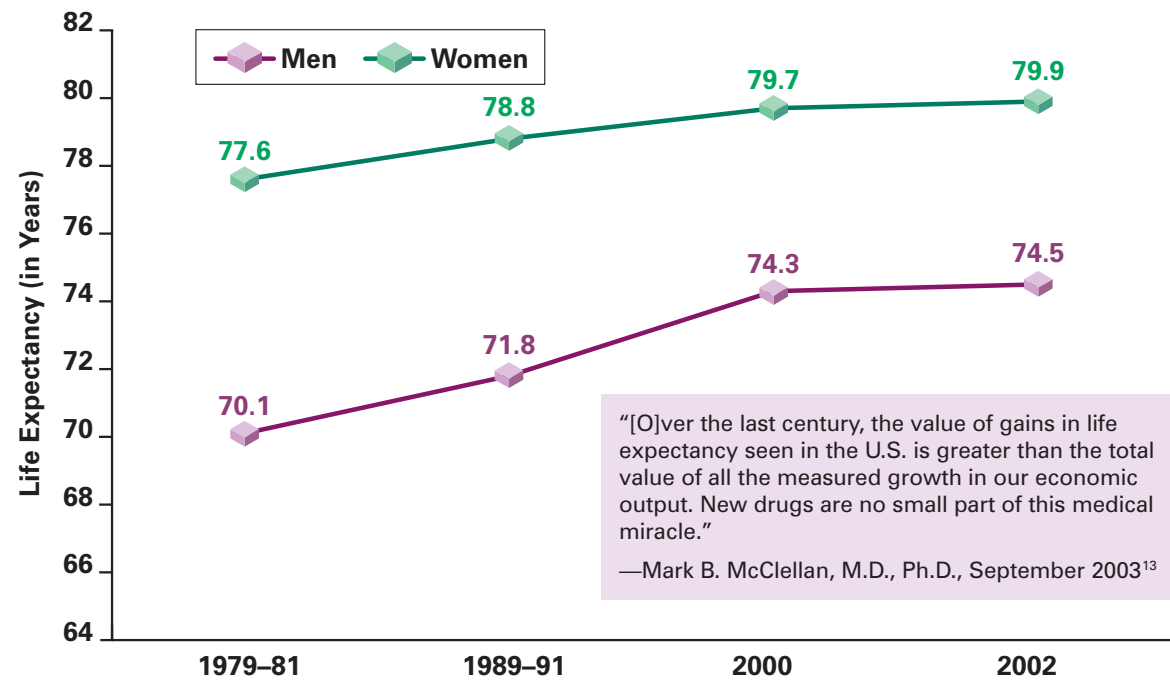


New medicines play a significant role in the life expectancy gains made in the United States and around the world. Recent findings by a Columbia University researcher indicate that new medicines generated 40 percent of the two-year gain in life expectancy achieved in 52 countries between 1986 and 2000.<sup>8</sup>

Some new medicines and vaccines help prevent disease; others cure or alleviate previously fatal or debilitating conditions. For example:

- Since the mid-1990s, when researchers developed a new wave of medicines to treat HIV/AIDS, the U.S. death rate from AIDS dropped about 70 percent.<sup>9</sup>
- Since 1971, our arsenal of cancer medicines has tripled. These new drugs account for 50–60 percent of the increase in six-year cancer survival rates since 1975.<sup>10</sup> Recent data show that in 2003 the total number of people who died of cancer went down for the first time in over 70 years.<sup>11</sup>
- The progress made in reducing death rates from heart disease and stroke is saving the lives of over 1 million Americans each year.<sup>12</sup>

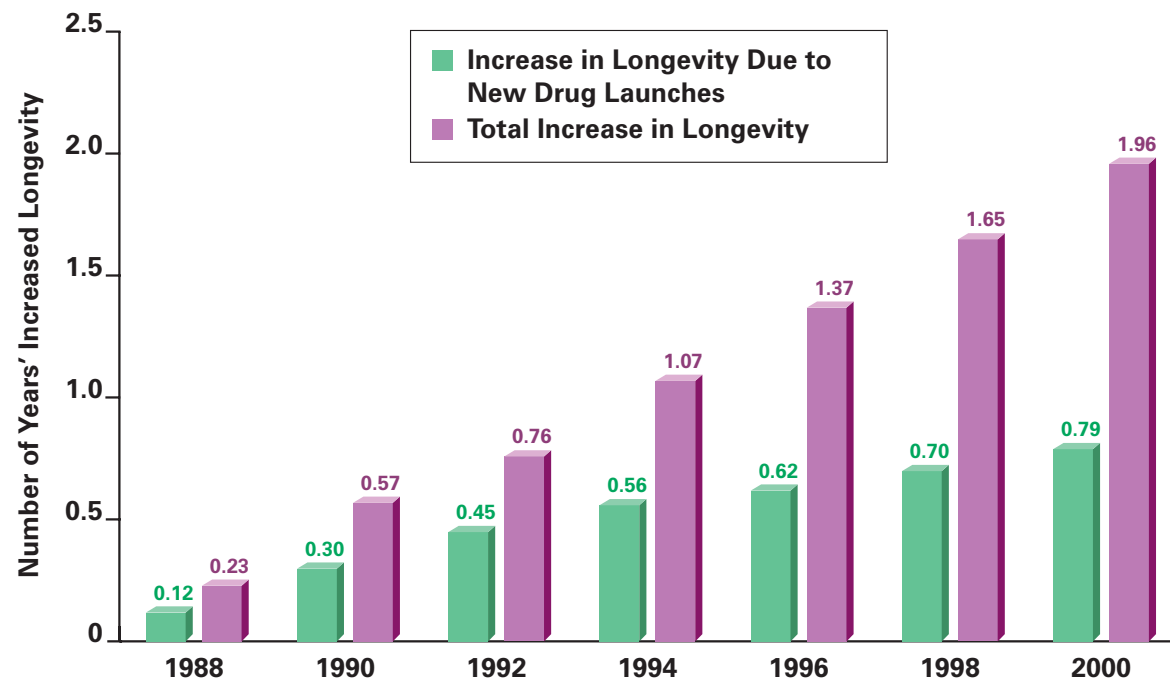
## U.S. Life Expectancy Continues to Climb



Data source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics<sup>14</sup>

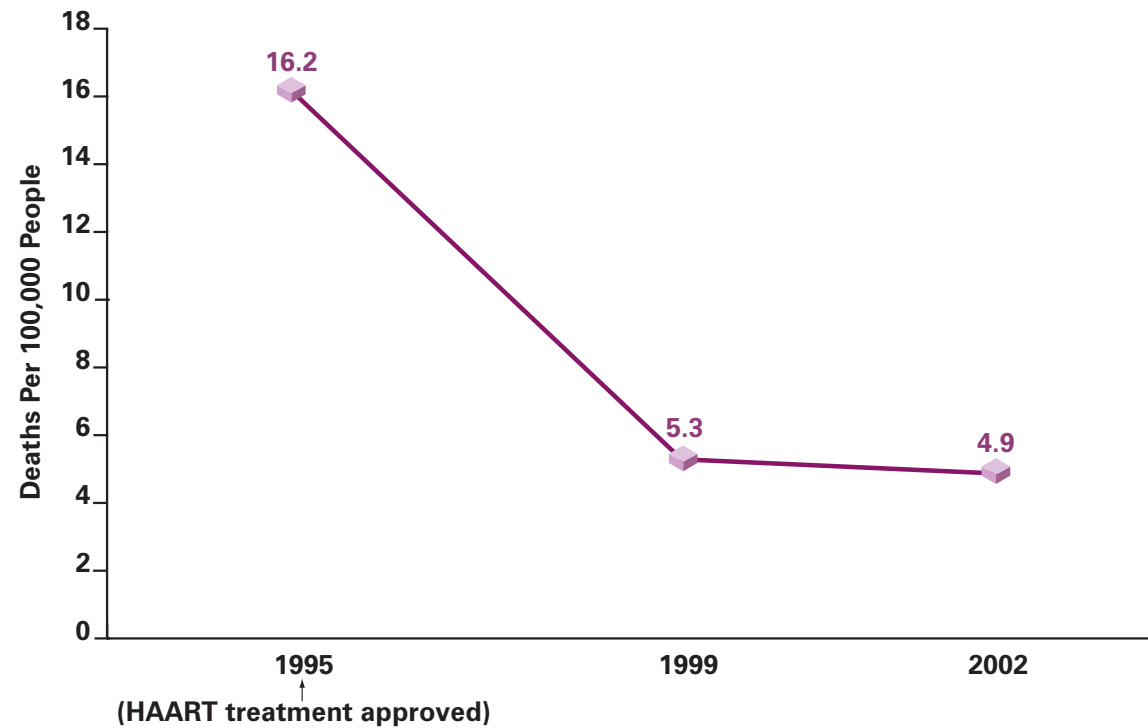
## New Medicines Increase Longevity

*They Account for 40% of Increase in Life Expectancy*



Data source: Lichtenberg<sup>8</sup>

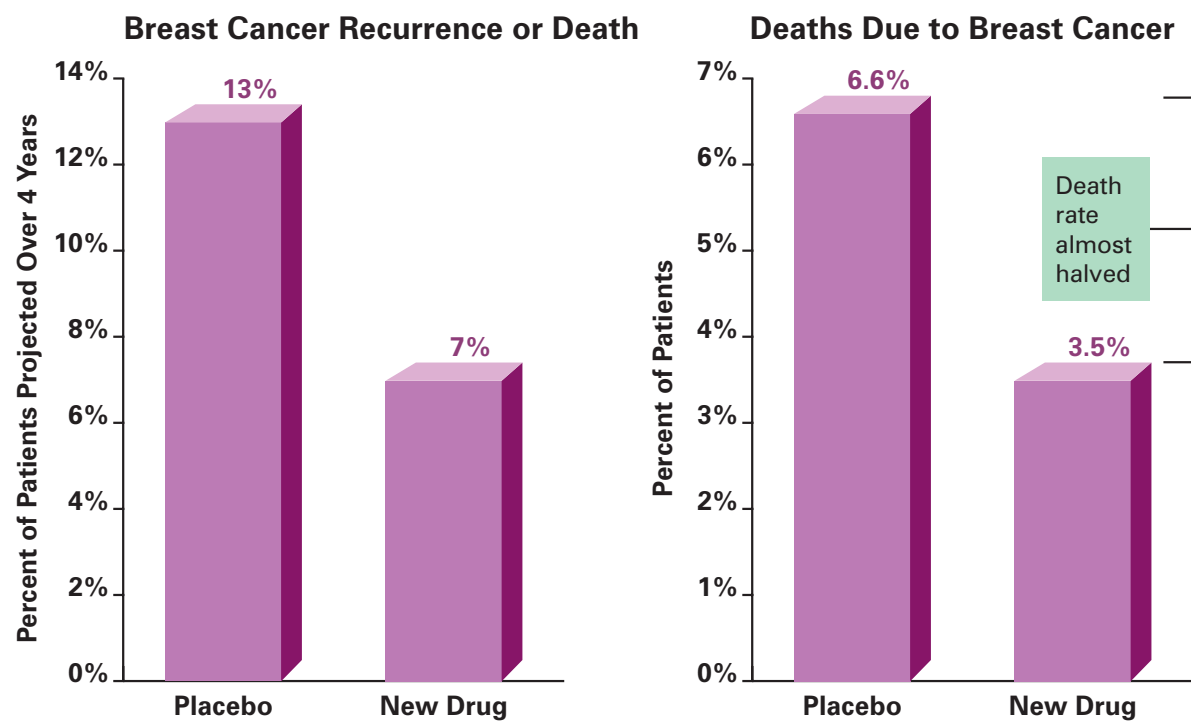
## U.S. AIDS Deaths Drop Dramatically with Introduction of New Medicines



Data source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics<sup>14</sup>

## Medicines Prevent Cancer Recurrence

*New Breast Cancer Drug Greatly Reduces Recurrence and Death (5 to 10 Years After Diagnosis in Postmenopausal Women)*

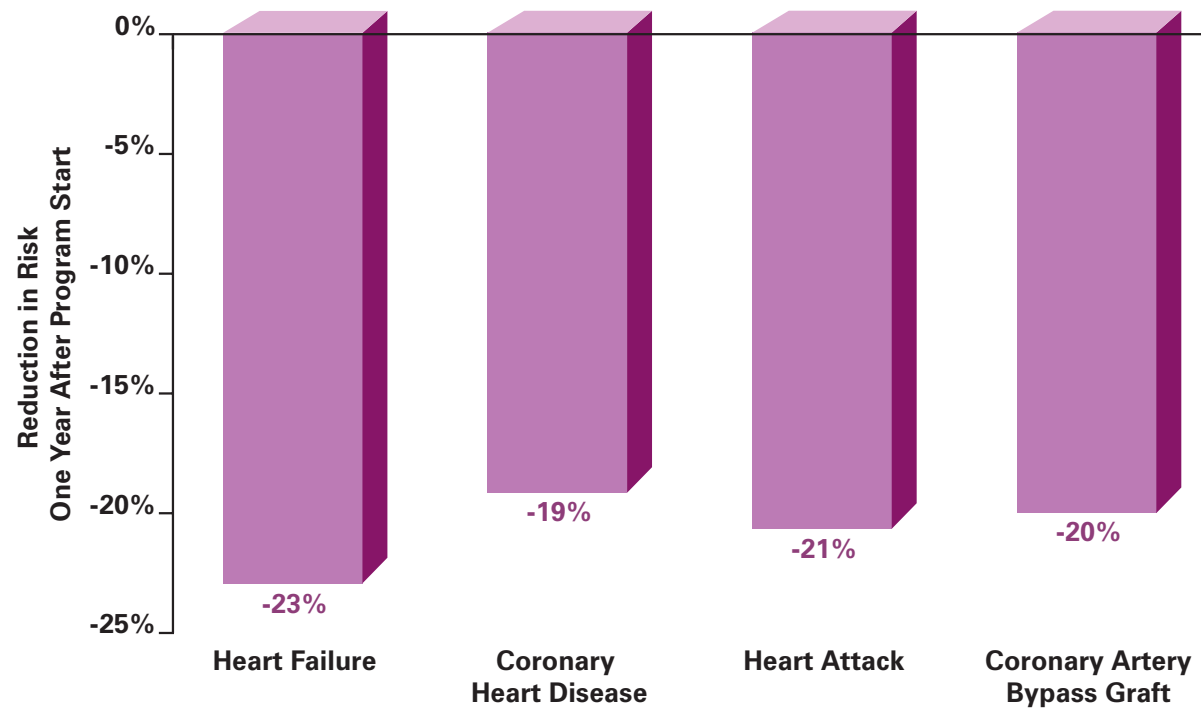


Note: Study halted early in order to provide the drug to all participants.

Data source: Goss et al.<sup>15</sup>

## Increased Use of Medicines Reduces Risk of Death After Major Cardiovascular Events

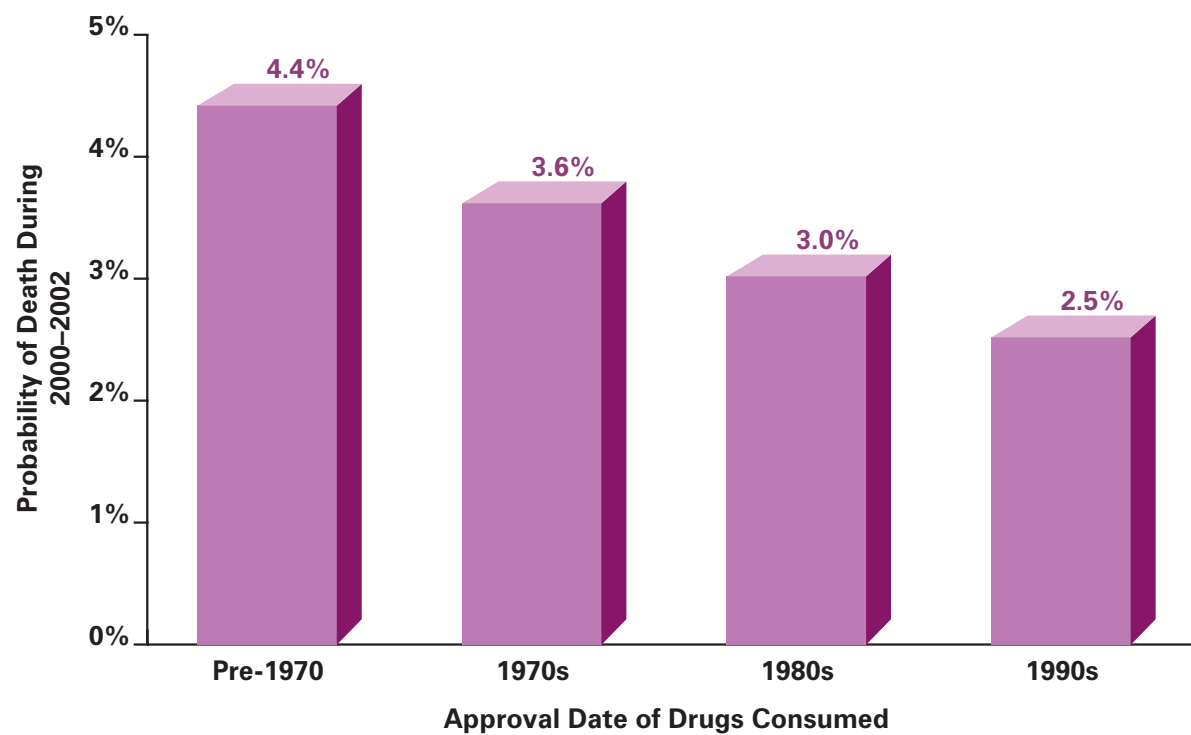
*Disease Management Program Increased Use of Medicines*



Data source: Lappé et al.<sup>16</sup>

## Newer Drugs Reduce Risk of Death

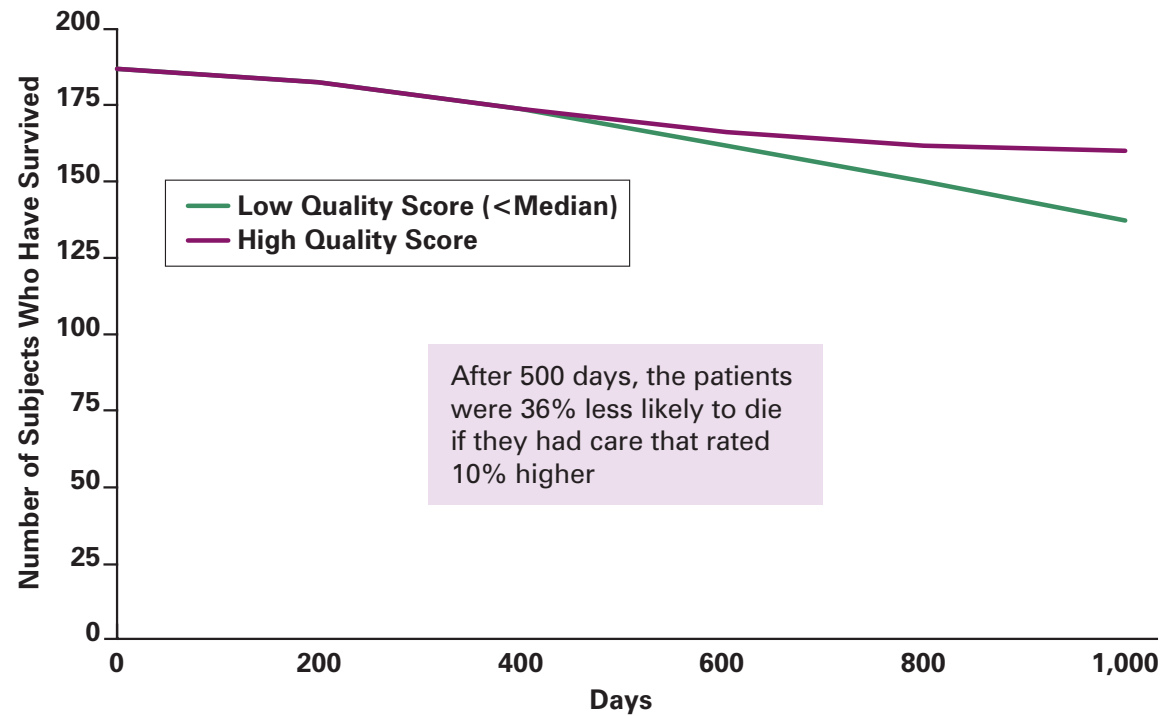
*Patients Taking Medicines Approved More Recently Are Less Likely to Die*



Data source: Lichtenberg<sup>17</sup>

## Better Quality of Care for Elderly Patients Increases Survival

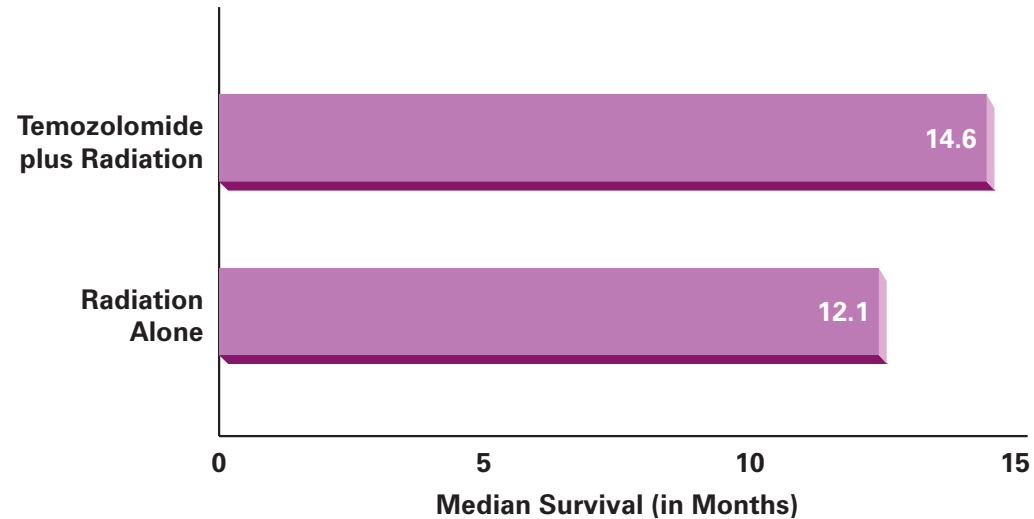
*In This Study, Quality Care Often Included Appropriate Use of Medicines*



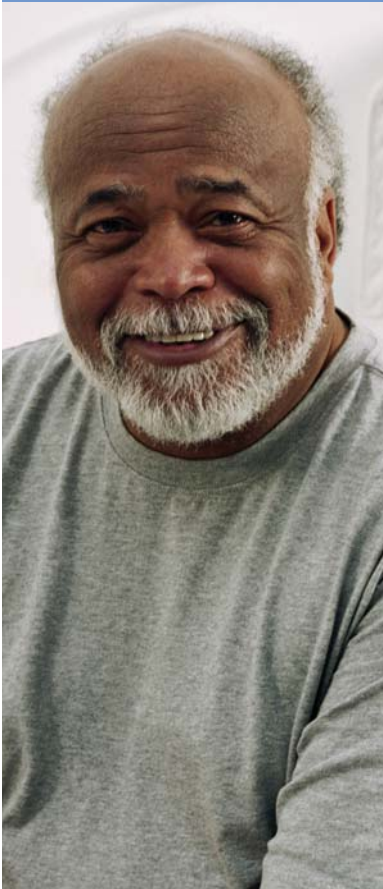
Data source: Higashi et al.<sup>18</sup>

## New Drug Increases Brain Cancer Survival Rate

*Temozolomide Is the First New Drug in over 30 Years to Treat Glioblastoma, a Severe Form of Brain Cancer*



Data source: Stupp et al.<sup>19</sup>



## Preventing the Need for Care: Hospital, Emergency, and Long-Term Care

*“The share of drugs in future medical spending is likely to increase sharply. But even without full cures, drugs that greatly delay the onset and severity of major diseases will reduce expensive and unproductive time spent in hospitals, nursing homes, and under the care of family members.”<sup>20</sup>*

—Gary S. Becker, Ph.D., University of Chicago Professor and 1992 Nobel Laureate



Innovative new medicines make it possible to prevent or slow the progress of many diseases and avoid costly hospitalization and invasive surgery. For example:

- Between 1980 and 2000, the number of days Americans spent in the hospital fell by 56 percent. As a result, Americans avoided 206 million days of hospital care in 2000 alone.<sup>21</sup>
- A new Alzheimer's drug slows the progression of cognitive decline. As a result of higher functioning, patients are able to delay entering a nursing home by an average of 30 months.<sup>22</sup>

## Antihypertensive Medicines Have Prevented Deaths and Hospitalizations

*Study Quantified Impact of High Blood Pressure Drugs on the U.S. Population 1999–2000*

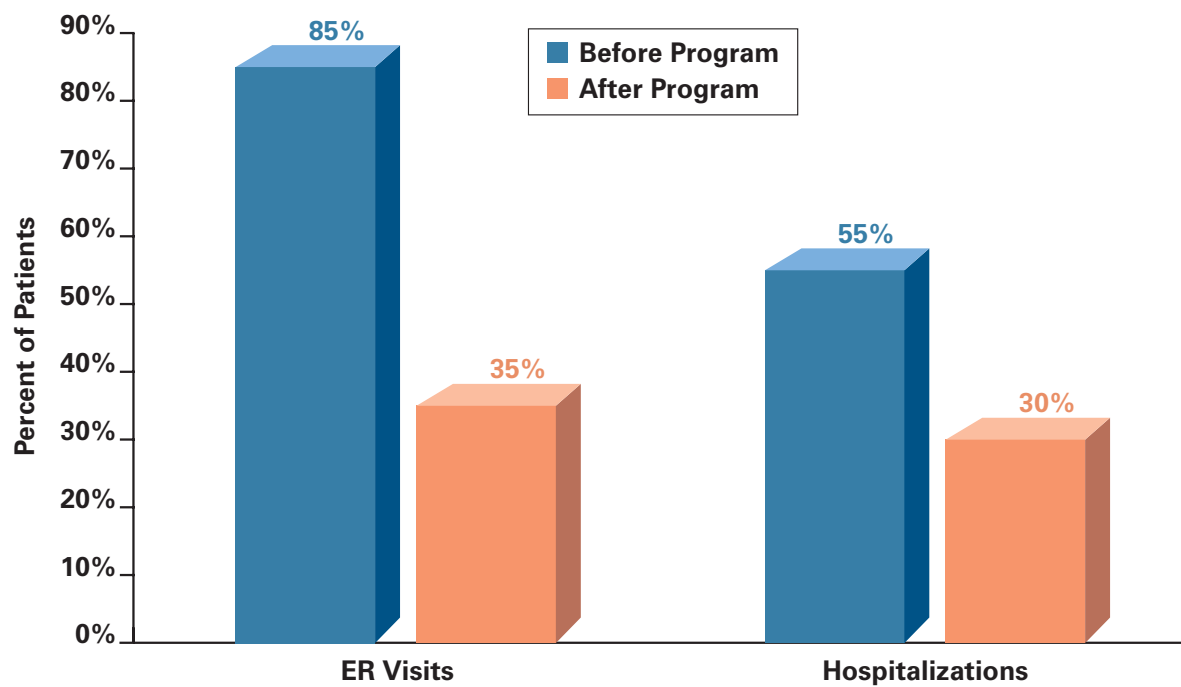
**WITHOUT Antihypertensives We Would Have Seen:**

<b>Life Expectancy—MEN</b>	<b>0.5 Years Lower</b>
<b>Life Expectancy—WOMEN</b>	<b>0.4 Years Lower</b>
<b>Blood Pressure</b>	<b>10%–13% Higher</b>
<b>Deaths</b>	<b>86,000 Additional</b>
<b>Hospitalizations</b>	<b>833,000 Additional</b>

Data source: Long et al.<sup>23</sup>

## New Drugs Reduce Visits to Hospital and ER

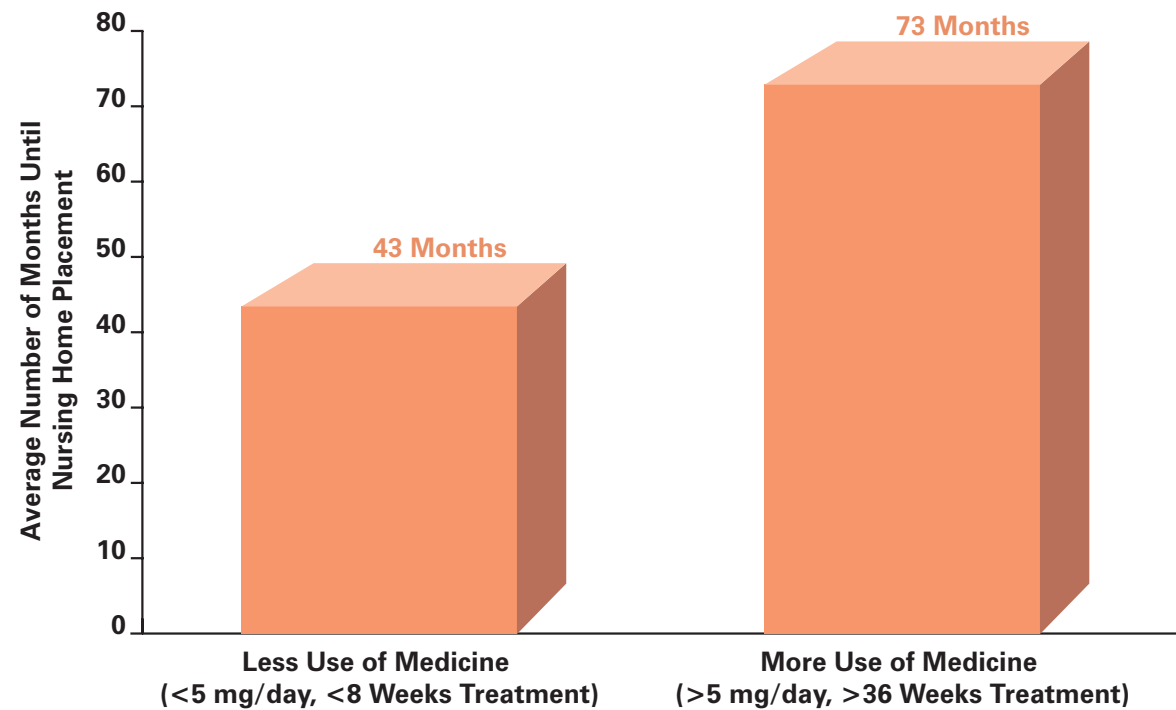
### *Asthma Management Program Improves Outcomes for Children with Asthma*



Data source: Munzenberger and Vinuya<sup>24</sup>

## Medicines Allow Patients to Remain Independent Longer

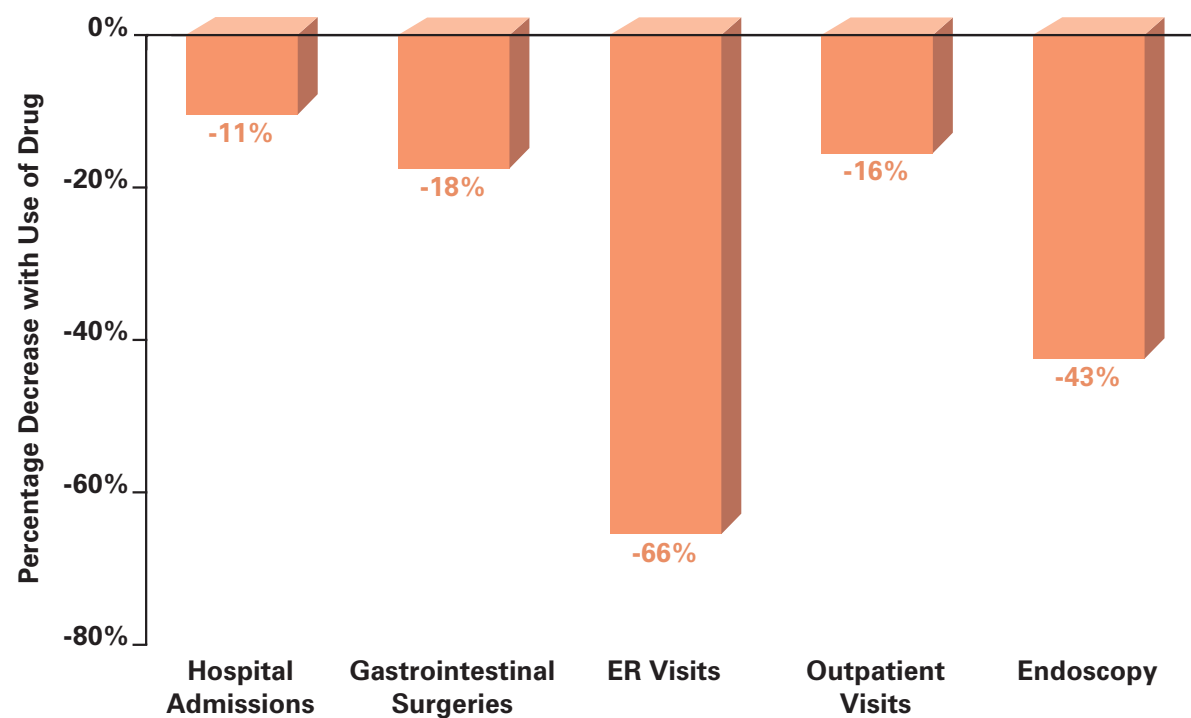
*New Alzheimer's Medicine Delays Need for Costly Nursing Home Care*



Data source: Provenzano et al.<sup>22</sup>

## New Drug for Crohn's Disease Reduces Need for Health Care Services

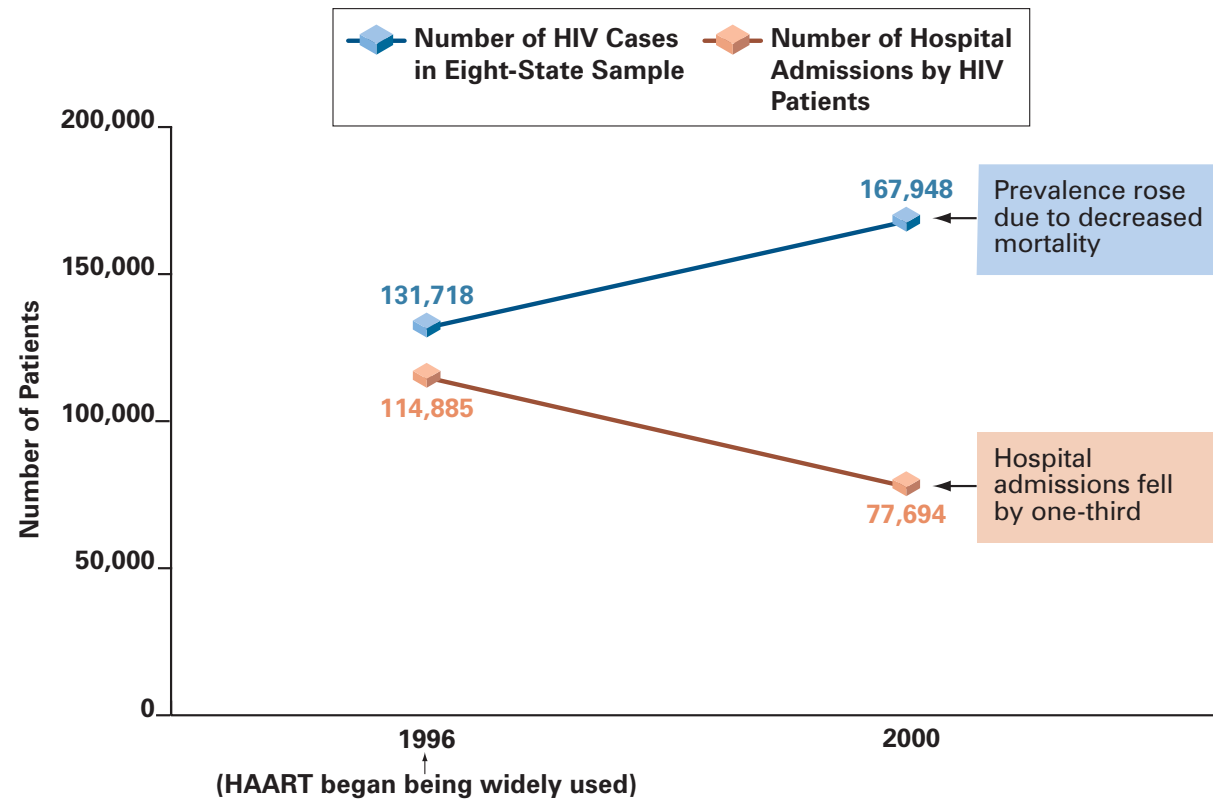
### *Surgeries and ER Visits Reduced*



Data source: Rubenstein et al.<sup>25</sup>

# AIDS Hospitalizations Dropped

*With Introduction of New Medicines in 1996*



Data source: Hellinger<sup>26</sup>

## Hepatitis A Incidence Falls to Historic Lows with Increased Use of Vaccine

*In 1999, It Was Recommended That Children in 17 States with Higher Than Average Hepatitis A Incidence Be Vaccinated Routinely*

	Drop in Incidence
States <i>Not</i> Routinely Vaccinating Children	53%
States Routinely Vaccinating Children	88%
Overall	76%

Data source: Wasley, Samandari, and Bell<sup>27</sup>



## Improving Patients' Health and Quality of Life

*“New drugs allow children with rheumatoid arthritis to walk and to go to school. New drugs shrink cancerous tumors and they control the advance of HIV. They prevent or halt heart disease, slow the progression of multiple sclerosis, and cure infectious diseases.”<sup>13</sup>*

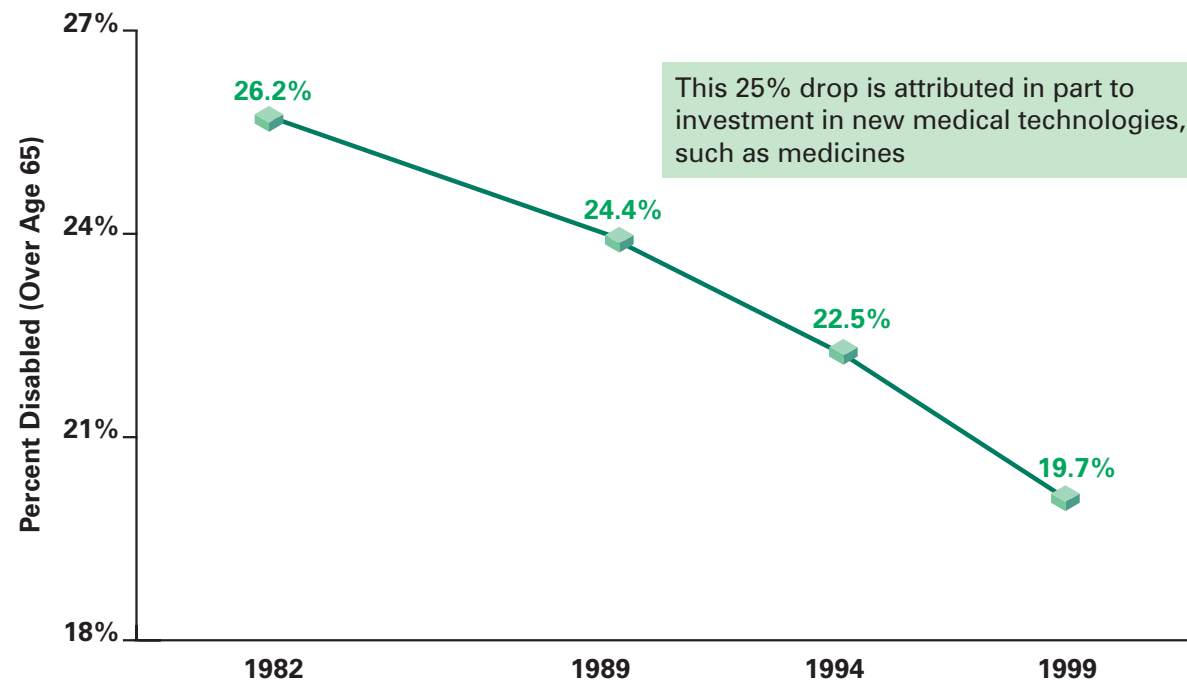
—Mark B. McClellan, M.D., Ph.D., Then-FDA Commissioner,  
September 2003



Innovative medicines not only extend life but also make life itself better for patients. New medicines can improve quality of life for patients suffering from long-term illnesses or help patients remain independent by preventing disability. Patients' lives are often improved by medicines because the medicines can avert complications or limit the severity of a sickness. For example:

- Increasingly, researchers and clinicians are turning their attention to targeted therapies, which attack cancer cells while avoiding healthy ones. These medicines are generally given in the form of pills rather than as intravenous (IV) drugs. Because they do not kill healthy cells, they are capable of fighting cancer with fewer side effects such as nausea and hair loss.
- One recent study found that inner-city children who had asthma, but were enrolled in a comprehensive disease management program that included appropriate medications, experienced significant quality of life improvements. As their symptoms decreased and their capacity for activity rose, they reported greater emotional well-being.<sup>24</sup>

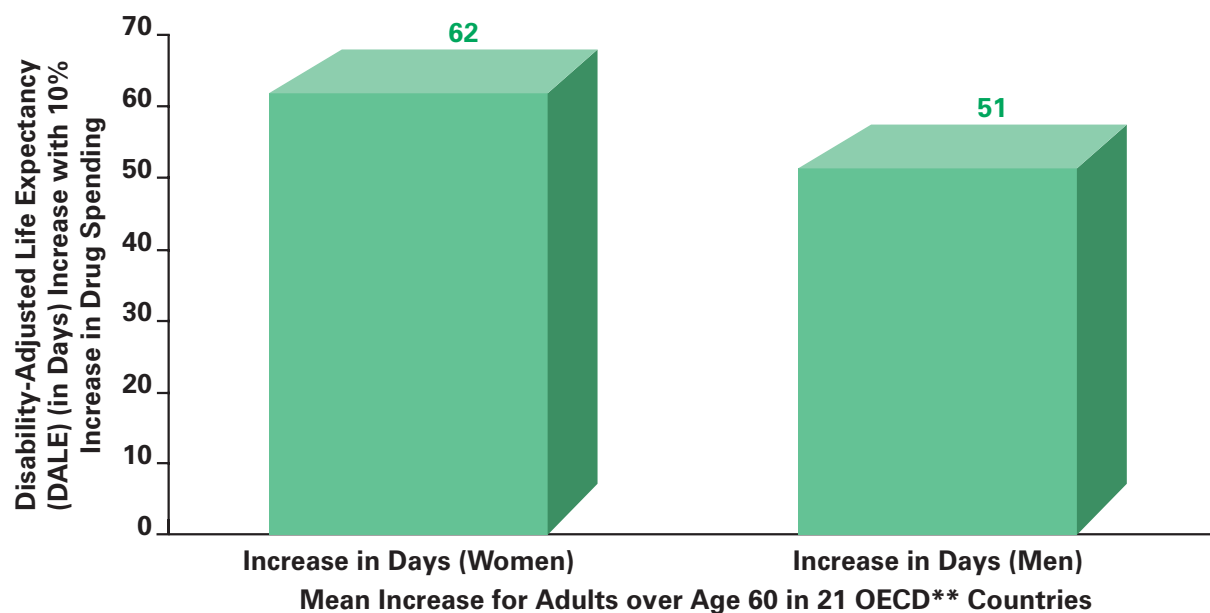
## Disability Rates Declining for Seniors, 1982–1999



Data sources: Manton and Gu<sup>28</sup>; MEDTAP International, Inc.<sup>21</sup>

## Quality of Life and Life Expectancy Improve with Increased Spending on Pharmaceuticals

*Study Shows DALE\* Increase with 10% Increase in Pharmaceutical Spending Across 21 Countries*

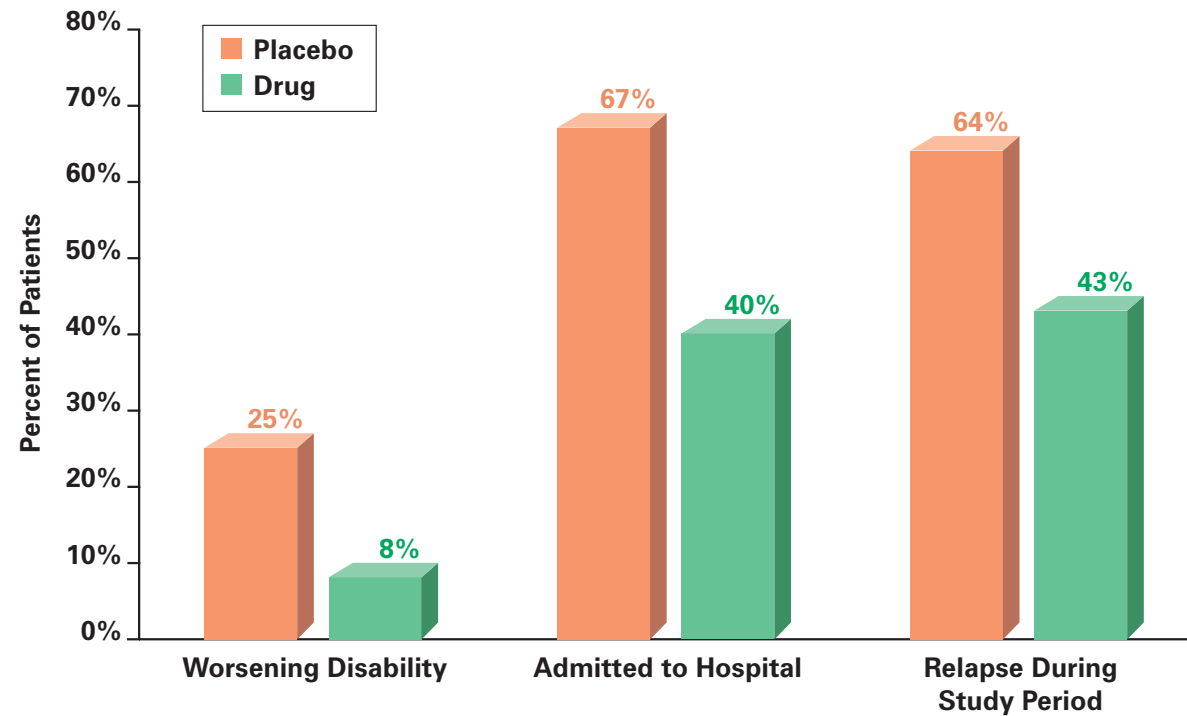


\*Disability-Adjusted Life Expectancy

\*\*Organization for Economic Cooperation and Development

Data source: Miller and Frech<sup>29</sup>

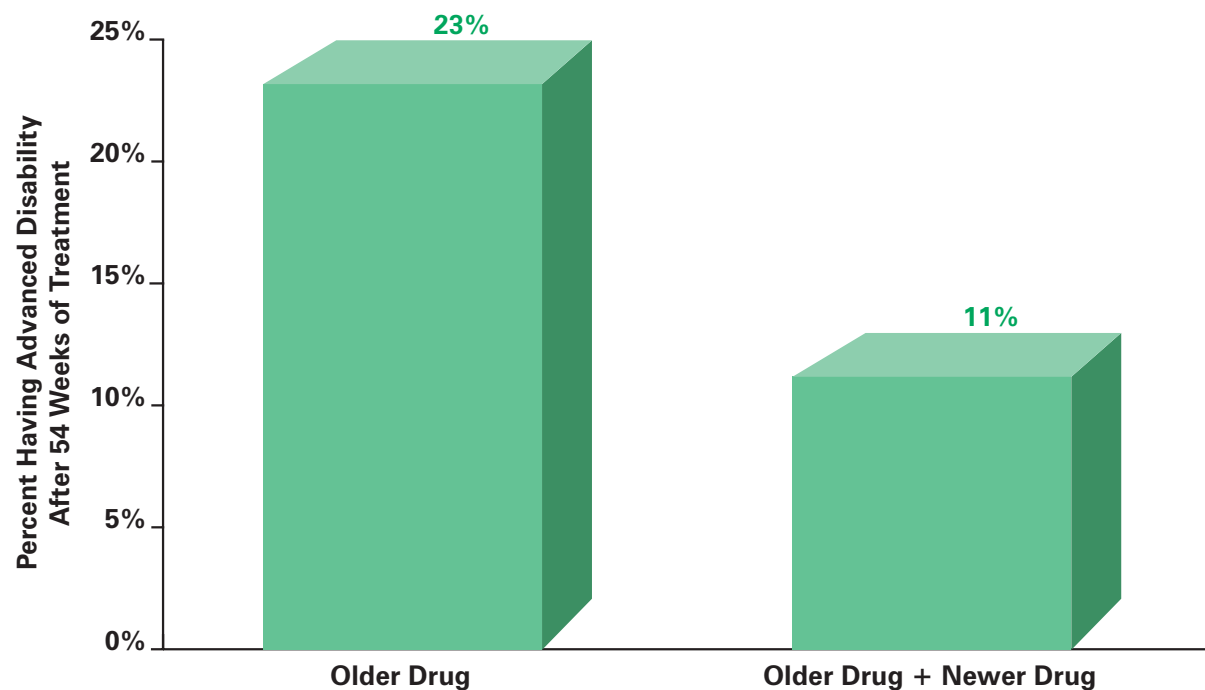
## New Drug for Multiple Sclerosis Produces Significantly Better Results for Patients



Data source: Hartung et al.<sup>30</sup>

## Medicines Help Prevent Disability Due to Arthritis

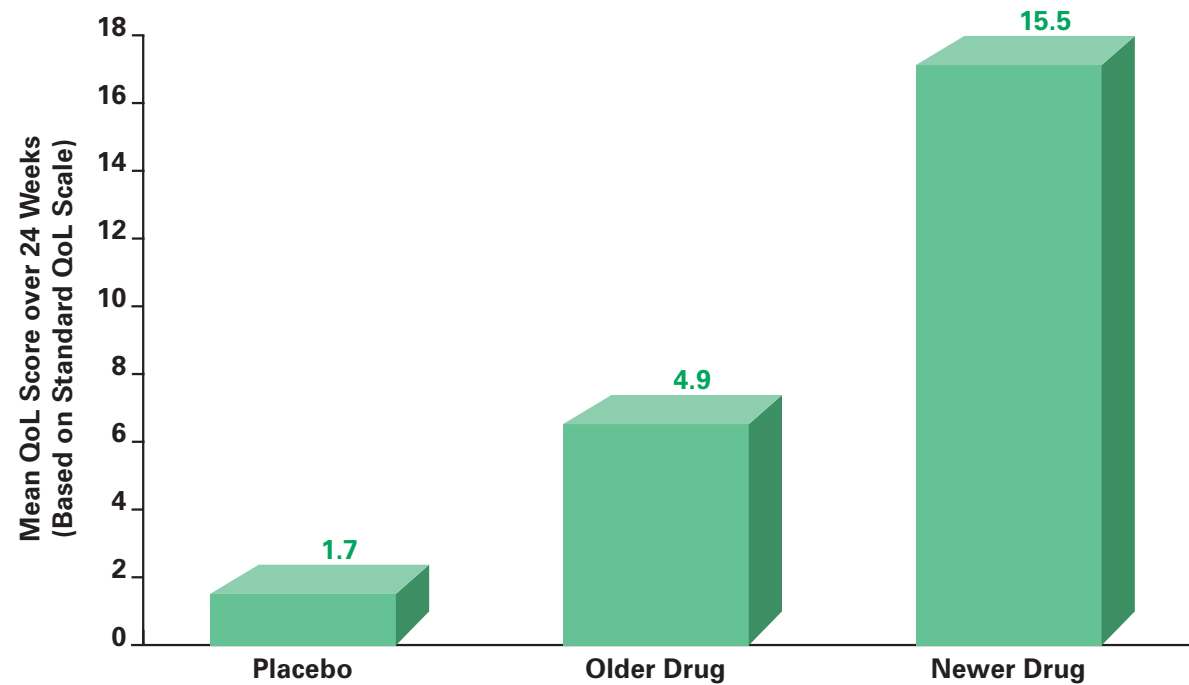
*Rheumatoid Arthritis Drug Treatment Reduces Chance of Advanced Disability*



Data source: Wong et al.<sup>31</sup>

## New Medicine Improves Quality of Life (QoL) for Patients with Schizophrenia

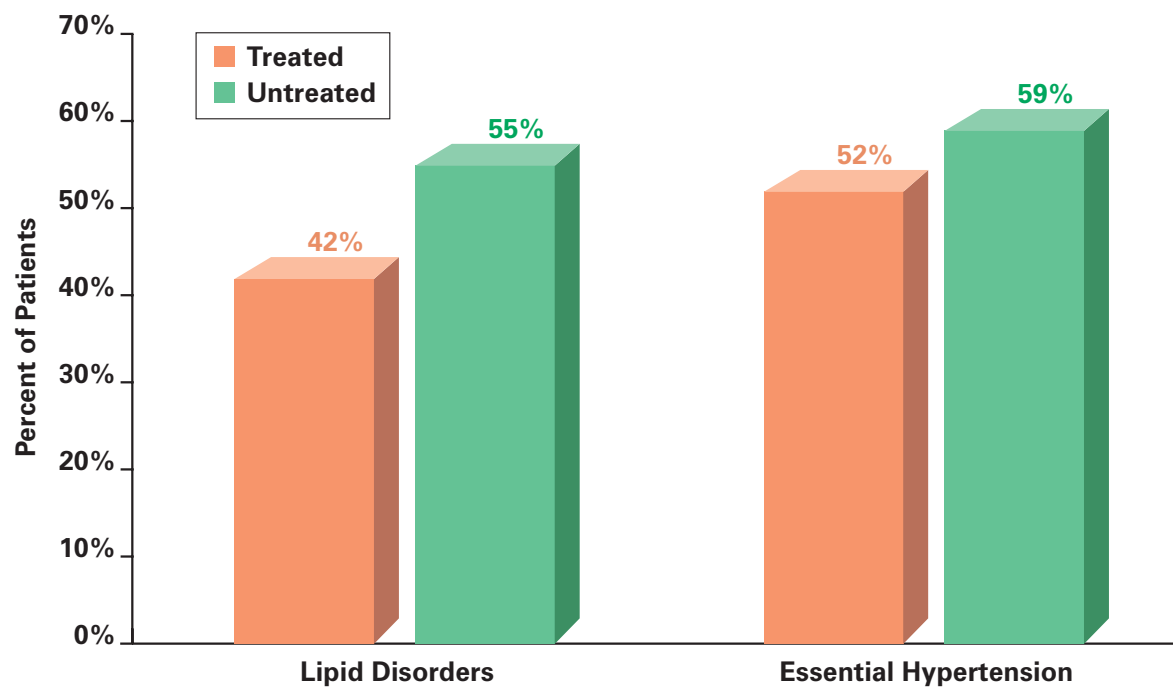
*Schizophrenia Patients Treated with New Drug Report Significantly Better QoL Than Patients Receiving Older Drug*



Data source: Hamilton et al.<sup>32</sup>

## Medicines Reduce Complications of Diabetes

*Diabetes Patients Treated with Medicines Are Less Likely to Develop Other Health Problems*



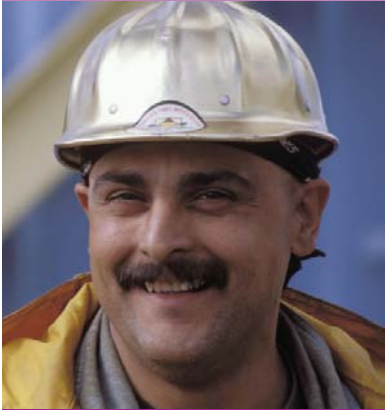
Data source: PharMetrics<sup>33</sup>



## Controlling Health Care Costs

*“High-price new drugs may be the cheapest weapon we have in our ongoing struggle against rising overall medical expenses.”<sup>34</sup>*

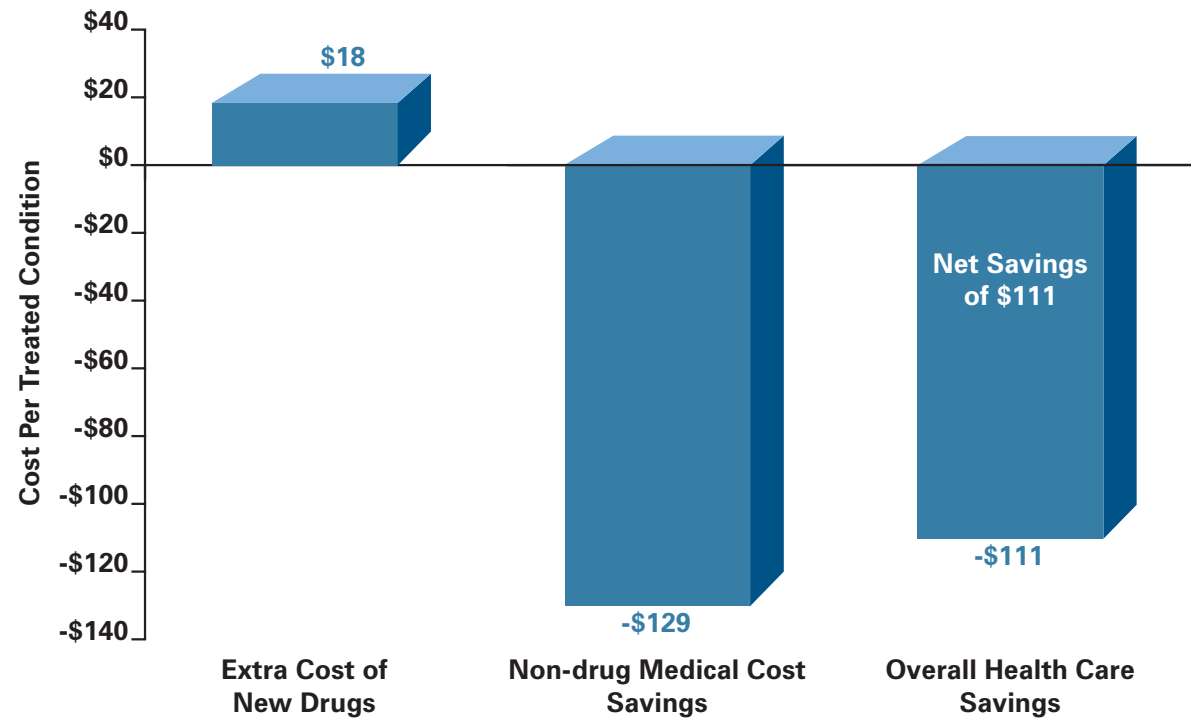
—J. D. Kleinke, Medical Economist and Author, Chairman, Health Strategies Network



New medicines help patients lead longer, better lives and control overall health care spending by reducing invasive surgeries and expensive stays in hospitals or nursing homes.

- Research by Columbia University economist and professor Frank Lichtenberg finds that for every dollar spent on newer medicines in place of older medicines, total health care spending is reduced by \$6.17.<sup>35</sup> In addition, a recent report found that every additional dollar spent on health care in the United States over the past 20 years has produced health gains worth \$2.40 to \$3.00.<sup>21</sup>
- A recent study found that heart failure patients who received beta-blocker therapy had treatment costs \$3,959 lower than those of patients who did not take these medicines. Patients treated with beta-blockers needed fewer overnight hospital stays and had increased survival of about three-and-a-half months.<sup>36</sup>

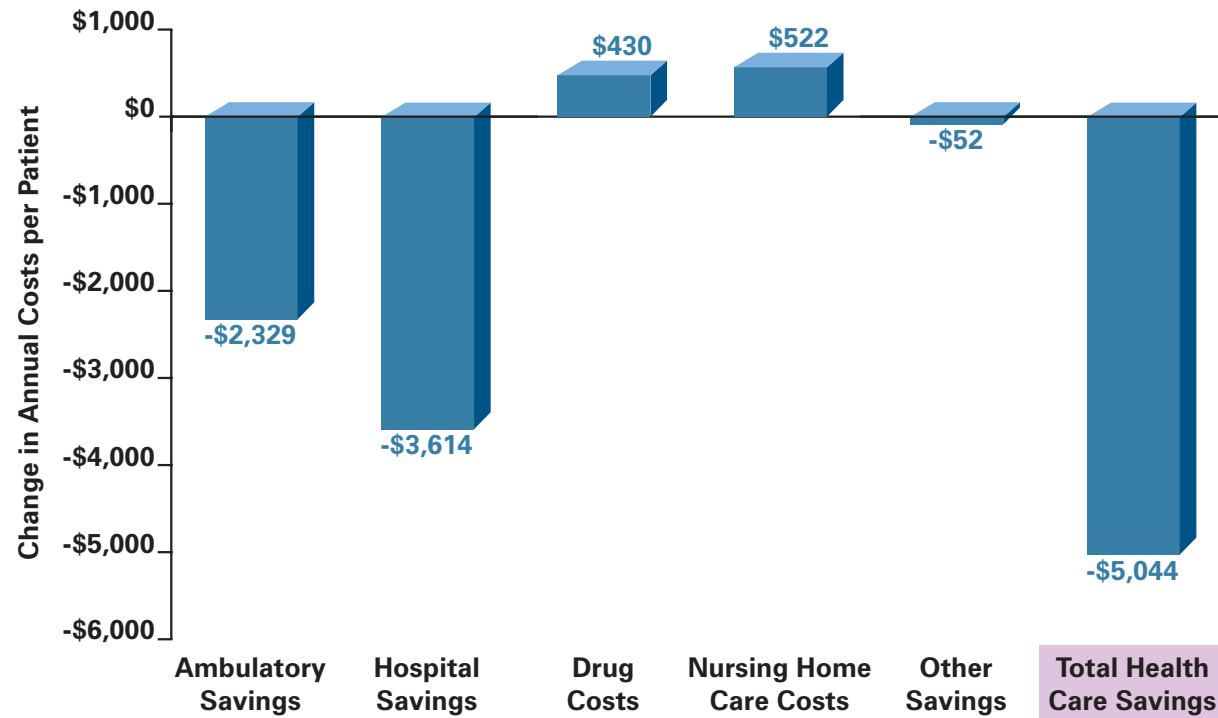
## Using Newer Medicines Results in Savings of \$111 per Treated Condition



Data source: Lichtenberg<sup>35</sup>

## Drugs Help Control Hospital and Ambulatory Costs

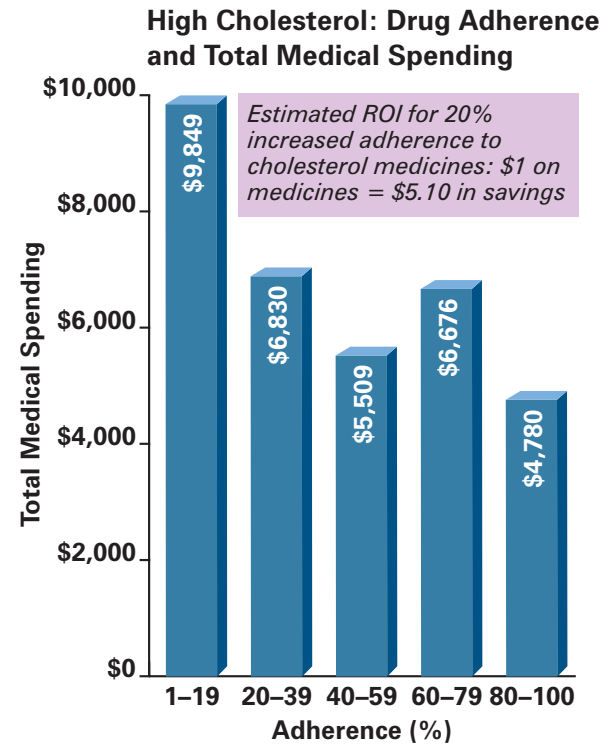
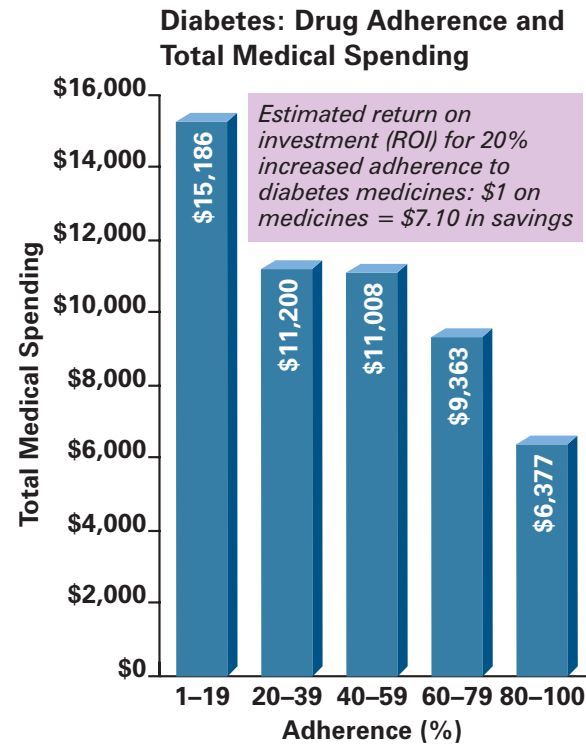
*Patients with Bipolar Disorder Who Consistently Took Mood Stabilizers Had Reduced Health Care Costs*



Note: Data may not sum to total due to rounding.

Data source: Li, McCombs, and Stimmel<sup>37</sup>

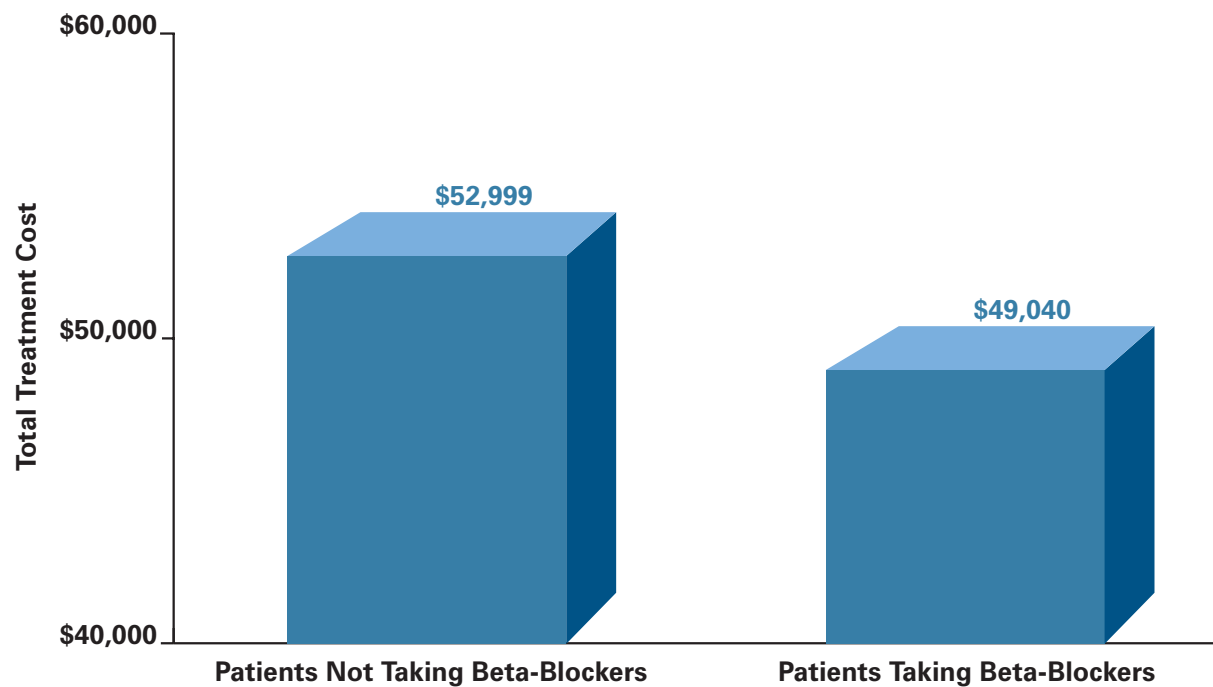
## Greater Adherence to Medicines Decreases Total Health Care Spending



Note: Adherence is the extent to which patients take medicines as prescribed, in terms of dose and duration.  
Data source: Sokol et al.<sup>38</sup>

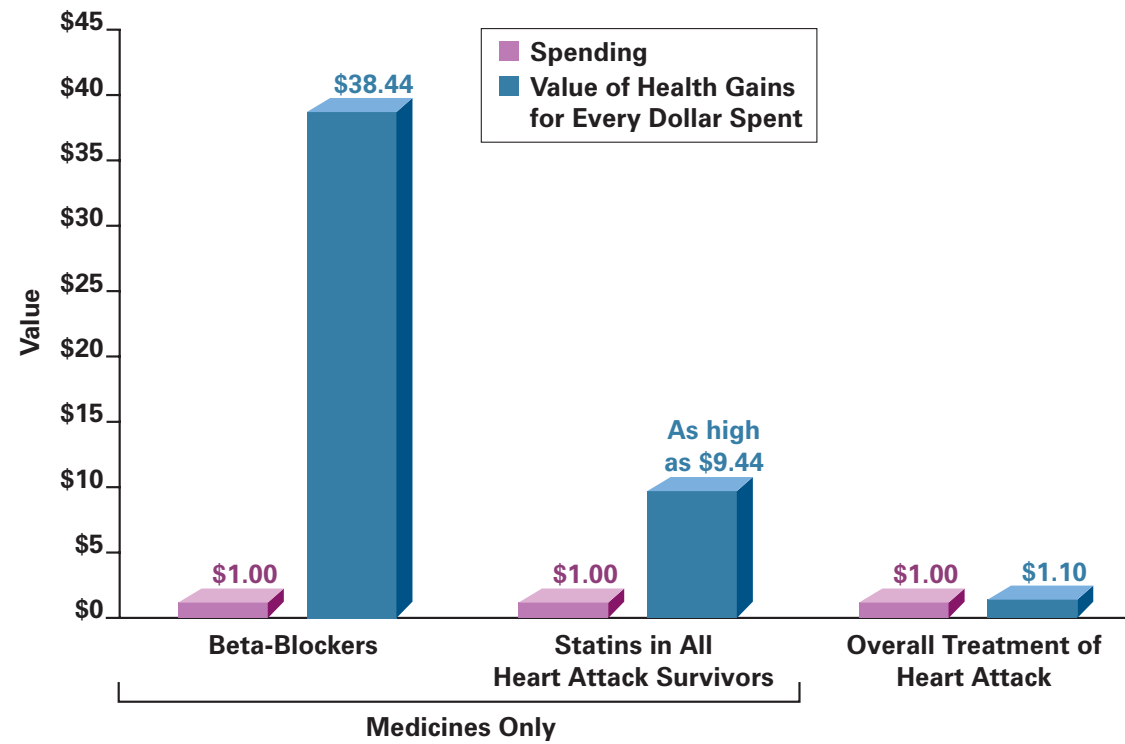
## Patients Taking Medicines for Heart Failure Incur Lower Health Care Costs

*Beta-Blockers Reduce Total Treatment Costs for Heart Failure by \$3,959*



Data source: Cowper et al.<sup>36</sup>

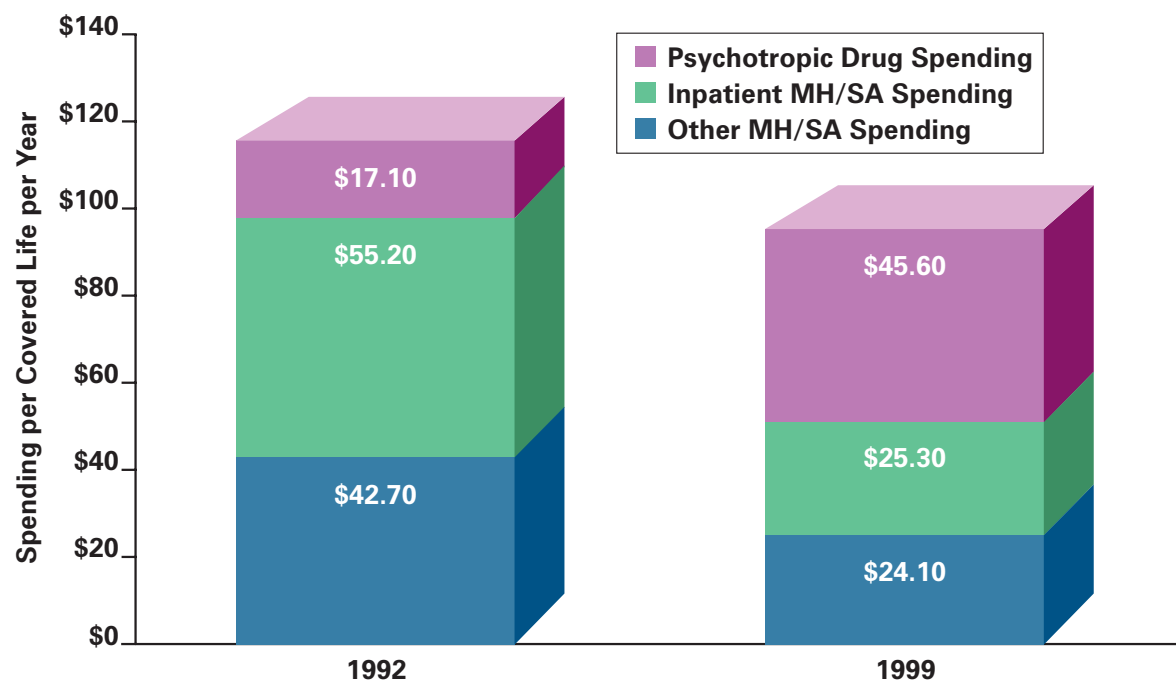
## Medicines Produce Valuable Health Gains for Heart Attack Patients



Data source: MEDTAP International, Inc.<sup>21</sup>

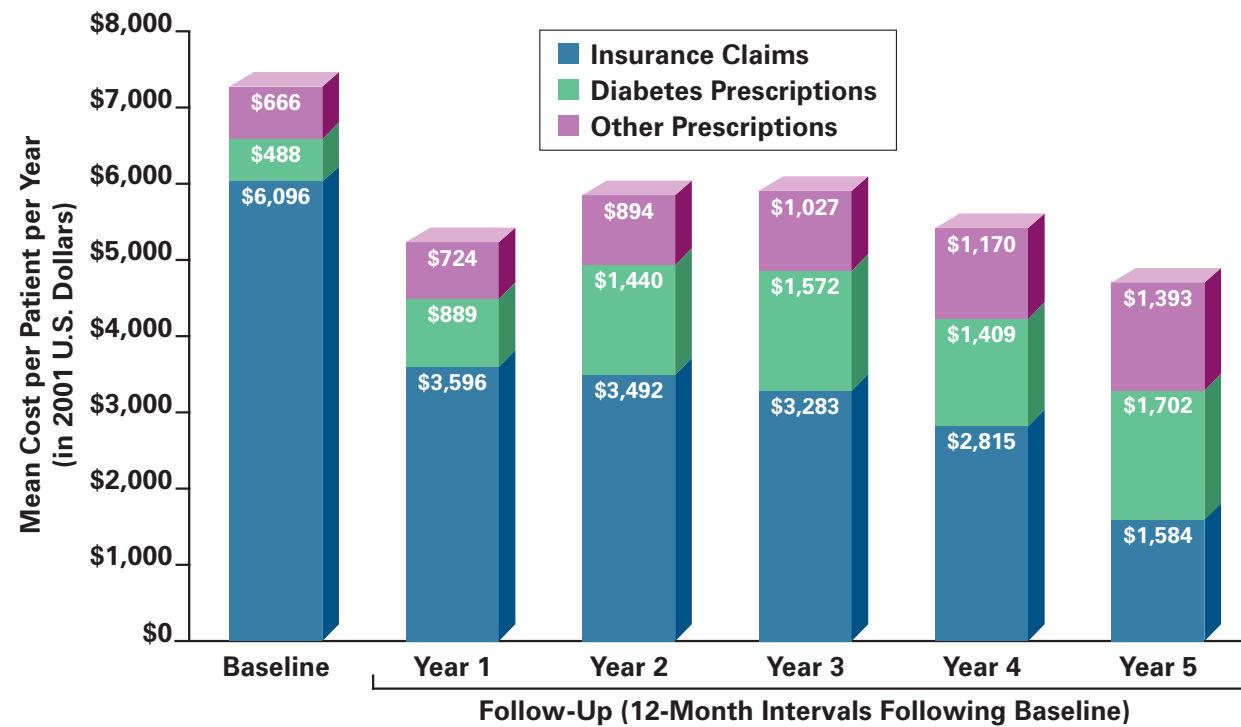
## Increased Use of Medicines Reduces Overall Health Care Costs

*Mental Health/Substance Abuse (MH/SA) Spending per Patient Fell As Drug Spending Increased, 1992–1999*



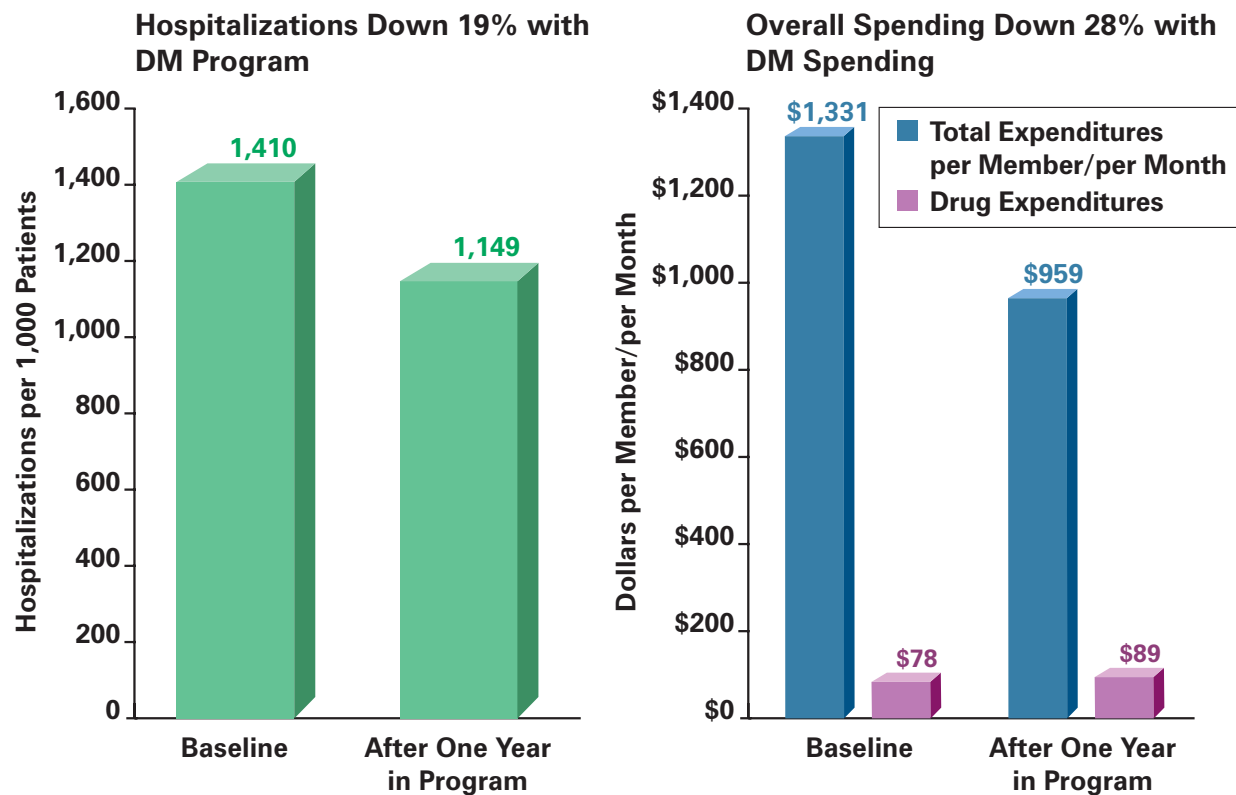
Data source: Mark and Coffey<sup>39</sup>

## Disease Management Program Increases Use of Diabetes Medicines and Reduces Total Health Spending



Data source: Cranor, Bunting, and Christensen<sup>40</sup>

## Heart Failure Disease Management (DM) Program Reduces Hospitalizations and Overall Costs



Data source: Clarke and Nash<sup>41</sup>



## Strengthening the Economy

*“Over the last half century, improvements in health have been as valuable as all other sources of economic growth combined.”<sup>42</sup>*

—Kevin Murphy, Ph.D., and Robert Topel, Ph.D., University of Chicago economists

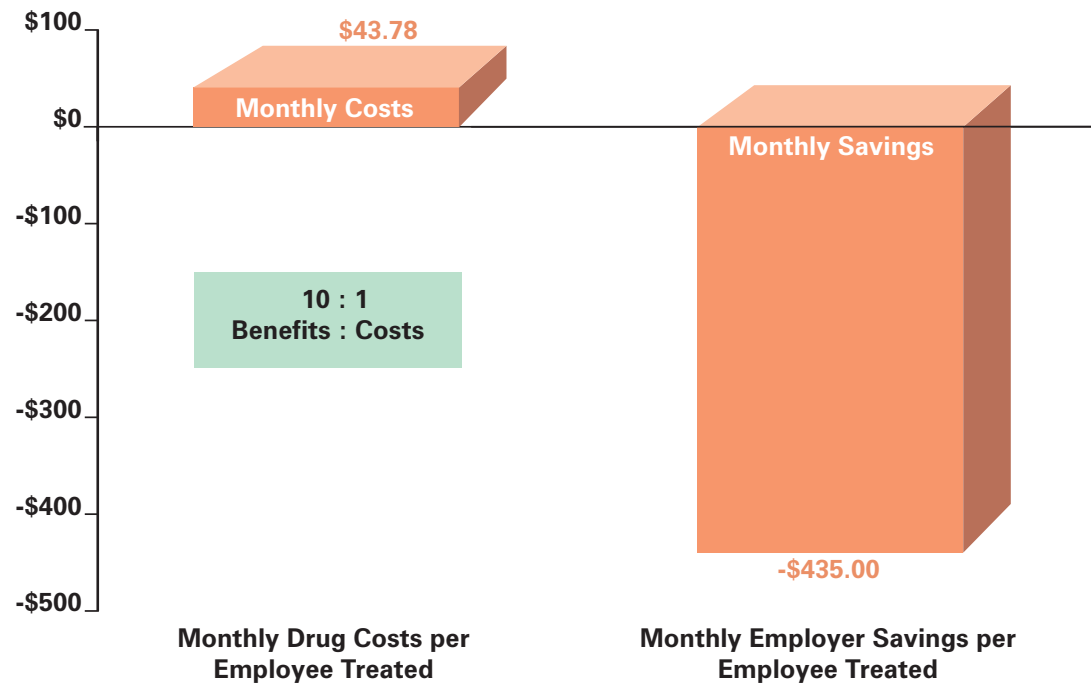


Continued discovery of new medicines helps strengthen the U.S. economy by making it possible for workers to go back to their jobs sooner and to be more productive when they are at work.

- One study showed that 50 percent of workers receiving a drug injection for a migraine attack returned to work within two hours, compared to only 9 percent of workers who received a placebo.<sup>43</sup>
- Allergy patients receiving nonsedating antihistamines are more productive than those receiving sedating antihistamines.<sup>44</sup>
- Better use of available depression care would allow employers to recover up to 8.8 million absentee days per year.<sup>45</sup>

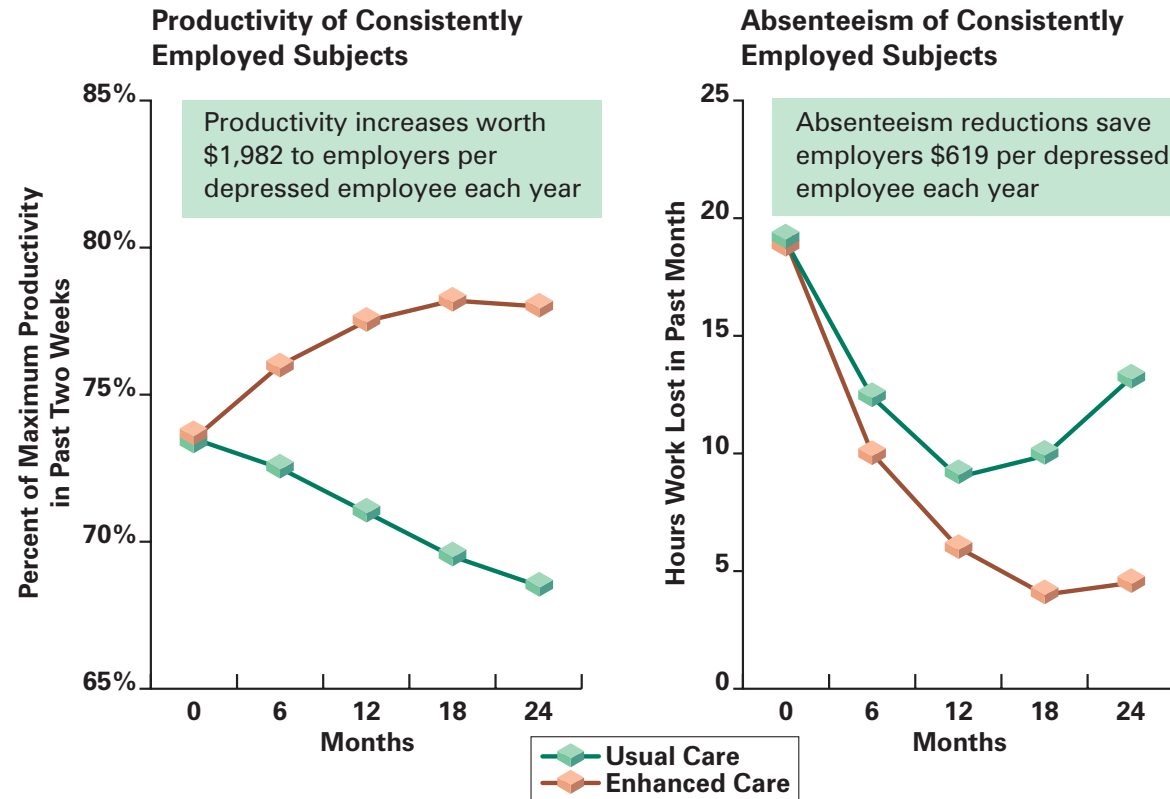
## Medicines Improve Productivity and Save Employers Money

*New Migraine Medicine Produces Productivity Savings That Far Outweigh Drug Costs*



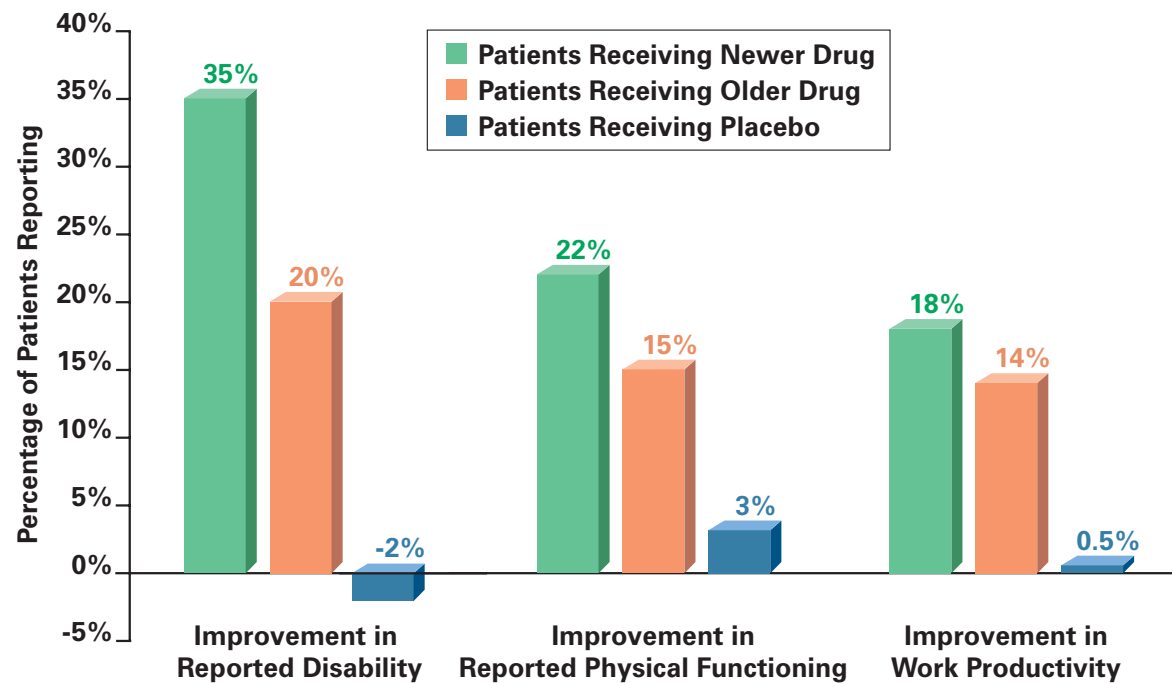
Data source: Legg et al.<sup>46</sup>

## Better Treatment for Depression Saves Employers Money



Data source: Rost, Smith, and Dickinson<sup>47</sup>

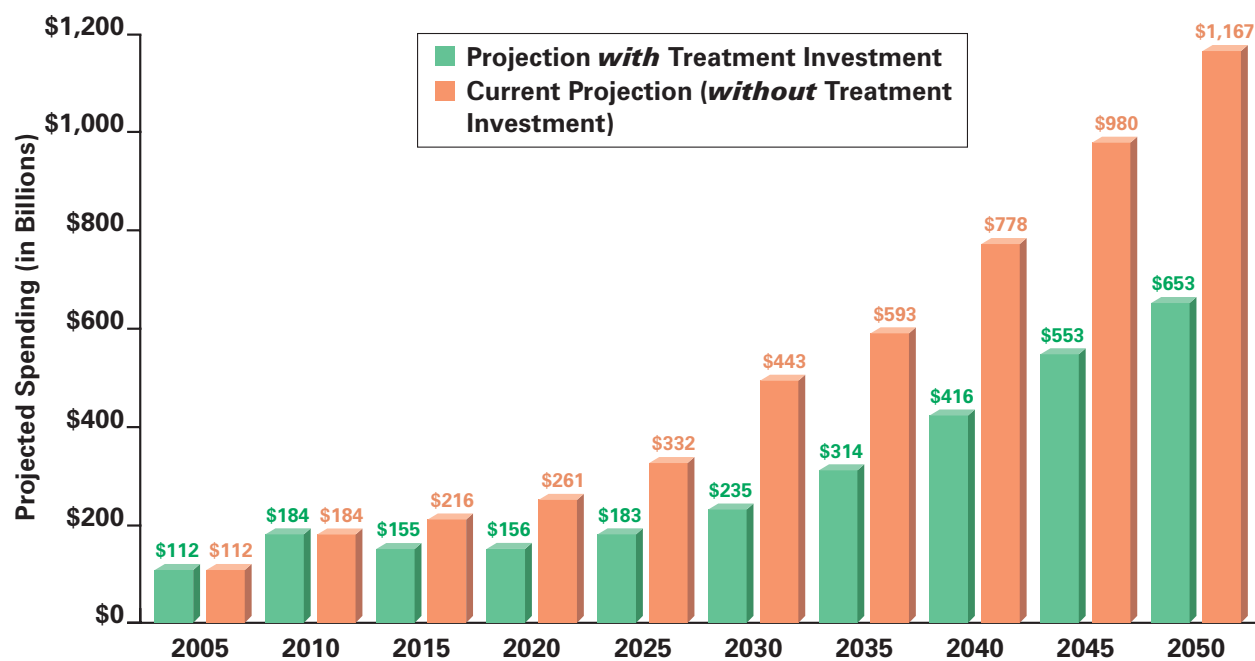
## New Medicines for Arthritis Improve Functioning and Productivity



Data source: Strand et al.<sup>48</sup>

## More Effective Treatment of Alzheimer's Disease Could Save Billions

*Combined Medicare and Medicaid Savings from Effective Treatment of Alzheimer's Disease*



Data source: The Lewin Group<sup>49</sup>



## Then & Now<sup>50</sup>

*“Drugs, both prescribed and over-the-counter, are an increasingly important component of health care. New drugs, and new uses for older drugs, are improving health outcomes and quality of life, curing some conditions, preventing or delaying disease, and hastening recovery.”<sup>51</sup>*

—National Center for Health Statistics, *Health, United States, 2004*, with *Chartbook on Trends in the Health of Americans*



It's easy to forget, but not very long ago the treatments we might today take for granted hadn't yet been developed. Perhaps there weren't any medicines at all for the disease, or those that did exist weren't very effective or had serious side effects. The contrast between treatments of yesteryear and today highlights how far we have come, as well as the importance of continued innovation.

## Leukemia

*Then* *Now*

If you had been diagnosed with chronic myeloid leukemia (CML) in 1999, chances were that you would not be alive today. Just 3 out of 10 patients survived for even five years. In the meantime, you had two daunting treatment options: a high-risk bone marrow transplant or daily injections of interferon, the side effects of which have been compared to “having a bad case of the flu every day of your life.”

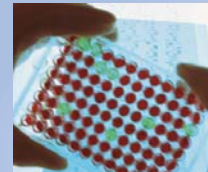


You can take a daily pill that has a good chance of driving your cancer into remission—normalizing your blood count with few, if any, side effects. The new medicine targets CML on a molecular level, so it affects only the enzyme responsible for the disease. The tremendous effectiveness and precision of the approach is heralded as the “wave of the future.”

## HIV/AIDS

*Then* *Now*

If you were diagnosed with AIDS in 1990, you might expect to live for only 26 months. During that time, you would be likely to contract a number of opportunistic infections that would make your remaining days unpleasant and painful. The only treatment available had to be taken every four hours—around the clock—and had serious side effects.

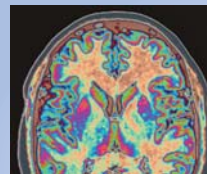


Thanks to the approval in 1995 of protease inhibitors—and further advancements in new medicines and combination therapies in the decade since—the AIDS death rate in the United States has fallen by 70 percent. If diagnosed today, a range of treatment options (including different combinations of drugs) might be able to keep you symptom-free for years to come.

## Schizophrenia

*Then*      *Now*

Between the 1950s and the 1980s, the antipsychotic medications available to treat schizophrenia—a devastating mental illness affecting approximately 1 percent of the population—were a double-edged sword. On the one hand, they helped control symptoms like hallucinations and paranoid thoughts. But they also had unpleasant side effects, like muscle stiffness, tremors, and abnormal movements that grew worse over time.



Thanks to new medicines introduced in the 1990s, people living with schizophrenia can now manage their condition more effectively than ever, and with fewer side effects. These medicines—dubbed “atypical antipsychotics” to distinguish them from earlier, “typical” drugs—also help people whose schizophrenia had not previously responded to treatment, making it possible for them to leave institutionalized care, return to work, and lead more normal lives.

## High Cholesterol

*Then*      *Now*

Although high cholesterol was recognized as a key risk factor for cardiovascular disease in the 1970s, there were no good ways to reduce it. The best drug available was a grainy powder called cholestyramine. Patients mixed it with juice, but it tasted like sand—one patient said it was like drinking Miami Beach. Taking it was so unpleasant that it was prescribed for only the most severe cases.



Millions of people now control their cholesterol, and reduce their risk of heart disease, by swallowing a small pill just once a day. A new class of medicines, statins, was introduced in 1987 and offers a safe and effective way to lower cholesterol. One NIH official, Dr. Claude Lenfant, even said that if all patients took statins according to guidelines, heart disease would no longer be the No. 1 killer.

## Alzheimer's Disease

### Then

If you or a loved one started exhibiting symptoms of Alzheimer's disease 12 years ago, there were no medicines for you to take. All you could do was hope—that your decline into dementia would be slow, that your memory and independence would last as long as possible, that someone would come up with an effective treatment.



### Now

There are three different classes of medication available to help treat the symptoms of Alzheimer's disease and even slow its progression. If you were diagnosed today, you could take an active role in treating your illness, retaining mental functions and independence for longer. More innovations are needed, but the rapid progress of the past two decades has made a difference in the lives of families nationwide.

## Ulcers

### Then

Thirty-five years ago, treating an ulcer meant painful surgery that brought with it the risk of life-threatening infection and more ulcers in the future. Along with surgery, doctors often recommended weeks of bed rest, a mild fatty diet including boiled milk, and increased tobacco use, in an effort to stop the suspected culprits: a stressful lifestyle and spicy food. But none of these remedies made much difference to ulcer sufferers.



### Now

In the late 1970s, new medicines were developed to heal the lining in the stomach or duodenum, making it possible for the first time to treat ulcers effectively without surgery. With the discovery that the bacterium *H. pylori* causes the vast majority of ulcers in 1982, doctors are now able to treat ulcers both quickly and permanently by targeting the real root of the problem—bacteria.

## Organ Transplant

*Then*

In the 1950s and early 1960s, patients needing an organ transplant were in a tragic bind. Transplants were surgically possible, but the body's immune response rapidly rejected organs donated by unrelated individuals. People either died or led greatly diminished lives.

*Now*



Thanks to anti-rejection medicines that were developed in the 1960s and 1980s, tens of thousands of Americans have received transplants of a wide variety of organs and are able to prolong their lives, regain their health, and maintain their independence.

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