



The Value of Medicines

by Alan F. Holmer

Prescription medicines are, in fact, the best value in health-care. They help address many public health catastrophes. They prevent and cure disease. They relieve pain. They keep families together. They improve the quality of life for patients and caregivers. Medicines save lives—and they also save money, by reducing the need for alternative, more expensive forms of care. They keep patients out of the hospital, out of nursing homes, out of surgery, out of doctors' offices, out of emergency rooms—and in the home and on the job.

Studies by Frank R. Lichtenberg, Courtney C. Brown Professor of Business at Columbia University, emphasize that increased spending on prescription drugs leads to overall decreases in healthcare spending. Most recently, Lichtenberg found that replacing older with newer medicines reduces illness, death, and total medical spending. Specifically, he found a reduction of \$71.09 in non-drug spending for an \$18 increase in expenditures on newer prescription drugs, a net savings of \$53.09. In 1996, Lichtenberg calculated that there was a \$3.65 reduction in hospital costs for each \$1 increase in drug expenditures.

Life expectancy is increasing, infant mortality is decreasing, disability rates among the elderly are falling and progress is continuing against many diseases. "These improvements in key components of our public's health all point to one source: major pharmaceutical breakthroughs in

the 1990s," writes healthcare analyst J.D. Kleinke in the September/October issue of Health Affairs.

Last year, the pharmaceutical industry—the most research-intensive of any major U.S. industry—invested more than \$30 billion in R&D, a 16.6 percent increase from the previous year and triple the investment in 1990.

Pharmaceutical and biotechnology companies currently have more than 1,000 new drugs in development—either at the FDA awaiting approval or in clinical trials.

Children

Medicines for children are saving healthcare and societal costs in many ways. For example:

- The Centers for Disease Control and Prevention (CDC) estimates that every \$1 spent on vaccines for measles-mumps-rubella saves the health-care system \$21; every \$1 spent on oral polio

vaccine saves \$6; and every \$1 spent on diphtheria-tetanus-pertussis vaccine saves \$30.

- Cases of bacterial meningitis among young children dropped nearly 80 percent over 11 years after the introduction of a vaccine, saving \$135 million a year in avoided hospital costs.

Pharmaceutical and biotechnology companies have more than 200 new drugs in development for children, including 32 for cancer, 16 for infectious disease, and 14 for psychiatric disorders.

HIV/AIDS

Only three years after the virus that causes AIDS was identified, a pharmaceutical company gained FDA approval for the first medicine to treat that disease. Since the mid-1990s, when the first protease inhibitors were

launched and combination drug therapy was introduced, the U.S. death rate from AIDS has dropped about 80 percent.

There is strong evidence that innovative medicines are not only saving the lives of AIDS patients—they're also saving money for the healthcare system. For example:

- In the 16 months after the introduction of antiretroviral therapy for HIV, a 43 percent drop occurred in inpatient hospital care, according to a study reported in the March 15, 2001 issue of *The New England Journal of Medicine*. Samuel A. Bozzette, M.D., who headed the study, reported: "The drugs are almost a perfect substitute for hospital care. We can afford them because, in fact, we are already spending the money on HIV care [in the hospital.]"

- Protease "cocktail" therapies for AIDS may generate long-term health savings that could offset their cost, according to data from medical centers that treat large numbers of AIDS patients. The combination therapy costs about \$16,000 a year per patient, but a federal study estimated that, before the medicines were available, AIDS patients generated an average of \$24,000 a year in hospital costs.

Pharmaceutical and biotechnology companies have almost 100 new drugs in development for HIV/AIDS.

Cancer

Medicines have helped to reduce the rate of new cancer cases and the death rate from cancer—and are continuing to do so.

"Cancer deaths have been falling since 1991, and since 1995 that decline has been even more rapid," said John R. Seffrin, Ph.D. and CEO of the American Cancer Society. "This gives us great hope that, in the new millennium, our dreams of conquering cancer are closer than ever to becoming a reality."

Dr. Larry Norton of Memorial Sloan Kettering Hospital, President of the American Society of Clinical Oncology, predicts, "Over the next five years, we're going to see very significant changes—and in the five years after that, it's going to be dramatic."

Pharmaceutical companies have developed a number of drugs that improve the quality of life for cancer patients and, in some cases, lower the cost of cancer treatment. Drugs that prevent nausea during chemotherapy are making treatment easier to bear for many patients, as are medicines that help restore the energy that chemotherapy can take away. Another medicine, called a colony-stimulating factor, helps patients whose immune systems are weakened by high-dose chemotherapy. In a study, this treatment was found to save an average of \$30,000 per patient in hospitalization costs for bone marrow transplants.

Pharmaceutical companies are developing more than 400 new medicines for cancer, including 59 for breast cancer.

Mental Illness

Over the past half century, pharmaceutical research has helped transform mental illness

from a misunderstood cause of shame and fear into a highly treatable condition.

Studies show prescription medicines are reducing both the human and economic costs of mental illness:

- The National Bureau of Economic Research found that the cost of treating major depression in the U.S. fell by 25 percent during 1991-1995, as a result of advances in antidepressant drugs.
- A drug for schizophrenia has enabled many patients to be treated outside the hospital, in less costly settings, a 1990 study concluded. The annual cost of drug therapy was \$4,500, compared to more than \$73,000 for treatment in a state mental hospital.

More than 100 medicines are in the pipeline for mental illness.

Heart Disease and Stroke

Heart disease is America's top killer, with stroke third following cancer. Heart disease and stroke claim almost a million lives and cost nearly \$300 billion each year. The good news is that new treatments, including innovative medicines, have helped to cut deaths from heart disease and stroke in half during the past 30 years and are also reducing the economic toll of these diseases, as shown by the following examples:

- A study sponsored by the National Institutes of Health found that treating stroke patients promptly with a clot-busting medicine nets an average savings of \$4,400 per patient by reducing the need for hospitalization, rehabilitation, and nursing-home care. According to NIH, greater use of this medicine could save the



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health-care system more than \$100 million a year.

- ACE inhibitor drugs for patients with congestive heart failure helped to avoid \$9,000 per person in hospitalization costs over a three-year period and reduced deaths by 16 percent. Researchers said that the potential savings for Americans with heart failure amounted to \$2 billion a year.

More than 100 medicines are in development for heart disease and stroke.

Older Americans

“Grow old along with me, the best is yet to be,” wrote poet Robert Browning.

Thanks to an explosion in pharmaceutical research on the diseases of aging, that promise is coming true for many Americans.

declined by 200,000 in the past decade.

Advances in treatments for Alzheimer’s disease, diabetes, Parkinson’s disease, arthritis, and depression have improved the quality of life for many seniors and empowered them to lead active, independent lives.



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As life expectancy increases—it is now about 77—so do chances that the added years will be healthy, active years.

The death rate from heart disease among people ages 65 to 84 is less than half of what it was in 1950. The death rate from stroke has been reduced even more. And since 1994, disability among the elderly has dropped 2.6 percent a year and the number of nursing-home residents

More than 750 new medicines are in development for diseases that affect older Americans. These include 44 for respiratory/lung disorders, 23 for diabetes, 22 for rheumatoid arthritis, 21 for Alzheimer’s disease/dementias, and 20 for depression.

Tiny little pills—they’ve produced great value in combating disease and reducing health-care costs, but the industry is not resting on past progress.

Spurred by advances in science and technology, including the mapping of the human genome, pharmaceutical and biotechnology companies are working on developing more targeted, effective new medicines with fewer side effects. The future for pharmaceutical research—and the hope for new cures and treatments for patients—has never been brighter.



Alan F. Holmer is president of the Pharmaceutical Research and Manufacturers of America (PhRMA), the trade association that represents the nation’s research-based pharmaceutical and biotechnology companies. You can visit their website at www.phrma.org.