

# The Value of Medicines in Offsetting Healthcare Costs

For the last 10 years, U.S. healthcare spending has grown around 3 percentage points faster than GDP.<sup>1</sup> Today, healthcare makes up 17 percent of GDP. According to estimates, at this rate, by 2022, 20 percent of U.S. GDP would be spent on healthcare.<sup>2</sup> Getting this growth rate under control will require a more strategic focus on how we spend our healthcare dollars. To that end, spending money on one type of healthcare can save money by avoiding other healthcare costs. The money saved is called a “medical cost offset.” Medical cost-offsets have been attributed to screenings for disease to diagnose underlying conditions, medication therapy management, health and wellness programs, as well as the effective use of medical devices and medicines. This paper focuses on those cost offsets from medicines.

Medicines are responsible for preventing and curing disease, for improving or maintaining health, and for avoiding exacerbations of existing conditions. This can result in fewer trips to the emergency room, fewer surgeries, or delaying the need for long term care. The net effect is reduced overall costs. This is important, as healthcare spending takes up a growing share of the gross domestic product (GDP) in countries like the U.S. Medicines can therefore generate savings, help prioritize spending, and allow for the sustainment of investment into medical innovation. As healthcare services become strained and the demands of an aging population increase, the effective use of medications will play a vital role in meeting those demands and improving healthcare efficiency.

In perhaps the most significant recognition of the impact that medicines have on reducing other types of healthcare spending, the Congressional Budget Office (CBO), a nonpartisan, independent body that estimates the cost of federal legislation in the U.S., is now counting the savings to the Medicare program from the use of medicines.

- It is estimated that for every 1 percent increase in medicine utilization, total Medicare program costs fall by 0.2 percent.<sup>3</sup>
- Since 12 percent of spending in Medicare is from drugs, and considering that total expenditures of the Medicare program reached \$582.9 billion in 2013,<sup>4</sup> use of medicines can lead to significant financial savings.

A number of other studies support this relationship:

- Expanded drug coverage from the Medicare Part D prescription drug program, which grew from 61 percent in 2005 to 88 percent in 2006 and 2007, led to a 4.1 percent reduction in the rate of Medicare hospitalizations for conditions such as diabetes, stroke, and chronic obstructive pulmonary disorder (COPD) that were associated with expanded prescription drug coverage.<sup>5</sup>
- When physician and prescription drug co-payments were raised, a substantial offsetting increase in hospital care for the sickest populations with chronic diseases was discovered, suggesting that for chronically ill populations, there is little financial gain from higher co-payments.<sup>6</sup>

## KEY TAKEAWAYS

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The odds of subsequent hospitalizations or emergency department visits were 13 percent lower with improved adherence to diabetes medications.<sup>10</sup>

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Medication was associated with a 27 percent reduction in cardiovascular healthcare costs.<sup>14</sup>

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Vaccines prevent morbidity and mortality, thus saving millions of dollars in direct and indirect costs to the healthcare system each year.<sup>21</sup>

## Medication Adherence

Medication adherence or compliance plays a role in cost offsets. Studies analyzing the proper use of medications have shown that not taking medicine as directed by your physician can adversely affect the trajectory of a disease, thus impacting the total cost of treatment and care. Lack of medication compliance is estimated to cost European governments €125 billion per year; and cost arising due to complications of poor compliance represents 14 percent of total healthcare expenditure in the United Kingdom's National Health Service (NHS).<sup>7</sup> Another review studied drug adherence across four major health conditions (congestive heart failure, hypertension, diabetes and dyslipidemia, or high cholesterol). Higher degrees of drug adherence were associated with significantly lower annual inpatient hospital days, ranging from 1.18 fewer days for dyslipidemia to 5.72 fewer days for congestive heart failure.<sup>8</sup> A recent follow-up to this original study found that among seniors with chronic vascular disease, a 1 percent increase in condition-specific medication use was associated with a significant reduction in gross nonpharmacy medical costs in the amounts of 0.63 percent for dyslipidemia, 0.77 percent for congestive heart failure, 0.83 percent for diabetes, and 1.17 percent for hypertension. These findings suggest that a 5 percent increase in the use of antihypertensive medication by patients with both high cholesterol and hypertension may prompt reductions in medical costs (Medicare Parts A and B) of more than \$800 annually per beneficiary.<sup>9</sup>

- A 2013 study estimated that the U.S. health care system could save \$213 billion annually if medicines were used properly.<sup>10</sup>
- Researchers found that just an extra \$1 spent on medicines for adherent patients with congestive heart failure, high blood pressure, diabetes and high cholesterol can generate \$3 to \$10 in savings on emergency room visits and inpatient hospitalizations.<sup>8</sup>

## Cost Offsets across Disease Areas

### Diabetes:

- The chances of hospitalizations or emergency department visits were 13 percent lower with improved adherence to diabetes medications. Improved adherence to diabetes medications could avoid 699,000 emergency room visits and 341,000 hospitalizations annually, for a savings of \$4.7 billion dollars.<sup>11</sup> To illustrate these savings, compare the average cost of complications due to uncontrolled diabetes — such as an amputation surgery, which is \$40,000, or dialysis for one year for a patient with kidney failure, which is \$83,000 — with the average cost of \$2,400 for a year's supply of medicines that help control a patient's diabetes.<sup>12</sup>

## Return on Investment from Improved Medication Adherence: Diabetes

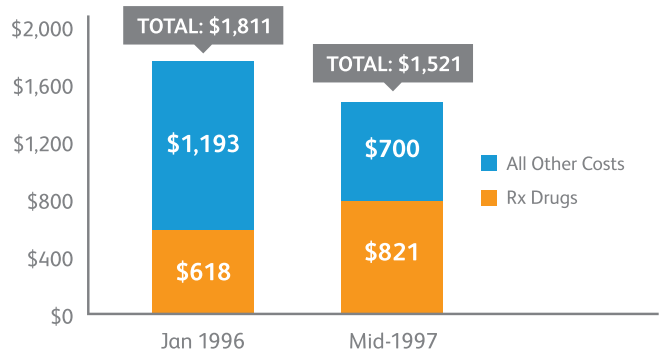


Adapted from: M. Sokol et al., (2005) "Impact of Medication Adherence on Hospitalization Risk and Healthcare Cost," *Journal of Medical Care* 43 (6).  
 Notes: Adherence is the extent to which patients take medicines as prescribed, in terms of dose and duration. Return on Investment estimates reflect spending attributable to the condition listed.

### Human Immunodeficiency Virus (HIV):

- The total cost of care for adults with HIV infection has declined since the introduction of highly active antiretroviral therapies (HAART). In 1997, just one year after the introduction of HAART, a 33 percent increase in pharmaceutical spending was followed by a 43 percent decrease in hospital spending. Resource use, including clinical visits and hospital days, declined as the use of HAART increased.<sup>13</sup>
- Hospital rates for HIV/AIDS patients declined by 23% between 2002 and 2007 due to new medicines.<sup>14</sup>

### Monthly Health Spending Per Patient with HIV

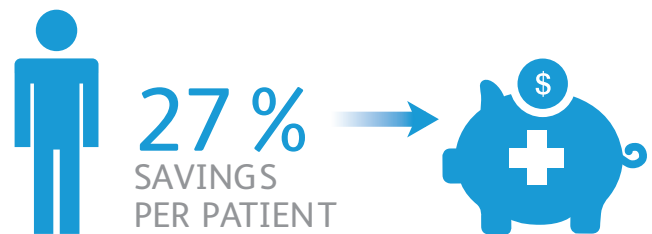


Bozzette SA, Joyce G, McCaffrey DF, et al. Expenditures for the care of HIV-infected patients in the era of highly active antiretroviral therapy. *New England Journal of Medicine*. 2001; 344(11):817-23

### Cardiovascular Disease:

- Per capita expenditure on hospitalization would have been \$89 higher in 2004 had new cardiovascular medicines not been introduced in the period 1995–2004, according to a study among 20 OECD (Organisation for Economic Co-operation and Development) countries.<sup>15</sup>
- Use of statin therapy to treat high cholesterol was associated with a 27 percent reduction in other cardiovascular healthcare costs (e.g., coronary artery bypass graft, electrocardiogram) per patient versus placebo.<sup>16</sup>
- Statin use avoided heart attack hospitalization costs of \$4.4 billion and stroke hospitalization costs of \$440 million in the U.S. in 2008. If all patients were treated according to clinical guidelines, the additional use of statins would have avoided hospitalization costs of another \$2.5 billion for heart attacks and another \$260 million for strokes in 2008.<sup>17</sup>

### The Use of Statins Correlates to a Reduction Healthcare Costs



Adapted from: Gotto AM Jr, Boccuzzi SJ, Cook JR, et al. Effect of lovastatin on cardiovascular resource utilization and costs in the AirForce/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TexCAPS). AFCAPS/TexCAPS Research Group. *Am J Cardiol*. 2000;86:1176-1181.

### Smoking Cessation:

- Cigarette smoking is the No. 1 preventable cause of death.<sup>18</sup> Each year 6 million people die from tobacco.<sup>19</sup>
- Smoking cessation with counseling, nicotine and drug treatment to stop smoking and to reduce the risk of cardiovascular and other disease is a cost-effective preventive service.<sup>20</sup>



Source: U.S. Department of Health and Human Services. *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease, A Report of the Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010. Retrieved from [http://whyquit.com/CDC/SGR\\_2010\\_How\\_Tobacco\\_Smoke\\_Causes\\_Disease.pdf](http://whyquit.com/CDC/SGR_2010_How_Tobacco_Smoke_Causes_Disease.pdf)

### Mental Illness:

- Medically managed mental health treatment was associated with a 20 percent decline in total medical costs over a three-year period among Medicaid patients in Hawaii.<sup>21</sup>
- The cost of covering mental illness on the same basis as medical illness would cost \$6.5 billion, but spending this extra amount would save U.S. taxpayers \$8.7 billion in indirect costs associated with untreated mental illness according to a National Institute of Mental Health (NIMH) study.<sup>22</sup>



Goodwin, F.K., & Moskowitz, J. (1993). Health care for Americans with severe mental illness: Report of National Advisory Mental Health Council.

### Infectious Disease — Vaccines:

- Timely use of vaccinations and adherence to the U.S. Center for Disease Control and Prevention’s recommended vaccination schedules have been shown to prevent morbidity and mortality, thus saving millions of dollars in direct and indirect costs to the healthcare system each year.<sup>23</sup>
- Immunization is likely to provide a cost-effective strategy for adults aged 50 years or more, according to a systematic review of cost-effectiveness studies found for 13 EU Member States.<sup>24</sup> The long-term benefit of vaccination shows immunization programs to be much more worthwhile in terms of their economic consequences.<sup>25</sup>



For every \$1.00 the U.S. spends on childhood vaccinations,



\$10.20 is saved in disease treatment costs.

Centers for Disease Control and Prevention (CDC) – Immunizations and Respiratory Disease Factsheet. Retrieved from [http://www.cdc.gov/fmo/topic/budget%20information/factsheets/IRD\\_Factsheet.pdf](http://www.cdc.gov/fmo/topic/budget%20information/factsheets/IRD_Factsheet.pdf)

## Summary

Finding solutions that maximize efficiencies in healthcare is a shared goal among drug makers, payers, physicians, and patients. Aging of global population, a lower ratio of working-age population to dependents occurring in the U.S., and the growth in healthcare expenditures occurring in many regions of the world are concerns that demand improvements in the allocation of healthcare resources. Understanding the social health and economic benefits of medicines are vital to ensure the most efficient deployment of healthcare dollars and resources.

Pharmaceutical innovations have proven effective not only at improving health, but also at reducing the needs for other medical interventions for many diseases. Even “specialty medicines,” those high-cost therapies that may require close monitoring or special handling, have been found to improve health, sometimes at a lower cost than existing standard of care. A recent review of the largest specialty pharmaceutical categories — Rheumatoid Arthritis, Multiple Sclerosis, and Breast Cancer — suggests that they can offer significant benefits to patients living with complex and chronic conditions compared with previously available therapies.<sup>26</sup> In another study, starting a biologic response modifier (BRM) was associated with a reduction in physician visits and use of expensive procedures for patients with RA within two to three years of initiation. And the use of immunomodulatory therapy for MS was associated with a reduced number of hospitalizations and expensive procedures within two years of initiation.<sup>27</sup>

Medications have had a tremendous impact on quality and length of life across the spectrum of diseases. In fact, the U.S. Centers for Disease Control and Prevention (CDC) has identified the use of new drugs and expanded use of existing drugs as one of the factors that have driven the death rate down by 60 percent over the last 75 years.<sup>28</sup> Looking ahead, the promise of innovation in healthcare is one of saving lives, enhancing the quality of life, and improving efficiencies in healthcare systems.

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