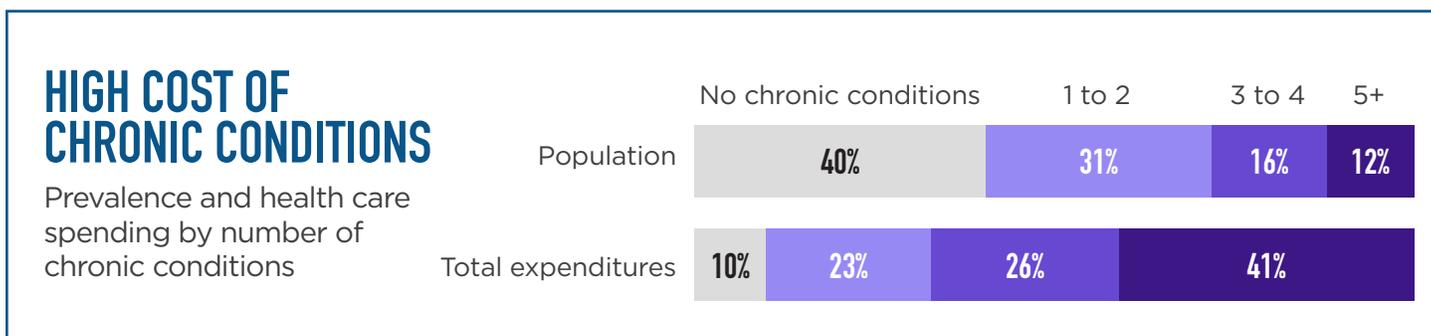


BETTER USE OF MEDICINES CAN IMPROVE HEALTH OUTCOMES AND REDUCE THE USE OF COSTLY MEDICAL CARE

Medicines play a central role in making our health care system more sustainable. Use of medicines can help patients avoid other costlier services, such as emergency room visits, hospital stays, surgeries and long-term care. Yet, despite the many health and economic benefits medicines provide, significant gaps in the appropriate use of medicines remain. This is particularly true for patients with chronic disease. Moving forward, medicines will continue to provide the best opportunity to improve health and drive value and quality in health care.



THE ECONOMIC BURDEN OF CHRONIC DISEASE IS SUBSTANTIAL

Medicines are enabling us to more effectively treat the biggest cost driver in health care: chronic disease. The cost of treating patients with chronic conditions accounts for 90 percent of the nearly \$3 trillion spent on health care in the United States each year.^{1,2} Sixty percent of American adults have at least one chronic condition and 42 percent have two or more. Patients with multiple chronic conditions are a significant driver of health care costs. In fact, the 12 percent of people with five or more chronic conditions account for 41 percent of total health care spending and spend 14 times more on health services than people without chronic conditions (see chart).⁴ The number of individuals with three or more chronic conditions is projected to nearly double by 2030, greatly increasing the economic burden of chronic disease.

SIGNIFICANT GAPS IN OPTIMAL USE OF MEDICINES

Nearly 75 percent of American adults do not follow their physicians' prescription orders, including not filling their prescriptions or taking less than the recommended dose, and just 50 percent of medications for chronic disease are taken as prescribed.^{5,6} More than one-quarter of newly written prescriptions are never brought to the pharmacy to be filled, including those for common conditions such as high blood pressure, diabetes and high cholesterol.⁷

Additionally, failing to prescribe appropriate treatments when indicated is the most common prescribing quality problem.^{8,9} For example, more than one-third of patients newly diagnosed with heart failure do not receive recommended medicines as indicated within a month following diagnosis.¹⁰

Limited access to, or restrictive coverage of, medicines may also contribute to gaps in optimal medication use. The growing use of high deductibles and coinsurance for medicines presents affordability challenges for many patients.

Individuals may also face other hurdles to filling prescriptions, such as “fail first” and prior authorization requirements.^{11, 12} Patients with chronic conditions are disproportionately affected by declining generosity of coverage. Such access restrictions to medicines can lead to patients not adhering to prescribed treatment regimens, resulting in poor outcomes.^{13, 14}

BETTER USE OF MEDICINES CAN IMPROVE HEALTH OUTCOMES AND REDUCE HEALTH CARE SPENDING

Fortunately, where there are gaps there are also tremendous opportunities to drive value in our health care system. In fact, better use of medicines could eliminate \$213 billion in U.S. health care costs annually, amounting to eight percent of the nation’s health care costs.¹⁵

A large body of evidence demonstrates how better use of medicines can lead to reductions in other sources of health care spending across a broad range of chronic conditions. For example, spending \$1 more on medicines for adherent patients with congestive heart failure, high blood pressure, diabetes or high cholesterol can generate \$3 to \$10 in savings on emergency room visits and inpatient hospitalizations.¹⁶

Savings due to improved use of medicines is also well documented in public programs. In fact, the Congressional Budget Office credits Medicare policies that increase use of medicines with savings on other Medicare costs.¹⁷ As result of seniors gaining Part D prescription drug coverage, Medicare saved \$27 billion due to improved adherence to congestive heart failure medications. The same study estimated that Medicare could save an additional \$22 billion by 2022 if adherence among these patients reached recommended levels.¹⁸ Similarly in Medicaid, research shows increased use of medicines among patients is associated with reductions in expenditures from avoided use of inpatient and outpatient services.¹⁹ For example, among Medicaid patients with congestive heart failure, hypertension, high cholesterol, diabetes, asthma/chronic obstructive pulmonary disease, depression and schizophrenia/bipolar disorder, improving adherence could produce \$8 billion in savings annually.²⁰ Another study found if 60 percent of the children enrolled in Medicaid achieved high adherence to asthma treatment in just 14 states, Medicaid could achieve \$57.5 million in savings.²¹

Patients with less common chronic diseases may also reduce their health care spending by exercising better adherence. For example, Medicare patients with Parkinson’s disease, adults with Crohn’s disease, children with cystic fibrosis and patients with advanced melanoma have all been shown to achieve health care savings through improved use of medicines.^{22, 23, 24, 25} In addition to producing savings from avoided medical services, better use of medicines also improves health and overall quality of life, which can lead to improved productivity from lower disability and fewer missed days of work. A study found adults with multiple sclerosis that improved medication adherence by 10 percentage points decreased the likelihood of an inpatient or emergency room visit by 9 to 19 percent and days of work loss by 3 to 8 percent.²⁶ Another study found for workers with asthma or chronic obstructive pulmonary disease, better medication adherence resulted in less time out of work and more than \$3,100 in savings on average per worker annually.²⁷

Today and in the future, medicines will play a central role in making our health care more sustainable. For example, if we do nothing to address the costs of Alzheimer’s disease we will be spending \$1.1 trillion on this condition alone by 2050.²⁸ But if we develop one new medicine to delay the onset of the disease by just five years, we could save the health care system \$367 billion by 2050. Similarly, the emergence of a new class of medicines for migraines, the first of which became available in 2018, may offer substantial savings. One study projected these medicines could yield \$396 billion in savings over 10 years due to patients experiencing fewer migraine days, requiring less rescue medications and recouping hours in productivity.²⁹ In consideration of the many diseases where there is significant unmet need, the development of medicines will continue to be critical in addressing the most costly and challenging diseases of our time.

1 C Buttorff et al. Multiple Chronic Conditions in the United States. Rand Corporation, 2017. <http://www.fightchronicdisease.org/resources/brand-multiple-chronic-conditions-united-states>

2 Centers for Medicare & Medicaid Services. National health expenditures fact sheet. <https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nhe-fact-sheet.html>

3 C Buttorff et al. Multiple Chronic Conditions in the United States. Rand Corporation, 2017. <http://www.fightchronicdisease.org/resources/brand-multiple-chronic-conditions-united-states>

4 Partnership for Chronic Disease. What is the Impact of Chronic Disease on America? http://www.fightchronicdisease.org/sites/default/files/prcd_blocks/PFCDD_US_FactSheet_FINAL1%20%282%29.pdf

5 National Community Pharmacists Association. Take as directed: A prescription not followed. <http://www.ncpanet.org/pdf/adherence/patientadherence-pr1206.pdf>. December 2006.

6 M Viswanathan et al. Interventions to Improve Adherence to Self-Administered Medications for Chronic Diseases in the United States: A Systemic Review. *Annals of Internal Medicine*, December 2012. <http://annals.org/aim/article/1357330/interventions-improve-adherence-self-administered-medications-chronic-diseases-united-states>

7 MA Fischer et al. Primary Medication Non-Adherence: Analysis of 195,930 Electronic Prescriptions. *Journal of General Internal Medicine*. 25 no. 4 (2010): 284-90.

8 DP Goldman, EA McGlynn. RAND Health. US Health Care: Facts about Cost, Access, and Quality. Santa Monica, CA: RAND Corporation; 2005. Cited by: Higashi T, Shekelle PG, Solomon DH, et al. The quality of pharmacologic care for vulnerable older patients. *Ann Intern Med*. 2004;141(9):714-720.

9 TD Sorensen et al. Seeing the Forest Through the Trees: Improving Adherence Alone Will Not Optimize Medication Use. *Journal of Managed Care & Specialty Pharmacy*. Vol. 22, No. 5, May 2016.

10 C Deschaseaux et al. Treatment Initiation Patterns, Modifications, and Medication Adherence Among Newly Diagnosed Heart Failure Patients: A Retrospective Claims Database Analysis. *J Manag Care Spec Pharm*. 2016 May;22(5):561-57

11 IMS Institute for Healthcare Informatics. Emergency and Impact of Pharmacy Deductibles: Implications for Patients in Commercial Health Plans. September 2015. <http://www.imshealth.com/en/thought-leadership/quintilesims-institute/reports/emergence-and-impact-of-pharmacy-deductibles-implications-for-patients-in-commercial-healthplans>

12 Kaiser Family Health Foundation. 2016 Employer Health benefits Survey. September 2016. <http://www.kff.org/health-costs/report/2016-employer-health-benefits-survey/>

13 MT Eaddy et al. How Patient Cost-Sharing Trends Affect Adherence and Outcomes. *Pharmacy & Therapeutics*. 2012;37(1):45-55

14 JA Doshi et al. High Cost Sharing and Specialty Drug Initiation Under Medicare Part D: A Case Study in Patients with Newly Diagnosed Chronic Myeloid Leukemia. *American Journal of Managed Care*. 2016;22(4 Suppl):S78-S86.

15 IMS Institute for Healthcare Informatics. Avoidable costs in US healthcare: the \$200 billion opportunity from using medicines more responsibly. http://www.imshealth.com/files/web/IMS%20Institute/Reports/Avoidable_Costs_in%20US_Healthcare/IHLI_AvoidableCosts_2015.pdf. June 2015.

16 MC Roebuck et al. “Medication Adherence Leads To Lower Health Care Use And Costs Despite Increased Drug Spending.” *Health Affairs* 30 no. 1 (2011): 91-9.

17 Congressional Budget Office. Offsetting Effects of Prescription Drug Use on Medicare’s Spending for Medical Services. November 2012.

18 TM Dall et al. The Economic Impact of Medicare Part D Coverage on Congestive Heart Failure. *AJMC*. 2013;19:S97-S100.

19 MC Roebuck et al. Medical Cost Offsets from Prescription Drug Use in Medicaid. *Health Aff* September 2015 vol. 34no. 9 1586-1593.

20 Roebuck, Mark C., Robert J. Kaestner, and Julia S. Dougherty. “Impact of Medication Adherence on Health Services Utilization in Medicaid.” *Medical care* 56.3 (2018): 266-273.

21 G Rust et al. Potential Savings from Increasing Adherence to Inhaled Corticosteroid Therapy in Medicaid-Enrolled Children. *AJMC* 2015 March 21(3):173-180.

22 YJ Wei et al. Antiparkinson Drug Adherence and Its Association with Health Care Utilization and Economic Outcomes in a Medicare Part D Population. *Value in Health* 2014 17(2), 196-204.

23 BG Feagan et al. Healthcare Costs for Crohn’s Disease Patients Treated with Infliximab: A propensity Weighted Comparison of the Effects of Treatment Adherence. *J Med Econ*. 2014;17(12):872-80.

24 AL Quittner et al. Pulmonary Medication Adherence and Health-Care Use in Cystic Fibrosis. *CHEST Journal* 2014, 146(1), 142-151.

25 K Gupte-Singh et al. Adherence to Cancer Therapies and the Impact on Healthcare Costs among Patients with Advanced melanoma in the USA. Proceedings of the 22nd Annual International Meeting International Society of Pharmacoeconomics and Outcomes Research; 2017 May; Boston, MA. Abstract available at: <https://www.ispor.org/ScientificPresentationsDatabase/Presentation/70971?pdfid=49556>

26 S Yermakov et al. Impact of Increasing Adherence to Disease-Modifying Therapies on Healthcare Resource Utilization and Direct Medical and Indirect Work-Loss Costs for Patients with Multiple Sclerosis. *J Med Econ*. 2015;18(9):711-20.

27 G Carls et al. Impact of Medication Adherence on Absenteeism and Short-Term Disability for Five Chronic Diseases. *J Occup Environ Med* 54 no. 7 (2012): 792-805.

28 Alzheimer’s Association. Changing the Trajectory of Alzheimer’s Disease: how a treatment by 2025 saves lives and dollars. http://www.alz.org/documents_custom/trajectory.pdf. Washington, DC: Alzheimer’s Association; 2015.

29 The Effects of Calcitonin Gene-Related Peptide Inhibitors on Migraine Days, Healthcare use, and Workplace Productivity: A Markov Model Approach. KNG Health Consulting, May 2018.