

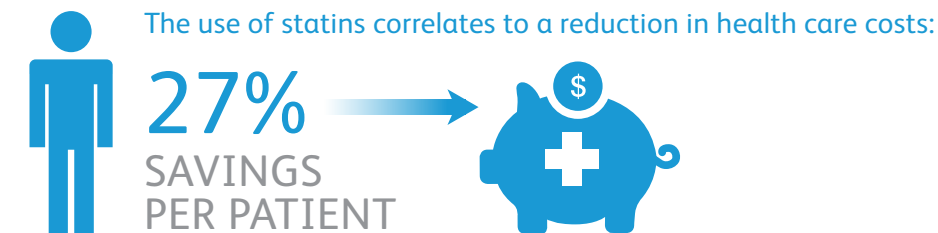
The Value of Statins

Cardiovascular diseases (CVD) are the number one cause of death globally,¹ and there is a well established relationship between low-density lipoprotein-cholesterol (LDL-C, “bad cholesterol”) and coronary heart disease.² In 1986, a new type of drug class called statins was introduced to lower levels of LDL-C when therapeutic lifestyle changes were not able to reach treatment goals. Statins introduced an innovative medicine class that decreased the numbers of heart attacks and strokes significantly in clinical trials of a variety of patient populations. Since their introduction, statins have been extensively studied and were found to be cost-effective therapies for a broad range of patients.

Societal Health Impact

- National survey data suggests statin therapy reduced low-density lipoprotein levels by 18.8 percent, which translated into roughly 40,000 fewer deaths, 60,000 fewer hospitalizations for heart attacks, and 22,000 fewer hospitalizations for strokes in 2008.³

In one year alone, statins reduced numerous cases of cardiovascular-related complications and saved thousands of lives.



Adapted from: Grabowski, David C., et al. (2012). The Large Social Value Resulting From Use Of Statins Warrants Steps To Improve Adherence And Broaden Treatment. *Health Affairs*, 31; 10 2276-2285 // Gotto AM Jr, Boccuzzi SJ, Cook JR, et al. Effect of lovastatin on cardiovascular resource utilization and costs in the Air Force/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TexCAPS). AFCAPS/TexCAPS Research Group. *Am J Cardiol*. 2000;86:1176-1181.

- In a resource utilization analysis study comparing the cost of specific statin therapy with the cost of cardiovascular hospitalization and related procedures, the statin therapy was associated with a 27 percent reduction in cardiovascular health care costs (e.g., coronary artery bypass graft, electrocardiogram) per patient versus placebo.⁴

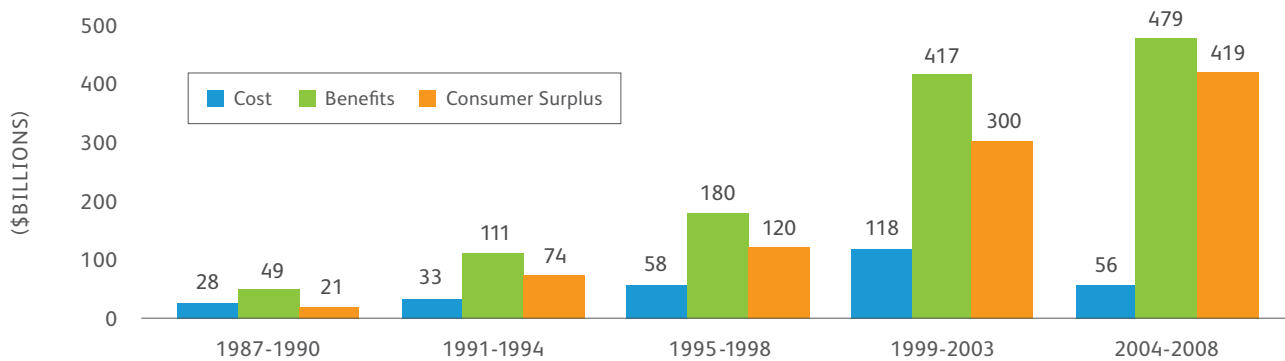
KEY TAKEAWAYS

Cardiovascular diseases (CVD) are the number one cause of death globally.¹

The ADA recommends statin therapy be added to lifestyle therapy for specific patients with diabetes, regardless of baseline LDL levels.⁷

From 1987–2008, the estimated aggregate social value of statins was estimated to be \$1.252 trillion, with the consumer surplus associated with statins estimated at \$947.4B.³

Benefits and Costs of Statin use, by Period of Inflation, U.S. 1987–2008



Adapted from: Grabowski, David C., et al. (2012). The Large Social Value Resulting From Use Of Statins Warrants Steps To Improve Adherence And Broaden Treatment. *Health Affairs*, 31; 10 2276-2285

- An analysis of 18 trials, including 56,934 patients primarily without CVD, demonstrated statins conferred a relative risk reduction (RRR) in all-cause mortality by 14 percent and in stroke by 22 percent.⁵
- In patients with diabetes, statins have proven to reduce the risk of major coronary events and revascularization procedures (e.g., stent).⁶ The American Diabetes Association standards of care for diabetes recommends statin therapy be added to lifestyle therapy, regardless of baseline lipid levels, for select patients with diabetes.⁷
- A meta-analysis assessing the efficacy of statins in the primary prevention of the first-time occurrence of a major cardiovascular or cerebrovascular event in 10,187 diabetic patients found statin treatment was associated with a significant 25 percent RRR in the first-time occurrence of these events, a 31 percent RRR in fatal or nonfatal stroke, and 30 percent RRR in fatal or nonfatal myocardial infarction (heart attack), in diabetic patients.⁸
- In a study of patients with coronary artery disease (CAD) statin therapy reduced the relative risk of mortality by 50% in those > 80-years-old, 44% in those 65- to 79-years-old, and 30% in those < 65 years old, compared to CAD patients in the same age group not taking statin therapy.⁹

Economic Impact

Statins have demonstrated reduced CV events in a wide range of patients. While the cost savings of statins has not been extensively studied, some studies have estimated the economic benefit these agents have conferred. Some of those findings include:

- From 1987–2008, the estimated aggregate social value of statins was estimated to be \$1.252 trillion, with the consumer surplus¹⁰ associated with statins estimated at \$947.4 billion.³
- Another study estimates the potential social value of specific statin therapy (1987–2018) at €0.7–1.6B, with 94 percent of that being consumer value.^{3,11}
- One study estimates that statin use avoided heart attack hospitalization costs of \$4.4 billion, and stroke hospitalization costs of \$440 million, in 2008.³

Patient Impact

Matt was 48 when he suffered a massive heart attack a few years ago. He had 100 percent blockage in his right coronary artery. Since the heart attack, his cardiologist put him on numerous medications to normalize his cholesterol and triglycerides, prevent his blood from clotting, and keep his blood pressure low. Below, he describes his treatment.

“These medications have allowed me to keep up the same pace as I had before the heart attack. In fact I would say that I am doing more now than before the heart attack. I feel confident in the medications that have been prescribed by my cardiologist. Part of that confidence is based on the vast amount of data and years of research that supports their effectiveness and overall safety. Other than the minor inconvenience of having to take these medicines every day, there haven’t been any drawbacks. Considering the alternative, I take them willingly, and with a smile.”

— Matt Woods

Endnotes

- 1 World Health Organization. Cardiovascular Diseases. 2013. Retrieved from <http://www.who.int/mediacentre/factsheets/fs317/en/>
- 2 Cheung, Bernard MY; Lam, Karen SL. Intensive Lowering of LDL Cholesterol with 80mg versus 20mg of simvastatin daily in 12,604 survivors of myocardial infarction; a double-blind randomized trial. *The Lancet*; 376; 9753 (2010): 1658-1669.
- 3 Grabowski, David C., et al. (2012). The Large Social Value Resulting From Use Of Statins Warrants Steps To Improve Adherence And Broaden Treatment. *Health Affairs*, 31; 10 2276-2285
- 4 Gotto AM Jr, Boccuzzi SJ, Cook JR, et al. Effect of lovastatin on cardiovascular resource utilization and costs in the Air Force/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TexCAPS). AFCAPS/TexCAPS Research Group. *Am J Cardiol*. 2000;86:1176-1181.
- 5 Statins for the primary prevention of cardiovascular disease. *Cochrane Database System Review*. 2013 Jan 31; 1:CD004816
- 6 R.Collins, et al. Heart Protection Study of cholesterol-lowering with simvastatin in 5963 people with diabetes: a randomised placebo-controlled trial. *Lancet*. 2003 Jun 14;361(9374):2005-16.
- 7 American Diabetes Association. Standards of Medical Care in Diabetes – 2013. *Diabetes Care*. (2013) vol. 36 no. Supplement 1 S11-S66
- 8 Folgerdiena, Vries De M. (2012) Primary Prevention of Major Cardiovascular and Cerebrovascular Events with Statins in Diabetic Patients. *Drugs*. 72 (2365-2373).
- 9 Chloe, Allen A., et al. Statin Therapy Is Associated With Reduced Mortality Across All Age Groups of Individuals With Significant Coronary Disease, Including Very Elderly Patients. *JACC*. 40: 10; 1777-1785
- 10 Consumer Surplus is the difference between the price a consumer pays for an item and the price he would be willing to pay rather than do without it. (2009). *The Encyclopedia Britannica*. *Consumer Surplus*. Retrieved from <http://www.britannica.com/EBchecked/topic/134573/consumer-surplus>
- 11 Lindgren P, Jönsson B. (2012). Cost effectiveness of statins revisited: lessons learned about the value of innovation. *Eur J Health Econ*. 13(4):445–50. Conducted in Swedish patients.