



Statement before the Joint Economic Committee on “The Economic Costs of Diabetes.”

The Costs of Diabetes and Considerations for Policy Responses

Benedic Ippolito, PhD
Senior Fellow

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My name is Benedic Ippolito and I am a Senior Fellow in Economic Policy Studies at the American Enterprise Institute in Washington, DC. My research focuses on a number of topics within health policy including health care costs, drug markets, and how health care affects the personal finances of Americans. In my testimony, I will emphasize what we know about the costs of diabetes and, in turn, potential value stemming from relatively new therapies for the disease (and related conditions). I'll conclude by emphasizing principles that can help guide policy aimed at alleviating both the health and non-health costs associated with this condition.

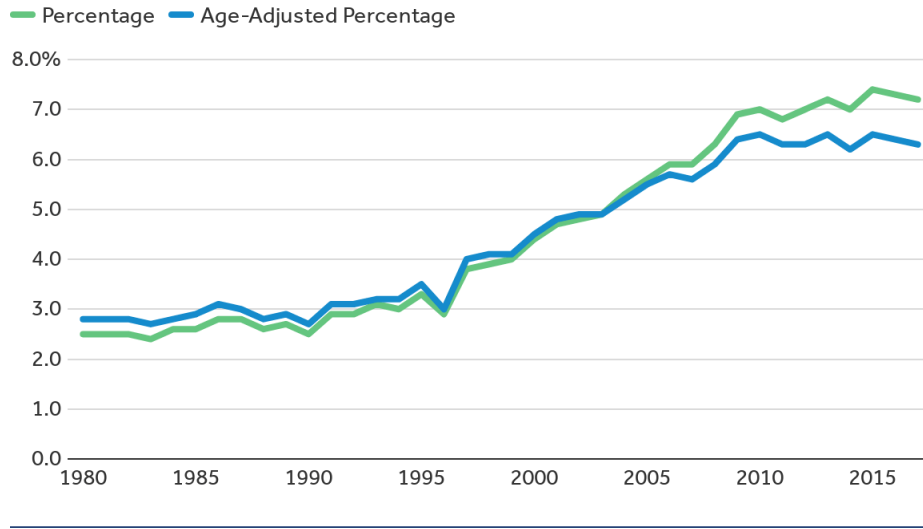
The cost of diabetes

Over 37 million Americans currently have diabetes (including those who are undiagnosed) while nearly 100 million have prediabetes.¹ The condition is disproportionately common among groups with lower socioeconomic status, including those with incomes below the federal poverty level, those with less than a high school education, and certain racial and ethnic groups, like non-Hispanic black and American Indian populations.² As the prevalence of diabetes has risen, so too have its costs on individuals and the country. The burden of diabetes includes both the substantial direct health costs and those indirectly attributable to the condition.

¹ Centers for Disease Control and Prevention. By the Numbers: Diabetes in America. Oct. 2022.

² Centers for Disease Control and Prevention. By the Numbers: Diabetes in America. Oct. 2022.

Share of total population with diagnosed diabetes, 1980-2017



Source: US Diabetes Surveillance System

Peterson-KFF
Health System Tracker

Note: This figure illustrates diagnosed diabetes prevalence, while data quoted earlier in text includes those who are diagnosed and undiagnosed.

Most directly, the disease has first-order implications for health. Diabetes is associated with significant complications including heart disease, kidney disease, vision loss, and lower-limb amputation. It is among the top ten leading causes of death in the U.S.³ The associated health care utilization, including over 8 million hospitalizations per year involving type 1 or 2 diabetes, results in substantial health care spending on those with the condition.⁴ Estimates suggest that diabetes contributed to \$237 billion in excess health care spending in 2017 (roughly \$296 billion in 2023, adjusted for inflation).⁵ As of 2013, diabetes was associated with the highest health care spending of a single condition.⁶

³ Kamal, R., Kurani, N., Ramirez, M., & Gonzales, S. How have diabetes costs and outcomes changed over time in the U.S.? Nov. 2019. Peterson-KFF Health System Tracker.

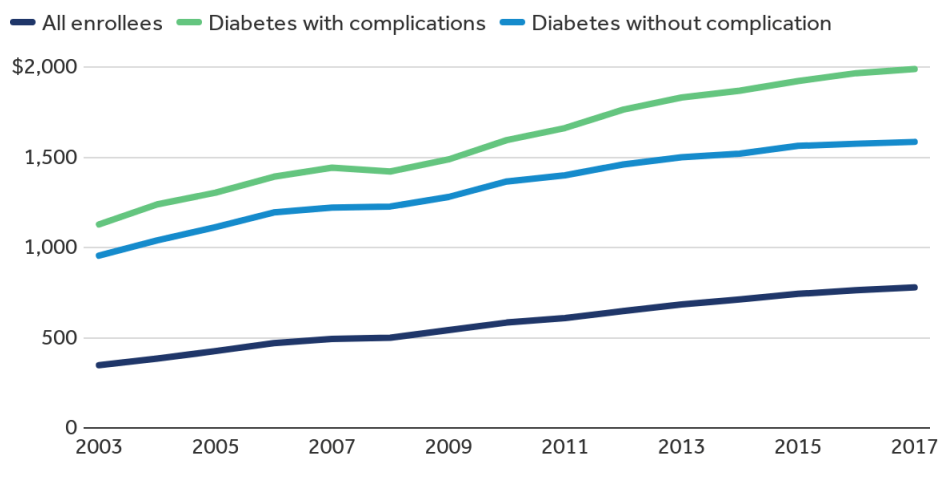
⁴ Fingar, K. & Reid, L. Diabetes-Related Inpatient Stays, 2018. HCUP Statistical Brief #279. July 2021. Agency for Healthcare Research and Quality, Rockville, MD.

⁵ American Diabetes Association. Economic Costs of Diabetes in the U.S. in 2017. *Diabetes Care*, 2018; 41(5):917-928.

⁶ Dieleman, J. L., Baral, R., Birger, M., Bui, A. L., Bulchis, A., Chapin, A., ... & Murray, C. J. (2016). US spending on personal health care and public health, 1996-2013. *JAMA*, 316(24), 2627-2646.

The direct financial burdens of diabetes are borne by individuals with the condition and society more broadly. Unsurprisingly, those with diabetes tend to have higher out-of-pocket spending than those who do not. Data from the commercially insured market, for example, indicate high and rising out-of-pocket spending for diabetics compared to others.

Average annual out-of-pocket spending for people with health coverage from a large employer, by diabetes diagnosis, 2003-2017



Source: KFF analysis of IBM MarketScan Commercial Claims and Encounters Database, 2003-2017

Peterson-KFF
Health System Tracker

The remaining excess health care spending among these patients is borne by those paying premiums or taxpayers. The balance between the two depends on the source of coverage. Roughly 60 percent of health costs attributed to diabetes are incurred by those over 65, meaning the Medicare program bears a significant portion of costs (largely financed by the federal government and taxpayers).⁷

⁷ American Diabetes Association. (2018). Economic costs of diabetes in the US in 2017. *Diabetes care*, 41(5), 917-928.

Diabetes has significant indirect costs beyond those captured by health care spending. Most notably, the condition can affect labor market outcomes. This reflects increased absenteeism, lower productivity, lost work years, and other factors.^{8,9,10} Estimates suggest these factors add an additional \$90 billion per year (\$113 billion in 2023, adjusted for inflation) to the overall cost of diabetes.¹¹ Those costs are borne by individuals through foregone wages and the government through lower tax revenue.

All told, estimates suggest direct and indirect costs of diabetes total \$327 billion annually (over \$400 billion in 2023, adjusted for inflation).¹²

Policy considerations for efforts to alleviate the burden of diabetes

Given the significant costs of diabetes, treatments that combat the condition have the potential to convey significant value to society. Most directly, there is clear value in interventions that help avoid negative health outcomes like heart or kidney problems. The relatively-recent rise of Glucagon-like peptide-1 agonists (GLP-1s) has marked a notable development in the treatment of type-2 diabetes by improving blood sugar control and aiding in weight loss. Advancements in treatment offer a significant opportunity, but also raise a number of policy questions. I will emphasize a few questions that are worth considering for policymakers.

How will new treatments affect overall costs of diabetes?

⁸ Pedron, S., Emmert-Fees, K., Laxy, M., & Schwettmann, L. (2019). The impact of diabetes on labour market participation: a systematic review of results and methods. *BMC public health*, 19(1), 25.

⁹ Rumball-Smith, J., Barthold, D., Nandi, A., & Heymann, J. (2014). Diabetes Associated with Early Labor-Force Exit: A Comparison of Sixteen High-Income Countries. *Health Affairs*, 33:1, 110-115.

¹⁰ Clark, M., Minier, J., Courtemanche, C., Paris, B., Childress, M. (2019). The Economic Impact of Diabetes in Kentucky. University of Kentucky Center for Business and Economic Research.

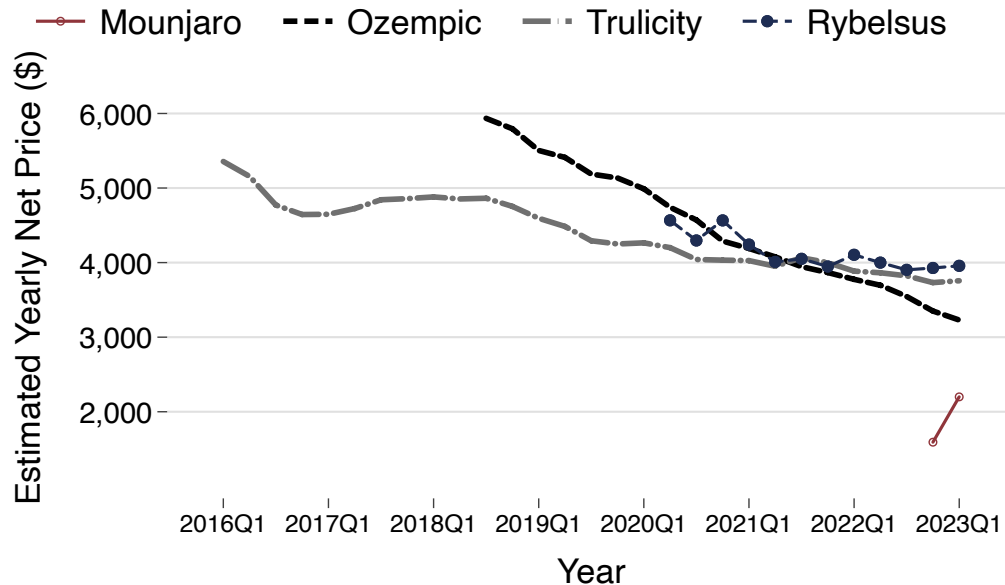
¹¹ American Diabetes Association. Economic Costs of Diabetes in the U.S. in 2017. *Diabetes care*, 2018; 41(5): 917-928.

¹² American Diabetes Association. Economic Costs of Diabetes in the U.S. in 2017. *Diabetes care*, 2018; 41(5): 917-928.

New treatments, like GLP-1s, have the potential to both increase some costs associated with a disease and decrease others. Most directly, new treatments have direct costs. In the case of GLP-1s, these costs are not trivial, as annual net prices (i.e., the price paid by insurers after rebates and other discounts) are often in the thousands of dollars per year. That said, the direct costs of these medications are subject to some uncertainty because this is an active area of drug development. As additional products enter the market, we should expect more competition over “preferred” coverage status on insurance plans, leading to lower prices (even absent generic or biosimilar entry). Below, I illustrate the estimated annual net prices of selected GLP-1s in recent years. Evidence is consistent with competition among these products moderating prices within the class.¹³

¹³ Note that these estimates are consistent with select reporting from other sources. E.g., see the following [ICER Report](#) for pricing information on Ozempic.

Estimated Annual Net Prices, Select GLP-1s



Note: Data from SSR Health. Net prices reflect estimated payments to manufacturers after all rebates and discounts.¹⁴ Figure is reproduced from in-progress research with Joseph Levy, Assistant Professor, Johns Hopkins Bloomberg School of Public Health. Estimates are similar to figures included in recent reports from the Institute for Clinical and Economic Review.¹⁵ Annual net prices may vary by condition, particularly if dosing is higher or lower.

Looking forward, branded products will lose their patent protection and FDA exclusivity over time, significantly lowering their own price¹⁶ and introducing more pricing pressure on remaining branded products. The aggregate costs of these medications will depend on how competition among branded products affect near-term prices and the effects of generic or biosimilar entry on medium-to-long run prices.

¹⁴ For a discussion of these data, see Ippolito, B., & Levy, J. (2022). Best practices using SSR Health net drug pricing data. *Health Affairs Forefront*.

¹⁵ E.g., Lin, G., Brouwer, E., Nikitin, D., Moradi, A., Chen, Y., Herron-Smith, S., Hansen, R., Pearson, S., Campbell, J. Tirzepatide for Type 2 Diabetes; Final Report. Feb. 2022. Institute for Clinical and Economic Review; Rind, D., Guzauskas, G., Fazioli, K., Hansen, R., Kumar, V., Chapman, R., Borrelli, E., Bradt, P., Pearson, S. Oral Semaglutide for Type 2 Diabetes: Effectiveness and Value. Nov. 2019. Institute for Clinical and Economic Review.

¹⁶ E.g., U.S. Food and Drug Administration, Generic Competition and Drug Prices, Center for Drug Evaluation and Research. Sep. 2022. Note that the effects of entry depend on whether products are biologic or small molecule products. The GLP-1 market has seen the entry of both injectable biologics and, more recently, oral tablets.

These products also have the potential to offset their direct costs to some degree. Perhaps most notably, better management of a condition can reduce health care spending in some settings. For example, research has shown that medications leading to better control of cardiovascular risk factors significantly slowed health care spending growth among older Americans.¹⁷ Similarly, there is the potential for improved productivity among workers with diabetes. Empirical evidence analyzing the effect of treatments for conditions like chronic pain¹⁸ or mental health¹⁹ illustrate cases where therapies have had significant positive effects on labor market outcomes. The extent to which these factors offset the direct cost of the medications is subject to some uncertainty.

That said, new treatments should likely be evaluated on more than just their budgetary effects. All else equal, reducing health care spending is a high priority. However, if a drug is clinically effective and improves the health of diabetics, higher health care spending can be highly cost effective. Efforts to constrain health spending should prioritize settings where evidence suggests benefits are small relative to costs.

How should policymakers consider access to new therapies?

The advent of new pharmaceutical products regularly raises important questions about access. In the case of diabetes, these types of concerns may be particularly pronounced given the higher disease prevalence among those in lower socioeconomic groups. However, it is important to recognize that the health care system includes significant efforts to increase affordability of drugs for lower-income Americans. Medicaid and Low-Income Subsidies in Medicare Part D both significantly reduce or eliminate cost sharing for covered drugs. Those programs cover roughly 100

¹⁷ Cutler, D. M., Ghosh, K., Messer, K. L., Raghunathan, T. E., Stewart, S. T., & Rosen, A. B. (2019). Explaining the slowdown in medical spending growth among the elderly, 1999–2012. *Health Affairs*, 38(2), 222-229.

¹⁸ Garthwaite, C. L. (2012). The economic benefits of pharmaceutical innovations: The case of cox-2 inhibitors. *American Economic Journal: Applied Economics*, 4(3), 116-137.

¹⁹ Biasi, B., Dahl, M. S., & Moser, P. (2021). Career effects of mental health. National Bureau of Economic Research. No. w29031.

million Americans in total.^{20,21} If policymakers remain concerned about affordability among these populations, it is important to consider how future policy efforts will interact with those that already exist.

Should policymakers want to provide greater access to new medications, there is merit to addressing such concerns in a comprehensive manner. That is, rather than addressing a specific medication or condition, policies are best designed to address costs in general. Policies that take a “one off” approach are likely to add to the complexity of health care markets and raise legitimate equity questions (e.g., should policy explicitly preference those with diabetes over those with cancer, or vice versa?). Some of the recent reforms to Medicare Part D provide a good example of embracing a wholistic approach to addressing these kinds of questions. Introducing an overall out-of-pocket cap provides all seniors with protection against large financial risks in a way that one would expect from a health insurance product. Similarly, reforms to the benefit design improve incentives facing insurers in a way that are likely to contain costs for all enrollees.²²

Amidst any such effort, it is important to remember that long-run costs of pharmaceuticals are substantially lower than short run costs due to the eventual entry of low-cost copycat products. Thus, policymakers should be cognizant that efforts to improve affordability of branded products do not impede these long-run effects.²³

How should access to novel therapies be treated relative to other interventions?

²⁰ Medicaid.gov. March 2023 Medicaid & CHIP Enrollment Data Highlights. April 2023.

²¹ Cubanski, J. & Damico, A. Key Facts about Medicare Part D Enrollment and Costs in 2022. Aug. 2022. Kaiser Family Foundation.

²² For a summary of these features, see Cubanski, J., Newuman, T., & Freed, M. Explaining the Prescription Drug Provisions in the Inflation Reduction Act. Kaiser Family Foundation. Jan. 2023. Note that these reforms also share many of the same features as those included in other proposals (e.g., H.R. 19 Lower Costs, More Cures Act of 2021).

²³ Ippolito, B. & Levy, J. A New Fix for Insulin Prices Could Do More Harm than Good. *AEIdeas*. July 2022.

New drugs or biologics can meaningfully improve the toolkit available to address various conditions. That said, there are a host of non-pharmaceutical interventions that can play an equally important role in the incidence of diseases. Particularly in the case of diabetes, there are likely to be large benefits that stem from other interventions like screening for kidney disease,²⁴ self-monitoring of blood sugar,²⁵ and lifestyle modifications.²⁶ Measuring the cost effectiveness of new pharmaceutical products is commonplace and well-understood (these efforts benefit from the existence of relatively “clean” evidence from clinical trials). However, non-pharmaceutical interventions should be viewed through a similar lens. To the extent that these other interventions can provide good value for money, policymakers should be cognizant to not preference pharmaceuticals to the exclusion of other methods of addressing the burden of diabetes.

²⁴ Hoerger T., Wittenborn J., Segel J., et al. (2010). A health policy model of CKD: 2. The cost-effectiveness of microalbuminuria screening. *American Journal of Kidney Disease*. 2010; 55(3): 463–473.

²⁵ Siegel KR, Ali MK, Zhou X, et al. Cost-effectiveness of interventions to manage diabetes: has the evidence changed since 2008? *Diabetes Care*. 2020; 43(7): 1557–1592.

²⁶ Zhou X, Siegel KR, Ng BP, et al. Cost-effectiveness of diabetes prevention interventions targeting high-risk individuals and whole populations: a systematic review. *Diabetes Care*. 2020; 43(7): 1593–1616.