

December 31, 2018

Centers for Medicare & Medicaid Services
Department of Health and Human Services
Attention: CMS-5528-ANPRM
P.O. Box 8013
Baltimore, MD 21244-8013

RE: Medicare Programs: International Pricing Index Model for Medicare Part B Drugs
(CMS-5528-ANPRM)

The Information Technology and Innovation Foundation (ITIF), the world's top-ranked science and technology policy think tank, respectfully submits comments regarding the Centers for Medicare & Medicaid Services (CMS) proposed rulemaking for an International Pricing Index Model for Medicare Part B Drugs (CMS-5528-ANPRM).

Sincerely,

Stephen Ezell
Vice President, Global Innovation Policy
Information Technology and Innovation Foundation

Dr. Robert D. Atkinson
President
Information Technology and Innovation Foundation

CONTENTS

Introduction	3
The United States Leads the World in Life-Sciences Innovation	3
Life-Sciences Innovation Depends on the Ability to Generate Revenues.....	4
Drug Price Controls Lead to Less Life-Sciences Innovation.....	6
Drug Price Controls Limit Access to Drugs	7
There Are Better Ways to Control Healthcare System Costs	8
Valuing Innovative Medicines	9
Conclusion	9
Endnotes	10

INTRODUCTION

The United States leads the world in novel biomedical innovation. This is a result of many factors, including world-leading public and private investment in life-sciences research and development (R&D), strong research universities, and effective technology transfer and commercialization policies (i.e., the Bayh-Dole Act) aligned with robust intellectual property (IP) protections. However, a key reason why the United States leads the world in life-sciences innovation is that its companies have been able to generate sufficient revenue from the sales of one generation of biomedical innovation to finance the significant investment needed to produce the next generation, perpetuating a virtuous, multi-generational cycle of life-sciences innovation. While the Trump administration's goal of better managing U.S. healthcare costs is certainly laudable, its proposal to do so in part through adopting an international drug reference pricing scheme for medicines covered by Medicare Part B would inflict unnecessary harm on the U.S. life-sciences innovation system, over the long term curtailing the development of new drugs and therapies which American (and global) patients depend upon for care and quality of life. Adopting an international drug reference pricing scheme would effectively import foreign nations' drug price controls into the United States—price controls which have limited life-sciences innovation in other nations. As such, it would limit drug innovation—potentially leading to higher, not lower, health care costs in the future—while at the same time reducing U.S. biopharmaceutical industry competitiveness, meaning fewer jobs and exports. There are a number of other options the administration can pursue to reduce the growth of healthcare system costs without negatively impacting biopharmaceutical innovation and imperiling an U.S. life-sciences competitiveness.

THE UNITED STATES LEADS THE WORLD IN LIFE-SCIENCES INNOVATION

As ITIF documented in its report “How to Ensure That America’s Life-Sciences Sector Remains Globally Competitive,” the United States leads the world on a number of life-sciences innovation measures, from R&D investment to high-impact scientific publications to innovative new drug launches (i.e., number of new chemical or biological entities).¹ U.S. life-sciences leadership starts with robust investment (public and private) in life-sciences R&D, which is essential because developing a new pharmaceutical compound takes an average of 12 to 14 years of research, development, and clinical trials at a cost of an estimated \$2.6 billion.² The U.S. life-sciences sector is extremely research-intensive, investing over 21 percent of its sales in R&D, while accounting for 23 percent of domestic R&D funded by U.S. businesses—more than any other sector.³ America’s life-sciences industries performed \$96.5 billion of R&D in 2013 (the most recent year for which public data are available), of which \$74.5 billion was self-funded.⁴ Eighty-four percent of this R&D activity occurred in the United States.⁵ Measured by R&D expenditure per employee, the U.S. biopharmaceutical sector leads all other U.S. manufacturing sectors, investing more than 10 times the amount of R&D per employee than the average U.S. manufacturing sector.⁶ This robust investment has made the United States the world’s largest global funder of biomedical R&D investment over the past two decades, a share that some analyses suggested reached as high as 70 to 80 percent over that time period.⁷

America’s robust investment in life-sciences R&D has translated into global leadership in new drug development. In the last decade, biopharmaceutical companies have invested over half a trillion dollars in

R&D and more than 350 new medicines have been approved by the U.S. Food and Drug Administration (FDA).⁸ In the 2000s, more new chemical entities were developed in the United States than in the next five nations—Switzerland, Japan, the United Kingdom, Germany, and France—combined.⁹ However, it wasn't always that way; in fact, in the latter half of the 1970s, European-headquartered enterprises introduced over twice as many new drugs to the world as did the United States (149 to 66).¹⁰ But, as noted, a combination of conscientious and intentional public policy decisions—including increasing R&D investments, providing robust tax credits for research and innovation (e.g., introducing the research and experimentation tax credit and the orphan drug tax credit), strengthening IP, technology transfer, and commercialization policies (e.g., the Bayh-Dole tax credit), among many others—enabled the United States, starting in the 1980s, and growing in the decades since, to become the world's life-sciences innovation leader.¹¹ Indeed, in every five-year period since 1997, the United States has produced more new chemical or biological entities than any other country or region. And from 1997 to 2016, U.S.-headquartered enterprises accounted for 42 percent of new chemical or biological entities introduced across the entire world, far outpacing relative contributions from European Union member countries, Japan, China, or other nations.¹²

Since 2000, the U.S. Food and Drug Administration has approved more than more than 500 new medicines. And today, U.S. biopharmaceutical companies have more than 3,400 drugs—many first-of-their-kind—under clinical development.¹³ This accounts for almost half of the estimated 7,000 medicines under development globally. And while some assert that biotechnology companies focus too often on “me-too” drugs, the reality is that many drugs currently under development are trying to tackle some of the world's most intractable diseases, including cancer and Alzheimer's. Moreover, such arguments miss that many of the drugs developed in recent years have in fact been first-of-their-kind. For instance, in 2014, the FDA approved 41 new medicines (the most since 1996 at that point) many of which were first-in-class medicines, meaning they represent a possible new pharmacological class for treating a medical condition.¹⁴ In that year, 28 of the 41 drugs approved were considered biologic or specialty agents, and 41 percent of medicines approved were intended to treat rare diseases.¹⁵ As of 2018, 74 percent of medicines in clinical development are potentially first-in-class medicines.¹⁶

LIFE-SCIENCES INNOVATION DEPENDS ON THE ABILITY TO GENERATE REVENUES

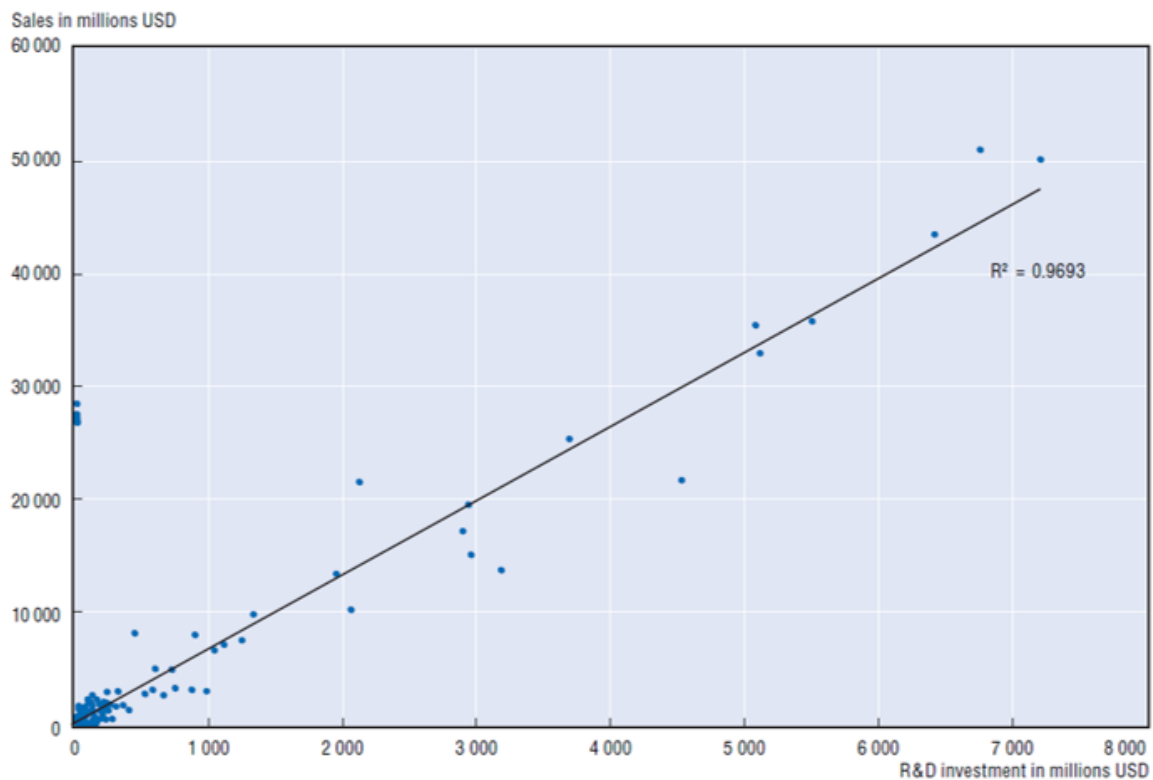
As ITIF writes in “Why Life-Sciences Innovation Is Politically ‘Purple’—and How Partisans Get It Wrong,” while some claim that industry R&D and industry revenues are not related, the fact is they are intimately and causally linked.¹⁷ The reality is that limiting industry revenues through international reference pricing would mean less investment in R&D, and thus less drug discovery. As industrial organization economist F.M. Scherer writes:

Governmental bodies that regulate prices and profits characteristically have a myopic bias. They are inclined toward what might be called ‘Willie Sutton’ regulation, emphasizing recapture of ‘excess’ profits on the relatively few highly profitable products without taking into account failures or limping successes experienced on the much larger number of other entries. If profits

were held to ‘reasonable’ levels on blockbuster drugs, aggregate profits would almost surely be insufficient to sustain a high rate of technological progress. Assuming that important new drugs yield substantial consumers’ surplus untapped by their developers, consumers would lose along with the drug companies. Should a tradeoff be required between modestly excessive prices and profits versus retarded technical progress, it would be better to err on the side of excessive profits.¹⁸

A number of studies find this causal relationship. For instance, as the Organization for Economic Cooperation and Development (OECD) writes plainly, “There exists a high degree of correlation between pharmaceutical sales revenues and R&D expenditures.”¹⁹ Indeed, as figure 1 illustrates, there exists an almost one-to-one (0.97) correlation between R&D expenditures and sales. Moreover, data from the United Kingdom’s Department of Innovation, Universities, and Skills R&D Scoreboard show a very strong relationship between R&D and sales for the largest 151 pharmaceutical firms worldwide.²⁰

Figure 1: R&D Expenditures and Sales in the Pharmaceutical Industry, 2006²¹



Note: The data were prepared on the basis of annual reports and consolidated accounts received up to and including 31 July 2006. Annual reports with a year-end older than 30 months from the cut-off date or a publication date older than 24 months from cut-off date are excluded.

Source: DIUS (2007).

Similarly, Henderson and Cockburn have identified scale effects for R&D in the pharmaceutical industry, finding that R&D expenditures are directly proportional to the amount of sales revenues available to undertake R&D investment.²² This explains why academic research shows a statistically significant relationship between a bio-pharma enterprise's profits from the previous year and its R&D expenditures in the current year.²³ Moreover, the pharmaceutical firms with the greatest sales are also the ones with the largest R&D investments, which may in part explain why most global R&D investments are undertaken by the largest multinational firms.²⁴ Symeonidis notes that this is in part because large firms are better able to spread the risks of R&D uncertainty, since they can undertake several projects simultaneously.²⁵

DRUG PRICE CONTROLS LEAD TO LESS LIFE-SCIENCES INNOVATION

Because of this essential link between drug prices, industry revenues, and industry R&D, drug price controls contribute to lessened levels of less life-sciences innovation. In fact, one reason why Europe has produced fewer biopharmaceutical innovations than the United States is because European Union (EU) price controls mean its biopharmaceutical firms have not generated as much profit (which can be reinvested in R&D) as U.S. ones. For example, Golec and Vernon demonstrate that, because of price regulations, "European Union pharmaceutical firms are less profitable, spend less on R&D, and earn smaller stock returns than U.S. firms."²⁶ By using data from 1986 through 2004, the authors go on to show that the economic tradeoff for the EU, by maintaining real pharmaceutical prices constant over 19 years, was forgoing about 46 new medicine compounds. They took this one step further by presenting a counterfactual scenario of the United States adopting EU-level price controls over the same time period and estimate that similar price controls would have resulted in a decline in firms' R&D expenditures in the range of 23 to 33 percent and the development of 117 fewer new medicine compounds.²⁷ Likewise, a study by Maloney and Civan estimates that a 50 percent drop in U.S. drug prices would result in the number of drugs in the development pipeline decreasing by up to 24 percent.²⁸

U.S. government research has also documented these effects. A 2005 Department of Commerce report, *Pharmaceutical Price Controls in OECD Countries: Implications for U.S. Consumers, Pricing, Research and Development, and Innovation*, found that that international reference pricing and other price controls in foreign countries already suppress worldwide private R&D investment by 11 to 16 percent annually.²⁹ A 2006 analysis of the possible impact of requiring federal negotiation of prescription-drug prices for Medicare Part D found that, while prices might be driven down by over 35 percent by 2025, the cumulative decline in drug R&D from 2007 to 2025 would be approximately \$196 billion in year 2005 dollars, or \$10.3 billion per year, potentially leading to the loss of about 196 new drugs.³⁰ The paper estimated that an annual R&D decline of \$10 billion would result in an expected loss of 5 million life-years each year, suggesting the economic cost of this effect would be about \$500 billion per year, far in excess of total U.S. spending on pharmaceuticals. Likewise, a February 2018 report by the President's Council of Economic Advisors finds that while lowering reimbursement prices in the United States would reduce the prices Americans pay now for biopharmaceutical products it would "make better health costlier in the future by curtailing

innovation,” thus failing to meet the administration’s goal of reducing the price of health care by reducing the incentives for innovative products in the future.³¹

Conversely, relaxing price controls can bolster levels of life-sciences innovation. For instance, research from Precision Health Economics finds that if government price controls in non-U.S. OECD countries were lifted, the number of new treatments available would increase by 9 to 12 percent by 2030, equivalent to 8 to 13 new drugs in that year.³² Greater rates of innovation would further contribute to increased expected longevity. Indeed, the Precision Health Economics study finds that the new treatments available if drug prices were lifted would potentially increase the life expectancy of someone who is today 15-years-old by 0.6 to 1.6 years on average.³³

DRUG PRICE CONTROLS LIMIT ACCESS TO DRUGS

Countries that impose overly strict regulations on the prices of pharmaceutical drugs also disincentivize international companies from entering markets to provide more innovative health-care solutions. A study that examined the 28 largest pharmaceutical markets between 1980 and 2000 found that countries with strict price controls hurt not only domestic innovation in the life sciences but also the interests of domestic consumers.³⁴ Not only are drug launches delayed in these price-controlled countries compared to other less-regulated countries; companies are also less likely to introduce their product in additional markets once it is available in a market with heavy price regulations. Domestically produced pharmaceutical products from countries with stronger price controls also reach a smaller market internationally.³⁵

Other studies yield similar findings in the international market for pharmaceuticals. In one, the probability of pharmaceutical launch is positively related to the expected price and volume of sales for a given market.³⁶ This follows the logic that pharmaceutical companies will launch their products in markets where they can better capture the value of their innovations. Another study confirms the finding that consumers in countries that have stricter price controls, compared with countries that do not, have to wait longer for drug launches by international firms.³⁷ Similarly, Cockburn, Lanjouw, and Schankerman, in their paper “Patents and The Global Diffusion of New Drugs” find that countries which adopt strong price controls experience “significantly longer lags” in new drug launches and that in these countries “introducing price controls increases drug launch lags by 25-80 percent.”³⁸ These studies highlight the interconnected nature of global life-sciences innovation, where government-mandated price controls do a disservice to consumers, domestic pharmaceutical firms, foreign pharmaceutical firms, and overall drug innovation.

The Department of Health and Human Services’ October 2018 report, “Comparison of U.S. and International Prices for Top Medicare Part B Drugs by Total Expenditures,” analyzed price and availability of 27 drugs across 16 comparator countries.³⁹ Yet only 11 of the 27 drugs examined were widely available in all the comparator countries, indicating that patients in these countries were experiencing delays in access to innovative treatments. For instance, while 95 percent of new cancer drugs are available to patients in the United States, on average this compared to just 55 percent in the 16 reference countries. Further, for the

cancer drugs available in the reference countries, there appears to be a 17-month average lag between the time they are available in the U.S. and availability elsewhere.⁴⁰ To be sure, that anti-cancer drugs tend to be available to American patients before European ones isn't only because of European drug price controls—it's also in part a result of faster approvals by the FDA than by the European Medicines Agency—but it is one reason.⁴¹

THERE ARE BETTER WAYS TO CONTROL HEALTHCARE SYSTEM COSTS

Drug prices are not the major driver of increased health care costs. In fact, drug prices in nations that belong to the Organization for Economic Cooperation and Development grew more slowly than total health care costs from 2005 to 2013.⁴² Moreover, far from being the leading cause of rising U.S. healthcare system costs, greater levels of life-sciences innovation will actually be key to limiting the growth of healthcare system costs—while improving health care outcomes—over the long term. Indeed, significant economic benefits could be achieved if innovative medicines could make progress toward addressing some of the most intractable diseases.⁴³ For instance, a 1 percent reduction in mortality from cancer would deliver roughly \$500 billion in net present benefits, while a cure could deliver \$50 trillion in present and future benefits.⁴⁴ Likewise, the financial impact of Alzheimer's disease is expected to soar to \$1 trillion per year by 2050, with much of the cost borne by the federal government, according to the Alzheimer's Association report, "Changing the Trajectory of Alzheimer's Disease."⁴⁵ However, the United States could save \$220 billion within the first five years if a cure or effective treatment to Alzheimer's disease were found. Similarly, ITIF estimates that the potential economic opportunity associated with curing brain diseases and disorders could be more than \$1.5 trillion per year—or 8.8 percent of gross domestic product.⁴⁶

But even short of breakthrough cures, the economic benefits of pharmaceutical innovation are manifold. Indeed, pharmaceutical innovation is often not just cost-effective, it's cost saving. For instance, in his article "The Impact of Pharmaceutical Innovation on Disability Days and the Use of Medical Services in the United States, 1997-2010," Lichtenberg finds that "the value of reductions in work loss days and hospital admissions attributable to pharmaceutical innovation was three times larger than the cost of new drugs consumed."⁴⁷ Lichtenberg further finds that the mean number of work loss days, school loss days, and hospital admissions declined more rapidly among medical conditions with larger increases in the mean number of new (post-1990) prescription drugs consumed. Indeed, when medicines help Americans live longer, healthier lives, the economic benefits are considerable. For instance, improvement in U.S. life expectancy from 1970 to 1990 added \$2.8 trillion to U.S. productivity, which equaled \$12,000 per U.S. citizen, per added year of life expectancy.⁴⁸ Prescription medicines, including retail pharmacy sales and provider-administered drugs, represent only approximately 14 percent of overall U.S. healthcare spending.⁴⁹ In 2016, Part B medicines accounted for 8 percent of total Medicare fee-for-service Part B spending and 3 percent of total Medicare spending.⁵⁰ Put simply, innovative medicines deliver tremendous value for the economy and society, and there are better ways to tackle burgeoning healthcare system costs than importing foreign drug price controls, including focusing on the cost of chronic disease, focusing on high-value care, or making better use of value-based contracts for medicines.

VALUING INNOVATIVE MEDICINES

To be sure, by not paying their fair share for the cost of innovative drugs, many nations are free-riding off U.S. life-sciences innovation.⁵¹ Indeed, despite the United States' strong position as a developer of new research and products, it has not been able to translate this advantage into a strong trade surplus.⁵² In 2017, the trade deficit in pharmaceuticals and medicines equaled \$56.2 billion, or 101 percent of exports, increasing by 156 percent over the previous 15-year period even though, until recently, exports had grown at a faster rate than imports (191 percent versus 172 percent).⁵³ While many factors explain this, including some countries' unfair foreign trade practices, including weak IP enforcement, a key reason is that U.S. exporters have been unable to earn a market price for pharmaceuticals sold abroad. Bureau of Economic Analysis data on export/import prices for pharmaceutical and medicine manufacturing reveal that import prices have risen substantially above the price of exports since about 2009-2011.⁵⁴ The divergent prices help explain roughly 40 percent of the pharmaceutical trade deficit in 2016. In other words, foreign price controls appear to inflate the actual trade deficit, making it look roughly two-thirds larger than it would be without price differences.⁵⁵ But the response to this challenge should not be importing the very drug price controls other countries are using, but rather for the United States to reject this practice and then prevail on peer countries to do likewise.

Indeed, this is why U.S. trade agreements with countries such as Korea have called on America's trade partners to properly recognize the value of innovative medicines. As the United States Trade Representative's Office explains, "In order to promote affordable healthcare for American patients today and innovation to preserve access to the cutting edge treatments and cures that they deserve tomorrow, it has been engaging with trading partners to ensure that U.S. owners of IP have a full and fair opportunity to use and profit from their IP, including by promoting transparent and fair pricing and reimbursement systems."⁵⁶ This should be the thrust of U.S. policy, not importing other countries' innovation-reducing price control systems.

CONCLUSION

Managing burgeoning U.S. healthcare system costs is a laudable objective, but there are mechanisms to pursue that goal without endangering an American life-sciences innovation system that has come to be the envy of the world. It's important that the objective of lowering health care costs now not come at the expense of less and slower drug innovation for future generations.⁵⁷ Adopting an international price index reference model for Medicare Part B drugs would not only mean that the next generation of Americans would have fewer and less effective drugs available to them than would otherwise be the case, but also that one of the pillars of U.S. manufacturing competitiveness—the biopharmaceutical industry—would be significantly weakened.

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