The Insulin Price Discrepancy in the United States and United Kingdom: An Assessment of Government Regulations and Public Opinion

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

The insulin market is expected to be worth $23.6 billion by 2030 ("Insulin Market Size to Worth Around USD 23.57 Billion by 2030," 2022). The large market exemplifies the vitality of the industry to health and society across the world. For the last 100 years, patients throughout the world have used insulin to treat diabetes, yet the price of insulin continues to rise in the United States more than in other countries. The cost of the most commonly used insulin is 10 times more in the US than other developed countries (Rajkumar, 2020). In the United Kingdom specifically, insulin costs 13 times less than that of the United States (Mulcahy et al., 2020). The high insulin prices in the United States can be attributed to government regulations such as laissez-faire economics, monopolies of the product due to a lack of biosimilars, private insurance, and patent laws. These regulations cause citizens to have a negative opinion of the pharmaceutical industry in the United States. This broader sociotechnical issue of price discrepancy and public opinion is explored in this paper, as the relationship between insulin prices and government regulations in the US and UK is investigated.

The sociotechnical issue of the insulin price discrepancy in the US and the UK is a complex network of many entities. Further, many different actors are at play in this system including the general public, diabetics, physicians, pharmaceutical companies, government regulations, and capitalism. These actors create a network of intertwining relationships in which this sociotechnical issue exists. The relationships between these actors and the insulin price discrepancy in the US and UK are investigated in this research paper. Thus, the theoretical framework, Actor Network Theory (ANT), is used to illuminate potential sources of this sociotechnical issue.

Research Methods

Multiple research methods are used in this study to analyze how the relationship between government regulations and insulin prices affects public opinion in the United States and United Kingdom. Network analysis is used in conjunction with Actor Network Theory to map the relevant actors in the sociotechnical issue of different insulin prices in the US and UK. The paper is organized around the relevant actors including the diabetic population, pharmaceutical giants, public policies, the hidden figures of insulin pricing, and public opinion. The relationships between these actors are explored throughout the discussion to investigate the cause and effect of high insulin prices in the US. One such actor, public policy, is investigated using analysis of legal documentation. Legal documents and federal polices relating to the pricing of insulin are analyzed to compare governance of pharmaceuticals in the US and UK. Another actor, public opinion, is analyzed using literary analysis. Key phrases such as "public opinion of the pharmaceutical industry," "public response to high insulin prices," and "insulin pricing in the United Kingdom" are used to source material for the analysis. Literary analysis is conducted on public opinion in both countries to investigate the relationship between the diabetic population, the general public, and the pharmaceutical industry. The actors described in this research paper create an environment in which high insulin prices thrive in the United States which in turn leads to negative opinions of the pharmaceutical industry. Actors in other countries such as the United Kingdom do not induce such an environment. Thus, the research described here offers an analysis of the various reasons the price discrepancy exists between the United States and the United Kingdom. With this analysis, the question of reform arises. How can we reform the system to reduce insulin prices in the United States and ensure everyone has access to their medication?

Background

In 1921, Dr. Frederick Banting and Charles Best isolated the hormone insulin to treat a diabetic dog at the University of Toronto (UMass Diabetes Center of Excellence, 2018). Before the discovery of insulin, diabetes was a deadly condition for patients throughout the world. With the discovery of a diabetes treatment, Banting and Best knew they would save many lives, so the patent for insulin isolation was then sold by the University of Toronto for $1 "with the understanding that cheap insulin would become available" (Hirsch, 2016). In 1923, the University of Toronto "entered into an agreement with Eli Lilly & Co. to begin large-scale production" of insulin (Discovery of Insulin at University of Toronto | Heritage U of T, n.d.). Since the large-scale manufacturing of insulin, millions of lives have been saved.

Over the years, access to insulin was not a problem for Americans, and the price of insulin stayed relatively affordable until recently. In 1982, the price of insulin analogs was $14 per vial, and in 1996, the price was $24 per vial (Hirsch, 2016). Over this time period, the price increased only due to inflation, and the medication was affordable for diabetics in the United States. However, during the 2000s, the price of insulin in the United States increased exponentially. In 2005, insulin analogs were around $60 per vial, $30 more than the price would be if only for inflation (Hirsch, 2016). Further, in 2012, the price of insulin lispro was $138 which constitutes a 134% price increase in only seven years (Hirsch, 2016). These insulin prices were problematic for those without insurance which was as great as 16.4% in 2005 (Hirsch, 2016). Moreover, if about 6 million Americans used insulin (American Diabetes Association, 2015), 984,000 people in the United States had difficulty paying for their medication in 2005. The price of insulin puts pressure on many patients so much so that many diabetics are forced to choose whether to pay for insulin treatment or housing and food (Hirsch, 2016). The high insulin

prices in the US are becoming life-threatening for many patients, and the price only seems to be increasing. While insulin prices in the US are readily increasing, in the United Kingdom, the price of insulin remains relatively low at $7.52 per vial, around 13 times less expensive than insulin in the United States ($98.70) (Mulcahy et al., 2020). The price discrepancy in the US and UK shows the exorbitance of the insulin prices in the US.

The high insulin prices in the US cause an increasingly negative public opinion of the pharmaceutical industry. In 2019, a Gallup Poll found that public satisfaction with the pharmaceutical industry was at an all-time low with 58% of Americans disapproving of the industry (Harvard, 2019). The increasing disapproval rating in recent years is correlated with the increase in drug prices in the United States. While correlation cannot be used to justify causation, many people argue that the drug prices have caused the public disapproval. David Mitchell, founder of Patients for Affordable Drugs, agrees that the decline in trust in the pharmaceutical industry is related to drug pricing, and he even argues that countries with more concern for drug pricing, such as the United States and Germany, have more distrust for the pharmaceutical industry as compared to the United Kingdom where drug pricing is not as prevalent in news and media (Lo, 2018). The assumption can be made that drug pricing in the United Kingdom is not as prevalent in the news media because the pricing is much more manageable for diabetics than that of the United States; thus, the pharmaceutical industry in the United Kingdom is seen as advantageous to the public instead of an adversary as it is seen in the United States.

Actor Network Theory

Both society and technology have an impact on insulin pricing in the United States. Thus, the problem of high insulin prices is a Science, Technology and Society research subject, as the topic cannot be explored without investigation into both the technical and social players. With

many different players creating the sociotechnical issue, Actor Network Theory (ANT) is an apt analysis framework. ANT is a theoretical framework used to describe the web of interconnected actors which make up a sociotechnical issue. The theory was first described by Bruno Latour, a French sociologist and philosopher, as a framework in which actors create an inter-woven network made up of the changing relationships between the actors (Cressman, 2009). Actors are human and non-human, as they are merely pieces which play specific roles in the sociotechnical issue. The relationships the actors have with each other create a web producing the sociotechnical issue.

Actor Network Theory has been criticized, by scholars such as Langdon Winner, for the assumption that human and non-human actors are both equally present in the network, as non-human actors are not able to make intentional choices and the barrier between society and technology is broken down (Winner, 1993). While the combination of both human and non-human actors makes both society and technology equivalent in analysis of sociotechnical issues, Actor Network Theory focuses on the relationships between actors not the intent of the actors. Technology and society both have relationships to the sociotechnical issue at hand. If one only analyzes the human actors, the extent of the study will be limited. Latour argues that the central claim of ANT is that "it is utterly impossible to understand what holds society together without reinjecting in its fabric the facts manufactured by natural and social sciences and the artefacts designed by engineers" (Latour 1996). Thus, to study sociotechnical issues, it is important to analyze both the social and technological actors which make up the network.

In 2009, a study was conducted on China's biotechnology industry in which researchers used Actor Network Theory to analyze the reasons why the scale-up of research to commercialization was weakened over the last 20 years (Want et al., 2009). In the past, the

reasoning was associated with poor governance in the country, but after applying ANT, researchers found "limited funding, low investment, insufficient research personnel and domestic collaboration" to also be limiting actors in the industry (Want et al., 2009). Furthermore, ANT is used to analyze a sociotechnical issue as a complete network to ensure proper root cause analysis is conducted. The problem of commercialization in China's biotechnology industry is the result of multiple actors and their interactions, so the problem can only be solved by addressing the network as a whole. Similarly, the reasons why insulin prices are high in the United States is most likely not a result of one actor; instead, the problem lies in the interactions between multiple actors and the network they produce.

Discussion

The high insulin prices in the United States are often attributed to high research and development costs in the pharmaceutical industry. To produce a new drug, years of research is conducted to develop the pharmaceutical and the process of production is scaled-up to industrial manufacturing. Once the drug is produced, patents need to be acquired, the process needs to be validated, clinical trials need to be conducted, and FDA approval needs to be secured. Once all of these lengthy and expensive steps are complete, the new drug can finally be released to the market. The estimated cost of bringing a new drug to market is $198 million (Spitz, 2012). While this is a large sum of money, the insulin market is almost $19 billion (Fortune Business Insights, 2022), and insulin has been available for over 100 years. If research and development was the leading cost of the drug, the price of insulin would have decreased long ago. The high cost of insulin in the United States can be attributed to a variety of factors including inelasticity of the product, monopolies in the market, private insurance, patent evergreening, and pharmacy benefit managers. The high insulin prices have caused Americans to have a generally negative view of

the pharmaceutical industry. The same cannot be said of the United Kingdom where the population generally has positive views of the pharmaceutical industry. Regulations such as public insurance and tendering in the United Kingdom have controlled drug prices including insulin.

The Diabetic Population

The first actor addressed in this discussion is the diabetic population. Diabetics are a central group to the discussion of insulin prices, as they are the consumers of the product. Pharmaceutical companies design insulin products solely for the diabetic population, and the diabetic population is the sole consumer of the product. The exorbitant prices of insulin in the United States harm the very people the drug was made to save. Diabetes is a deadly illness if left untreated; thus, diabetics have no option but to pay the high prices for they will die without it. In economics, this phenomenon is called an inelastic market.

The United States economy is designed to simulate a free-market economy in which buyers and sellers agree to a selling price based on the laws of supply and demand. Moreover, as demand for a product increases, the price will increase. On the other hand, as the supply of the product increases, the price will decrease. This market style will set reasonable prices for most goods, but in a few scenarios such as the insulin market, a free-market society will allow exorbitant prices to prevail.

In economics, elasticity describes the response of consumers to price changes. When the price of an elastic good increases, consumers will stop buying the product, thus decreasing demand until the price of the product decreases. Insulin is an example of an inelastic product because the consumers of insulin need the live-saving therapeutic to survive. Three experts in public health, Steven Morgan, Hannah Bathula, and Suerie Moon, speak to this argument,

"Unlike consumers of ordinary goods, consumers of patented medicines…may not be in a position to defer consumption until prices fall" (Morgan et al., 2020). Insulin users do not have the luxury of waiting until prices decrease to purchase their medication, as they need the drug daily to survive. Due to this phenomenon, companies can charge ever-increasing prices for the drug because the demand of the product will not decrease. The United States government is designed to have little interference in economic markets, but without government intervention such as a price cap on insulin, the free-market prices of insulin in the United States will continue to rise.

The inelasticity of the insulin market exemplifies the relationships between the diabetic population, the pharmaceutical companies, and capitalism in the United States. Capitalism has created a free-market society in the US in which pharmaceutical companies can charge extremely high prices for their inelastic insulin products. Diabetics are then forced to pay these prices or risk their life without treatment.

Pharmaceutical Giants

In this research paper, pharmaceutical giant is a term used to describe large-scale, successful, pharmaceutical companies. In the American insulin market, the three pharmaceutical giants include Novo Nordisk, Sanofi, and Eli Lilly & Co. These three corporations control the market for insulin in the United States, as they make up around 90% of the market (Satija & Wingrove, 2023). While many individuals enter the pharmaceutical market to help patients receive necessary medicine, as corporations, these companies aim to make money. The monopolies these companies have on their insulin products allow them to charge high prices to consumers.

The monopolistic control of these pharmaceutical giants stems from biosimilar barriers to entry into the market. Often therapeutics replicating name-brand products are called generics, but this is only the case for small-molecule drugs. The term for biologics, drugs produced from a living organism, is biosimilar. Insulin is considered a biologic, so an insulin product without a name-brand is a biosimilar not a generic. Because biologics are much larger than small-molecule drugs, a biosimilar cannot be proven to be exactly the same as a name-brand therapeutic whereas a generic can. Moreover, different biosimilar production processes cause differences in protein folding and glycosylation, but these minute differences do not hinder the ability of the biosimilar products (Greene & Riggs, 2015). Thus, biosimilar products can be used for the same treatment as the original therapeutic. Because of the differences between biosimilars and name-brand products, biosimilars must go through more rigorous safety and potency testing than generic products before they are approved by the FDA (Greene & Riggs, 2015). This rigorous testing makes entering the biosimilar market difficult, and companies are less likely to attempt to produce biosimilars than generics. Companies that do produce biosimilar products, often do not price them as proportionately low as generic products because of the difficulty and cost of approval. Further, upon entering the market, biosimilars are much less effective at reducing drug prices than generics. Insulin biosimilars are only expected to reduce the market price by 20-40% whereas many generic small-molecule products reduce their market price by 80% (Greene & Riggs, 2015). While a few biosimilars have been approved in the United States, control of the insulin market remains an oligopoly between the three largest manufacturers, and the prices of insulin products remain high for consumers. In the United Kingdom, market competition is created to prevent monopolies through a process called tendering (Rodwin, 2021). Tendering is competitive bidding by pharmaceutical companies for the rights to produce generics for

hospitals. The competitive bidding drives the price of medication down for the hospitals and prevents monopolistic control of pharmaceuticals.

Apart from the natural barriers to entry, manufacturers often file lawsuits against competitors claiming patent violation to prolong their monopoly (Rajkumar, 2020). In a 2014 court case, Sanofi filed a lawsuit against Eli Lilly & Co. for patent infringement on their product Lantus (McCoy, 2016). A settlement was made in which Eli Lilly & Co. agreed not to sell their insulin product until December 15, 2016 (McCoy, 2016). In this instance, Sanofi was able to keep their monopoly by delaying the release of Eli Lilly's biosimilar into the market. Lawsuits are often notoriously expensive; thus, smaller companies would be unable to support the lengthy lawsuit necessary to create an insulin biosimilar. Manufacturers have also been known to pay competitors to delay the release of their biosimilars (Rajkumar, 2020). This tactic also extends the company's market control. By extending their monopoly of certain insulin products, companies are able to keep market prices high for consumers.

The market control of the pharmaceutical giants describes the relationship between the pharmaceutical companies, the diabetics, the FDA, and government regulations. The FDA requires more rigorous testing and data for biosimilar approval which in turn causes pharmaceutical companies to charge higher prices for biosimilars than generics. Again, diabetics are forced to pay for these high insulin prices. Government regulations allow companies to swallow competitors in patent infringement lawsuits to delay biosimilar release and extend their monopoly which again, keeps insulin prices high for consumers. The combination of monopoly control and inelasticity of the insulin market perpetuates ever-increasing insulin prices in the United States market hindering the acquisition of insulin by diabetics.

Public Policy

Government regulations shape the way large corporations conduct business. As mentioned in previous sections, government regulation, or lack thereof, acts in the insulin market in many ways. Similarly, public policy has created a space in which the insulin prices in the United States have been able to increase rapidly. Two public policies will be investigated in this section: private insurance and patent evergreening.

The basic principle of health insurance is paying a monthly fee to the insurance provider to be protected from large medical expenses. Patients with insurance will only pay a fraction of the cost of their treatment and prescriptions while the insurance company pays the rest. Further, insured patients are "insulated" from the high prices of pharmaceuticals because most of the cost of medical treatment and prescriptions is covered by insurance (Morgan et al., 2020). This insulation allows companies to "exploit collective financing schemes by asking for prices that far exceed standard definitions of value for money" (Morgan et al., 2020). However, the insulation from high insulin prices is only effective for insured patients. Uninsured patients in the United States, about 10% of the population (Cha & Cohen, 2022), are required to pay the excessive prices for their medication "which can be as much as $900 for a month's supply" (Insulin — the new battleground for drug pricing, 2022). Without insulation from insurance, many patients are unable to pay for their expensive diabetes treatment.

In the United States, most citizens (66.5%) have private insurance (Borrelli, 2022). Public insurance is only offered to a select group of Americans. Thus, there are many different companies which supply insurance to American citizens. The health insurance provided by private companies is often more expensive than public insurance, so not all citizens in the United States are insured. In the United Kingdom on the other hand, the "National Health Service

[NHS] covers the entire population" except about 10% of the population which has private insurance (Rodwin, 2021). Not only is everyone in the UK covered with some sort of medical insurance, but the coverage of 90% of the population under one public insurance company allows the NHS to regulate the prices of pharmaceuticals. Since is foundation in 1999, the National Institute for Health and Care Excellence [NICE] has conducted cost-effectiveness appraisals on every new drug (Rodwin, 2021). These appraisals tend to cap the price of drugs for NHS users. If a drug is found to not be cost-effective, the NHS will not fund the drug for patients. Because the NHS has a virtual monopoly on insurance in the United Kingdom, if a drug is not cost-effective, it will forego most of the market, as "very little prescribing occurs for treatments not approved by NICE" (Rodwin, 2021). Thus, the prices of insulin in the United Kingdom are capped by their cost-effectiveness, and diabetics only pay what is deemed to be a fair price for the drug.

Another public policy which affects the insulin market in the United States is the ability for companies to conduct patent evergreening. Patent evergreening is the continuous patenting of products which have undergone continuous improvement. As mentioned before, insulin has been on the market for over 100 years, but many insulin products are still protected under various patents today. Continuous improvement in pharmaceutical products is beneficial to patients who have access to state-of-the-art technology. However, each continuous improvement can be patented in which case the price of the product remains exorbitantly high and the company retains its monopoly. According to Vincent Rajkumar, MD, "70 patents have been filed for Lantus since the drug was first introduced, which can technically provide more than 30 additional years of monopoly protection" (2020). Continuous patenting allows pharmaceutical companies to prolong their monopoly and charge high prices to patients without a check in place.

The free-market economy of the United States in conjunction with public policies such as the patent laws which allow patent evergreening protect the monopolies of pharmaceutical companies and allow increasing insulin prices. Without a price cap or patent reform, high drug prices will flourish in the United States and patients will continue to struggle to receive their life-saving medication.

Insulin Pricing

In the United States, the movement of insulin from manufacturer to patient is not a simple one-step process. Insulin is sold from the manufacturers to a wholesaler and then to a pharmacy. The wholesalers act as middlemen and mark-up the price of the drug which, of course, increases the price for patients. For insured patients, most of the cost of insulin is incurred by insurance companies, but insurance companies use pharmacy benefit managers, PBMs, to negotiate a rebate paid by manufacturers for their insulin products. While most of these rebates are directed towards the insurance company, a portion of the rebates has become a large source of income for PBMs (Rajkumar, 2020); thus, PBMs benefit when insulin prices are high because they will then receive larger rebates. If a manufacturer does not work with the PBMs to settle on a rebate, they "run the risk that their product may not be the preferred insulin in formularies" (Rajkumar, 2020). Therefore, PBMs can force manufacturers to increase drug prices. Wholesalers, PBMs, and pharmacies all benefit from increasing insulin prices, and while insurance companies must incur the cost of insulin, they do not feel the increases in price because the higher prices come with higher rebates in which case the net cost of the drug remains relatively constant. Uninsured patients do however feel the increase in drug prices. Uninsured patients do not have the luxury of negotiating a rebate to reduce net price as insurance companies do, so they are forced to endure the hardship of ever-increasing insulin prices. Overall, the relationships between wholesalers,

PBMs, insurance companies, pharmaceutical giants, and pharmacies create a cycle of increasing prices which negatively affects the patients who need insulin.

The pharmaceutical structure in the United Kingdom, mentioned earlier, protects patients from increasing insulin prices. All citizens in the United Kingdom are covered by some type of insurance most of which is public insurance; thus, all patients are guaranteed to only pay a fair price for insulin. The NHS also only funds drugs which are determined to be price effective, so insulin prices cannot be set increasingly high.

Public Opinion

As insulin prices have increased, the public opinion of the pharmaceutical industry has decreased in the United States. According to a Harvard news article, "A Gallup Poll conducted in August [2019] found that 58% of Americans held negative views of the pharmaceutical industry while only 27% held positive views of it. It's the lowest the industry has ever been ranked in the poll, which began in 2001" (Harvard, 2019). As mentioned earlier, the price of insulin began drastically increasing in the 2000s; thus, the increasingly negative view of the pharmaceutical industry is correlated with increasing drug prices. Correlation cannot prove causation, but a poll from fall 2021 showed that only 14% of Americans are confident that pharmaceutical companies will make the right recommendations for drug pricing in the United States (Lopes & Stokes, 2021). Therefore, most Americans believe that pharmaceutical companies cannot be trusted to price drugs fairly. Public distrust can be assumed to decrease public opinion, so the high drug prices in the United States can be assumed to negatively affect public opinion. When specifically investigating insulin, a 2022 poll showed that 85% of Americans support allowing the government to negotiate the price of insulin (The Price of Insulin Is Too High. Voters Support Capping It., n.d.). The American population supports

government intervention in insulin pricing, so they must believe insulin prices are currently too high. Many factors affect public opinion of an industry, but it is safe to assume that public opinion is negatively affected by high drug prices in the United States.

If drug pricing affects public opinion of the pharmaceutical industry as this paper proposes it does, the United Kingdom should have a more positive public opinion of the pharmaceutical industry than the United States. Further, David Mitchell, founder of Patients for Affordable Drugs, argues that countries with more concern for drug pricing, such as the United States and Germany, have more distrust for the pharmaceutical industry as compared to the United Kingdom where drug pricing is not as prevalent in news and media (Lo, 2018). In 2021, distrust of the pharmaceutical industry was only 24% in the United Kingdom as opposed to 42% in the United States (Fife-Schaw and Allen, 2022). The United Kingdom has almost double the trust in the industry as the United States. While drug prices surely played a role in this public opinion discrepancy, we cannot know to what extent drug prices affected public opinion, for there are many variables which factor into public opinion. Further, it needs to be addressed that the COVID-19 pandemic likely had a significant impact on the public opinion of the pharmaceutical industry in 2022. While we can assume high drug pricing negatively affects public opinion, future work should investigate the severity of the impact that drug prices have on public opinion of the pharmaceutical industry.

High drug prices such as insulin have caused public distrust of the pharmaceutical industry in the United States. In order for the pharmaceutical giants to increase public opinion and regain trust from the population, reform needs to occur to reduce drug prices in the United States. As there are many different actors at work perpetuating high drug prices, there are many different solutions which can be designed to lower drug prices. There is no one root cause but a

web of interconnected actors causing the problem of high insulin prices. Recognizing the relationships causing the problem is the first step towards a solution. Next, reforms need to be enacted to attack the problem of insulin pricing.

Recent Developments

While this research was conducted, a few initiatives began reducing of the cost of insulin in the United States. On August 16, 2022, President Joe Biden signed the Inflation Reduction Act into law, and as of January 1, 2023, the out-of-pocket cost for a monthly prescription of insulin is capped at $35 for Medicare patients (Sayed et al., 2023). This price cap will greatly reduce out-of-pocket costs for those covered by Medicare. Before this initiative, Medicare patients paid about $63 for a 30-day supply (Sayed et al., 2023). Thus, the price cap cut the out-of-pocket cost for diabetics on Medicare by almost 50%. This law only affects the price of insulin for Medicare patients, but shortly after this law was enacted, Eli Lilly made a similar effort in reducing insulin cost in the United States. On March 1, 2023, Eli Lilly announced they were reducing the cost of their most commonly prescribed insulins by 70% as well as capping the out-of-pocket cost of their insulin at $35 for all patients (Lilly Cuts Insulin Prices by 70% and Caps Patient Insulin Out-of-Pocket Costs at $35 Per Month | Eli Lilly and Company, 2021). With this initiative, Eli Lilly has drastically increased accessibility to insulin in the United States, as both insured and uninsured patients will see a dramatic decrease in their monthly insulin cost. These two price cap initiatives are the first of hopefully an ongoing attempt to reduce insulin prices and pharmaceutical prices overall in the United States.

Limitations and Future Work

The work conducted in this research paper should be considered a baseline for future analysis into the issue of high insulin prices in the United States. The listed reasoning for high

insulin prices in the United States should not be assumed to be all encompassing. Many other factors play a role in drug pricing such as lobbying and policy making. Further, the actors described in this paper should not be considered an exhaustive list. Other actors including doctors and lawmakers can be investigated in the future, as they likely have a significant impact on the issue of drug pricing. As mentioned in the previous section, drug pricing could only be discussed as one variable of many affecting public opinion. Future studies should quantify the impact of solely drug prices on public opinion.

Finally, a comparison was made throughout this paper between pharmaceutical policies in the United States and United Kingdom. While certain policies have worked to reduce drug prices in the United Kingdom, these policies will not necessarily work in the United States. This paper is not suggesting the UK policies be implemented directly in the US but instead suggesting policymakers analyze the pharmaceutical system in the UK and reform the US system to reduce drug prices. Future work can investigate strategies which will effectively reduce insulin prices in the United States.

Conclusion

Insulin prices have steadily increased over the last 20 years putting many American lives at risk. The increase in prices can be attributed to a variety of factors including the inelasticity of the product, monopolies in the market, private insurance, patent evergreening, and pharmacy benefit managers. The relationships between the pharmaceutical giants, PBMs, pharmacies, diabetics, government, capitalism, and insurance agencies have created an interconnecting web perpetuating high insulin prices. These high drug prices have increased public distrust of the pharmaceutical industry in the United States. Policies in the United Kingdom, however, have prevented exorbitant insulin prices and a negative public opinion. Americans are unhappy with

the high drug prices, and reform is on the horizon. Insulin prices are beginning to decrease in the United States with movements by both Eli Lilly and the federal government to cap the out-of-pocket cost of insulin. These movements are a step in the right direction, but reform needs to continue to ensure all Americans have access to life-saving medication.

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