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Lowering the High Cost of Hepatitis C Drugs

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Paper is a good summary of a range of issues

Abstract

Escalating prices for prescription drugs have contributed to the rise in health care costs in the United States and made many medicines increasingly unaffordable. This situation is particularly problematic for essential but very expensive drugs needed by large numbers of people. This article focuses on one of these, the unsustainable cost of hepatitis C medications. Hepatitis C is estimated to affect some 3 million, mostly poor, Americans and more than 185 million people globally. Chronic hepatitis C infection can progress to liver cirrhosis, cancer, and liver failure. Several recently developed direct-action antiviral medications offer highly effective treatment with few adverse effects, but their use is limited by their very high cost. List prices in the United States for the most used hepatitis C drugs are upwards of $84,000 per patient for the standard 12 week treatment course. This article discusses factors accounting for the high cost of these drugs and the public health implications of the resulting restrictions in access. It then considers potential policy mechanisms to reduce the cost showing that the major limitation has not been the absence of policy levers to lower the cost but the reluctance of the federal government to utilize them. The article concludes by identifying the factors deterring the government from doing so.

Keywords: Hepatitis C; High cost; Public health implications; Cost transparency; Voluntary licensing; Population health threshold

Introduction

Escalating prices, particularly for newer prescription medications and specialty drugs, but even for some generics, has made many medicines increasingly unaffordable for publicly funded health programs, commercial insurers, and patients. Price tags for drugs entering the United States market are particularly high because, unlike other industrialized countries, the U.S. government does not control drug prices even for federally funded programs like Medicare, leaving pricing to pharmaceutical companies which charge whatever the market will bear. From a population health perspective, the situation is particularly problematic when expensive drugs are needed by large numbers of patients making them unaffordable, particularly for public payers. The unsustainable cost of new hepatitis C medicines constitutes an example.

Hepatitis C, the most common blood borne infection in the United States, is estimated to infect 2.5 to 4.7 million mostly poor people in the U.S. and more than 185 million people worldwide [1]. The virus is spread primarily by shared needles among drug users but also can be transmitted by having sex or using the toiletries of an infected person. Some areas of the U.S. are starting to see an increase in reported cases correlated with increases in opioid use [2]. Persons who received a blood transfusion or organ transplant before 1992 when widespread screening was initiated in this country are also at risk. Left untreated, the virus inflames and may eventually scar the liver, making it less able to perform its crucial functions. Hepatitis C can lead to cirrhosis (scarring) of the liver, liver cancers, and liver failure, and is the most common cause of liver transplants [3]. In 2013, the hepatitis C virus caused nearly 20,000 deaths in the U.S., more than mortality from HIV/AIDS [4].

Several direct acting-antiviral therapies have been introduced recently which are highly effective in treating chronic hepatitis C infection. Three newly developed direct acting anti-viral medications, Gilead Science's Sovaldi (sofosbuvir) and Harvoni (sofosbuvir combined with another antiviral drug ledispavir) and AbbVie's Vikeira Pak (ombitasvir/paritaprevir/ritonavir), can cure most cases in 12 weeks with relatively few adverse effects in contrast with previous treatments [1]. As oral drugs, they are also easy to use. The World Health Organization has classified these therapies as essential drugs intended to be widely available at reasonable cost to those who need them [3].

The direct-acting antiviral therapies represent a major breakthrough in treating hepatitis C. Making the drug available for all hepatitis C patients could have the potential of significantly reducing its incidence and transmission. However, the extremely high cost of the direct-acting antiviral therapies for hepatitis C has constituted an obstacle to widespread treatment access. The first of these drugs, Gilead Science's Sovaldi, was launched in 2013 with a list price of $1,000 per pill or about $84,000 for a standard 12 week course of treatment. Although the issue of drug pricing is complex and prices are not determined on the basis of manufacturing costs, it is relevant to note that it has been estimated that the cost of manufacturing a course of treatment of sofosbuvir (Solvaldi) is less than US $200 per patient [5]. Solvaldi was followed by Gilead's second drug Harvoni at a cost of $94,500 per patient for the standard course of treatment [6] and AbbVie's Vikeira Pak at $83,319 [7]. Subsequently, additional hepatitis C drugs were introduced to treat rarer hepatitis C genotypes with a list price of between $54,000 and $168,000 for the standard 12 week course of treatment [1]. Because some of the hepatitis C drugs are to be taken in combination with other hepatitis C medications, it further raises the price of treatment. For example, Bristol-Myers Squib's Daklinza which lists for $63,000 per the standard treatment course is prescribed in combination with sofosbuvir (Sovaldi) for the hard to treat genotype 3 of hepatitis C

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for a total cost of $147,000 per treatment course. Similarly, Janssen's Olysio (simeprevir) with a wholesale acquisition cost of $63,360, less than several of the other hepatitis C medications, must be taken with sofosbuvir, and for some applications peginterferon alfa and ribavirin as well [8]. In addition, Technivie (ombitasvir-paritaprevir-ritonavir) manufactured by AbbVie, which is approved for genotype 4 and priced at $66,360, is prescribed with ribovarin which raises the price to $77,000 [9]. Moreover, some patients, particularly those with the most severe liver problems, require a 24 week course of treatment which then doubles the cost.

Table 1 presents this information about the medication, trade name, manufacturer, and Wholesale Acquisition Cost (WAC) for these hepatitis drugs. It should be noted though that the actual price paid for of the medications may be lower as a result of discounts and rebates. This will be discussed in a subsequent section.

Factors Accounting for the High Prices and Pharmaceutical Companies' Justifications

The high prices of these drugs have been widely criticized. In response, pharmaceutical companies' argue, as they have previously for other drugs, that the prices reflect the cost and risks of research and development, taking into account that the overwhelming majority of candidate drugs fail clinical trials. Moreover, they claim that the high cost of their products is justified because the income generates money for crucial research on new treatments. However, while the pharmaceutical and biotech industries may assume considerable risk, they have also consistently been among the most profitable sectors of the U.S. economy [10]. Moreover, data show that large pharmaceutical corporations invest just 10 to 20 percent of their revenue in research and development [11]. Additionally, an analysis of corporate filings indicates that between 2005 and 2010 drug companies spent 19 times more on promotion and marketing of new drugs than on research [12].

It should also be noted that most of the truly innovative new drug products that have become available do not come from research conducted by the large pharmaceutical companies. Instead, research that leads to new drug products often takes place in academic institutions supported by investment from public sources such as the National Institutes of Health (NIH) or small biotech firms. This was the case with the development of Gilead's Sovaldi. Gilead Sciences purchased the rights to market the drug from Pharmasset, a small drug research firm established by two researchers from Emory University who had received funding from NIH for their research. At the time of the purchase in 2011 only $68 million had been spent to develop the drug. Gilead then conducted some of the Phase III clinical trials, but the full development costs were still less than $100 million [13]. Gilead recouped the purchase cost of $11 billion for Pharmasset through profits on sales of Sovaldi within the first year it was on the market [10]. Between 2013 and 2015, Gilead's sales revenue for Solvaldi and Harvoni was more than US $31 billion, with $19 billion accounted for by the sale of products in the United States [5].

Trade Name	Medication	Manufacturer	Cost for 12 Weeks (U.S. dollars)
Sovaldi	Sofosbuvir	Gilead Sciences	$84,000
Harvoni	Sofusbuvir-Ledipasvir	Gilead Sciences	$94,500
Viekira Pak	Ombitsavir-Paritaprevir-Ritonavir-Dasabuvir	AbbVie	$83,328
Daklinza	Daclatasvir	Bristol-Myers Squibb	$63,000
Technivie	Ombitasvir-Paritaprevir-Ritonavir	AbbVie	$76,608
Olysio	Simeprevir	Janssen	$66,360
Zepatier	Elbasvir-Grazoprevir	Merck & Co., Inc.	$54,600

Source: University of Washington, Hepatitis C Online, Module 4, Lesson 3, p. 8, available at http://www.hepatitisc.uw.edu

Table 1: Initial List Prices (WAC) of direct acting antiviral agents used to treat Hepatitis C.

Recently pharmaceutical executives have used another tactic linking drug prices to the value they provide. For example, Gilead points to Sovaldi's comparative effectiveness of providing a 90 percent plus cure effect with minimal side effects [14]. The companies have also argued that their therapies for hepatitis C drugs are cost effective because they avoid the future need for costly hospitalization and expensive liver transplants [15]. However, public payers calculate affordability on the basis of single year costs and cannot make decisions based on savings into the future.

The Senate Finance Committee's 18 month investigation into how Gilead Sciences determined the prices for Sovaldi and Harvoni, based on an examination of Gilead's documents and correspondence, concluded that its pricing strategy did not reflect development costs. Pharmasset is reported to have expected to price the drug at $36,000 per course of treatment, less than half of Gilead's pricing [16]. Instead, the Senate found that Gilead set a high price for Sovaldi with an eye toward maximizing revenue and ensuring a high price baseline for Harvoni and for other future hepatitis C treatments, including those of its competitors, even though it was aware that this pricing would decrease the number of potential users and the associated revenue from them [17].

Beginning in 2015 the drug companies have offered discounts off the list prices of the drugs to some payers. For instance, Gilead announced in 2015 that it would give an average discount of 46 percent off the list prices of its two drugs, Sovaldi and Harvoni. However this discounted price is still beyond the limits of state and federal healthcare budgets [18].

Public Health Implications

The cost of these drugs has put pressure on the budgets of public health programs and private insurers. In 2014 alone, U.S. sales of Sovaldi and Harvoni, Gilead's two blockbuster therapies, to treat an estimated 140,000 patients of the millions in need of treatment totaled $10.5 billion. Even with significant restrictions in place that limited access to these treatments, the cost of these drugs accounted for a third of the U.S. drug spending between 2013 and 2014. A national analysis of prescription drug spending found that expenditures on prescription drugs increased by 12 percent in 2014, which constituted a sharp increase over the two previous years, and that the new hepatitis C drugs accounted for one-third of the 2014 spending increase [1]. It has been estimated that treating all diagnosed hepatitis C infections in the United States-which represent only a fraction of the total number of persons in the country carrying the infection-at the list price of the therapies would cost about $175 billion up front. Even treating only 5 percent of the known infections would come to about $25 billion [1].

Moreover, the high cost of even one drug affects far more than the population receiving that treatment, as health plans spread the cost of that drug across their entire covered population. Steve Miller, chief medical officer at Express Scripts, has commented "The unsustainable pricing of this medication (Sovaldi) has essentially become a tax on all Americans" [19].

Much of the burden is falling on resource-restricted state governments. Many of those suffering from hepatitis C in the U.S. are poor and eligible for Medicaid or are in the prison population, whose medical needs are also primarily covered by state governments. State Medicaid programs are legally required to cover drugs that are approved by the Food and Drug Administration but they lack the resources to provide access to hepatitis C drugs to all those who would benefit from treatment. While all drug makers must provide Medicaid programs with a 23.1 percent discount, the price of universal coverage is still unsustainable for state budgets. Express Scripts, the largest U.S. pharmacy benefits manager, projects that full coverage of the eligible population would cost state governments collectively more than $55 billion per year [20].

Even with states rationing access and covering small fractions of their potentially eligible populations, it is problematic. To provide a few examples, in 2014 Kentucky, a state with a sharp increase in reported cases of hepatitis C among young adults, spent more than $50 million, about 7 percent of its total Medicaid budget, to provide Sovaldi and Harvoni to just 861 people [21]. In California the budget allocation for two years of hepatitis C drugs is $300 million. While this budget item eclipses general fund spending on state parks or emergency drought response, it is still considerably less than the $18 billion estimate of providing all Californians infected with hepatitis C with the direct-action antiviral drugs [22].

There is currently a hepatitis C epidemic in correctional institutions. Prison inmates account for nearly one-third of the national burden of hepatitis C, but prison systems lack the resources and staff to treat this population [1]. Of the 41 states whose departments of corrections reported data in a survey conducted in 2015, 10 percent of their prisoners were known to have hepatitis C but less than one percent of those inmates were being treated [23].

Guidelines published by the American Association for the Study of Liver Diseases and the Infectious Diseases Society of America recommend the use of the new medications to treat in all hepatitis C infected persons, except those with limited life expectancy (less than 12 months) due to non-liver-related comorbid conditions [24]. Federal Medicaid law requires states to cover drugs consistent with their F.D.A. labels. However, as of early 2016 only about one in ten people with chronic hepatitis C infection in the United States had access to one of these curative treatments [1].

To cope with the outrageous cost and anticipated high demand for the new hepatitis C drugs, three-quarters of state Medicaid programs initially limited eligibility for treatment to the sickest patients, those with advanced fibrosis or cirrhosis of the liver. Many states also imposed drug and alcohol screens and half required evidence of a period of abstinence from alcohol and drugs before physicians can prescribe them [25]. Two-thirds of states also have restrictions based on prescriber type with most requiring treatment to be prescribed by, or in conjunction with, a hepatologist, infectious disease specialist, or gastroenterologist [1]. It should be noted that many of these requirements do not have a basis in clinical evidence and are a burden on the providers who have to spend considerable time filling out prior authorization forms [2].

In response to these policies, the Centers for Medicare and Medicaid Services released a guidance document in November 2015 that notes that although states have the discretion to establish limitations on coverage, limiting treatment to individuals with advanced liver damage or requiring a period of abstinence from drug and alcohol use or significantly limiting the types of providers able to prescribe hepatitis C drugs constitute examples of unreasonable restrictions on access to treatment [9].

Some private insurers, including Aetna, BlueCross, and United Healthcare, initially also instituted rationing policies restricting coverage to patients with advanced liver damage and imposing alcohol and drug screens [1]. Many marketplace health plans have also placed prescription medications for hepatitis C in "specialty drug" tiers which impose very high out-of-pocket co-insurance costs that effectively price the drugs out of reach of many patients.

Recently a number of states have relaxed their rules in response to pressure and law suits, some of which have been underwritten by the drug companies that stand to benefit if states increase coverage availability. For example, a Washington state lawsuit filed by two hepatitis C patients against the state's Medicaid program to help the poor gain access to these drugs was underwritten by Gilead and its foundation. In a victory for the plaintiffs, a judge ruled in May 2016 that Washington State must provide all hepatitis C patients covered by Medicaid with treatment while the case proceeds. That decision increased the state's Medicaid budget for hepatitis C treatment from $24 million in 2015 to $222 million for 2017. AbbVie Inc. and Merck & Co. contribute as well to groups preparing to bring suits to increase access to hepatitis C drugs and the Biotechnology Innovation Organization, an industry lobbying group, has given members talking points focusing on access to drugs despite their price tags [26]. Also, the Center for Health Law and Policy Innovation at Harvard University, which is funded in part by three of the drug makers, has been instrumental in pursuing litigation against state Medicaid programs. The American Civil Liberties Union has also filed class action suits in a few states [19].

Faced with legal suits, the prospect of legal action, and in some cases recommendations from their pharmacy and therapeutics committees, some states and commercial insurers have begun to lift restrictions for access to the direct-action hepatitis C therapies. Massachusetts, Florida, New York, Connecticut, and Delaware have expanded access in their Medicaid programs. Some commercial insurers such as Anthem and United HealthCare are also making the drugs more widely available. Anthem Blue Cross and Blue Shield plans in 14 states began authorizing treatment to people in all stages of fibrosis (liver scarring) and United Healthcare followed suit. After a March 2016 legal settlement with New York's attorney general seven commercial insurers there agreed to extend hepatitis C treatment to people who haven't yet developed serious liver disease. In 2016 after Congress appropriated additional funds, the Department of Veterans Affairs announced it would treat anyone in its health system with hepatitis C regardless of the stage of the illness [27]. This potential expansion of access has significant financial implications at a time that the federal government is likely to cut back its support for medical insurance.

Evaluating Options to Potentially Lower the Hepatitis C Drug Prices

Various options to lower the costs of the hepatitis C drugs could better balance their cost and public health benefits. We now review the possibilities of using existing laws and mechanisms and identify additional proposals.

Laws requiring greater cost transparency

As complaints have grown about the exorbitant price of Sovaldi and other high cost drugs, pharmaceutical companies have come under pressure to disclose information about the development costs and

profits of these drugs and to explain the rationale for their pricing. At least ten states have introduced pharmaceutical cost transparency bills that require manufacturers of prescription drugs to provide extensive data on research and production costs and profits, but at the time of writing only one has been adopted. The details of these bills differ. The one drug transparency bill that has been signed into law by the state of Vermont focuses on the state disclosing annually up to 15 prescription drugs on which it spends significant healthcare dollars and on which the wholesale acquisition cost has increased by 50 percent or more over the past five years [28].

However, it seems unlikely even if data were to be forthcoming on drug pricing that it would have the effect of lowering drug prices. Pharmaceutical companies can obfuscate their costs for the development of a specific drug. Also, as noted above, the pricing of a drug has little to do with the actual research and development costs incurred for the specific drug or the cost of manufacturing it. If adopted, these initiatives would name and shame companies, and perhaps motivate state governments to take more aggressive price lowering measures, but transparency laws by themselves are unlikely to motivate companies to lower prices.

Negotiating lower prices

Most European governments and the Canadian government routinely negotiate drug prices, impose price controls, and engage in bulk purchasing of drugs to lower costs. Consistent with that approach, many European countries demanded and received discounts for hepatitis C drugs before they initially placed them on their drug formulary. While still expensive, at €41,000 (US $51,373) the initial price of Sovaldi per course of treatment in France was considerably lower than in the United States. It was sold to German medical regulators at the discounted price of $46,625 [29]. In the UK, the price of Sovaldi was £35,000 (US $54,649) per treatment course, and in Canada it was also about $55,000 [20]. In 2015, many European countries negotiated further price concessions in exchange for commitments to purchase larger volumes [30].

Although the development of additional hepatitis C drugs by other companies did not lower the high list price of any of the hepatitis C medications in the United States, the competition for market share has enabled pharmacy benefit managers (PBMs) and state governments to bargain for lower costs for the drugs by agreeing to enter into exclusive purchasing arrangements with either Gilead or AbbVie depending on the price break offered [31-33]. It is difficult to assess the impact of PBM pricing strategies or available discounts, as many states have not adopted laws or regulations requiring PBM transparency in the discounts they obtain. Therefore, prices to consumers can vary widely, change without notice and cannot be substantiated through a transparent pricing methodology.

Some state Medicaid programs have also negotiated special discounts. It was reported that 25 states, including Connecticut, Michigan, Pennsylvania, and Missouri, formed a state purchasing consortium to attempt to get a better deal. AbbVie agreed to provide a rebate to those states in the consortium that opt to make Viekira Pak the preferred option for people covered by their Medicaid programs, matched later by Gilead with a similar concession. The size of the rebate being offered was not disclosed [33]. Some analysts have estimated that the price war lowered the price in the 25 to 30 percent range, but even if these estimates were correct, the resulting prices were still higher than in European countries [19]. Then in 2015, Gilead, which held a market share of 75 to 80 percent, announced it would provide larger discounts, 46 percent on average, particularly so it could offer lower prices to Medicaid and the U.S. Department of Veterans Affairs [19]. With these discounts, Sovaldi would cost about $45,000 per patient and Harvoni about $50,000, price levels that are still unsustainable for state Medicaid programs.

March-In-Rights under the Bayh-Dole patent law

In January 2016 a group of over 50 members of Congress sent a letter urging the Department of Health and Human Services (HHS) and the National Institutes of Health (NIH) to use a statutory provision in the Bayh-Dole Act giving the government "march-in rights" to patents developed from government-funded research [34]. The 1980 Bayh-Dole Act established the right of institutions receiving federal research funding to commercialize their discoveries by taking out patents and issuing exclusive licenses for use of these patents, but the statute also spelled out a range of conditions under which the government could exercise march-in-rights to require the patent holder to grant licenses on reasonable terms to others to employ the patent. According to the law, the government may do so when "action is necessary to alleviate health or safety needs which are not reasonably satisfied" [35].

While many of the most transformative drugs and vaccines had their origins through public sector funding to academic and other nonprofit research institutions, including the development of Sovaldi, the government has been reluctant to exercise its march-in rights [36]. As of 2016, NIH reviewed five petitions to exercise its march-in-rights for health-care products. Three of these requests were to reduce the high prices of drugs, one to relieve a drug shortage, and one pertained to a potentially patent-infringing medical device. Even though several of these petitions seemingly fit the criteria set down by the statute, NIH summarily rejected all of these requests to exercise its march-in rights [36].

The 'Government Patent Use' law

A little known law, codified at 28 U.S.C. section 1498, accords the government the right to use patented inventions without permission with the requirement that the government pay the patent holder a "reasonable and entire compensation." Under the law patent holders can demand royalties but they cannot prevent the government from producing the medicine or allowing others, most likely generic drug manufacturers, from doing so [37]. While the government's authority to invoke the 'Government Patent Use' law is limited to federal use, it would cover Medicare, Medicaid, the Veterans Affairs health system, and the Department of Defense [37]. Government patent use has been compared with the power of eminent domain which enables the government to take private property for public uses while reimbursing the owner at fair market rates. The courts typically set compensation at 10 percent of sales or less [37]. The Department of Defense and the Department of the Treasury have used this law. Also in 2001 when confronted with the threat of widespread domestic use of anthrax as a chemical weapon and the government sought to stockpile the antibiotic ciprofloxacin (Cipro) as a treatment, Bayer A.G., the manufacturer, initially resisted raising production levels and refused to make the drug available at a discounted rate. In response, the Health and Human Services Secretary raised the possibility of importing generic versions under section 1498. Bayer then agreed to provide an adequate supply of Cipro at a 50 percent discount [37].

Amy Kapczynski and Aaron Kesselheim propose using the Government Patent Use law to lower the cost of hepatitis C drugs for federal medical programs. They acknowledge that the innovator

companies would likely complain that the use of section 1498 interferes with their incentives to invest in innovation, but they point out that these incentives would remain robust if the government paid fair royalties sufficient to compensate the companies for research and development costs, adjusted for risk of failure and margin of error in calculations made by a court or agency [37]. There have also been calls for the Department of Veterans Affairs to invoke this law to address the funding shortfall that has resulted from the high demand for high cost hepatitis C antiviral drugs [37].

The Secretary of the State of Louisiana Department of Health is currently investigating the possibility of using this mechanism to lower the cost of hepatitis C drugs in her state [38]. Based on current prices, it would cost the state $764 million to cover hepatitis C treatment for its 25,000 residents who have been diagnosed with the disease and lack private insurance. If the law is used, the government could contract with a generic drug manufacturer to make cheaper versions of hepatitis C drugs, sidestepping the patent holders. But Health and Human Services Secretary Tom Price would have to approve Louisiana doing so. Although he has said he is committed to making drugs more affordable, he is also an advocate of less government involvement in healthcare regulation [39].

Changes to the medicare prescription drug, improvement, and modernization act

Medicare, the largest U.S. purchaser of drugs, with over 30 million beneficiaries enrolled in its Part D prescription drug benefit program, is prohibited under the 2003 Medicare Prescription Drug, Improvement, and Modernization Act (MMA) from seeking to obtain the same bulk purchasing discounts standard in other countries or even the discounts that the Veterans Administration and the Medicaid Program currently receive. Under the "noninterference clause" of the MMA, the federal government cannot negotiate directly with drug companies to lower Medicare drug prices but must rely on the private companies that serve as PBMs for Medicare. None of the private companies has the potential clout that the federal government could exert. Nor are they as motivated to seek steep discounts. According to a 2011 study conducted by the Office of the Inspector General, Medicaid rebates were twice as high as rebates received by Medicare Part D [40].

If the Centers for Medicare and Medicaid Services could negotiate directly with pharmaceutical companies, it could leverage its purchasing power to negotiate lower drug prices. In 2013, the Center for Economic and Policy Research estimated that enabling the federal government to negotiate Medicare drug prices would save the U.S. government between $230 billion and $541 billion over 10 years [41]. Surveys have shown that the overwhelming number of Americans, 87 percent in one recent poll, favor doing so [42]. During the 115th Congress ("Medicare Prescription Drug Price Negotiation Act of 2017") legislation was introduced that would strike the noninterference clause and enable the U.S. Secretary of Health and Human Services (HHS) to negotiate lower prices for high cost prescription drugs for Medicare beneficiaries, but it was not adopted [12,43,44]. At the present time, it seems politically unlikely that a government completely controlled by the Republican Party would be willing to give Medicare the authority to negotiate drug prices, despite the President's repeated criticism of the current policy prohibiting price negotiation [45]. In addition, the Congressional Budget Office has said that negotiating for lower drug prices would have a "negligible effect on federal spending" unless the current requirement that Medicare cover all drugs approved by the FDA also be waived so that Medicare could establish a formulary and utilize management restrictions to exclude certain drugs [46]. Incorporating a "volume-based" fee structure within a negotiating framework would further allow Medicare to obtain lower prices for drugs used in high patient volume conditions.

Seeking voluntary licensing from or purchasing of one of the Hepatitis C innovator drug companies

One of the most intriguing proposals, made by the National Academy of Sciences Committee on a National Strategy for the Elimination of Hepatitis B and C, is that the federal government, acting on behalf of the Department of Health and Human Services, purchase the rights to a direct-acting antiviral for use in neglected market segments, such as Medicaid, the Indian Health Service, and prisons through licensing or assigning a patent in a voluntary transaction with an innovator pharmaceutical company with reasonable compensation offered. The rationale was that there are times when a government must act to correct a market failure, with which we agree. It anticipated that the voluntary nature of the transaction, limited population to be covered, and reasonable compensation would make the transaction palatable and that companies would even compete for the opportunity to do. The expert committee making the proposal calculated that licensing rights would cost about $2 billion after which states would pay a reduced fee of about $140 million to treat 700,000 Medicaid beneficiaries. Without such an arrangement the panel estimated it would cost about $10 billion over the next twelve years to treat only 240,000 Medicaid beneficiaries and prisoners [1].

Dr. Peter Bach, the director of health policy and outcomes at Memorial Sloan Kettering Cancer Center in New York, has made a similar but more radical proposal. He suggested that the U.S. government could save money and treat everyone in the country who has hepatitis C if it bought Gilead Sciences. His idea is for the government to purchase Gilead on the open market and then sell off all of its assets except the U.S. rights to Sovaldi and Harvoni [47]. This would enable the government to recoup much of its investment (Gilead's market capitalizations in March 2017 was about $90 billion) while being able to subsidize low cost hepatitis therapies.

There is little likelihood that the federal government would engage in a hostile takeover of a private pharmaceutical company. However voluntary licensing of the rights to a hepatitis C drug for use in neglected market segments seems like a more feasible option.

A population health threshold for imposing price controls

A long-term approach which we recommend be explored would be to establish a population health threshold for the federal government to impose price controls on expensive drugs potentially taken by large numbers of people, thereby preventing the kind of conundrum the hepatitis C drugs represent. While other specialty drugs are priced even higher than the hepatitis C therapies, they have far smaller potential patient pools, and they lack the competitive environment that now exists with Hepatitis C therapies. We suggest that all drugs costing more than $25,000 per treatment course that are needed by 50,000 people or more in the U.S. be subject to federal price controls. An independent review panel could set a fair price taking into account direct development and production costs plus reasonable "profit" compensation in the range of ten percent. An initial pilot project within the Medicare drug market would allow for analysis of implementation across the broader Medicaid and commercial markets. While anticipating the usual rallying cry of pharmaceutical companies that doing so would discourage the investments that result in new drugs, we theorize that utilizing a

population health perspective with its implicit commitment to make large drug purchases would encourage pharmaceutical innovation for diseases that afflict large populations, but have few effective treatments, such as Alzheimer's disease, osteoporosis, thyroid diseases, and certain mental health conditions. Eliminating uncertainty in predicting market size and potential competitors, and increasing predictability on pricing would enhance forecasting models for high cost specialty drugs that are now a certainty in the research and development pipelines of the pharmaceutical and biotechnology industry.

Why the federal government is reluctant to intervene to lower drug prices

Policymakers from both major U.S. political parties have complained about the rising cost of prescription drugs and vowed to fix them. During the presidential campaign Hillary Clinton and Donald Trump railed against the outrageous prices set by some of the pharmaceutical companies. Polls indicate there is widespread public support for addressing the problem. So why has the federal government been so reluctant to use existing policy levers to lower the cost of highly priced drugs, even ones needed but large numbers of people? Why have agencies like the National Institutes of Health not acknowledged responsibility to intervene when the high prices of drugs developed with their support makes them unaffordable?

One important factor is that the neoliberal ideology dominating political and economic discourse and policymaking in this country. Neoliberalism promotes a view of health care and health inputs, such as drugs, as commodities whose cost, price, availability, and distribution, should be left to the marketplace. Market-based approaches assume that access to health care should be dependent on the ability to pay, and not on human need. Such a commercialized view of health care implicitly accepts that some members of society are likely to be excluded by financial barriers from needed health care and discourages responsibility on the part of the state to intervene to subsidize the cost of health care so as to assure greater access. In contrast, health policy in most other industrialized countries rests on a conception of health and health care as a social or public good of special moral importance. As such, there is widespread acceptance of the obligation of the government to design policies to assure universal access to health care [48]. Importantly though the recent strong reaction against the adoption of health care policies that would have weakened or eliminated many of the benefits provided by the Affordable Care Act suggests that many people in this country may be moving toward a notion of a right to health care.

A major factor accounting for the reluctance of the government to try to control pharmaceutical prices is the political influence of the large drug companies and their two trade associations, the Pharmaceutical Research and Manufacturers of America (PhRMA) and the Biotechnology Industry Organization. Their combined spending on lobbying during the past decade was some $2.3 billion, far more than any other commercial or industrial sector [49]. In a political system where politicians are constantly trying to raise money the benefit of political giving by the pharmaceutical companies counts for a great deal. The sector maintains a small army of lobbyists which enables the big pharmaceutical companies to promote legislation friendly to drug manufacturers. One important instance of the influence of big pharma was the shaping of the provisions of the 2003 Medicare Prescription Drug Improvement and Modernization Act which provided Medicare patients with a prescription pharmaceutical benefit while preventing the government from directly negotiating drug prices for Medicare.

Nevertheless, there have been active efforts to secure access to drugs for other major population groups, for example HIV/AIDS patients. Hepatitis C infection is more than twice as common as HIV and causes more deaths. Differences in the two patient populations may explain why it has been less of a public policy priority to make drugs for hepatitis available than past initiatives to make HIV drugs more accessible. HIV/AIDS has had the benefit of many celebrities and other prominent persons who were both patients and advocates. There have also been advocacy groups dedicated to making the drugs more available for HIV/AIDS patients. In contrast, hepatitis C predominantly affects poor and vulnerable populations, many of whom are either current or past drug users or are in prison. There is not a comparable network of influential celebrities and advocacy groups bringing their needs into the public arena.

Conclusion

Perhaps more than the development of any other medications, the new hepatitis C drugs have raised significant questions about fair pricing and the trade-off between pharmaceutical companies' profits and public health needs. The new direct-acting antiviral drugs have a cure rate of over 90 percent with relatively few adverse reactions. Relevant professional medical societies recommend they be given to virtually all patients with hepatitis C infections. However the very high prices of the drugs, combined with the large potential demand for treatment, has resulted in both public and private insurers imposing strict requirements that exclude the overwhelming majority of those who could benefit from treatment.

We believe that the wellbeing of patients and societal health should outweigh corporate interests in making a critical therapy, like direct-acting antiviral drugs for hepatitis C, widely available at a reasonable cost. As noted in the paper, there are a number of existing approaches and policy levers that could potentially lower the cost of expensive drugs like the hepatitis C antivirals, but the federal government is currently disinclined to use them. Other proposals for new initiatives also have much to recommend.

We recommend that the federal and state governments use all existing policy levers that could lower the cost of hepatitis C drugs and other expensive medications needed by large numbers of people. In particular, taking advantage of the government patent use option should be a high priority. Exercising march-in rights under the Bayh Dole statute would allow the public to have the benefit of fair pricing for drugs developed through tax payer money made available by NIH grants. While members of Congress currently favor the interests of the pharmaceutical sector, building public pressure and anger about drug prices could potentially alter the equation in the future, particularly if more people were aware of both the ability and the reluctance of the government to control outrageously high pharmaceutical prices.

There are a number of other proposals we support. A recent Kaiser Family Foundation poll revealed that giving Medicare the authority to negotiate drug prices was the public's top priority for sustaining the Medicare program [50]. Enabling Medicare to directly negotiate pricing with manufacturers, and to do so without having the requirement that all drugs approved by the FDA be covered, thereby creating a formulary-based system could lower prices significantly. A starting point for discussion could be that Medicare should not pay more than the discounts made available to the Veterans Administration and private health insurance companies, or the average cost of a drug paid by other developed countries, whichever is the lower figure. If public payers such as Medicaid and Medicare were allowed to

negotiate pricing based on outcome combined with a "volume-based" fee structure, allowing for decreased treatment pricing with increased patient volume, a more balanced population health approach could be applied to drug treatment.

We also recommend seriously exploring the proposal put forward in the National Academies of Science Committee on a National Strategy for the Elimination of Hepatitis B and C that the federal government, acting on behalf of the Department of Health and Human Services, purchase the rights to a direct-acting antiviral for use in neglected market segments, such as Medicaid, the Indian Health Service, and prisons through licensing or assigning a patent in a voluntary transaction with an innovator pharmaceutical company with reasonable compensation offered. Given the criticism and bad publicity the pharmaceutical companies have received, one or more of the hepatitis C companies may be willing to enter into such an arrangement. If so, this model might also be considered for other high cost medications with large patient populations.

Given the current federal disinclination to pursue price lowering mechanisms, states should take advantage of all potential approaches available to them. The most promising would be for Medicaid programs to engage in pooled procurement of hepatitis C drugs. As noted in the paper, some states have already formed a consortium to negotiate with the hepatitis C drug manufacturers, but a 2015 survey indicated that others have apparently not done so and were paying the full list price [23]. If all of the states were to use a single price negotiating mechanism, their combined market power would accord them considerable leverage.

Finally, we advocate for a new population health threshold, whereby drugs costing more than $25,000 for a condition afflicting 50,000 or more people would be subject to federal price controls. Public scrutiny on high-priced drugs has intensified and advocacy toward controlling drug costs has both public and political support. A concentrated effort of public pressure, and the willingness to pilot test new policy price initiatives could bend the cost curve on high cost, life-saving pharmaceutical treatments.

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