



Budgetary Effects of Policies That Would Increase Hepatitis C Treatment

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Summary

In this report, the Congressional Budget Office describes its initial analysis of the potential federal budgetary effects of policies that would increase treatment of hepatitis C, a liver disease that, left untreated, can lead to serious liver problems. CBO's analysis focused on two sample national policies that would increase treatment rates among Medicaid enrollees and thereby affect federal spending on health care. CBO focused on the Medicaid population because people at high risk for hepatitis C (including injection drug users and people who have been involved with the criminal justice system) are likely to be Medicaid beneficiaries, either at the time of treatment or in the future.¹

Specifically, CBO analyzed two illustrative five-year programs in which treatment rates would peak at increases of 10 percent and 100 percent above the current treatment rate among Medicaid enrollees. In both scenarios, treatment rates would take two years to reach their peak (as outreach activities took place) and would stay at their peak level for three years. After the program ended, treatment rates would return to currently projected rates over a two-year period.

Those rates do not reflect CBO's view of potential outcomes for any particular policy. Specific policies could result in higher or lower levels of treatment depending on the program put in place, the amount of investment in hepatitis C medications, and the extent of outreach to identify people who have the disease and connect them with treatment.

CBO found the following:

- **Savings from health care costs that would be avoided by increased hepatitis C treatment would more than offset direct spending on that treatment.** By CBO's estimate, a 10 percent peak increase in the hepatitis C

treatment rate among Medicaid enrollees during a five-year program would result in averted spending on treatment of complications from hepatitis C of about \$0.7 billion over 10 years; spending on testing and treatment would increase by \$0.5 billion over that period. With a 100 percent peak increase in the hepatitis C treatment rate, averted spending would total about \$7 billion over 10 years, and spending on testing and treatment would total \$4 billion over that period.²

- **Outreach would be necessary to substantially increase testing and treatment rates.** CBO's analysis does not include federal spending on outreach and implementation to identify people who have hepatitis C as well as to initiate the full treatment regimen and ensure adherence to it. A complete accounting of the federal costs of the illustrative policies would incorporate estimates of those costs. Whether the total federal costs of outreach, testing, and treatment would be fully offset by savings from averted health care spending would depend on the specific program put in place and the number and characteristics (such as insurance coverage) of people who are newly treated.
- **Because hepatitis C progresses slowly, budgetary effects beyond the 10-year period typically used for CBO's analyses are especially relevant.** In future work, CBO will assess the short- and longer-term effects of policies to treat hepatitis C—as well as the effects of associated improvements in health and longevity—on spending for federal programs such as Medicare and Social Security (both disability and retirement benefits) to the extent that the evidence supports such effects.

CBO has not estimated the federal budgetary effects of any particular policy aimed at increasing hepatitis C treatment rates. The direction and size of those effects would depend on factors such as the number of people who have newly

begun treatment with direct-acting antiviral (DAA) medications, their insurance coverage, the amount of federal spending to cover the costs of DAA treatment, spending on and success of outreach efforts and mechanisms put in place to ensure adherence to treatment, and the magnitude and timing of savings from health care costs avoided by increased hepatitis C treatment.

Hepatitis C in the United States

The hepatitis C virus is transmitted through direct contact with infected blood, usually from a needle stick or injection; over half of hepatitis C infections are linked to injection drug use.³ People on hemodialysis (in which blood is filtered by a machine instead of by a person's kidneys), infants born to mothers with hepatitis C, and people who received blood products before 1992 are also at high risk for hepatitis C infection.⁴ Sexual transmission of hepatitis C can occur but is less common.⁵

Estimating the number of people infected with the hepatitis C virus is difficult because many people are unaware of their infection. As a result, estimates can vary widely. Recent estimates from the Centers for Disease Control and Prevention suggest that 2.4 million people in the United States had hepatitis C between 2017 and 2020, and about 70,000 people are newly infected each year.⁶ However, the estimate of the number of people with hepatitis C may undercount people who inject drugs, a population at high risk of contracting the virus. A recent study that estimated the number of people who injected drugs and who had the hepatitis C virus concluded that a total of about 4.0 million people had the disease between 2017 and 2020.⁷

Complications and Costs of Hepatitis C

About 25 percent of people living with hepatitis C clear the infection without treatment; however, about 75 percent of people who contract the virus become chronically infected and slowly develop liver injury, often over 20 to 30 years.⁸ Because hepatitis C can be asymptomatic in earlier stages, as many as 40 percent of people are unaware of their infection.⁹ Without treatment, up to 25 percent of people with chronic hepatitis C develop severe liver injury (cirrhosis) and then have a 1 percent to 4 percent annual risk of developing liver cancer.¹⁰ The costs of complications from untreated hepatitis C increase as liver injury worsens: The average annual costs for patients with severe complications related to hepatitis C, such as liver transplant, are more than 10 times the average annual costs for patients in earlier stages of the disease.¹¹

Use and Cost of DAA Medications

Hepatitis C can be treated with direct-acting antiviral medications, which were first approved in 2011. The currently recommended DAAs are highly effective and cure about 95 percent of cases, with few side effects, in 8 to 12 weeks.¹² The treatment consists of tablets taken each day. Cure rates remain near 95 percent even among patients who miss doses throughout their course of treatment; however, people who complete less than 4 weeks of treatment are less likely to be cured.¹³

As of 2020, the average total cost of a course of DAA treatment was \$11,500 to \$17,000, depending on the specific DAA medication (across payers and net of pharmacy discounts, patient assistance, and rebates and coverage-gap discounts in Medicare).¹⁴ Before DAAs were approved, drugs to treat hepatitis C cost less than DAAs but had lower cure rates (40 percent to 65 percent) and worse side effects, and treatment required close laboratory monitoring for 24 to 48 weeks.¹⁵

Despite the availability of improved medication, diagnosis and treatment of hepatitis C have been hindered by low levels of awareness about the virus, the challenges of reaching high-risk populations (such as people using injection drugs) for screening and treatment and of ensuring adherence through the full treatment regimen, and the high cost of DAAs. Evidence also points to attrition between diagnostic testing steps and between testing and treatment.¹⁶ Currently, diagnosis of hepatitis C requires a two-step blood test: an antibody test (which determines whether a person has been infected with the virus at some point) and, among people with a positive result, a confirming RNA test (which determines whether a person currently has hepatitis C by measuring the presence of the virus in the blood). A one-step, point-of-care RNA test could enable diagnosis and initiation of treatment in a single visit. Although such a test is available in other countries and received prequalification status from the World Health Organization in 2017, it is not currently approved by the Food and Drug Administration and is therefore not available in the United States.¹⁷

In 2019, before the coronavirus pandemic, approximately 115,000 people in the United States were treated for hepatitis C. Of those, about 34 percent had private insurance, 33 percent were Medicaid enrollees, 28 percent were Medicare enrollees, and 5 percent paid cash for their treatment. The number of people treated declined by more than a quarter in 2020 with the onset of the

pandemic.¹⁸ More recent data on people with private insurance suggest that treatment rates continued to decline in 2021.¹⁹

Existing Efforts to Increase Treatment of Hepatitis C

Recent efforts to increase hepatitis C treatment in the United States and in other countries have generally been designed to combine DAA procurement (or other mechanisms to increase access to DAAs) and public health outreach. In the United States, some states have used subscription models and removed coverage restrictions on treatment to increase DAA access. Under such subscription models, one or more drug manufacturers enter into contracts with state governments that allow governments to procure as much hepatitis C medication as may be needed at a fixed price. Government procurement of DAAs through subscription models broadens access to those medications by removing the need for restrictions that payers could otherwise introduce to constrain the costs of the treatments (such as requiring a certain level of disease severity before the payer would cover the cost of the medication).

Treatment programs have been more successful in some places than others. Overall, the evidence suggests that increasing access to treatment can temporarily boost treatment rates. However, barriers to identifying and treating people with hepatitis C who are harder to reach make it challenging to sustain initial increases.

Efforts to Increase Hepatitis C Treatment in the United States

The states of Louisiana and Washington implemented subscription models for treating hepatitis C with DAAs in their Medicaid programs in 2019.²⁰ Both states' programs were designed to pair the new payment model with increased outreach and public awareness. Results from those programs were mixed. The number of people treated in Louisiana increased by 450 percent in the program's first quarter but has since dropped steadily. In Washington, the subscription model did not change the preexisting downward trend in the treatment rate.²¹ Both efforts were hampered by the pandemic and a lack of funding for outreach and related public health initiatives.

Reducing restrictions on hepatitis C treatment in Medicaid is associated with an increase in treatment rates of between 54 percent and 150 percent, but those increases have not been sustained because removing

insurance restrictions addresses only one barrier to treatment and does not remove barriers to screening and diagnosis. When DAA treatment became available, most states' Medicaid programs initially limited treatment to patients with more severe hepatitis C and, in some cases, to those who abstained from substance use. Between 2018 and 2023, many of those restrictions were reduced or eliminated.²² CBO's analysis of states' Medicaid policies shows that, as of 2024, no state's Medicaid program has treatment restrictions based on disease severity, and only 10 states have restrictions related to substance use.

Efforts to Increase Hepatitis C Treatment in Other Countries

Outside the United States, several countries have implemented national hepatitis C elimination programs. In general, those programs combine national DAA procurement with public health outreach. Effects on treatment have been mixed; several countries, including the United Kingdom and Australia, have experienced temporary increases in treatment followed by declines as the remaining people with hepatitis C become more challenging to identify and treat.²³ Egypt, which had a high prevalence of hepatitis C, offered screening for the general adult population and deployed a point-of-care diagnostic test that reduced the time between screening and treatment. Of the 5.5 million Egyptians with hepatitis C in 2015, 3 million had been treated by 2019.²⁴ The experiences of other countries are limited in their applicability to the United States because of differences in how hepatitis C spreads, features of those countries' health care systems (such as national health insurance programs and more centralized provision of health care services), and their approaches to screening and diagnosis (such as the point-of-care diagnostic test used in Egypt).

Budgetary Effects of Increasing Hepatitis C Treatment

CBO is developing its capacity to analyze policies that would expand testing for and treatment of hepatitis C in the United States. To simplify this initial analysis, the agency estimated the effects of specific increases in hepatitis C treatment among Medicaid enrollees. By CBO's estimate, about 5 percent of Medicaid enrollees with hepatitis C receive treatment with DAAs each year under current law.

CBO analyzed the effects of two scenarios: an illustrative peak increase of 10 percent in the treatment rate (from about 5.0 percent to about 5.5 percent of Medicaid enrollees with hepatitis C) and an illustrative peak

increase of 100 percent in the treatment rate (from about 5 percent to about 10 percent of those enrollees) over the course of a five-year program. In both scenarios, treatment rates increase over the first two years, reach their peak in the third to fifth years, decline over the following two years, and return to the currently projected rate in the eighth year. An initial rise in treatment followed by a decline is consistent with experiences in Louisiana and in other countries; however, there is considerable uncertainty about the duration of those elevated treatment rates. The scenarios do not reflect CBO's view of the range or middle of the distribution of potential outcomes for any particular policy.

CBO's assessment of the direction and size of the federal budgetary effects of any particular policy would depend on the direct costs of the policy, including costs of outreach activities and DAAs, and the extent to which those costs were offset by lower spending on health care stemming from higher rates of treatment. Such budgetary effects would be determined by the number of people newly treated and their insurance coverage, both of which would be influenced by the amount, design, and success of outreach efforts. Budgetary effects would also depend on the payment model for covering costs of DAA treatment and the magnitude and timing of any savings from health care costs that were prevented by treating hepatitis C.

Effects on Federal Spending

The effects of a national hepatitis C treatment program on federal spending would depend on the specific details of the policy. Much of the cost of such a program would be spending on DAAs. Under the existing payment system, by CBO's estimate, higher treatment rates would increase federal Medicaid spending by about \$0.5 billion in the first scenario (a 10 percent peak increase in treatment rates) and by about \$4 billion in the second scenario (a 100 percent peak increase in treatment rates) over the 2025–2034 period.

Those estimates reflect the most recently available DAA prices in Medicaid, adjusted for inflation over the 10-year period, and the share of Medicaid spending paid by the federal government (80 percent), which is a weighted average of the federal matching rates for Medicaid enrollees likely to be affected by the policy. Those amounts also include CBO's estimate of the costs of additional testing and diagnosis needed to reach the treatment levels in the two scenarios but do not include funding for outreach activities that, in the agency's

assessment, would be necessary to achieve higher treatment rates under the policy.²⁵ The estimates also do not include funding for new lab equipment and training needed for dissemination of a point-of-care diagnostic test, if the policy resulted in the availability of such a test.

Higher treatment rates could also be funded in other ways. For example, an enhanced federal matching rate could be established for testing and treatment of hepatitis C, meaning that the federal government would pay a larger share of that spending for Medicaid enrollees. Alternatively, a federal program to procure DAAs for Medicaid enrollees could follow state programs and establish a federal subscription model to procure DAAs at a fixed cost determined by negotiations between drug manufacturers and the Secretary of Health and Human Services. Legislation that created a federal subscription model with appropriated funding could cover treatment occurring under current law as well as additional treatment. In that case, state and federal Medicaid spending on treatment occurring under current law would be shifted to the federal subscription model.

Savings From Averted Health Care Costs

Improvements in health resulting from expanded hepatitis C treatment would lead to reductions in per-person spending on health care, a share of which would accrue to the federal government. The amount and timing of savings would be affected by both the number of people treated and the severity of their disease at the time of treatment. For example, a person with advanced liver injury would probably have higher averted costs associated with hepatitis C complications during CBO's standard 10-year period of analysis than someone in earlier stages of the disease, whose liver complications and costs would probably occur largely outside that period.

Research using claims data from 2001 to 2010 suggests that the average costs of managing and treating complications of hepatitis C (not including DAA treatment) in 2023 dollars range from approximately \$2,700 per year for a Medicaid patient in the early stages of the disease to close to \$90,000 per year for a Medicaid patient undergoing a liver transplant because of complications of hepatitis C.²⁶ To assess the potential savings from treating hepatitis C, CBO used those estimates in combination with data drawn from a recent study on the shares of people with hepatitis C in each disease stage and the likelihood that people in each stage will transition to the next stage in each year.²⁷

By CBO's estimate, using that information, a 10 percent peak increase in the hepatitis C treatment rate among Medicaid enrollees would result in averted federal spending on health care of about \$0.7 billion between 2025 and 2034, and a 100 percent peak increase in the treatment rate would result in averted spending of about \$7 billion over that period; in both scenarios, most of the savings would occur in the last five years. Those estimates reflect the prices that Medicaid pays and account for the federal share of the program's spending. The federal government would accrue 80 percent of the total savings, reflecting the federal matching rate for Medicaid enrollees likely to be affected by the policy.

CBO's estimate does not account for people's possible transitions to other sources of coverage after hepatitis C treatment. Instead, in the agency's estimate, people treated for hepatitis C remain in Medicaid through the period when potential health complications might have occurred without treatment. If people who were treated transitioned to other forms of coverage instead, some of the savings in health care costs would not accrue to Medicaid and could accrue to other types of insurance coverage that are subsidized by the federal government to different extents.

When providing budgetary information to the Congress, CBO adheres to laws and rules concerning the federal budget and to a set of principles that include 16 scorekeeping guidelines.²⁸ The 16 guidelines address a range of budgetary situations and affect how the budgetary effects are presented in CBO's cost estimates. Under those guidelines, certain types of savings cannot be included in estimates of the effects attributed to legislation. For example, when funding is provided for program management activities in authorizing legislation, scorekeeping guideline 14 requires CBO to exclude any resulting savings from estimates used to enforce budgetary rules; only the costs of implementing the provision are counted. However, when feasible, CBO estimates such savings and provides the information separately in its cost estimates; those changes are reflected in CBO's baseline budget projections after enactment of the legislation. Similarly, for a

policy that would increase hepatitis C treatment through additional discretionary appropriations, scorekeeping guideline 3 would require that the estimated effects of the bill include changes in the amount of the appropriation but exclude changes in Medicaid spending.

Other Budgetary Effects

By improving health outcomes, an increase in hepatitis C treatment could also affect the federal budget in other ways—for example, by leading to improved longevity and lower rates of disability. Improved longevity would increase outlays for various federal programs that subsidize health insurance, for retirement benefits provided by Social Security's Old-Age and Survivors Insurance (OASI) program, and for disability benefits provided by Social Security's Disability Insurance (DI) program and the Supplemental Security Income (SSI) program.²⁹ Lower disability rates would reduce outlays for the DI and SSI programs, Medicaid, and Medicare.³⁰

Expanded use of hepatitis C treatment might also affect people's labor force participation and productivity through improved health. However, those effects are typically not incorporated in CBO's cost estimates, which reflect the assumption that the overall output of the economy would not change.

Although CBO's cost estimates focus on a 10-year budget period, the agency regularly provides information to the Congress about longer-term effects of proposed policies if evidence supports such effects. For example, CBO previously assessed the long-term effects of a cigarette tax on federal outlays and revenues, assessing the effects of both increased longevity and lower per capita health care spending due to reduced smoking.³¹ Over a longer period, policies to increase hepatitis C treatment could result in greater savings from averted health care costs and reduced incidence of the virus as well as greater costs from increased longevity. In future work, CBO will assess the effects of treating hepatitis C beyond the budget period on a range of federal programs and spending.

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2. The rules governing the Congressional budget process limit the extent to which savings from averted spending can be attributed to specific pieces of legislation. See the section “Savings From Averted Health Care Costs” in this report for further discussion.
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27. Jagpreet Chhatwal and others, *Projected Health Benefits and Health Care Savings From the United States National Hepatitis C Elimination Initiative*, NBER Working Paper 31139 (National Bureau of Economic Research, April 2023), www.nber.org/papers/w31139.

28. For more information on the guidelines, see Congressional Budget Office, *CBO Explains Budgetary Scorekeeping Guidelines* (January 2021), www.cbo.gov/publication/56507.
29. The OASI program pays benefits to retirees, their eligible spouses and children, and some survivors of deceased workers. The DI program pays benefits to workers who become disabled before reaching the normal retirement age for the OASI portion of the Social Security program and to their eligible spouses and children. The SSI program provides income support payments to elderly and disabled people with very low income. Whereas DI beneficiaries qualify for health coverage under Medicare, most SSI recipients qualify for health coverage under Medicaid.
30. Reductions in spending for Medicaid and Medicare would be offset to the extent that people enrolled in other forms of federally subsidized health insurance.
31. Congressional Budget Office, *Raising the Excise Tax on Cigarettes: Effects on Health and the Federal Budget* (June 2012), www.cbo.gov/publication/43319.

This report is part of the Congressional Budget Office's continuing efforts to make its work transparent. In keeping with the agency's mandate to provide objective, impartial analysis, the report makes no recommendations.

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CBO seeks feedback to make its work as useful as possible. Please send comments to communications@cbo.gov.



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