Considering Its Exorbitant Price, Is Hepatitis C Treatment a Good Value?

A recent economic analysis sheds light on whether averting hep C–driven severe liver disease through treatment is worth the expense.

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Pop quiz: Which is true?

1. Treating hepatitis C virus (HCV) is extraordinarily expensive.
2. Treating hep C is a good value to society.
3. All of the above.

In fact, both a) and b) are true, according to a new analysis published in Viral Hepatitis. The study relies on mathematical modeling to determine the economic impact of treating all U.S. residents with genotype 1 of hep C, a subgroup that makes up about three quarters of the national hep C population. Despite the exorbitant associated price tag, society as a whole would benefit economically from such widespread eradication of the virus, thanks in large part to averted medical bills related to the various forms of severe liver disease to which HCV can give rise.

The analysis does not, however, look more narrowly at how individual sources of medical coverage, such as Medicaid or private insurance, may stand to save money in the long run by paying to treat people with hep C today. Such an assessment is tricky to make because the savings associated with paying for an individual's hep C treatment are typically reaped far down the road, through averted illness, by which point an individual cured of the virus may wind up with a different source of insurance. For example, someone on Medicaid who reaches age 65 will need to switch to Medicare.

Instead, the new academic paper takes a more bird's-eye view of economics, comparing overall treatment costs with money eventually saved regardless of who exactly saves it and also factoring in what are considered reasonable sums to spend to extend life and improve quality of life.

The paper's six authors advocate for a national policy regarding hep C care and treatment, something along the lines of the Obama-era National HIV/AIDS Strategy. Such a policy would push for investment into diagnosis, care and treatment of people living with hep C.

"It's best to have a national policy that takes into consideration what is good for society in the long

run," says the paper's lead author, Zobair M. Younossi, MD, MPH, chairman of the department of medicine at Inova Fairfax Hospital and vice president of research at Inova Health System in Falls Church, Virginia.

Crunching the numbers:

The medical bill for care of people with hep C in the United States is an estimated $4.3 billion to $8.3 billion annually. Two thirds of that tab is related to cirrhosis of the liver and one sixth to liver cancer. Curing hep C, especially when individuals have less liver damage, can help prevent such severe forms of liver disease. What's more, hep C does not just harm the liver, but it is also associated with numerous other costly health conditions, such as kidney disease. The virus can also drag considerably on work productivity, dealing the economy an additional blow.

The Viral Hepatitis paper authors estimated that there are 1.52 million people living with genotype 1 of hep C. They then assumed that all these individuals would be treated with one of two all-oral-drug regimens—Harvoni (ledipasvir/sofosbuvir) or Viekira Pak (ombitasvir/paritaprevir/ritonavir; dasabuvir) with or without ribavirin—at an average estimated cost of $89,447 per person. They compared those costs with treating the genotype 1 population with the older, less effective regimens (known as second-generation triple therapies) Sovaldi (sofosbuvir) or Olysio (simeprevir) plus interferon and ribavirin, which cost an average of $90,292 per person.

The researchers also took into account hep C treatment's effect on quality-adjusted life years (QALYs). One QALY is one additional year of life spent in ideal health. If health is compromised, that year of life counts for less than one QALY in proportion to a person's health quality. For example, if a treatment adds two more years of life during which someone's health is only 60 percent of his or her ideal, the treatment is considered to have added 1.2 QALYs.

Economists look at a concept known as "willingness to pay" when analyzing how much money an entity such as a private insurance company is willing to spend to reap an additional QALY on behalf of a beneficiary. For the purposes of this analysis, the study authors used a highly conservative $50,000 as that threshold.

The all-oral and second-generation treatments led to an average additional 3.17 and 2.18 QALYs, respectively, and cost a respective $96,166 and $116,765 per cure.

When considering both the economic benefit of additional QALYs and the savings associated with reduced lifetime treatment costs related to hep C, the investigators found the societal value of a cure was $197,574 for the all-oral regimens and $122,580 for the second-generation treatments. For people with hep C and cirrhosis, the respective corresponding figures were even greater: $227,534 and $125,908.

All told, the study authors estimated that if society invested a respective $128 billion and $109 billion to cover the cost of treating hep C with all-oral and second-generation regimens, it would reap a respective $299 billion and $185 billion in savings over time. Increasing the willingness-to-pay figure from $50,000 to what the study authors considered "a more reasonable" $150,000—a

dollar amount that tends to be more applicable to United States–based economic models—this raised the society-wide benefit of curing everyone with genotype 1 with all-oral regimens to more than $780 billion.

These calculations likely underestimate the positive economic impact of curing hep C because they did not factor in savings related to hep C–driven health problems outside of liver disease; other researchers have estimated that such effects cost the health care system more than $2 billion annually. Nor does the paper consider the economic impact of increased work productivity after individuals have been cured of the virus; other academics have found that lower productivity related to the virus drains an annual $7 billion from the economy and that curing hep C could result in a $2.7 billion annual boost.

Younossi is optimistic that the economic benefits he and his colleagues highlighted in their paper will likely only increase with the introduction of new hep C treatments in the coming years.

“I think what’s going to happen is that the fact that there is market pressure in terms of competition—the negotiated prices for these drugs will go down,” Younossi says. “So that will benefit this model even more. Because the cost of treatment is going to be lower, and the efficacy is going to be the same or higher.”

The cost of treatment aside, simply getting people into a doctor’s office to receive a prescription for hep C medications remains a steep uphill battle.

“The challenge now is to identify the patients,” Younossi says. “We still have a great number of patients out there who are not screened, identified and linked to care.”

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