Why some people would pay for a drug they probably won't ever need

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Nicholas W. Papageorge. Credit: JHU

How about someone who didn't have the disease—would they pay anything? And what if that person smoked?

A sick person is obviously willing to pay for a good medical treatment, but a Johns Hopkins University economist and his collaborators find that healthy people are potentially a much broader, if largely overlooked, market for medical innovations.

In a new paper published by the *Review of Economic Studies*, Nicholas W. Papageorge and his co-authors return to a pivotal moment in pharmaceutical history: the invention of life-saving anti-retroviral drugs to treat HIV infection. They find that the value for this treatment, known as HAART, was high not just for those who were HIV-positive, but also among the much larger pool of uninfected people who feared they could become infected in the future.

"Companies are inclined to make drugs for the diseases that make the largest numbers of people sick," says Papageorge, an assistant professor of economics. "But we say, think about all the people who could get sick—they are willing to pay a lot for the option of having a drug if they need it."

The findings suggest there is likely similar hidden demand for other undeveloped medical technologies—a potentially transformative consideration in an industry where spending exceeds $100 billion a year. Analysis of that demand could ultimately help institutions charged with allocating research dollars - government agencies, foundations and corporate research and development arms - spend the money to develop treatments to help the most people.

The introduction in 1996 of HAART, or highly active antiretroviral therapy, transformed HIV infection from a virtual death sentence into a manageable chronic condition. That change made it possible for the researchers to discern the sometimes surprising ways that HAART affected individuals.

The researchers analysed Multicenter AIDS Cohort Study data from 2,426 men who were observed, on average, 12 times over a 13-year period—from mid-1989 until mid-2002, which means the analysis was both before and after the introduction of HAART.

Though the treatment was obviously a boon for HIV patients, the researchers found that the uninfected wanted the drug to be available too—in case they should ever they need it, almost like an insurance policy.

"Anytime there's a disease where people suspect there's some probability they might get it, they would be willing to pay to find a treatment," Papageorge says. "I would be willing to pay for an Alzheimer's drug or a dementia drug or maybe something for colon cancer because there's some chance I might one day need it."

The researchers also found other reasons healthy people might value a medical innovation.

For instance, they use their model to determine how much individuals would value a hypothetical HIV vaccine. As with HAART, there are obvious beneficiaries and not-so-obvious beneficiaries to a vaccine. Uninfected people would certainly benefit because they could proceed with their lives without fear of infection. Though HIV-positive people wouldn't seem to have any use for a vaccine that would prevent an infection they already have, the researchers find these patients would highly value it for its ability to disinhibit uninfected people, thereby giving the infected more opportunities to find sexual partners.

"The result," Papageorge said, "hinges on the often-overlooked idea in medical literature that while risky behavior might have negative long-term health consequences, it can be enjoyable and therefore valuable, and this should be taken into account when we want to understand the

value of new medicines."

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