

Targeted therapy drugs could radically increase the costs of leukemia treatment

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Adoption of novel oral targeted therapies for treatment of chronic lymphocytic leukemia (CLL) could raise the treatment costs for the blood-system cancer in the U.S. by almost 600 percent. In their analysis in the *Journal of Clinical Oncology*, a Massachusetts General Hospital (MGH)-led research team demonstrates how, at current prices, new targeted therapies for CLL - the most common form of leukemia in the western world - could financially burden patients and payers.

"The rising cost of cancer care is a serious concern," says Jagpreet Chhatwal, PhD, of the MGH-based Institute for Technology Assessment, corresponding author of the paper that has been published online. "The average cost of annual cancer treatment, which was below \$10,000 per patient before 2000 has now increased to more than \$100,000. Such increasing trends can limit access to new therapies, potentially undermining their clinical effectiveness. These new drugs are highly effective, but their high costs motivated us to project their changing economic burden and affordability."

In contrast to chemotherapy, which kills fast-growing cells throughout the body, targeted therapy drugs act by directly interfering with metabolic pathways driving cancer growth. As a result, they have fewer side effects, and they have shown to be better than chemotherapy-based approaches in clinical trials. Several targeted drugs have been approved for CLL treatment in recent years, initially for [patients](#) with specific gene mutation associated with poor survival outcomes or with relapsed diseases resistant to chemoimmunotherapies. Earlier this year oral

targeted therapies became the first-line standard of care for CLL treatment in all patients.

But since these drugs can cost around \$130,000 per year and treatment may be continued indefinitely - compared with \$60,000 to \$100,000 for a single, six-month course of chemotherapy - the researchers investigated the potential financial impact of these drugs on payers' budgets, as well as on Medicare-enrolled patients, who represent the majority of CLL patients in the U.S. Based on both drug costs and the fact that patients receiving targeted treatment are likely to live longer, the researchers projected that:

- per-patient lifetime costs for CLL treatment will increase from \$147,000 to \$604,000 from 2016 onwards,
- the total out-of-pocket costs for Medicare patients will increase from \$9,200 to \$57,000 for patients initiating treatment from 2016 onwards,
- the total annual cost of CLL management in the U.S. will rise from \$0.74 billion in 2011 to \$5.13 billion in 2025, an increase of 590 percent.

Qiushi Chen, PhD, co-lead author of the study and a research scientist at the Institute for Technology Assessment, explains, "Such substantial increases in the cost are mainly driven by high drug prices, prolonged [treatment](#) duration and the increase in the number of patients living with CLL."

Whereas the standard measure used to determine the cost effectiveness of a medical intervention is whether it costs less than \$100,000 for each additional year of life gained, the projected cost effectiveness ratio of oral targeted CLL therapy is \$189,000 for each year gained.

Chhatwal, who is an assistant professor of Radiology at Harvard Medical

School, adds, "At the current average wholesale prices, oral targeted therapies for CLL are not cost effective, and prices would need to drop by 50 to 70 percent to become cost-effective. Studies also have shown that high out-of-pocket costs for [cancer care](#) not only cause financial hardships for patients but also reduce their quality of life through anxiety, stress and worry about paying those large bills. Lower-income patients may be unable to afford these therapies at all."

More information: *Journal of Clinical Oncology*, [DOI: 10.1200/JCO.2016.68.2856](#)

Provided by Massachusetts General Hospital

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