Budget Impact of Introducing Pirtobrutinib After Covalent Bruton Tyrosine Kinase Inhibitor Therapy in Patients with Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma in the US

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OBJECTIVE

- To estimate the budget impact of introducing pirtobrutinib as a treatment option for patients with relapsed or refractory (R/R) chronic lymphocytic leukemia/small lymphocytic lymphoma (hereafter referred to as CLL), who were previously treated with a covalent Bruton tyrosine kinase inhibitor (cBTKi).
  - The budget impact was estimated from US commercial and Medicare payer perspectives over a 5-year time-period (2026–2030).

CONCLUSIONS

- The introduction of pirtobrutinib as a post-cBTKi therapy for patients with R/R CLL resulted in minimal annual incremental costs for both Medicare and commercial payers.
  - In a 1,000,000-member plan, annual incremental PMPM costs ranged from $0.0195–$0.1228 for Medicare and $0.0007–$0.0045 for commercial payers over the 5-year time horizon.
- These findings are driven by the small eligible patient population and are most sensitive to monthly drug acquisition costs and duration of pirtobrutinib therapy.

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BACKGROUND

- Pirtobrutinib is a selective, non-covalent (reversible) Bruton tyrosine kinase inhibitor (BTKi).[1]
- In December 2025, the FDA approved pirtobrutinib for adults with relapsed or refractory CLL after prior cBTKi treatment, based on positive results from the BRUIN CLL-321 phase 3 trial (NCT04666038), which compared pirtobrutinib to idelalisib plus rituximab or bendamustine plus rituximab.[2-3]
- The trial demonstrated improved progression-free survival (PFS) with pirtobrutinib compared with IC (median PFS, 14.0 vs 8.7 months; hazard ratio (HR), 0.54 [95% CI, 0.39–0.75]; P=0.0002) and clinical benefit with favorable tolerability, as reflected by improved event-free survival (median EFS, 14.1 vs 7.6 months; HR, 0.39 [95% CI, 0.28–0.53]; P <0.0001).[2]
- However, real-world analysis on the budget impact of pirtobrutinib adoption in the post-cBTKi CLL setting remains unavailable, underscoring the need for evaluation from both Medicare and commercial payer perspectives.

METHODS

- The model estimated budget impact from Medicare and commercial payer perspectives following pirtobrutinib market introduction.
- Annual incremental total and per-member-per-month (PMPM) costs were estimated over a 5-year period (2026–2030) per million members.

Costs for drug acquisition, administration, monitoring were estimated using published sources.[4-7] Grade 3/4 adverse events were estimated using data from the BRUIN trial, prescribing information, and published literature; costs were associated with an inpatient treatment stay from Healthcare Cost and Utilization Project data.[a,2,7]

Treatment duration of pirtobrutinib was based on the BRUIN-CLL-321 study.[2] For standard of care, the model uses time to treatment discontinuation (TTD) estimates based on post-cBTKi CLL US prescribing information.

Market share data for each treatment option were estimated from the US-based, nationwide Flatiron Health electronic health record-derived deidentified database.[8-9]

- One-way deterministic sensitivity analyses were conducted to test the robustness of the PMPM results.
  - Parameter values in the model were varied by ±20% to introduce a reasonable degree of uncertainty and identify the most influential parameters driving model results.

[a]Costs are weighted by the post-cBTKi market shares for the market scenarios, with the budget impact being the difference of those scenarios.

Model input parameters and estimated number of patients eligible for pirtobrutinib

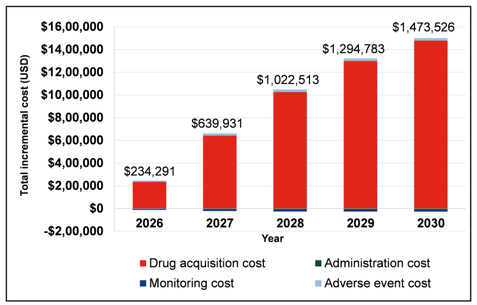
Parameter	Number of patients		Source
	Medicare	Commercial	
Plan population size	1,000,000	1,000,000	Assumption
Number of adult patients	1,000,000	610,215	Medicare: Assumed 100% Commercial: US Census Bureau[10] – 61.0%
Incident model population (CLL)	275.0	10.4	SEER 2017[11]
Patients receiving systemic therapy	97.0	3.7	Lilly data on file[12]
Patients receiving cBTKi therapy	50.4	1.9	Mato AR et al[13]
Patients receiving post-cBTKi therapy	19.9	0.8	Mato AR et al[13]

Annually, 19.9 per million patients with Medicare and 0.8 per million patients with commercial insurance were eligible for pirtobrutinib treatment

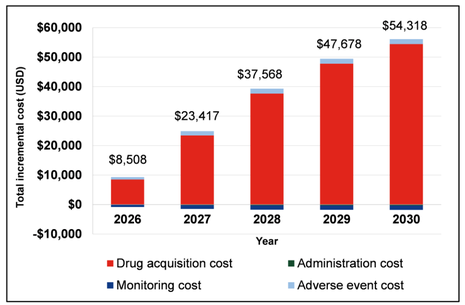
RESULTS

Annual incremental budget impact following introduction of pirtobrutinib

Medicare: Annual incremental budget impact ranged from $234,291 in year one (2026) to $1,473,526 in year five (2030) per million members

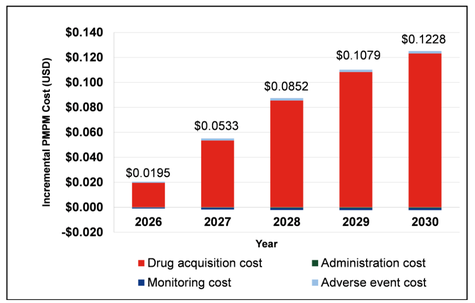


Commercial: Annual incremental budget impact ranged from $8,508 in year one (2026) to $54,318 in year five (2030) per million members

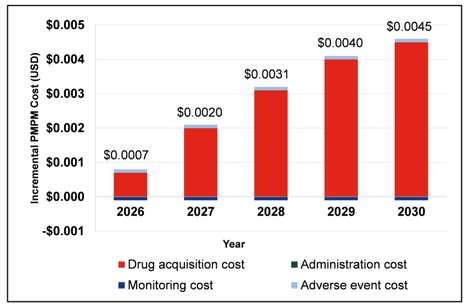


Annual incremental PMPM cost following introduction of pirtobrutinib

Medicare: Annual incremental PMPM cost ranged from $0.0195 in year one (2026) to $0.1228 in year five (2030)

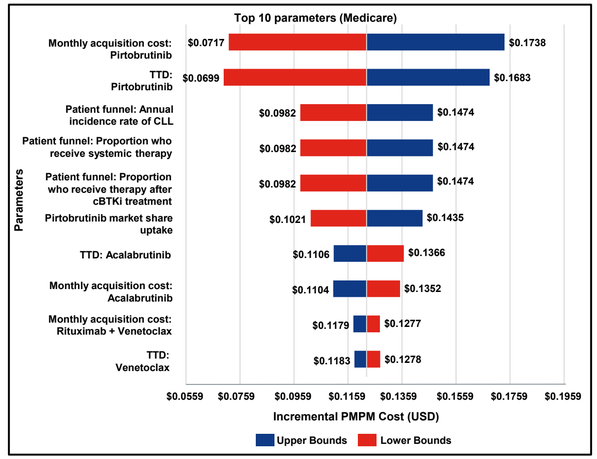


Commercial: Annual incremental PMPM cost ranged from $0.0007 in year one (2026) to $0.0045 in year five (2030)



One-way deterministic sensitivity analyses

The most influential inputs include monthly acquisition cost of pirtobrutinib, TTD of pirtobrutinib, and the incidence of CLL. Similar parameters of greatest impact were seen with Commercial (data not shown).



LIMITATIONS

- Given the low incidence of CLL, few patients are eligible for treatment within the assumed 1,000,000-member plan size. The model estimates fractional patients in the commercial perspective (<1) being treated with each comparator, whereas this is not possible in the real world.
- The model assumed that CLL incidence remains static over the model time horizon.
- Published drug acquisition costs were used, which may not reflect actual price paid by all US payers.
- Market share estimates are assumptions and may not reflect actual use in clinical practice.

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ABBREVIATIONS AND ACKNOWLEDGMENTS

Abbreviations: BR, bendamustine plus rituximab; BTKi, Bruton tyrosine kinase inhibitor; cBTKi, covalent BTKi; CI, confidence interval; CLL, chronic lymphocytic leukemia; IC, investigator's choice; EFS, event-free survival; HR, hazard ratio; IdelaR, idelalisib plus rituximab; PFS, progression-free survival; PMPM, per-member-per-month; R/R, relapsed or refractory; SEER, Surveillance, Epidemiology, and End Results; TTD, time to treatment discontinuation; US, United States; USD, US Dollars

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