

A Cost-Effectiveness Analysis of Pemigatinib Versus Gemcitabine/Cisplatin Therapy in Patients with Cholangiocarcinoma

Anderson L., Bruno T., Villa Zapata L.
Mercer University College of Pharmacy, Atlanta, GA, USA



Background

Biliary tract cancers encompass a wide range of epithelial cancers and are known for their aggressive nature and resistance to chemotherapy. For patients with locally advanced or metastatic cholangiocarcinoma, systemic therapy is currently the most viable treatment option.

Objective

The aim of this study was to compare the cost-effectiveness of pemigatinib to first-line gemcitabine/cisplatin therapy in achieving adequate progression free survival (PFS) and overall survival (OS) in patients with cholangiocarcinoma (CCA).

Methods

The study utilized PFS and OS data from recently published studies related to the treatment of CCA.^{3,4,8}

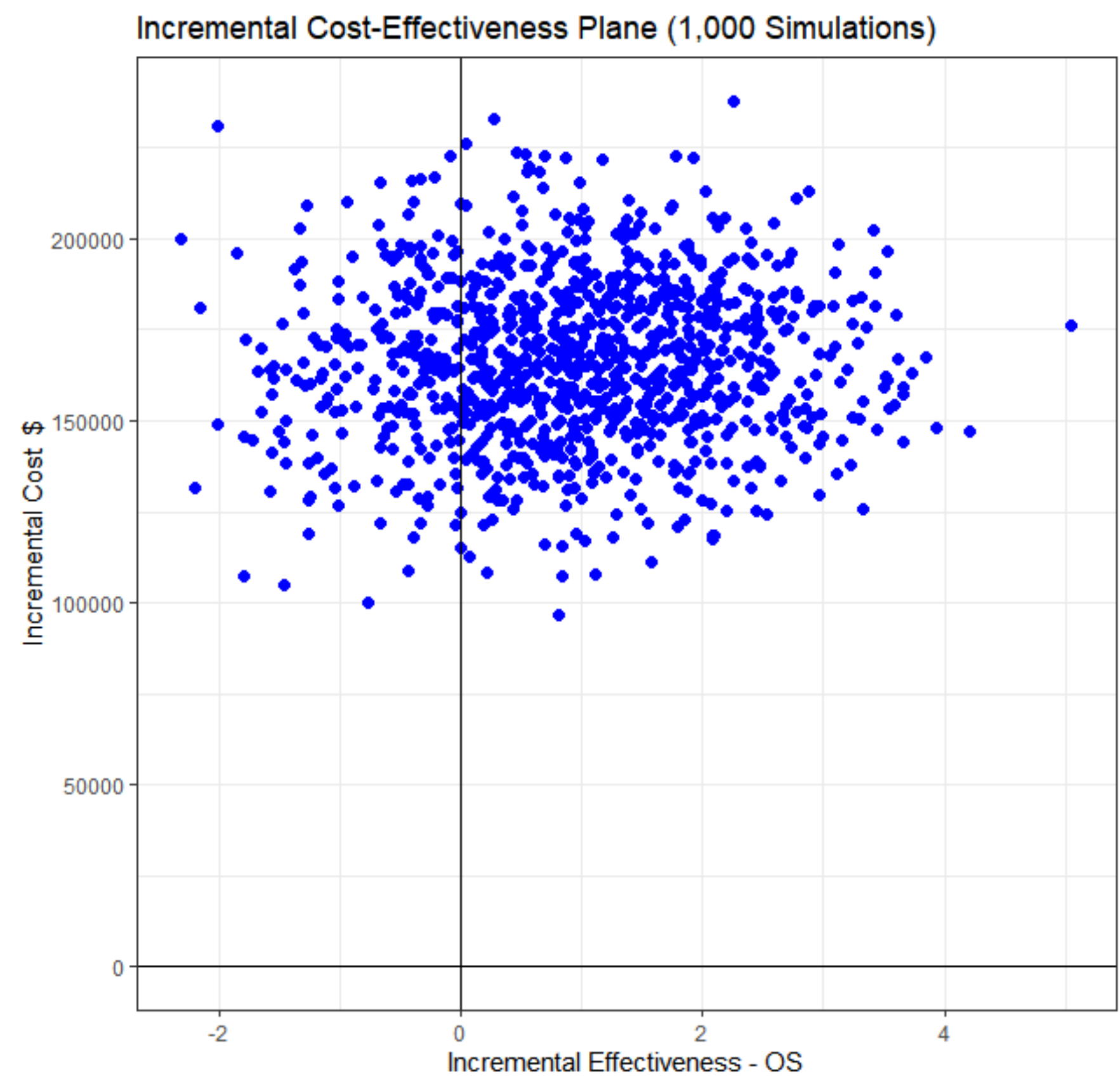
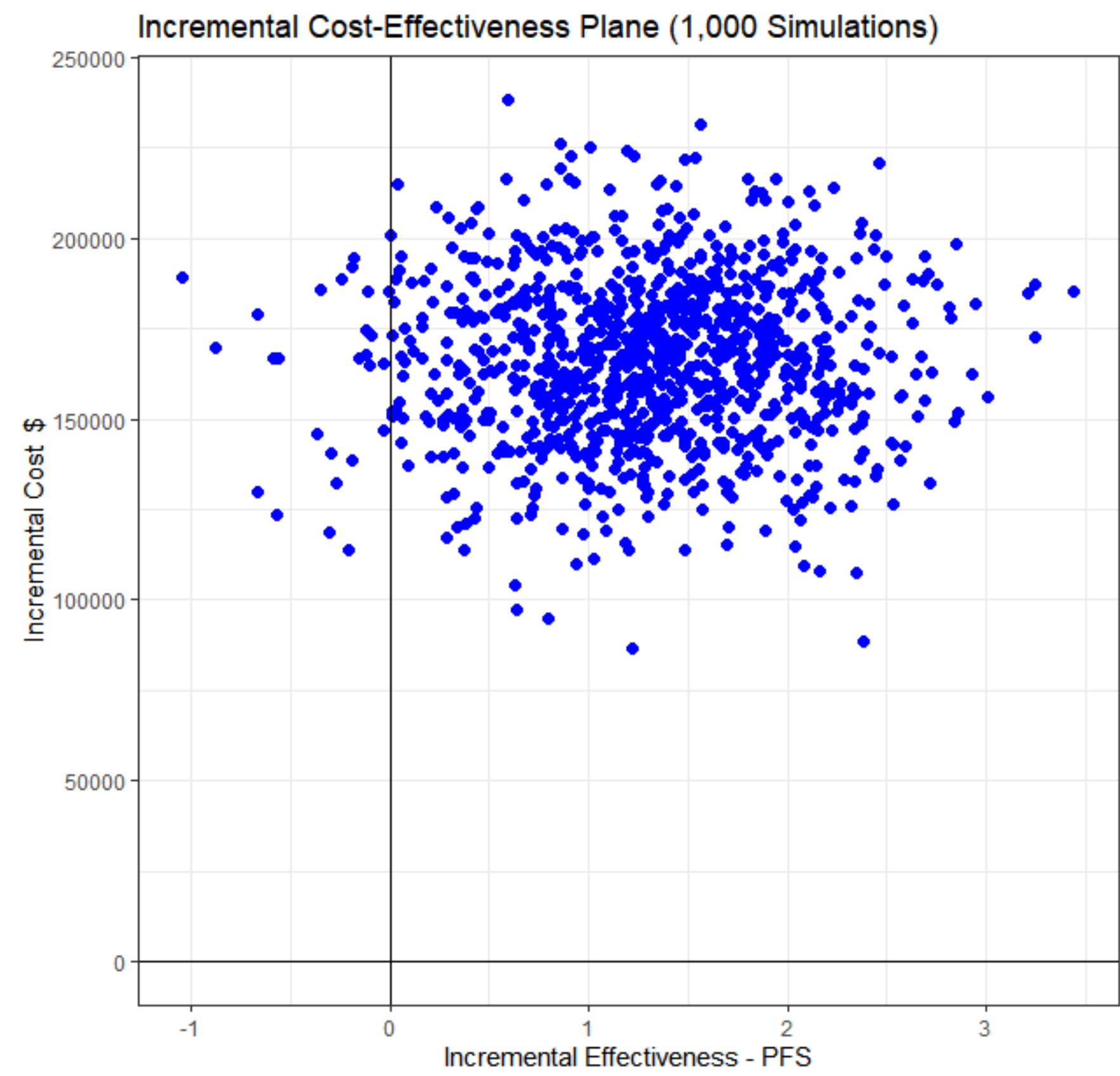
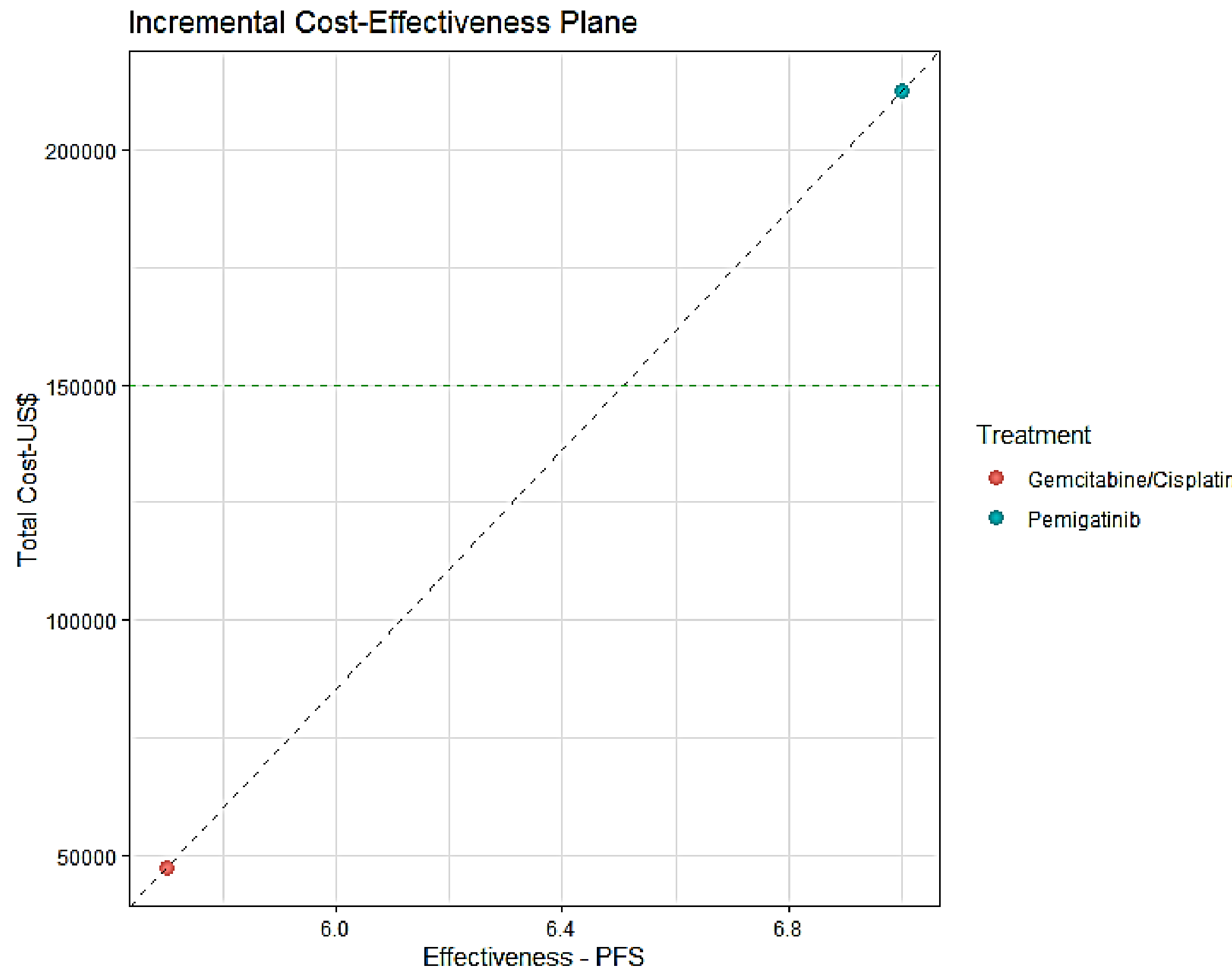
The mean total cost (USD) of therapy was calculated using the sum of direct cost and average costs associated with grade 3/4 adverse events reported in the use of either therapy.^{5,6,7,9}

Effectiveness data used in calculating the PFS ICER were collected from a single study while the data used in calculating the OS ICER were gathered from two separate sources.^{3,4,8}

Simulations were run to assess the impact of variable mean total costs and incremental effectiveness values on the ICER.

An ICER below the threshold of \$50,000 is considered to have high value and is cost-effective, while an ICER above the threshold of \$150,000 is considered to have low value and is not cost-effective.

Results



	Mean Total Cost	Incremental Cost	Effectiveness (months)	Incremental Effectiveness	ICER
Progression Free Survival					
Gemcitabine + Cisplatin	47,480	-	5.7		
PEMAZYRE	212,745	165,265	7	1.3	127,127
Overall Survival					
Gemcitabine + Cisplatin	47,480	-	10.8		
PEMAZYRE	212,745	165,265	11.7	0.9	183,628

According to the data reported, pemigatinib has a higher mean total cost compared to gemcitabine/cisplatin.^{1,2}

The higher cost of pemigatinib is attributed to the direct cost, while the bulk of gemcitabine/cisplatin therapy's cost is from the treatment of adverse events.

Additionally, pemigatinib was reported to have a longer median PFS (7 vs 5.7 months) and median OS (11.7 vs 10.8 months).^{3,4,8}

We calculated pemigatinib's PFS ICER to be \$127,127 and OS ICER to be \$183,628.

Conclusion

Pemigatinib has a higher cost but is also more effective than gemcitabine/cisplatin.

For use in the treatment of patients with CCA, pemigatinib's PFS ICER appears to have intermediate value, while the OS ICER indicates that pemigatinib is low value and not-cost effective.

References

1. Active ingredient: Gemcitabine/Cisplatin. RED BOOK Online. IBM Micromedex [database online]. Truven Health Analytics/IBM Watson Health; 2022. Accessed November 2, 2022. <https://www.micromedexsolutions.com>
2. Active ingredient: Pemigatinib. RED BOOK Online. IBM Micromedex [database online]. Truven Health Analytics/IBM Watson Health; 2022. Accessed November 2, 2022. <https://www.micromedexsolutions.com>
3. Bibeau K, Féliz L, Lihou CF, Ren H, Abou-Alfa GK. Progression-Free Survival in Patients With Cholangiocarcinoma With or Without FGF/RFR Alterations: A FIGHT-202 Post Hoc Analysis of Prior Systemic Therapy Response. JCO Precis Oncol. 2022;6:e2100414. doi:10.1200/PO.21.00414
4. Chantemum C, Thongprasert S, Chewaskulpong B, Munprakan S. Experience with gemcitabine and cisplatin in the therapy of inoperable and metastatic cholangiocarcinoma. World J Gastroenterol. 2007;13(20):2852-2854. doi:10.3748/wjg.v13.i20.2852
5. Rashid N, Koh HA, Baca HC, Lin KJ, Malecha SE, Masaquel A. Economic burden related to chemotherapy-related adverse events in patients with metastatic breast cancer in an integrated health care system. Breast Cancer (Dove Med Press). 2016;8:173-181. Published 2016 Oct 4. doi:10.21147/BCTT5106518
6. Roy A, Kish JK, Bloudek L, et al. Estimating the Costs of Therapy in Patients with Relapsed and/or Refractory Multiple Myeloma: A Model Framework. Am Health Drug Benefits. 2015;8(4):204-215.
7. Sherman SK, Lange JJ, Dahdaleh FS, et al. Cost-effectiveness of Maintenance Capecitabine and Bevacizumab for Metastatic Colorectal Cancer. JAMA Oncol. 2019;5(2):236-242. doi:10.1001/jamaoncol.2018.5070
8. Walden D, Eslinger C, Bekali-Saab T. Pemigatinib for adults with previously treated, locally advanced or metastatic cholangiocarcinoma with FGFR2 fusions/rearrangements. Therap Adv Gastroenterol. 2022;15:17562848221115317. Published 2022 Aug 6. doi:10.1177/17562848221115317
9. Wong W, Yim YM, Kim A, et al. Assessment of costs associated with adverse events in patients with cancer. PLoS One. 2018;13(4):e0196007. Published 2018 Apr 13. doi:10.1371/journal.pone.0196007