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[Advanced Colorectal Cancer](#)

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**Cost-Effective Chemotherapy Treatment for Advanced Colorectal Cancer**

**Minsig Choi**, MD, Mike Griswold, PhD, Tawfiq Khansur, MD  
University of Mississippi and Jackson VAMC, Jackson, Mississippi

**Background:** Colorectal cancer (CRC) is the second leading cause of death from cancer in the United States. Overall survival for stage IV colon cancer has doubled from a median of 12 months to more than 2 years with the use of newer active chemotherapy and biologic agents. These advances have also been associated with a major increase in costs of chemotherapy. With the availability of generic irinotecan since February 2008, the cost of treating patients with an irinotecan-based regimen has decreased by 70%. Hence, cost-effectiveness comparisons between chemotherapy regimens are warranted.

**Methods:** The cost-effective analysis model examined the consequences of care for patients with metastatic colorectal cancer who received either FOLFOX or FOLFIRI as first-line chemotherapy in the Tournigand trial. Since the clinical outcome was similar, we used cost minimization analysis and directly compared the cost of two different regimens. Cancer care cost was based on sum of chemotherapy cost (Medicare reimbursement rate with 85% discount), physician visit, chemotherapy administration cost, toxicity cost, as well as imaging cost. It did not include costs associated with supportive care medication and other indirect costs of patient care. Primary study end point was the cost-savings per patient using the generic irinotecan with FOLFIRI regimen for advanced colorectal cancer patients.

**Results:** Cost associated with chemotherapy and its toxicity using FOLFIRI followed by FOLFOX (regimen A) was \$46,590, while for FOLFOX followed by FOLFIRI (regimen B) it was \$58,644. Chemotherapy cost for FOLFIRI given every 2 weeks was \$955.94 and for FOLFOX was \$3,912.55. During first-line chemotherapy, use of FOLFIRI had a cost-savings of \$34,524 as compared with FOLFOX. In second-line chemotherapy, there was loss of \$19,919 since FOLFIRI patients were treated with FOLFOX. Toxicity cost was generally higher with the FOLFIRI regimen. Overall, use of FOLFIRI as first-line chemotherapy followed by FOLFOX can save \$12,054 per patient. Assuming the same

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amount of chemotherapy for regimens A and B, the cost-saving was higher at \$18,877, while use of FOLFOX4 instead of FOLFOX6 had a cost-saving of \$6,816. With more than 50,000 cases of advanced colorectal cancer/year in the United States, a 10% to 50% change in chemotherapy utilization and adoption of a more cost effective strategy could save about \$60 million to \$300 million.

**Conclusion:** Further study on individual patient data and use of biologics are warranted to understand the full impact of cost and clinical benefit in advanced colorectal cancer. But with the available generic irinotecan, first line FOLFIRI regimen is more cost effective than FOLFOX for advanced colorectal cancer patients.