

6-19-2023

## The Impact of Outpatient Supportive Oncology on Cancer Care Cost and Utilization

Brooke Worster, MD  
*Thomas Jefferson University*

Yifan Zhu, PhD  
*Independence Blue Cross*

Gregory Garber, MSW  
*Thomas Jefferson University*

Sawyer Kieffer, MD  
*Thomas Jefferson University*

Kyle Cibak  
*Thomas Jefferson University*

Below this page of additional work at <https://jdc.jefferson.edu/medoncposters>

[Let us know how access to this document benefits you](#)

---

### Recommended Citation

Worster, MD, Brooke; Zhu, PhD, Yifan; Garber, MSW, Gregory; Kieffer, MD, Sawyer; Cibak, Kyle; and Smith-McLallen, PhD, Aaron, "The Impact of Outpatient Supportive Oncology on Cancer Care Cost and Utilization" (2023). *Department of Medical Oncology Posters*. 18.  
<https://jdc.jefferson.edu/medoncposters/18>

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Department of Medical Oncology Posters by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: [JeffersonDigitalCommons@jefferson.edu](mailto:JeffersonDigitalCommons@jefferson.edu).

---

**Authors**

Brooke Worster, MD; Yifan Zhu, PhD; Gregory Garber, MSW; Sawyer Kieffer, MD; Kyle Cibak; and Aaron Smith-McLallen, PhD

# The Impact of Outpatient Supportive Oncology on Cancer Care Cost and Utilization

Brooke Worster, MD<sup>1</sup>, Yifan Zhu, PhD<sup>2</sup>, Gregory Garber, MSW<sup>1</sup>, Sawyer Kieffer, MD<sup>1</sup>, Kyle Cibak<sup>1</sup>, Aaron Smith-McLallen, PhD<sup>2</sup>

<sup>1</sup>Thomas Jefferson University Hospital, Philadelphia, Pennsylvania <sup>2</sup>Independence Blue Cross, Philadelphia, Pennsylvania



## Population Studied

Using administrative claims from a large insurer in Southeastern Pennsylvania we examined four groups of cancer patients: Treatment group are patients treated for cancer at a large, academic hospital who received SO at the Sidney Kimmel Cancer Center (SKCC) between January 2018 and December 2019 (n=138). Three comparison cohorts were identified as:

- (A) received cancer care from SKCC before January 2018 (n=60),
- (B) received SO care from non-SKCC providers in the Southeastern Pennsylvania region during the program period (n=86), and
- (C) patients of non-SKCC providers who were eligible for but did not receive SO during the program period (n=393).

All observations were used for comparisons of cohorts A and B, propensity score matching was used to identify a subset of similar patients for comparisons involving cohort C (n=138).

- At 30, 60, and 90-days post enrollment into SO, the treatment group had between 27% and 70% fewer inpatient admissions and between 16% and 54% fewer emergency department visits (p's <.05) than non-SO cohorts.
- Total medical costs were significantly lower for the treatment group across all comparisons, including between 4.4% and 24.5 % lower at 90 days post enrollment into SO, with the largest reductions seen in inpatient spending; between 16.6% and 31.2% lower (p's <.05).

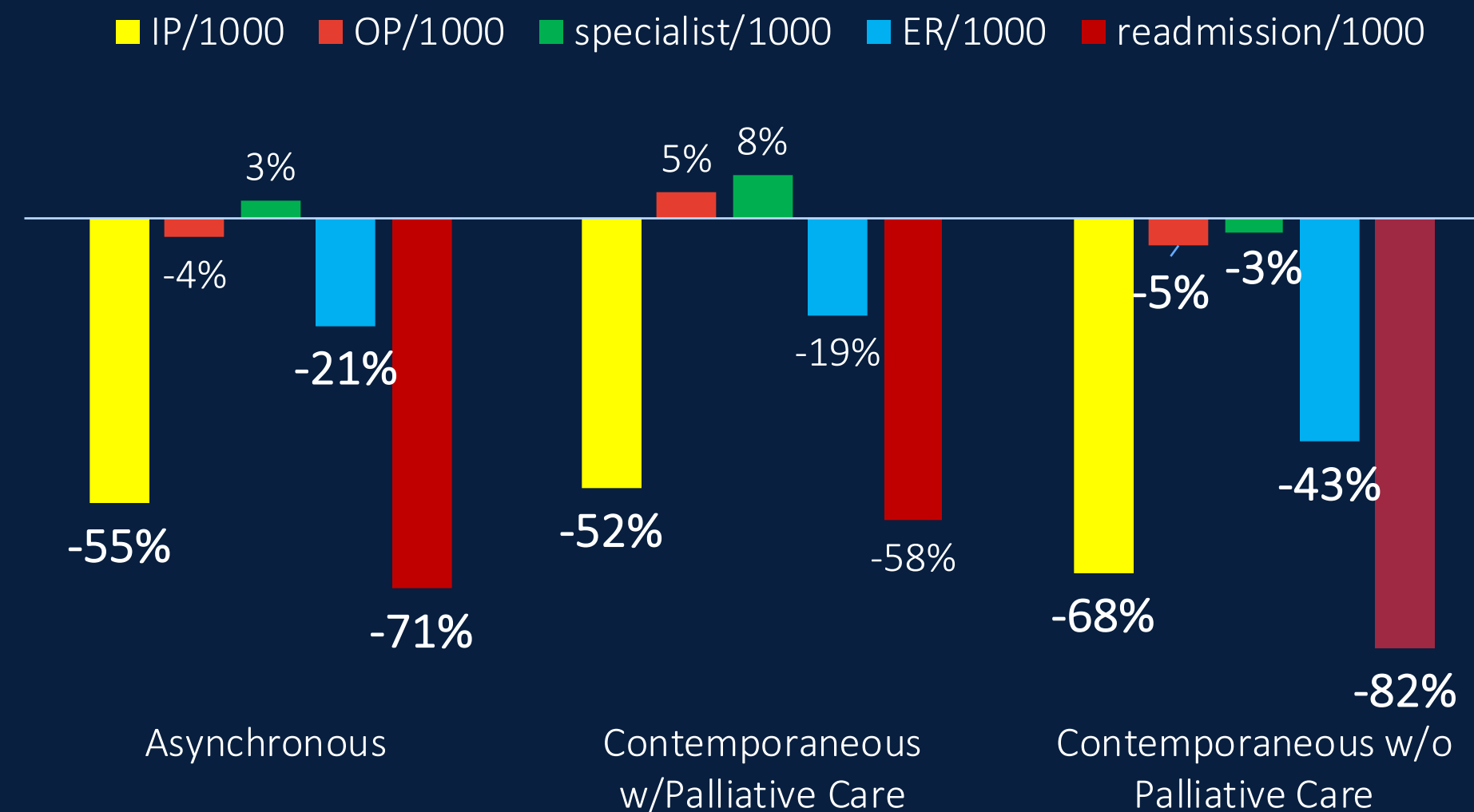
## Research Objective

In patients with advanced cancer, interprofessional, non hospital-based care models of palliative care or Supportive Oncology (SO) have been shown in some studies to reduce symptom severity, hospital admissions, and healthcare costs. However, there is little consistency in the composition of SO programs or the degree of integration of social work, nutrition counseling, patient navigation, and nursing care services. There is limited research on quality of care and cost outcomes and current fee-for-service models do not cover the high costs of these non-billable services. We examine the impact of Interprofessional SO care on utilization and medical costs in patients with advanced cancer.

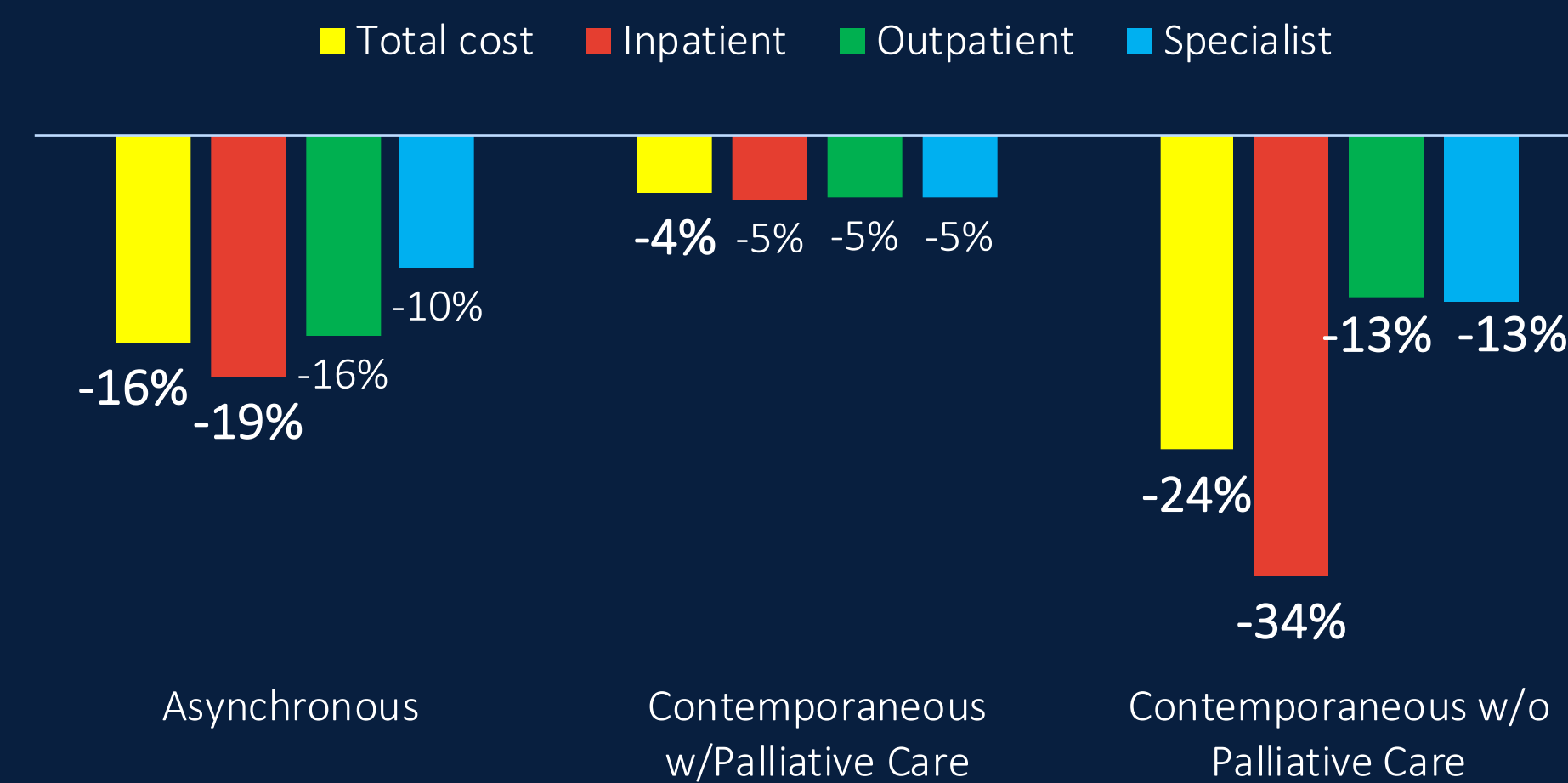
## Study Design

Retrospective analysis of differences in healthcare utilization and cost outcomes between patients enrolled in SO versus comparison cohorts who did not receive SO care. Administrative claims were used to identify comparison cohorts and measure utilization and cost outcomes. Using generalized linear models (GLM) with log link functions, we estimated differences in post-intervention healthcare utilization and cost between the treatment group and three comparison cohorts of patients meeting program inclusion criteria. Utilization outcomes were estimated using a negative binomial distribution, and cost outcomes were estimated using a gamma distribution. Regressions controlled for age, gender, DxCG risk score, chronic conditions, days between secondary malignancy diagnosis and first palliative care intervention, and 10 common diagnosis and procedure codes.

90-Day Post-Treatment Utilization Differences



90-Day Post-Treatment Cost Differences



## Conclusions and Implications

**Conclusion:** SO reduces inpatient admissions and emergency department visits in seriously ill cancer patients leading to lower total medical costs.

**Implications for Policy or Practice:** Developing innovative reimbursement models that support SO services could be a cost-effective approach to improve care of patients with advanced cancer or other serious illnesses, though more research on the impact and efficacy of SO and best practices for implementation is needed.

**Bold** values are significant at  $p < .05$