



2021 MOFFITT CANCER CENTER Total Cost of Care Study



Moffitt Total Cost of Care Study 2021

An analysis was performed for the H. Lee Moffitt Cancer Center & Research Institute in Tampa, Florida, focusing on relative costs of care for patients diagnosed with various cancers. In seeking to understand the cost of care for cancers seen at its facility, Moffitt set out to analyze utilization in light of established standards of care.

Since the stage of the patient is a key determinant in treatment strategy, Moffitt also recognized that an important step would be to separate early stage patients from those with advanced disease using claims patterns thereby supporting the creation of comparable patient groups for meaningful cost comparison.

Moffitt understood that to perform this analysis, it would require more than its internal data, which provided insight only into what was happening to patients within its organization.

Through a collaboration with KPMG LLP, the organization gained access to a large national commercial payer claims dataset, which enabled an analysis to regionally compare Moffitt's spend and utilization among two benchmark groups: large hospitals or "hospitals" (including hospital-based health systems) and community-based health centers or "Community Based Centers" (including small hospitals and oncology practices).



HOSPITALS:
large hospitals,
including hospital-
based health systems



**COMMUNITY
BASED CENTERS:**
community-based
health centers,
including small
hospitals and
oncology practices

Dataset & Methodology

Each patient was pre-identified using the “Expert Determination” (HIPAA) method and assigned a unique, randomized identifier. The identifier linked services, sites and times by patient. The dataset included patient demographics, diagnosis and service information, covering providers, and types and locations of service performed. The data set enabled tracking of a patient’s treatment journey across multiple sites of service, from the time of enrollment in a commercial health insurance plan, through termination of participation in the plan.

Three years of healthcare data were extracted from the claims set (2014 to 2017) to compare total annual costs of care for the patients with breast cancer. Comparison groups were defined to reflect traditional venues of care, while enabling statistical comparisons across all treatment modalities and sites. Both the ‘Hospital’ and ‘Community-Based Center’ comparison groups consisted of facilities, from multiple states in the southeastern United States.

Using ICD coding from 2015 to 2016, attribution rule required patients to have at least **70%** of costs delivered by a single facility or provider group, and less than **1 million dollars** in total cost of care.



The study began by identifying patients within the claims set who had a target cancer diagnosis between 2015 and 2016 defined using ICD coding. The index date of the initiation of cancer treatment was defined by the first claim associated with one of the predefined treatment modality codes. All patients with a previous episode of the target cancer within one year prior to the index date were excluded. Patient claims data were followed for one year after the index date.

Dataset & Methodology *cont.*

From the claims included in the study, an interdisciplinary clinical and finance team identified and built out various similar patient peer groups for comparative analysis. For example, virtually all newly-diagnosed patients with early stage cancer have surgery as part of the initial disease management, so the presence of surgery codes in the claims set could be used as surrogate for newly-diagnosed, early stage breast cancer based on this treatment modality. This group of patients most commonly represents early stage disease. The outcome measures for the study were average total cost of care for one year per patient for the Moffitt and for the comparison groups.

A simple attribution rule was applied after the identification of all healthcare claims for eligible patients that required patients to have at least 70% of their costs delivered by a single facility/provider group. The intent was to attribute the majority of the patient's cost to a single provider system with the assumption that the attributed provider would be substantially responsible for the patient's treatment and treatment-related decisions. Patients that did not meet the 70% threshold were excluded from the analysis. Additionally, patients with total costs of care exceeding one million dollars during the study period were excluded from the analysis as this group represented a significant outlier in cost.

For cancer treatment, each healthcare claim for every patient was classified into four major treatment modalities: surgery, radiation therapy, chemotherapy, and other. These modalities were defined using a combination of ICD-10, CPT and DRG codes. All claims pertaining to the patient were uniquely assigned to one of the four categories thus eliminating the possibility of duplicate claims for that patient.

All claims were uniquely assigned to one of four major treatment modalities, thus eliminating the possibility of duplicate claims for the patient.



SURGERY



**RADIATION
THERAPY**



CHEMOTHERAPY



OTHER

Findings

Following application of the attribution logic, Moffitt found that 65% of its patients met the 70% care threshold, while 63% of the comparison groups met the threshold.

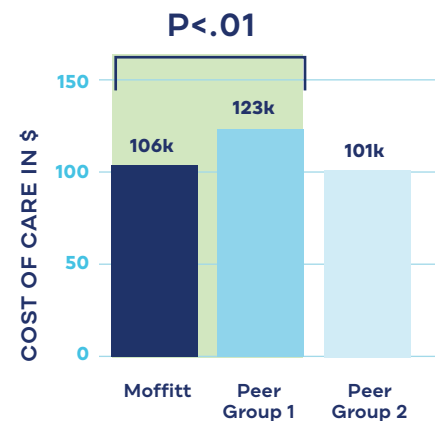
There were a total of 2,193 patients with breast cancer in the database, 266 of which were attributed to Moffitt, 942 to Hospitals, and 985 to Community-Based Center.

For the 266 Moffitt patients, the average annual total cost of care was \$106,220. For Hospitals, the average annual total cost of care was \$123,258, and for Community-Based Center, the average annual total cost of care was \$101,041. Moffitt had a statistically significant lower average total cost of care compared with Hospitals ($P < 0.01$). However while lower in total cost, the difference between Moffitt and Community Based Centers was not statistically significant ($P < 0.39$).

Patients included in the analyzed population included all stages of cancer presentation. This initial analysis was not weighted by stage making reliable comparisons of cost problematic. Similar to using levels of trauma to compare costs across diverse groups of trauma patients, staging information can be used to compare costs among similar patients.

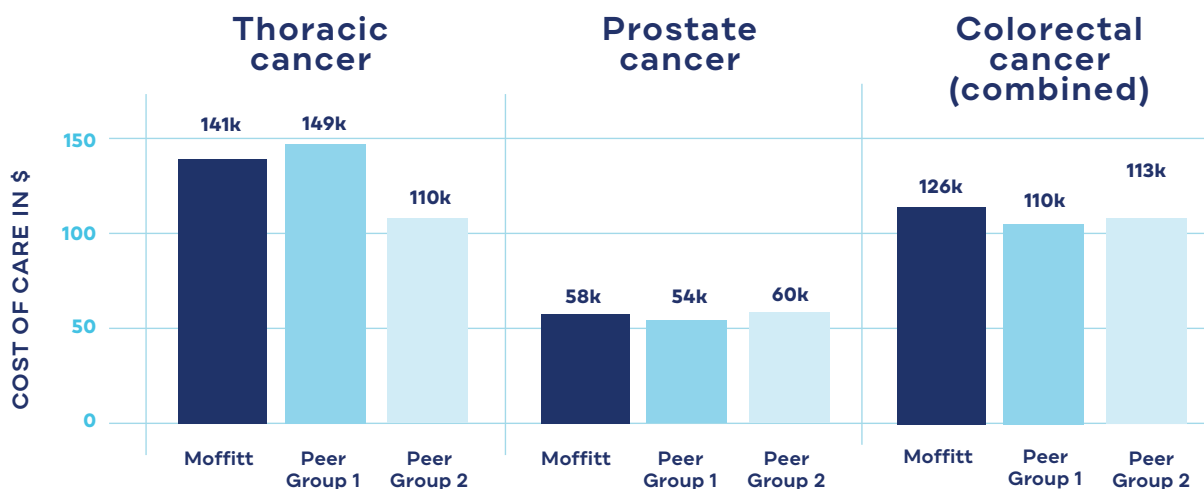
Figure 1:

Total Cost of Care, Pre-Stratified Breast Cancer Patients



Moffitt breast patients had a 14% lower average TCC when compared with Peer Group 1.

Figure 2: Total cost of Care of Pre-Stratified Patients



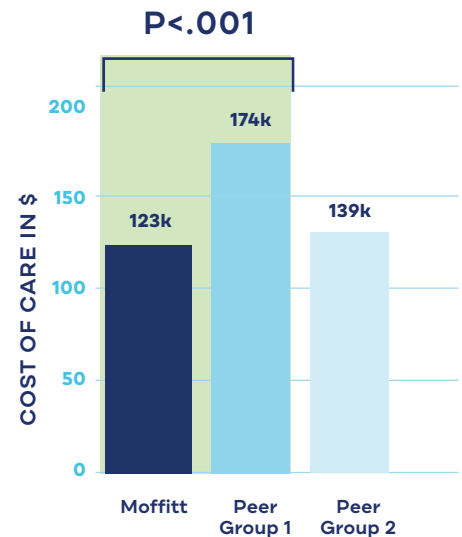
Similar to the breast cancer pre-stratified subset, patients in the analyzed data included all stages for each cancer type.

Using claims to identify the patient sub-population having newly-diagnosed, early stage breast cancer, a total of 433 patients of the 2,193 patients with breast cancer had surgery and met the newly-diagnosed early stage cancer criteria. Seventy-six patients were attributed to Moffitt, 175 to Hospitals, and 182 to Community-Based Centers. The average annual total cost of care for patients attributed to Moffitt was \$123,328. For Hospitals, the average annual total cost of care was \$174,648 and for Community-Based Centers, it was \$139,447. Moffitt patients had significantly lower average total cost of care than Hospitals ($P < 0.001$). Though not statistically significant ($P = 0.17$), total cost of care for Moffitt compared to the Community-Based Centers was lower for Moffitt patients.

As the findings and approach matured, the study was expanded to include lung, prostate, colon and rectal cancers. To create homogenous groups for analysis, newly-diagnosed, early stage lung, colon, and rectal cancers were again identified using surgery as a trigger; early stage prostate was identified using either surgery or specific radiation therapy codes. The study found that in lung cancer, Moffitt costs were significantly lower than either peer. In early stage rectal cancer, Moffitt was significantly less expensive than the Community-Based Centers. In all other diseases, no statistical differences in costs compared to either peer group were seen indicating that Moffitt total costs of care was comparable to both peer groups and not more expensive when viewed over time.

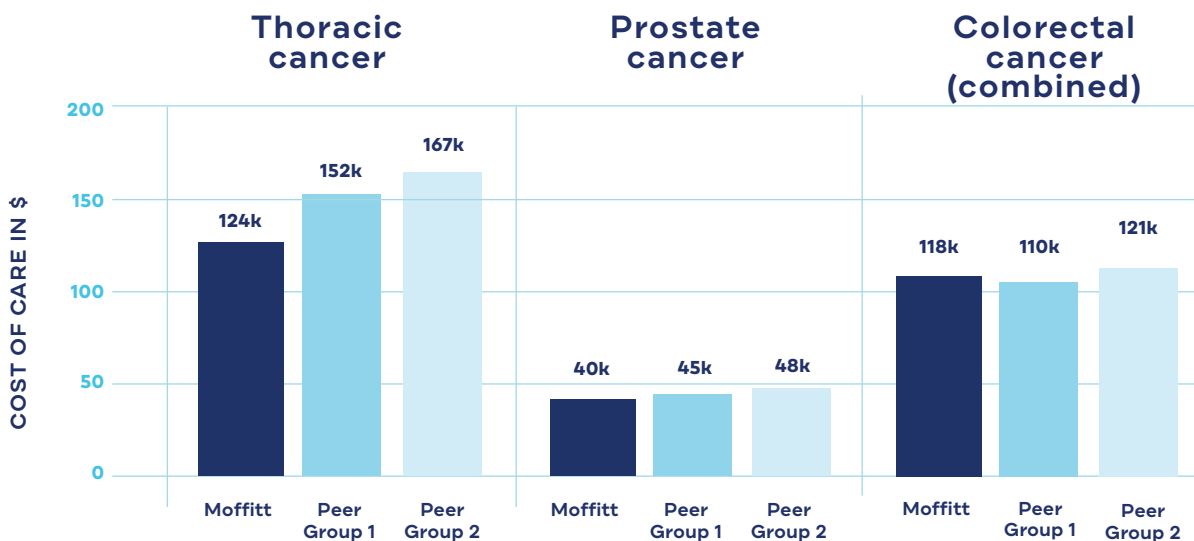
Figure 3:

Total Cost of Care, Post-Stratified Breast Cancer Patients



Moffitt attributed breast patients have the lowest TCC when the patient had surgery. Costs were 30% lower than Peer Group 1 and 12% lower than Peer Group 2, respectively.

Figure 4: Total cost of Care, Post-Stratified Patients



Newly diagnosed, early stage cancers were identified using surgery as a trigger. Moffitt attributed patients had the lowest TCC for thoracic and prostate cancers than both Peer Groups.