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Computing the Cost of Care per Day for Patients with Metastatic NETS

Divya Gupta¹; Kristopher Kapphahn¹; FeiFei Qin¹; Kathleen Hornbacker¹; Solomon Henry¹; Douglas Wood¹; Douglas Blayney¹; Pamela Kunz¹

¹Stanford University

BACKGROUND: Patients with low grade metastatic neuroendocrine tumors (NETs) usually have a long median survival and require complex but expensive care at multidisciplinary centers. The cost burden for patients and institutions serves as a barrier to care for these patients. Understanding the drivers of these costs and whether intense monitoring adds value will help to optimize value-based care for patients.

METHODS: We adapted the cost of care per day (CCPD) method to measure the cost of monitoring while accounting for varying follow-up duration [Blayney JCO 2018]. We queried the Stanford NET Database (derived from the Stanford Cancer Institute Research Database), which aggregates data from the electronic health record and other electronic sources. NET patients diagnosed with metastatic disease between 2010 to 2017 who had two or more surgery, chemotherapy or radiation-related encounters at Stanford within 3 years of metastatic disease diagnosis were studied. Common Procedural Terminology (CPT) codes assigned to each service were tallied and mapped to the corresponding Medicare fee schedule code and date.

Results: 126 patients were studied; mean age 65.5, 50% female, 50% male, 67% white, 8% Asian, 4% black. Primary tumor sites: pancreas(26%), small intestine(26%), lung(13%). 10% of tumors were functional, 11% non-functional, 80% unknown. Stage at diagnosis: 3% T1, 10% T2, 12% T3, 10% T4. Tumor grades: 17% grade 1, 21% grade 2, 15% grade 3, 48% without. Mean CCPD was \$140.70, of which chemotherapy was 41%, surgery 7%, radiation 8%, imaging 17%, labs 8%, outpatient 12%, and inpatient 2%.



CONCLUSION: This study supports that CCPD can be applied to other tumor types beyond breast. This model identifies drivers of cost and where interventions to lower cost would have the greatest impact in decreasing total spending on high-quality oncology care. Future studies should evaluate the correlation between high-cost patients and survival and capture costs beyond those at Stanford.