

The Effect of Increased PET Imaging on the Staging, Outcomes, and Health Care Utilization of Medicare Non-Small Cell Lung Cancer Patients

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Abstract: Positron Emission Tomography (PET) is an advanced imaging modality that was first approved by Medicare in 1998 to differentiate between malignant and benign solitary pulmonary nodules. It has since has experienced rapid uptake in clinical practice among both Medicare and privately-insured non-small cell lung cancer (NSCLC) patients, despite a lack of large randomized trials examining how the use of PET affects NSCLC patient outcomes. The three studies in this dissertation used Surveillance Epidemiology and End Results (SEER)-Medicare data from 1992 to 2005 to examine how the widespread adoption of PET has affected the evaluation, staging, treatment, and health care utilization of Medicare beneficiaries with NSCLC. By 2005, more than half of all NSCLC patients received one or more PET scans. Despite widespread adoption of PET overall, differential rates of PET utilization within sociodemographic and regional subgroups persisted through 2005, with lower rates of PET use observed among blacks, patients older than age 80, and patients living outside the Northeast. Widespread adoption of PET was accompanied by an increase in the proportion of cancers staged as unresectable, reduced rates of lung resection, and decreased inpatient health care expenditures by 2005. During the same period, the proportion of patients undergoing chemotherapy increased, resulting in an overall increase in expenditures for Medicare beneficiaries with NSCLC. The widespread use of PET among the Medicare NSCLC occurred non-uniformly, induced stage migration, changed patient treatment and costs, but did not improve overall survival. In the era of individualized medicine, the role of PET may shift from an initial diagnosis and staging modality to a role in treatment evaluation. The increased use of PET in the Medicare NSCLC patient population and how it affects patient management and health care utilization remains an important area of ongoing research and evolving health policy.

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