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Cost Benefits of Using Medical Isotopes

Of the $228 billion lost annually by the United States because of cancer, 60% is estimated to come from loss of productivity, while 40% ($93 billion) is attributable to direct medical costs ("Cancer Facts & Figures 2008," American Cancer Society). Improvements in human health through the use of medical isotopes for more accurate diagnosis and more effective treatment could certainly have a positive effect on productivity, thereby saving untold millions to billions. For example, with outpatient medical isotope brachytherapy for localized prostate cancer, patients can return to work within days as opposed to weeks with surgery ("Prostate Cancer Comparative Modalities").

An example scenario indicates a significant savings: If 20% of the 15,000 people diagnosed annually with acute leukemia (3000 patients) could each be spared $50,000 worth of costs in avoiding just one repeat round of chemotherapy, the resulting savings could be over $150 million dollars. Avoiding expensive bone marrow transplantation for 10% of the patients at a cost of $100,000 would save another $150 million, resulting in a potential savings of $300 million annually (Some data drawn from"Funding the Treatment of Leukaemia: Many Points to Consider" Drug & Ther Perspect 14(8): 13-16, 1999@ 1999 Adis International Limited).

Thyroid cancer was one of the very first cancers to be targeted with medical isotopes. Currently medical isotopes are administered as a standard of care in the most common forms of thyroid cancer, resulting in a 95% cure rate and at a cost less than $15,000 per patient. This compares with an average of about $165,000 per patient in direct medical costs from all types of cancer (ACS 2008). Thyroid cancer represents a very minor portion of the overall national cancer costs - a true medical isotopes success story.

The Society of Nuclear Medicine met in June of 2001, during which over 2000 studies were presented. One study described a healthcare cost savings analysis on a medical isotope procedure capable of more accurately assessing breast cancer, thereby avoiding unnecessary biopsies. The study calculated an $885 million dollar annual savings for this one medical isotope procedure (J.M. Zubeldia, et al, "Economic impact of adding 99mTc-SESTAMIBI Scintimammography to mammography in patients with dense breasts and birad 3 category: A cost analysis" State University of New York at Buffalo, Buffalo, NY).

Positron Emission Tomography (PET), a new medical isotope diagnostic tool, is making great waves in the medical community because of its ability to more accurately identify recurrent disease and help doctors make better decisions on the best methods of treating their patients. For example, a recent study showed PET to be seven times more accurate in evaluating children's cancers than conventional diagnostic procedures.

A study of the cost-effectiveness of utilizing PET for lung cancer, recurrent colorectal cancer and metastatic melanoma found PET to be 20% to 30% more sensitive in detecting tumors. Better detection, obviously, means better treatment. In many cases unnecessary surgeries were thus avoided, resulting in an overall savings of $3,700 per patient (Valk, Peter E., M.D.,"Impact of FDG PET on Oncologic Patient Management"). If just 10% of the annual population of lung, colorectal and melanoma patients were to benefit from PET procedures, the national savings would be over $131 million annually.

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