A COMPARISON OF MEDICAL COMPUTED TOMOGRAPHIC UTILIZATION AND POTENTIAL RELATED CANCER RISKS IN THE UNITED STATES AND IN CANADA

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OBJECTIVES: To compare Computed Tomographic (CT) utilization and potentially related cancer risks in the United States and in Canada. **METHODS:** While CT scans can provide great medical benefits, there is growing concern about potential cancer risks because they deliver much higher radiation doses than do conventional diagnostic x-rays. Using epidemiological databases, we developed a risk projection model to assess radiation exposure from CT use, to estimate the number of CT related incident cancers, according to age, gender, and CT scan type in Canada. 95% uncertainty limits (UL) using Monte Carlo simulations were estimated. These results were compared to projected cancer risks from CT scans performed in the United States. **RESULTS:** In 2007, there were 240,000 and 114,000 CT examinations per million population in the United States and Canada, respectively. Scans of the abdomen/pelvis, brain, and thorax accounted for 88% and 78% of all CT scans in Canada and the United States. We estimated 46 (95% UL 24 - 89) potential CT-related incident cancers per million in Canada, compared to 98 (51 - 152) in the United States. In the United States, 48% of potential cancers might be attributed to abdomen/pelvis CT scans, while in Canada the estimate is 66%. In Canada, 36 (18 - 71) and 56 (29 - 106) potential cancers per million were estimated for males and females, respectively. In the United States, the estimates were 76 (41 -110) and 119 (60 - 185) per million for males and females, respectively. **CONCLUSIONS:** Given the different patterns of care in the United States and in Canada, our findings might have important health policy implications. Strategies to monitor the appropriate use of CT scans, especially CT abdomen/pelvis, should be followed. Efforts to reduce cancer risk might include decreasing the number of decisionally marginal CT scans, as well as the dose per scan.

PCN129

ESTIMATING THE COST FOR PROSTATE CANCER (PCA) SCREENING USING THE PROSTATE, LUNG, COLORECTAL AND OVARIAN CANCER SCREENING TRIAL DATA

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OBJECTIVES: To assess the impact of not screening for prostate cancer among a hypothetical population of men >55 years of age. **METHODS:** Sample included PLCO Screening Trial intervention participants without cancer at T0 (n=33,709) through 2011. Inclusion criteria: age ≥55 years, and adequate PSA or DRE exam at entry. Cancer was considered clinically significant if patient had confirmed PCa with Gleason score ≥7. Estimated PCa expenditures were based on Medicare costs. Results were projected to SEER incident population (n=202,500 with localized cancer). **RESULTS:** Among 2,580 PLCO men identified and treated for PCa after T0, estimated total expenditures were: $61.5 million, with $23,804 per treated patient. Among 377 PLCO men with clinically significant cancers who received treatment, estimated total expenditures were $8.6 million (mean, $22,742 per patient). Among 549 PLCO men with clinically non-significant PCa identified and treated after T0, estimated total expenditures were $13.6 million ($24,831 per case). Extrapolated nationally to 96,000 clinically significant PCas annually, annual initial diagnosis/ treatment costs would be $2.4 billion. Adopting draft USPHSTF recommendations would result in $2.4 billion in initial savings ($23,804/patient). Many of these men will subsequently present with clinically significant PCa, will require systemic therapy, and will die from PCa, with total costs far exceeding $2.4 billion. **CONCLUSIONS:** The 2011 USPHSTF Task Force draft policy currently grades PCa screening as "(D)- do not discuss with patients." A more rational policy would be to screen appropriate men for PCa and to treat early clinically significant PCa with surgery or radiation.

PCN130

APPROVALS AND MARKET DISCONTINUATIONS OF ONCOLOGY DRUGS IN THE UNITED STATES (1980-2012)

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OBJECTIVES: We sought to describe the new molecular entities (NMEs) and new therapeutic biologic applications (BLAs) approved by the US Food and Drug Administration (FDA) in the period 1980-2012, and to assess differences in drug approvals and discontinuations between oncology products and products from other therapeutic classes. **METHODS:** Drug approval data were collected from FDA databases publicly available on its website, and the FDA Approved Drug Products with Therapeutic Equivalence Evaluations (1980-2012). The unit of analysis was the pharmaceutical active ingredient or combination of ingredients approved by the FDA. Data were updated to December 31, 2012. Descriptive analysis and the chi-square test were used in the analysis. **RESULTS:** The FDA listed 2,479 approved active ingredients or combinations of active ingredients in the period 1980-2012; including 99 BLAs and 2,380 NMEs. Oncology products represented 5.3% (n=126) of NMEs and 43.4% (n=43) of BLAs. The FDA listed 34 oncology products approved before 1980, 12 in the 1980s, 49 in the 1990s, 51 in the 2000s, and 23 in 2010-2012. The oncology products (0.6%) and other products (23.8%) were approved as a fixed-dose combination (p<0.001). In January 1, 1980 the FDA listed 949 products of which 33 (3.5%) were oncology products. In the period 1980-2012, the FDA approved 1,530 products, including 136 oncology products (8.9%). In December 31, 2013, 92.9% of all the approved oncology products and 68.7% of other products were listed as marketed by the FDA (p<0.001). **CONCLUSIONS:** Oncology drugs experienced a rapid increase in approvals in the past 2 decades while the approvals in other therapeutic classes declined significantly. Biologics represented a larger proportion of the approvals of oncology products than products from other therapeutic classes. Pharmaceutical companies continue to invest in R&D in oncology and other niche markets without adequate therapeutic alternatives.

PCN131

USE OF SMOKING CESSATION AGENTS IN PATIENTS WITH LUNG CANCER: AN EXPLORATORY STUDY

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OBJECTIVES: Lung cancer is the most frequent cause of cancer death with cigarette smoking being the number one risk factor. Nearly 90% of lung cancer deaths are attributable to smoking. Smoking in patients diagnosed with lung cancer decreases the rate of survival, quality of life, and reduces the effectiveness of medical treatment in these patients. One of the ways to stop smoking is through the use of smoking cessation agents. The purpose of this study is to explore the prevalence of smoking among lung cancer patients and patient reported use of smoking cessation agents using a national dataset. **METHODS:** A retrospective study was done to identify lung cancer patients (ICD-9 = 162) who smoke and those who use smoking cessation agents from 2006-2010 using Medical Expenditure Panel Survey (MEPS) data. Number of patients who smoke and those who use smoking cessation agents were described. **RESULTS:** Data from five years identified nearly 260 lung cancer patients. Out of these, 48 patients, accounting for 18.4% prevalence, reported smoking even after diagnosed with lung cancer. Percentage of female smokers was 58.33% while that of males was 41.66%. Medication history for these patients revealed a very low proportion, (i.e. 6/48 or 12.5%) reported using any form of smoking cessation agents. **CONCLUSIONS:** It is evident from the results that significant numbers of patients continue smoking even after diagnosis. This might be an underestimated number as this was patient reported information. There may be more patients that have not reported smoking because of social dogma. This shows that the non-medical efforts to quit smoking might have been unsuccessful. Also, the use of smoking cessation agents among these patients is extremely low. This is an alarming matter and future research should focus on identifying barriers to use of smoking cessation agents and approaches to address those barriers.

PCN132

UTILIZATION OF BEVACIZUMAB AMONG MEDICARE PATIENTS WITH COLORECTAL CANCER RECEIVING CHEMOTHERAPY

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OBJECTIVES: Bevacizumab (Bev, Avastin®), the first FDA-approved anti-angiogenesis agent, has been used as adjuvant therapy for the treatment of metastatic colorectal cancer (mCRC) since 2004. This study aimed to evaluate the utilization of Bev among elderly mCRC patients aged 65 and older within the US. **METHODS:** This retrospective cohort study used the SEER-Medicare data. Our cohort included individuals aged 65 years or older who were incident CRC patients diagnosed in 2005-2007 and received chemotherapy at any time through December 2009 (date of first chemotherapy = index date). This included patients with newly diagnosed metastatic disease, as well as CRC patients who progressed from initially diagnosed localized/regional disease (recurrence). We ascertained comorbid conditions using ICD-9 codes from inpatient, outpatient, and physician claims within one year prior to the index date. Logistic regression adjusted for patient characteristics was conducted to assess the likelihood of Bev use. **RESULTS:** A total of 6,804 patients were identified. The mean age at index date was 74 years and 50.3% were male. There were 2,792 (41.0%) patients received Bev, among which the average number of Bev cycles was 11.9 (median=9). Bev was used in 64% of patients with metastatic CRC and 26% of patient with recurrent disease. After adjustment for all other variables, we found that patients were less likely to receive Bev if they were with age>=80 compared with those aged 65-69 (adjusted odds ratio [OR] = 0.81 [95% CI: 0.69-0.94]; p<0.01), or had evidence of arterial thromboembolism (OR = 0.70 [0.54-0.90; p<0.0001) prior to chemo initiation. We also observed a trend of increasing Bev use over calendar time as well as substantial geographic variation in its use. **CONCLUSIONS:** Less than half of Bev-indicated patients received Bev in US Medicare population. Patients' age and history of arterial thromboembolism significantly contribute to the low utilization of Bev.

PCN133

FACTORS ASSOCIATE WITH UTILIZATION OF TRADITIONAL CHINESE HERBAL MEDICINE: EVIDENCE FROM 5 YEARS INPATIENT RECORDS IN TCM HOSPITALS IN CHINA

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OBJECTIVES: To analyzed the pattern and factors associate with the utilization of Traditional Chinese Herbal Medicine (TCHM) in Traditional Chinese Medicine (TCM) hospitals in China. **METHODS:** We examined 87,248 inpatient records in 100 TCM hospitals from 2003 to 2007. Use of TCHM are analysed by a logit model. Major factors associate with the utilization includes patients' and hospitals' characteristics. **RESULTS:** TCHM use is positively related to a patient's age. Female, ethnic group, health insurance status, and disease types also associate with TCHM utilization. Patients in critical conditions (OR=1.27, P<0.01) are more likely to use TCHM than those in stable conditions. However, patients admitted from emergency department are less likely to use TCHM (OR=0.75, P<0.01).