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OBJECTIVES: To compare the cost-effectiveness of various cervical cancer (CxCa) screening algorithms to primary screening with the cobas HPV Test, which identifies HPV genotypes 16/18 individually while simultaneously detecting the other high-risk HPV types. **METHODS:** A cohort Markov model was developed to compare four CxCa screening strategies: (S1) cytology with reflex HPV, (S2) cytology and HPV co-testing, (S3) HPV with reflex cytology, and (S4) cobas HPV with genotyping and reflex cytology. Screening began at age 30 with a routine screening interval of every 3 years, and was modeled over a time horizon of 40 years. Performance of the overall screening strategies, ie, sensitivity and specificity for CIN 2/3, was derived from the ATHENA (Addressing THE Need for Advanced HPV Diagnostics) trial. Trial baseline data were used for the base case, and 1-year follow-up outcomes were estimated for the alternative scenario, assuming all persistent disease is detected in the subsequent visit. The direct costs for screening and treatment of CxCa were estimated from a US payer perspective in 2010 US dollars. Costs and quality-adjusted life years (QALYs) were discounted at 3% annually. One-way sensitivity analyses were conducted. **RESULTS:** Using a $50,000/QALY threshold, baseline screening with S4 dominated S2 and S3 by reducing overall cost, annual cancer incidence, and improving QALYs; and was cost-effective compared to S1. In the 1-year follow-up scenario, S4 was cost-effective compared to all other strategies. Detection of HPV 16/18 with S4 resulted in earlier diagnosis of clinically relevant CIN 2/3 at the initial visit as well as more efficient use of screening tests during follow-up. Sensitivity analyses showed that the model results were most influenced by the costs of tests used. **CONCLUSIONS:** Incorporating the cobas HPV test with HPV 16/18 genotyping was cost-effective compared to various CxCa screening strategies, and resulted in improved protection against CxCa.

PCN86

COST-UTILITY ANALYSIS OF ENZALUTAMIDE VERSUS ABIRATERONE FOR THE TREATMENT OF DOCETAXEL REFRACTORY METASTATIC CASTRATE RESISTANT PROSTATE CANCER

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OBJECTIVES: To compare the costs and outcomes of enzalutamide versus abiraterone for the treatment of docetaxel refractory metastatic castrate resistant prostate cancer (mCRPC) from a limited societal perspective using a lifetime horizon. **METHODS:** We developed a Markov model with 3 health states: pre-progression, post-progression, and death with 1 month transitions. Transition probabilities for all health states were derived from the pivotal phase 3 clinical trials: AFFIRM (enzalutamide) and COU-AA-301 (abiraterone). A 3% discount was applied to all costs and outcomes. Costs included drug acquisition costs, laboratory tests associated with treatment, as well as costs for grade 3/4 side effects management. Outcomes were assessed in quality-adjusted life-years (QALYs). We conducted 16 univariate sensitivity analyses varying model inputs (overall survival, progression-free survival, utility, drug acquisition cost) for each respective drug independently by 20%. **RESULTS:** In the base case analysis, we found that the costs for enzalutamide were higher than that of abiraterone, primarily due to higher acquisition costs ($84465, $74119 respectively). Enzalutamide was also associated with greater life years gained than abiraterone (1.39, 1.30 respectively) as well as QALYs gained (1.24, 1.05 respectively). The ICER was $55070/QALY. Sensitivity analyses indicated that the ICER varied widely; using commonly accepted thresholds of $50000/QALY and $100000/QALY, we found that out of the 16 sensitivity analyses conducted, 4 fell below the $50000/QALY threshold and 7 fell below the $100000/QALY threshold. **CONCLUSIONS:** The treatment landscape of mCRPC has shifted dramatically in recent years. Where there previously had been few options for patients, the last 2 years have brought multiple new therapies for mCRPC. To our knowledge, this is the first study which compares the cost-effectiveness of enzalutamide to abiraterone. Our results suggest that there is considerable uncertainty regarding the cost-effectiveness of enzalutamide, but enzalutamide will likely play a significant role in the treatment of mCRPC.

PCN87

COST-EFFECTIVENESS OF LAPATINIB IN METASTATIC BREAST CANCER: A MIDDLE INCOME PERSPECTIVE

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OBJECTIVES: In South Africa, females with over expressed human epidermal growth factor receptor 2 (HER2) positive metastatic breast cancer are often treated with trastuzumab. Lapatinib is an oral dual tyrosine kinase inhibitor and is indicated, in combination with capecitabine, for the treatment of patients with advanced or metastatic breast cancer. We estimate the cost-effectiveness of the use of lapatinib in the private health care sector from a payer perspective. **METHODS:** A cost-utility model was modified for appropriate application in the South African private health care sector setting. We compared treatment with capcitabine mono-therapy with several trastuzumab combination therapies as well as lapatinib in combination with capcitabine. Efficacy data was taken from the EGF100151 trial. The efficacy of trastuzumab containing regiment was assumed to be the same as that of a lapatanib containing regiment due to a lack of data. Sixteen key opinion leader oncologists were consulted through a structured questionnaire. Resource consumption costs were estimated from large private medical scheme claims data. A multistate model was used and run for the full lifetime of a patient. **RESULTS:** Lapatinib in combination with capecitabine dominates the combination of other treatment options investigated in this study. The incremental cost in this comparison equates to -US$3,619 with a gain of 0.032 quality adjusted life-years. The results were robust under sensitivity analyses. **CONCLUSIONS:** The use of lapatinib dominates other treatments. The majority (84%) of patients in the comparator arm use trastuzumab, and based on the fact that the AE costs are relatively low, the results are mainly driven by the difference in the cost of trastuzumab and lapatinib. The validity of the assumption of equal efficacy of trastuzumab and lapatinib is therefore key when interpreting the results and needs to be verified with additional data.

PCN88

NONADHERENCE AND TREATMENT INTERRUPTION OF TYROSINE KINASE INHIBITORS ASSOCIATION WITH HEALTH CARE RESOURCE COST AND UTILIZATION IN CHRONIC MYELOID LEUKEMIA PATIENTS

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OBJECTIVES: To explore the chronic myeloid leukemia (CML)-related health care costs, utilizations associated with nonadherence and interruption of tyrosine kinase inhibitors (TKIs) in newly diagnosed CML patients. **METHODS:** This retrospective cohort study was conducted from 2003 to 2011 using the Taiwan Health Insurance Research Database. Newly diagnosed CML patients who received TKIs (imatinib, dasatinib and nilotinib) for more than one year during 2003 to 2010 were included in this study, and followed from the first TKI prescription date to death or end of study. CML-related medical utilization (number of outpatient and inpatient visits) and costs were calculated and stratified by TKI utilization pattern comparing interruption versus persistence and non-adherence versus adherence. Any gap between two consecutive prescriptions for more than 60 days and medicine possess ratio less than 80% were defined as interruption and non-adherence. Data were analyzed by generalized linear models with log link and gamma distributions. **RESULTS:** Of the 991 included patients, 24.6% and 15.8% were identified as interruption and non-adherence groups. Non-adherence and interruption rates were higher in patients who received increasing dose of imatinib, imatinib switched to dasatinib and imatinib switched to nilotinib. Adjusted outpatient cost per person year was higher in persistence (US$31,443±1,456) than interruption (US$22,071±1,163) group ($p<0.0001$); and higher in adherence (US$30,295±1,230) than non-adherence (US$18,259±1,050) group ($p<0.0001$). However, adjusted inpatient cost per person year was higher in interruption (US$5,674±1,665 vs. US$2,442±613; $p<0.0001$) and non-adhernece (US$6,390±1,866 vs. US$2,260±557; $p<0.0001$) groups. Likewise, CML-related inpatient visits per person year was higher in interruption (1.3 vs. 0.9; $p=0.0093$) and non-adherence (1.4 vs. 0.9; $p=0.0251$). **CONCLUSIONS:** Interruption and non-adherence to TKIs are associated with higher inpatient utilization and costs. Further study need to evaluate the clinical consequence and costs related to TKIs interruption and nonadherence for maximizing the efficiency of medical utilizations.

PCN89

TREATMENT PATTERNS AND HEALTH CARE UTILIZATION OF PROSTATE CANCER IN BRAZIL: RESULTS FROM A PHYSICIAN SURVEY

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OBJECTIVES: Even though prostate cancer has one of the highest incidences of cancer, there is very limited data available on treatment patterns in Brazil. This study aimed to describe treatment patterns and health care resource utilization associated with PC in Brazil in 2012. **METHODS:** Overall clinical practice for management of prostate cancer was investigated through a physician face-to-face survey. Eligible criteria were medical oncologists and/or urologists with clinical experience with prostate cancer patients, including hormonal therapy, with a minimum volume of 30 patients/month. Clinical experts were consecutively selected based on a high prescriber database and stratified by type of health care sector (public/private). **RESULTS:** Twenty physicians (70% oncologists; 30% urologists) currently treating 1,325 patients answered the questionnaire. Significant differences were found on treatment patterns when comparing public and private health care physician responses. In localized PC patients, radical prostatectomy was more commonly used in the private than in the public settings. For advanced stage patients, surgical androgen deprivation therapy (ADT) was used in 7% in private health care and in 37% of public patients. In metastatic castration resistant patients (mCRPC), first line chemotherapy of choice was docetaxel. However, second line treatment varied between mitoxantrone (32% private, 50% public), cabazitaxel (54% private, 18% public) and docetaxel re-challenge (11% private, 29% public). Health care resource utilization increases as disease progresses: from mean 14.1 blood tests/year (blood count, blood chemistry, functional liver test and PSA) in localized PC while receiving treatment to 22 blood tests/year in advanced tumor and 40.05 blood tests/year in mCRPC. The same trend is observed with specialist visits and emergency room, but not with image testing. **CONCLUSIONS:** Both treatment patterns and resource use are different when comparing private and public settings. Access to new technologies may be an important factor in explaining this difference.

PCN90

HEALTH CARE EXPENDITURES ASSOCIATED WITH CANCER PATIENTS

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OBJECTIVES: To evaluate the prevalence of cancer and calculate annual health care expenditures for patients self-reported with cancer using a large US database. **METHODS:** The 2009 Medical Expenditure Panel Survey, a nationally representative survey of the US population was used to evaluate the prevalence and health care expenditure for patients self-reported with cancer. All patients over 17 years of age and diagnosed with any type of cancer was included in the study. The data was descriptively evaluated based on patient demographics and insurance type. **RESULTS:** The total patient population identified in this study was 36,855. Of these, 2,113 (5.7%) patients were diagnosed with some type of cancer. The study identified 27 different types of cancers and the top three highly prevalent cancers were: breast cancer (0.91%), skin non-melanoma (0.88%) and prostate cancer (0.69%). The cancers that were more common in females than in males were bone, larynx, lymphoma, soft tissue, pancreas, stomach and thyroid. The mean patient total income reported was $29,583±20,696 and the median income was $20,512. The mean total family income reported was $56,254±52,729 and the median was $39,646. The highest mean total health care charges were for rectum ($92,022±146,618), pancreas ($64,040±62,297) and leukemia ($54,193±84,300). The mean total amount reimbursed by Medicare, Medicaid, and Private Health Insurance for all cancer types were $4,719±12,589, $1,209±7,106 and $3,415±11,043 respectively. The mean total amount paid by patient out of the total health care charges was $1,271±3,342. The mean total percentage paid by Medicare, Medicaid and Private Health Insurance out of total health care charges for all cancer types were 19.06%, 4.88% and 13.79% respectively. **CONCLUSIONS:** The prevalence of cancer among the overall population was higher than the literature findings. Cancer continues to be significant economic burden to both payer and the patient.

PCN91

COST ANALYSIS OF ^{18}FDG-PET/CT AT THE PERSPECTIVE OF BRAZILIAN HEALTH CARE SYSTEM AS SERVICE PROVIDER: STUDY IN A PUBLIC HEALTH UNIT IN RIO DE JANEIRO

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OBJECTIVES: To estimate the cost of PET/CT procedure with 18FDG as its radiotracer from the perspective of a Brazilian public provider of health services, in order to support economic evaluation studies about the technology. **METHODS:** The micro-costing technique was used, and all inputs consumed in the activities involved with the procedure have been identified, measured and valuated. This included capital costs, human resources, radiopharmaceutical ^{18}FDG purchases, administrative costs and others. Data for cost estimates were collected from the observation of 85 exams at the Brazilian National Cancer Institute (INCA) from March to June 2012. The reference case considered adult cancer patients, daily production of 5 exams using one FDG dose per patient. INCA employees, because of their research activities, receive differentiated wages (from Science and Technology –S&T- career), than the usual employees of federal public hospitals where new PET/CTs might be installed receive (from Ministry of Health -MoH). So, to avoid biases, two cost estimates were carried out considering different wage modalities (MoH and S&T career). Also, sensitivity analysis examined elements that might impact on the costs in public health institutions. **RESULTS:** The average costs of the procedure for the reference case were US$1612.23 for Science and Technology career's wages, and US$1498.05 for Ministry of Health's wages. When a scenario of full capacity of exams was considered (10 procedures/day), average costs were significantly smaller: US$1023.47 for S&T and US$966.38 for MoH. The largest factors of impact on costs were daily volume of procedures, human resources, and price of ^{18}FDG. **CONCLUSIONS:** Despite its growing applicability in diagnosis, the technology is still complex and aggregate high costs on health system. This is the first study which estimates cost of PET/CT technic in Brazil. PET procedure is in the pipeline to be reimbursed and this study could contribute to the reference value construction.

CANCER – Patient-Reported Outcomes & Patient Preference Studies

PCN92

A RETROSPECTIVE DATABASE ANALYSIS OF MEDICATION ADHERENCE AMONG PATIENTS RECEIVING SYSTEMIC FIRST LINE ORAL THERAPY FOR HEPATOCELLULAR CARCINOMA (HCC)

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OBJECTIVES: With increasing use and cost of oral oncology medications, patient non-adherence with oral therapy is of greater concern. This study sought to evaluate the magnitude and predictors of non-adherence among patients receiving oral therapy for HCC accounting for patient-level variation in total duration of treatment and dose-changes. **METHODS:** This retrospective cohort study used an employer-based, commercially available, large claims database (2005-2011) to identify adult patients with ≥ 2 diagnoses of HCC (ICD-9 155), and ≥2 filled prescriptions for sorafenib - the only approved oral therapy for HCC. Additional study inclusion criteria were not having other previous cancers, and a 3-month wash-out period of no systemic therapy prior to the incident sorafenib fill (index) date. Adherence was assessed using a modified Proportion of Days Covered (PDC) measure over a patient-specific period from index date to treatment discontinuation. Non-adherence was categorized as PDC < 85% (base case), with two-way sensitivity analyses using an 80% cut-off and allowance for gaps due to dose change/Adverse Events. Logistic models were estimated to identify predictors of non-adherence. **RESULTS:** A total of 1,100 patients (median age = 61 years; 78% male) met eligibility criteria. Median sorafenib 30-day co-pay was $25 (5% > $500). 25% of patients had prior procedures. Median total sorafenib exposure was 120 days (Q1=68; Q3=223). 14.5% and 13.5% patients had down/up-titrated fills from median index dose of 800 mg/day and 400 mg/day respectively. Median PDC was 98%; 15% of patients were non-adherent. Younger (below-median) age (OR=1.5; p=0.02) and prior procedures (OR=1.7; p=0.003) were robust predictors of non-adherence. **CONCLUSIONS:** Using a modified PDC approach to account for varying and relatively short durations of treatment until progression/death in HCC, over 15% of patients were found non-adherent. Evidence on the predictors of non-adherence should be confirmed in the context of other, newly emerging oral therapies and may guide patient education and other compliance-enhancing initiatives.

PCN93

OBSERVED ABIRATERONE ACETATE UTILIZATION BY PROSTATE CANCER (PC) PATIENTS IN A LARGE ADMINISTRATIVE CLAIMS DATABASE IN THE UNITED STATES

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OBJECTIVES: Abiraterone acetate is a CYP17 inhibitor indicated for treatment of patients with metastatic castration-resistant PC in combination with prednisone. The recommended dose is 1000mg (four 250mg tablets) administered once daily in combination with prednisone 5mg administered twice daily. This study evaluated U.S. real world abiraterone acetate utilization patterns in PC patients during the first year of commercial abiraterone acetate availability. **METHODS:** Prometis administrative claims data (6/2009 - 5/2012) were used to identify patients with ≥1 PC diagnosis (ICD-9 185.xx, V10.46) and ≥6 months of claims activity before their first abiraterone acetate prescription (index date). Population characteristics, number of abiraterone acetate fills, daily dose, refill interval, and Medication Possession Ratio (MPR) were summarized with descriptive statistics (n, %, mean±SD, median). **RESULTS:** A total of 1,545 PC patients with ≥1 abiraterone acetate prescription and prerequisite claims activity were identified. The majority were ≥65 years of age; 82% were treated by an oncologist; 58% had abiraterone acetate claims covered by commercial insurance and 38% by Medicare; 49% had ≥6 months of post-index clinical activity. The median abiraterone acetate dose was 1,000 mg (mean±SD =995.6±48.6 mg). The median refill interval was 29.8 days between dispensings (mean±SD=34.3±16.4 days). MPR was 0.96±0.10. **CONCLUSIONS:** This retrospective study of early abiraterone acetate utilization in a large cohort of PC patients showed median abiraterone acetate dosing and refill intervals consistent with the product label.

PCN94

MEDICATION ADHERENCE STUDIES IN THE ERA OF ORAL TYROSINE KINASE INHIBITORS: A SYSTEMATIC LITERATURE SEARCH

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OBJECTIVES: Potential for poor medication adherence to oral oncology agents is often discussed, but many papers on the subject are review articles and treatment periods cited often precede the era of oral tyrosine kinase inhibitors (TKIs). Our objective was to assess the landscape of studies published in the era of TKIs that assessed real world patient adherence as a main objective. **METHODS:** We searched PubMed in July 2012 for English language papers with the following limits applied: English, Humans, Last 10 years and used the MeSH terms "medication adherence" and "neoplasms" in addition to separate searches using the terms "patient compliance" or "patient adherence" or "patient non-compliance" or "patient non-adherence" or "non-compliance" or "non-adherence"and "drug therapy" or "medication", and "neoplasms" and "oral". **RESULTS:** Resulting citations (n=595) were searched for primary research articles with an objective of assessing adherence in adults taking oral oncolytics outside of a clinical trial (n=44). Bibliographies of these studies were reviewed and revealed 10 additional studies. Papers not reporting or with poorly described methods of assessing adherence were excluded as were those assessing adherence by proxy. Of the 54 papers, 43 were included. Over half (58%) included patients with breast cancer, 23% with CML, 16% studied multiple tumor types and 1 was in gastrointestinal stromal tumor. Data sources consisted mostly (51%) of secondary databases with patient self report either verified or unverified also common (28%). More than half (56%) were of retrospective cohort design. Most studied hormonal therapies (49%), 23% studied TKIs imatinib, dasatinib or nilotinib, 21% studied multiple drug classes and 3 studied capecitabine. **CONCLUSIONS:** Since the introduction of oral TKIs, most studies of real world adherence to oral oncology agents have been in breast cancer patients and studied hormonal therapies. Published studies of adherence to TKIs have focused on very few agents.

PCN95

ADHERENCE AND ITS ASSOCIATION WITH HEALTH OUTCOMES AMONG PATIENTS CURRENTLY TREATED FOR LEUKEMIA, MELANOMA, OR NON-SMALL CELL LUNG CANCER (NSCLC)

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OBJECTIVES: Cancer treatment is rapidly evolving with the emergence of highly effective oral targeted therapies, which has elevated the importance of adherence. This study examined the rates and effect of real-world non-adherence from a patient perspective among those using treatments where such oral therapies are the standard of care. **METHODS:** Data from the 2012 U.S. National Health and Wellness Survey were analyzed. Patients who reported a