Medicare beneficiaries aged ≥66 diagnosed with HM between January 1, 1995 and December 31, 2007, including: acute myeloid leukemia (AML, n=10,173); chronic lymphocytic leukemia (CLL, n=13,743); chronic myelogenous leukemia (CML, n=4,169); Hodgkin lymphoma (HL, n=2,252); non-Hodgkin lymphoma (NHL, n=51,087); and multiple myeloma (MM, n=18,297). We used a discrete hazard model to estimate survival and projected lifetime costs using a generalized linear model with a log-link and gamma distribution. Models were adjusted for year of diagnosis, age, race, gender, and comorbidity. We calculated the incremental cost-effectiveness ratio (ICER, measured in terms of cost per life year [LY]) using cost and survival differences between the earliest (1995-1998) and latest (2005-2007) time periods. Costs were standardized to year 2010 dollars. **RESULTS:** HM survival among Medicare patients increased during the time period studied, though gains varied by diagnosis. Care costs for all diagnoses also increased over time, especially for HL (from $148,000 for individuals diagnosed during 1995-1998 to $230,000 for a 2005-2007 diagnosis) and NHL (from $158,000 for patients diagnosed during 1995-1998 to $247,000 for a 2005-2007 diagnosis). Survival gains were most cost-effective for CML ($37,877/LY) and least cost-effective for HL ($94,859/LY). The ICERs were $43,262/LY for CLL, $59,355/LY for MM, $62,127/LY for NHL, and $83,392/LY for AML. **CONCLUSIONS:** Our findings suggest that over a period of more than a decade, improvements in treatment for HM have been associated with gains in survival, but also with substantial increases in health care costs. Overall, HM therapy innovations appear to provide good value for money among Medicare patients when evaluated using conventional cost-effectiveness metrics.

PCN99

COST-EFFECTIVENESS EVALUATION OF SUNITINIB AS FIRST-LINE TARGETED THERAPY FOR METASTATIC RENAL CELL CARCINOMA IN KAZAKHSTAN

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OBJECTIVES: Sunitinib is one of the first targeted treatments for metastatic renal cell carcinoma (MRCC) and is currently considered as the standard of care for most of the MRCC patients in the first-line setting. Sunitinib delays disease progression, with a median overall survival of more than 2 years, improves quality of life and is becoming the first-line standard of care for MRCC. The introduction of targeted treatments, led to improvements in disease management and survival of these patients, however, with increasing cost. Purpose this reserch - to assess the economic value of sunitinib as first-line therapy in MRCC within the Kazakh health care system. **METHODS:** Cost-effectiveness of sunitinib has been assessed on several occasions and a systematic literature search was conducted to find all published research articles as well as all research abstracts presented in various congresses. An adapted Markov model with a 10-year time horizon was used to analyse the cost effectiveness of sunitinib vs. sorafenib (SFN) and bevacizumab/interferon-α (BEV/IFN) as first-line MRCC therapy from the Kazakh perspective. **RESULTS:** Progression-free survival and overall survival data from sunitinib, SFN and BEV/IFN pivotal trials were extrapolated to project survival and costs in 6-week cycles. Results, in progression-free life-years (PFLY), life years (LY) and quality-adjusted life-years (QALY) gained, expressed as incremental cost-effectiveness ratios (ICER) with costs and benefits discounted annually approximate 3%, were obtained using deterministic and probabilistic analyses. Sunitinib was more effective and less costly than both SFN and BEV/IFN with average cost savings/patients, respectively. Using a willingness-to-pay threshold, sunitinib achieved an incremental net benefit compared with SFN and BEV/IFN, respectively. At this willingness-to-pay, the probability of sunitinib providing the highest incremental net benefit was 72%. **CONCLUSIONS:** Our analysis suggests that sunitinib is a costeffective alternative to other targeted therapies as first-line MRCC therapy in the Kazakh health care setting.

PCN100

COST EFFECTIVENESS ANALYSIS OF ADDING RADIATION THERAPY TO ANDROGEN DEPRIVATION THERAPIES IN MEN WITH LOCALLY ADVANCED PROSTATE CANCER IN THE UNITED STATES

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OBJECTIVES: Whether the addition of radiation therapy (RT) improves overall cost effectiveness in men with locally advanced prostate cancer managed with androgen deprivation therapy (ADT) is still unclear. Our objective was to conduct cost-effectiveness analysis of adding radiation therapy to androgen deprivation therapies in men with locally advanced prostate cancer in the U.S.A. **METHODS:** A decision analysis model was designed to compare adding RT to ADT over a 10 year time horizon with the third party payer's perspective. Probabilities of treatment success, utilization of salvage treatments, and rates of adverse events were taken from published results of SPCG-7/SFUO-3 trial and NCIC CTG PR.3/MRC UK PR07 trial. Cost inputs were based on 2010 Medicare reimbursement rates and reported in 2013 US dollars. Primary outcome measure was incremental cost per biochemical success (i.e. serum PSA level <0.4 ng/ml). 50,000 U.S. dollars were considered willingness to pay threshold. A series of one-way sensitivity analyses and Monte Carlo simulation was performed by testing variations in the range of the 95% confidence interval. **RESULTS:** ART results in a higher biochemical success rate than hormonal therapy with a probability of 0.30 versus 0.21. The mean incremental effect was 0.6 over a 10-year period. Total cost of ART was $25,783 compared with costs in the ADT group of $13,427 per year, the mean incremental cost for ART versus ADT was $8,277 over 10 year period. The mean incremental cost effectiveness ratio was $13758 over 10 year period. Cost-effectiveness acceptability curve analysis resulted in >90% probability that ART with hormonal therapy is cost-effective strategy. **CONCLUSIONS:** Study suggests that adding RT to ADT is cost effective strategy compared to ADT alone based upon the decision analysis model for appropriate men with locally advanced prostate cancer. The study limitations and treatment dosage should be considered before applying the results of the study.

PCN101

THE EFFECT OF HERD IMMUNITY IN DIFFERENT HUMAN PAPILLOMAVIRUS VACCINATION STRATEGIES: AN ECONOMIC EVALUATION OF THE BEST II STUDY

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OBJECTIVES: Italian recommendations for human papillomavirus (HPV) immunization currently consider females only. However, males can be vectors in viral transmission and at risk of infection. The BEST II study was designed to evaluate: the cost-effectiveness (CE) of different interventions targeting females as well as males; and the economic impact of vaccination on a wide range of HPV-induced diseases. **METHODS:** A dynamic Bayesian Markov model was developed to investigate the transmission between sexual partners and the cost-effectiveness of vaccination targeting female and male cohorts in comparison to screening and female cohorts only. A range of HPV-induced diseases was considered (cervical, vaginal, vulvar, anal, head and neck and penile cancer, the associated pre-cancerous stages and anogenital warts). The process of sexual mixing was calculated based on age, gender and sexual behavioural specific matrices to estimate th force of infection dynamically. Increased susceptibility to the virus, associated with early sexual début, a high number of partners, smoking and previous STDs, were included. We considered several scenarios; the baseline assumes universal vaccination to be implemented for 12-year-old females and males. The follow-up period was 55 years. **RESULTS:** According to our preliminary analysis, universal vaccination resulted in incremental CE ratios (ICERs) corresponding to €910 and €5,770, when compared to screening-only and female-only vaccination, respectively. We performed extensive sensitivity analysis, which confirmed the good CE profile of universal vaccination in Italy. **CONCLUSIONS:** A universal HPV vaccination of male and female programme is more cost-effective than screening and female-only vaccination when accounting for all HPV-related diseases. Universal vaccination programme increase herd immunity and provide indirect protection to unvaccinated girls against HPV. The herd immunity plays a significant role in the economic evaluation of HPV immunization programmes. A universal vaccination may be further useful considering that males are both at risk of infection and vectors in viral transmission.

PCN102

COST-EFFECTIVENESS ANALYSIS OF BENDAMUSTINE-RITUXIMAB TREATMENT COMPARED WITH FLUDARABINE-RITUXIMAB TREATMENT, IN PATIENTS WITH INDOLENT NON-HODGKIN'S LYMPHOMA IN COSTA RICA

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OBJECTIVES: To assess the cost-effectiveness of Bendamustine-Rituximab (BR) compared with Fludarabine-Rituximab (FR) treatment, in patients with Indolent Non-Hodgkin's Lymphoma (INHL) that have progressed during or within six months of treatment with Rituximab or a Rituximab-containing Regimen in Costa Rica. **METHODS:** A three-health state cohort simulation Markov Model (progression-free, progressive disease, and death) was developed based on time-dependent progression-free survival and overall survival data. The time frame was lifetime (35 years). The perspective was that of the National Health System of Costa Rica. The health outcomes of interest were Quality Adjusted Life Years (QALYs), Life Years (LYs), and Progression-free Life Years (PFLYs). Resource consumption for health states was elicited with the support of Latin American hematologists. Utilities for health states and disutility for adverse reactions were taken from published studies. All costs and Incremental Cost Effectiveness Ratios (ICERs) are presented in Costa Rican currency (Colones). Costs and outcomes were discounted at 3%. One way and probabilistic sensitivity (PSA) analysis were performed. **RESULTS:** BR resulted in 4,641 QALYs/ 6,432 LYs/ and 3,564 PFLYs, per patient, respectively. FR resulted in 3,557 QALYs/5,138 LYs and 2,047 PFLYs, per patient, respectively. Total costs were: 76.309.813 for BR and 73.045.490 for FR. ICERs were: 3.013.664 per QALY gained, 2.523.307 per LY gained and 2.151.945 per PFLY gained. In all outcomes, results were highly sensitive to Hazard Ratio of overall survival. According to the PSA, with QALYs as outcome, BR had a probability of 63% of being cost effective when considering the threshold of 3 times the Gross Domestic Product per capita (GDPPC) of Costa Rica (14.140.792). **CONCLUSIONS:** BR can be considered very cost-effective compared with FR in the study population (INHL) in Costa Rica, according to the threshold suggested by the World Health Organization [very cost effective below 1 GDPPC (4.713.597)].

PCN103

REANALYSIS OF COST-EFFECTIVENESS OF ABIRATERONE ACETATE AS SECOND LINE TREATMENT FOR METASTATIC CASTRATION-RESISTANT PROSTATE CANCER IN JAPAN USING A JAPANESE CLAIM DATA SET

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OBJECTIVES: The objective of this study is to evaluate cost-effectiveness of abiraterone plus prednisolone compared to prednisolone alone in Japan. We presented the result of the cost-effectiveness analysis of abiraterone acetate in 2013 ISPOR Europe Congress. In the present study we reanalyze the cost-effectiveness of abiraterone by referencing the real world resources using a Japanese claim data set. **METHODS:** Cost-effectiveness analysis was performed using a Markov model based on data from the randomized controlled trial (COU-AA-301 study) and literature review conducted from the public health care payer's perspective. The abiraterone plus prednisolone was compared with prednisolone alone. The base case was assumed to be a 72 year-old man with metastatic castration-resistant prostate cancer (CRCP). The model used a time horizon of 10 years. Outcomes were measured in quality-

adjusted life years (QALYs), and incremental cost-effectiveness ratio (ICER) was calculated. As Japanese Ministry of Health, Labour and Welfare has not yet approved abiraterone due to the delay in development, the drug cost was estimated based on prices in four other countries. In the present study, resource use was estimated using a Japanese claim data set with 2000 claim data of prostate cancer patients from January 2005 to March 2013. Both cost and outcomes were discounted at a 2% annual rate. **RESULTS:** The result of this study revealed that abiraterone plus prednisolone indicated higher QALYs than prednisolone alone. In the base-case analysis, ICER for abiraterone plus prednisolone exceeded JPY 17 million (roughly EUR 120,000) per QALY gained. One-way sensitivity analysis for the price of abiraterone influenced ICER (JYP 12.5 - 21 million). **CONCLUSIONS:** The present study suggested that the ICER is more than JPY 10 million. Further deliberate discussion on cost-effectiveness of abiraterone in Japan is needed to consider the Japanese price and clinical outcomes.

PCN104

USE OF PSA SLOPE TO GUIDE ADJUVANT RADIOTHERAPY IN POST-PROSTATECTOMY PROSTATE CANCER HAS POTENTIAL TO BE COST EFFECTIVE

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OBJECTIVES: NADiA ProsVue is a prognostic system developed to identify men at lower risk for clinical recurrence of prostate cancer following radical prostatectomy, as indicated by a prostate-specific antigen (PSA) slope <=2 pg/mL/month. We evaluated the potential cost-effectiveness of using the prognostic system to guide adjuvant radiotherapy (ART) in men considered to be at intermediate- or high-risk for recurrence based on the CAPRA-S nomogram. **METHODS:** We developed a decision analytic model consisting of a decision tree to stratify men into risk groups and a state transition model to generate long-term costs and outcomes. We derived model parameters using patient-level data from the product's 510(k) registration study, the medical literature and other sources. We conducted probabilistic, one-way and two-way sensitivity analyses to examine the cost-effectiveness of the system (i.e. with PSA slope findings) versus standard care (i.e. without PSA slope findings). **RESULTS:** The cost-effectiveness of a PSA slope-guided strategy varied widely due to small differences in QALYs at 10 years. Assuming that 20% of men in the intermediate-risk CAPRA-S group receive ART with standard care, the incremental cost-effectiveness ratio (ICER) is less than $50,000 per QALY when use of ART is less than 8.2% among men with PSA slopes <=2 pg/mL/month. Assuming that 40% in the high-risk CAPRA-S group receive ART with standard care, ART would have to decrease to at least 11.5% among men with PSA slopes <=2 pg/mL/month to achieve an ICER less $50,000 per QALY. ICERS were also sensitive to varying the costs of the prognostic system and ART, varying the benefits of salvage therapy and utility weights for ART toxicities. **CONCLUSIONS:** The ProsVue system has the potential to be cost effective, but its value will be dependent on the magnitude of reduction in ART among men identified as having a low risk of recurrence.

PCN105

COST-EFFECTIVENESS OF CETUXIMAB AS FIRST-LINE TREATMENT FOR METASTATIC COLORECTAL CANCER IN THE UNITED STATES

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OBJECTIVES: To evaluate the clinical and economic tradeoffs associated with FOLFIRI + either cetuximab or bevacizumab as 1st-line therapies among KRAS wild type (WT) metastatic colorectal cancer (mCRC) patients, through a cost-effectiveness analysis incorporating Phase III FIRE3 clinical trial data. **METHODS:** A deterministic cost-effectiveness model was developed to project lifetime survival and costs of FOLFIRI used with either cetuximab or bevacizumab. A cohort of 1st-line patients faced risks of adverse events, progression to 2nd-line treatment, or eligibility for curative liver resection. Clinical trial data, published literature, and publicly available databases were used to estimate model inputs. Incremental cost-effectiveness ratios (ICERs) were calculated as 2013 US$ per life year (LY) and per quality-adjusted life year (QALY). We conducted a scenario analysis to analyze the subset of RAS WT patients. The impact of parameter uncertainty was also evaluated with one-way and probabilistic sensitivity analyses. **RESULTS:** Compared with 1st-line bevacizumab KRAS WT patients, those treated with cetuximab gained an additional 5.7 months of life (42.9 vs. 37.2) at a cost of $46,301 ($280,933 vs. $234,632), for an ICER of $97,297/LY ($122,704/QALY). The benefits of cetuximab were also greater for RAS WT patients, for whom the ICER was $77,380/LY ($99,636/QALY). Treatment with cetuximab would be cost effective 53.6% of the time, given a willingness to pay threshold of $100,000/LY. Results were most sensitive to changes in 1st-line survival, treatment duration, and product acquisition costs. **CONCLUSIONS:** Treatment with cetuximab + FOLFIRI in 1st-line mCRC patients may improve health outcomes and use financial resources more efficiently than bevacizumab + FOLFIRI, given current societal standards. This information can be useful to clinicians, payers, and policy makers in making treatment and resource allocation decisions for KRAS WT and RAS WT mCRC patients.

PCN106

COST-EFFECTIVENESS OF PROPHYLACTIC USE OF FILGRASTIM IN ADULTS WITH ACUTE LEUKEMIA LYMPHOBLASTIC COLOMBIA

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OBJECTIVES: To determine the cost-effectiveness of prophylactic administration of Filgrastim compared with no use, during the induction phase of chemotherapy in adults with Acute Lymphoblastic Leukemia (ALL) in the Colombian context. **METHODS:** A decision tree with a time horizon of 30 days is built under the third-party payer perspective including only direct costs. The costs of procedures and medications were taken from official sources and an institution of national reference of oncology services. The safety and effectiveness data were taken from the literature and two Colombian cohorts (one retrospective and one prospective) with patients older than 15 years. The unit of outcome was the proportion of deaths averted. The incremental cost effectiveness ratio (ICER) was estimated, univariate sensitivity and probabilistic analysis were performed. **RESULTS:** Model results indicate that under the scenario of a clinical trial not using factor was a dominated alternative (ICER of - 61,753,681 COP per death averted). In contrast, using data from the Colombian cohorts, factor was dominated strategy (ICER of - 141,421,622 COP for retrospective cohort and prospective cohort -215,449,438 COP). The variable that most impacted the outcome was the incidence of febrile neutropenia (12% for the clinical trial, 60% retrospective cohort and 83% prospective cohort). The results were robust to the probabilistic sensitivity analysis. With the data from the clinical trial in 94% of cases using factor was cost effective, while in the Colombian data in 84% and 72% of cases (retrospective and prospective cohort respectively) was not cost effective to use factor. **CONCLUSIONS::** With Colombian information the prophylactic use of the factor under chemotherapeutic induction in adults with ALL turns out to be not cost-effective. The gap in the results suggests a careful extrapolation of information from clinical trials (ideal world) to develop economic evaluations in Colombia, and its impact on decision making.

PCN107

COST-EFFECTIVENESS OF FULL-FIELD DIGITAL MAMMOGRAPHY VERSUS SCREEN-FILM MAMMOGRAPHY IN BREAST CANCER SCREENING

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OBJECTIVES: Analyze the cost-effectiveness of full-field digital mammography (DM) compared to the screen-film mammography (SFM) among different age groups of Mexican women. **METHODS:** A cost-effective study was developed - from the public sector perspective- to estimate the cost per cancer detected by DM vs. SFM in the following age groups: 40-49, 50-59 and 60-69 years old. Additional costs and effects were estimated by comparing DM against SFM and expressed as incremental cost-effectiveness ratio (ICER). The outcome was the number of detected cases. Staff wages and tests cost (mammography, ultrasound and biopsy) were included. An univariate sensitivity analysis was carried out with key variables. **RESULTS:** DM is more expensive and more effective than SFM for breast cancer detection. Using DM for 50-59 age group is not cost- effective since it detects fewer cases at a higher cost. In the 40-49 age group, the ICER for DM was $318,828 per additional case detected, while in the 60-69 the ICER for DM was $255,636. The ICER was sensitive to the lower cost of DM. **CONCLUSIONS:** For some age groups, DM is more effective than SFM; however, DM cost limits its use in a screening program. Evidence shows, SFM still has advantages in detecting breast cancer at an affordable cost. Further research taking into consideration social, organizational and staff training issues is important

PCN108

PARAMETER VALUES ASSOCIATED WITH THE DEVELOPMENT OF A GLOBAL ECONOMIC MODEL TO VALUE COMPANION DIAGNOSTICS IN ADVANCED/METASTATIC CANCER TREATMENT

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OBJECTIVES: Many targeted anticancer drugs under development will be used with a companion diagnostic. The objective of this study was to define parameter values that will be included in a global model estimating the cost-effectiveness of a companion diagnostic in advanced/metastatic cancer treatment. **METHODS:** As the model will be generic to allow its use in the most common cancers in Canada (breast, prostate, lung, colorectal, bladder, cervical, non-Hodgkin's lymphoma), specific parameters for each cancer of interest (including health state utilities and costs associated with cancer management) were considered. Consequently, a literature review was conducted using electronic databases from January 2000 until September 2013 to extract these parameters in economic models in advanced/metastatic cancer available. Cross-references studies and governmental publications were also consulted. Canadian costs and disutilities associated with any grade 3-4 treatment-related adverse events (AEs) were also obtained. **RESULTS:** Lung cancer was associated with the highest inpatient cost ($CAN19,875/stay of 9.9 days on average), while patients with prostate cancer incurred the highest cost associated with emergency visits ($CAN721.55/case). Costs associated with end-of-life care were similar among cancer types, with an average cost of $CAN31,081/case and 152 days of end-of-life care. Thirty-nine AEs were retrieved. Costs associated with management of AEs were up to $CAN71,967/case (development of secondary malign neoplasm), with an average cost of $CAN7,717/event. Disutilities associated with the incidence of AEs were up to 0.465 (hip fracture), with an average utility loss of 0.135. Lung cancer presented the worst health state utility values (0.611 in pre-progression and 0.441 in progression). **CONCLUSIONS:** Although the model structure and key elements required to assess the cost-effectiveness of a companion diagnostic can be generalized to different cancer types, this study suggests that parameter values should be specific to the cancer of interest.

PCN109

CAN NEXT GENERATION SEQUENCING SAVE LIVES AND PROVIDE A GOOD ECONOMIC VALUE IN COLON CANCER PREVENTION?

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OBJECTIVES: Screening of all patients diagnosed with colorectal cancer for Lynch syndrome using a staged testing procedure is currently recommended by Evaluation of Genomic Applications in Practice and Prevention (EGAPP) guidelines. Next generation sequencing (NGS) is a disruptive technology that likely offers improved outcomes, but its value is uncertain. The goal of this study was to evaluate the cost effectiveness of NGS vs. tumor tissue testing for universal testing of patients with colorectal cancer (CRC) to detect relatives with Lynch syndrome. **METHODS:**