age with mechanical stapling – which has potential to improve patient outcomes, lower re-operation rates and lower costs.

PCN2

A META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS (RCTS) ON EPIDERMAL GROWTH FACTOR RECEPTOR -TYROSINE KINASE INHIBITORS (EGFR-TKIS) FOR ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC)

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OBJECTIVES: Lung cancer is the first cause of cancer death in both men and women worldwide and 85% are NSCLC. As a targeted therapy for NSCLC, EGFR-TKIs has been compared with traditional chemotherapy in various trials in different countries but there is a lack of comprehensive literature review of these RCTs especially from Health-Related Quality of Life (HRQoL) perspective. We compared the efficacy, safety and HRQoL between EGFR-TKIs(gefitinib, erlotinib and afatinib) and chemotherapy for advanced NSCLC patients with largest magnitude. **METHODS:** Two authors independently searched published RCTs comparing EGFR-TKIs vs chemotherapy for advanced NSCLC between Jan 1, 1966 and July 31, 2013 in PubMed, Cochrane Library, EMBASE, the conference proceedings of ASCO and ESMO. We conducted meta-analysis by Revman 5.0 using either random or fixed effects inverse variance weighted method, determined by heterogeneity levels. **RESULTS:** Twenty-two eligible studies and 6728 patients were included. Comparing to chemotherapy, EGFR-TKIs were superior in objective response rate (OR=1.90, 95% CI=1.32-2.57, P<0.00001) and progression free survival (HR=0.78, 95%CI= 0.66-0.91, P<0.00001). However, no significant differences were observed on disease control rate (OR: 1.24; 95% CI=0.89-1.73), median overall survival (HR=1.00; 95%CI= 0.93-1.07) and 1-yr survival rate (OR=0.96; 95% CI = 0.82-1.13). EGFR-TKIs demonstrated less adverse events in neutropenia (OR=0.01, 95% CI=0.01-0.02), anemia (OR=0.2, 95% CI=0.14-0.31), fatigue (OR=0.18, 95% CI=0.12-0.29) and nausea (OR=0.35, 95% CI=0.21-0.60) and less grade 3 or 4 adverse events (OR=0.29, 95%CI=0.26-0.33). However, chemotherapy had less rash (OR=7.18, 95% CI=4.67-11.05) and diarrhea (OR=2.10, 95% CI=1.49-2.98). In 8 studies evaluating the HRQoL, EGFR-TKIs had shown better outcomes than chemotherapy according to the three HRQoL instruments: Functional Assessment of Cancer Therapy-Lung (OR=1.62, 95% CI=1.38-1.91), Trial Outcome Index (OR=1.93, 95%CI=1.61- 2.33), and Lung Cancer Subscale (OR=1.19, 95%CI=1.01-1.39). **CONCLUSIONS:** Though no obvious survival benefit was observed, EGFR-TKIs demonstrated significantly better safety and HRQoL outcomes than chemotherapy.

PCN3

THE IMPACT OF PRE-EXISTING CHRONIC CONDITIONS ON CANCER DIAGNOSIS, RECEIPT OF TREATMENT AND SURVIVAL AMONG MEDICARE BENEFICIARIES WITH COLORECTAL CANCER IN A RURAL POPULATION

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OBJECTIVES: To determine the comorbidity burden and the association of specific pre-existing chronic-conditions with colorectal cancer (CRC) stage-at-diagnosis, treatment, and survival among elderly Medicare beneficiaries from a rural population. **METHODS:** This population-based retrospective cohort study used data on fee-for-service Medicare beneficiaries diagnosed with CRC and chronic-conditions between 2003-2006, identified from the West Virginia Cancer Registry (WVCR)-Medicare linked database (n=2,119). Beneficiaries were classified in specific chronic-condition clusters. CRC-treatment received was ascertained from beneficiaries' Medicare claims by following them for 12-months from their CRC-diagnosis date or until death. Receipt of minimally-appropriate CRC treatment (MACT) as defined by National Cancer Institute CRC-treatment guidelines and receipt of CRC-related surgery, chemotherapy, and radiation were examined. All-cause and CRC-specific mortality in the 36-month period following the CRC-diagnosis were examined, after accounting for selection bias using inverse probability treatment weights and adjusting for socio-demographics, cancer site and stage-at-diagnosis, receipt of MACT, and pre-existing conditions. **RESULTS:** The WVCR-Medicare linked database had a higher proportion of beneficiaries as compared to those from national data across almost all the condition clusters including previous-malignancy, COPD, depression, gastrointestinal conditions, heart-conditions, hypertension, liver-conditions, and renal-conditions. Beneficiaries from the WVCR-Medicare linked database with most chronic-conditions were generally not likely to be diagnosed at distant-stage CRC, and possibly not as less aggressively treated for CRC as reported by some other studies. Only a few conditions were negatively associated with CRC-specific mortality including depression (adjusted hazards ratio (AHR)=1.25;95%CI =[1.08,1.46]), and liver-conditions (AHR=1.38;95%CI=[1.19,1.60]). However, almost all chronic-conditions were negatively associated with all-cause mortality in this study. **CONCLUSIONS:** This study highlights the need to focus on cancer-care that is better integrated with co-management of chronic-conditions, especially among those from rural-areas who are likely to have a high comorbidity burden.

PCN4

GEOGRAPHICALLY-WEIGHTED REGRESSION ANALYSIS OF LATE-STAGE PROSTATE CANCER INCIDENCE IN FLORIDA

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OBJECTIVES: To account for the non-stationarity of relationships in space, aspatial regression can be supplemented with geographically-weighted regression (GWR), whereby the regression model is fitted within local windows and each observation is weighted according to its proximity to the center of the window. This study aims to conduct regression analysis in a spatial context to assess the local impacts of putative factors on late-stage diagnosis of prostate cancer in Florida during the period 2001-2007. **METHODS:** A logistic regression was performed aspatially and at the nodes of a 5 km spacing grid overlaid over Florida and using all the cancer cases within a radius of 125 km of each node. Each observation was weighted as a function of its proximity to the center of the window (bisquare adaptive weight function). Covariates included age, race, marital status, smoking, type of health insurance and diagnosis facilities, presence of comorbidities (healthy (no comorbidity), average (1-2 comorbidities), above-average), census-tract median income and presence of farmhouse, year of diagnosis, county-level provider-to-case ratios. **RESULTS:** Variables increasing the likelihood of late-stage diagnosis included having 1 to 2 comorbidities (odds=1.697) and more than 2 comorbidities (odds=3.963), smoking (odds=1.283), being African American (odds=1.199) and living in census tracts with farmhouses (odds=1.124). Having private insurance (odds=0.533), having public insurance (odds=0.470), being married (odds=0.787) or diagnosed in a for-profit facility (odds=0.886), as well as living in census tracts with high income (odds=0.994) reduces the likelihood. **CONCLUSIONS:** There are significant spatial associations between late-stage prostate cancer incidence and observed individual, socioeconomic, behavioral, environmental and demographic factors in Florida. This emphasizes the need for local strategies and cancer control interventions to reduce the percentage of late-stage diagnosis and ultimately eliminate health disparities.

PCN5

TEMPORAL AND GEOGRAPHIC VARIATIONS OF PROSTATE CANCER INCIDENCE AND MORTALITY IN FLORIDA

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OBJECTIVES: Differences in cancer incidence and mortality are apparent among various demographic groups. Understanding the underlying determinants that place certain population subgroups at higher incidence and/or mortality of prostate cancer is imperative. Analyzing temporal trends can provide a comprehensive picture of the burden of the disease and generate new insights about the impact of various interventions. This study aims to use advanced geospatial and temporal statistical techniques to model temporal trends in prostate cancer incidence and mortality and their geographical variations across Florida. **METHODS:** Annual census-tract level rates were computed over the period 1981-2007 for two races (white and black), two categories of age (40-65, >65) and five classes of incomes. They were then smoothed using binomial kriging to filter the noise caused by small population sizes. Joinpoint regression and new disparity statistics were applied to analyze temporal trends and detect potential racial and socio-economic differences. **RESULTS:** Bivariate analysis of time-series indicated that late-stage diagnosis was generally more prevalent among blacks compared to whites, for age category 40-64 compared to older patients who are covered by Medicare, and among classes of lower socio-economic status. Joinpoint regression showed that the rate of decline in late-stage diagnosis for the two racial groups was similar among older patients (i.e. parallel time series). Both races displayed distinct spatial patterns with higher rates of late-stage diagnosis in the Florida Panhandle for white males whereas high rates clustered in South-eastern Florida for black males. **CONCLUSIONS:** The observed impact of socioeconomic and demographic factors on temporal trends in health outcomes emphasizes the need for local strategies and cancer control interventions to reduce late-stage diagnosis and improve health outcomes. Furthermore, large variations in the temporal trends in prostate cancer incidence and mortality and geographical variations would have important implications for resource allocation.

PCN6

OBESITY & CANCER ARE INDEPENDENTLY ASSOCIATED WITH INCREASED COMORBID RISK IN DISTINCT 2013 DATA SOURCES: CLALIT ISRAEL EMR & UNITED STATES NATIONAL HEALTH AND WELLNESS SURVEY (NHWS)

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OBJECTIVES: Increased comorbid/mortality risk accompanies both excess weight and cancer. Charlson comorbidity index (CCI) scores in obesity and cancer were examined across two distinct populations and study designs. **METHODS:** Comprehensive, electronic medical record (EMR) 2013 data from Clalit, a payer-provider, closed-system health fund covering 55% of the Israeli population, were used to assess cancer diagnosis (vs. no cancer) and obesity (BMI≥30 vs. less) among individuals aged 21+ in Israel (n=2,552,720). Similarly examined were 2013 adult (21+) respondents in the U.S. NHWS (n=71,118), a cross-sectional, self-reported online survey. CCI, a weighted sum of comorbidities predicting mortality risk, was calculated based on registry diagnostic codes (Clalit) or self-reported diagnosis (NHWS). CCI categories and mean scores were compared across obesity/cancer groups and within age strata. **RESULTS:** Proportions or patterns of individuals with CCI=1+ were comparable across age brackets (21-49, 50-64, 65+) in Clalit (10.5%, 43.3%, 66.7%, respectively) and NHWS (14.1%, 33.1%, 44.3%). CCI was higher among those with vs. without cancer (or obese vs. non-obese), all $p<0.05$, among both Israeli (Clalit) and U.S. (NHWS) individuals. Across non-obesity/non-cancer, obesity/non-cancer, non-obesity/cancer, and obesity/cancer groups, significantly increasing proportions of individuals had CCI=1+ in both Clalit (23.4%, 41.9%, 68.7%, 77.2%, respectively) and NHWS (16.7%, 31.3%, 56.5%, 70.0%), plus increasing CCI means in Clalit (0.40, 0.80, 1.80, 2.10) and NHWS (0.25, 0.45, 1.38, 1.73), all $p<0.05$. These patterns replicated within the different age brackets. **CONCLUSIONS:** Across distinct data sources (Israeli insurance-clinical EMR and U.S. online survey), comparable comorbidity rates emerged within corresponding age brackets (notwithstanding "healthy cohort" effects observed among NHWS respondents aged 65+), and similar patterns of increased risk emerged with both cancer and obesity. This underscores the global challenge posed by the "dual-risk" profile of obesity with cancer history. Moreover, comprehensive and integrated EMR data can produce convergent results with validated, self-reported data, across diverse geographies.