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OBJECTIVES: Radiation oncology is a key therapeutic strategy in cancer care. In order to assess the gap between the actual use of this therapy and evidence-based indications, we compare the number of new cancer patients that will require at least one course of radiotherapy in 24 European countries to its actual use, and project the results to 2020. **METHODS:** Incidence from each cancer type estimated by the European Cancer Observatory for 2012 was used in combination with the stages at diagnosis from five population-based cancer registries. Projections of cancer incidence to 2020 were also used. These data were applied to evidence-based decision trees for all tumors to calculate the Optimal Utilization Proportion (OUP). Data on actual use come from national radiotherapy societies. **RESULTS:** Average OUP in European countries was 51% with a range from 47% (Russian Federation) to 53% (Belgium). The median actual use of radiotherapy was 69% of the OUP in the 24 countries analyzed. Only four countries showed an actual use higher than 80% of the OUP. Projection of cancer incidence to 2020 showed a 10.1% increase in the number of candidates for radiotherapy compared to 2012, with most western European countries with increases between 10 and 15%. In absolute number of patients, this means an increase of 154294 for the EU 27 countries in this 8 years period. **CONCLUSIONS:** The gap between optimal and actual use of radiotherapy poses a challenge to policy makers when planning future therapeutic resources. In order to reduce the gap, the focus on accessibility, reimbursement policies and multidisciplinary team clinical decision-making is mandatory. Also, there is a need to set reasonable targets that help pave the way to optimal use, keeping in mind the challenges which might make the OUP difficult to achieve.

PCN293
USING GEOGRAPHIC INFORMATION SYSTEMS AND MULTI-CRITERIA DECISION ANALYSIS TO ADDRESS SPATIALLY EXPLICIT PROBLEMS IN HEALTHCARE POLICY DECISION MAKING
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OBJECTIVES: Most policy decisions have a spatial component that can be integrated in formal decision making using geographic information systems (GIS) and multi-criteria decision analysis (MCDA). However, GIS-MCDA is not commonly used in a health (economic) policy setting. The aim of this study is to introduce the spatial component of healthcare policy decisions and to illustrate an application of GIS-MCDA using a case on comparing lung cancer screening versus smoking prevention programs in the Netherlands. **METHODS:** Demographic data and data concerning the distribution of persons at-risk of developing lung cancer were obtained from the Statistics Netherlands institute and aggregated per public health service (GGD) region. Effectiveness and costs data were obtained from literature and assumed to differ across population subgroups. The simple multi-attribute rating technique (SMART) method of MCDA was used. The GIS-MCDA model was built using ArcGIS software. **RESULTS:** The effectiveness of either a screening or a prevention program differed substantially across the GGD regions, reflecting differences in age distribution and percentage of young and old smokers. Considering the adjacency of regions, a different policy may be optimal for the north-east region (prevention) and the south-west region (screening), but this may raise ethical questions of equity. Sensitivity analyses reveal that the decision is sensitive to the percentage of older smokers in a region and the relative cost of screening versus prevention. Limitations of the study are that the costs of implementation are not taken into account, that the time horizon was limited and that a non-exhaustive set of criteria was used. **CONCLUSIONS:** GIS-MCDA can be a useful method to gain insight into the spatial component of healthcare policy decisions. Further research is required in including elicited preference data into the model, into including uncertainty in model parameters more formally and into selecting sets of alternatives (e.g. screening locations) based on a GIS-MCDA analysis.

PCN294
PROGRESSIVE INNOVATION IN ONCOLOGY: VALUING OUTCOMES BEYOND SURVIVAL
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OBJECTIVES: Breakthrough innovation in oncology is commonly considered to be a substantial increase in overall survival (OS) above specific thresholds. However, this growing emphasis on significant OS gain, undervalues new products and may not capture aspects of treatment that are important to patients, including quality of life, delayed progression or improvements in side-effect profiles. We argue that progressive innovation in clinical and non-clinical domains needs to be considered and valued in regulatory and health technology assessment (HTA) decisions. **METHODS:** Definitions of innovation used in regulatory, HTA, and industry were reviewed in the academic and gray literature and current/proposed OS thresholds applied to therapies in colorectal cancer (CRC) and non-small cell lung cancer (NSCLC). **RESULTS:** Regulators and HTA agencies do not provide clear consistent definitions of innovation; however, the magnitude of OS benefit is a consistent key aspect from both policy (e.g., England's Cancer Drugs Fund) and clinical perspectives (e.g., ASCO). Emphasis is on "clinically meaningful" change expressed as minimum thresholds: OS gain >2.5months; HR >0.8; PFS gain >3 months, HR >0.5.. Only one of six CRC drugs approved since 2000 met these thresholds (ASCO; Ellis et al. 2014) although survival has doubled in that time. No NSCLC products have met the threshold since 2005 whereas survival in first line treatment for advanced disease has doubled. **CONCLUSIONS:** Innovation should be judged in relation to the value provided to patients and health systems, and should not be restricted to one-time large survival gains. Smaller sequential clinical gains and improved quality of life, safety, convenience, and system efficiency should also be considered. Progressive innovation provides opportunities for immediate benefit, including survival until the next therapy is available, and may uncover new clinical pathways with significant cumulative benefit. Recognition of this "option value" for future health and research advances is needed.

PCN295
USE OF QUALITY OF CARE (QOC) METRICS AMONG ONCOLOGISTS IN THE UNITED STATES (US)
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OBJECTIVES: The 2014 American Society of Clinical Oncology (ASCO) payment reform proposal includes value-based adjustments based on performance on quality, use of/adherence to pathways, and utilization of other healthcare resources. The objective of this analysis was to assess current use of QOC metrics in US cancer care. **METHODS:** Medical-oncologists and hematologist/oncologists across the US, practicing for at least 2yrs and managing at least 20 patients, were randomly sampled to participate in a cross-sectional survey via a panel. **RESULTS:** 231 physicians participated (87% physicians, 13% medical directors; 67.5% hematologist/oncologists, 32.5% medical-oncologists; median age group 40-49yrs). Mean practice duration:15yrs; 53% practice in an academic/community/Veteran's facility and 47% in group/solo private practice; 41% are part of an Accountable Care Organization (ACO); 89% use electronic health records (EHR). The most common QOC metric used was patient satisfaction scores (60%), followed by Quality Oncology Practice Initiatives:43%, adherence to clinical pathways:36%, Physician Quality Reporting System:35%, Commission on Cancer standards:24%, other:11%, and CancerLinQ:3%; None/not-sure:13%. Overall, 81% stated that their organization's quality measurement and tracking procedures were "somewhat/highly effective" in terms of improving quality of care, outcomes, and cost-savings. Average of 76% of cancer patients were reported to generally adhere to NCCN guidelines/pathways in the organization; 84% were reported to have documented clinical/pathologic staging prior to initiation of treatment (87% among non-ACO physicians, 80% among ACO physicians; p=0.04). Use of at least one quality metric was more common among physicians participating in an ACO (93% vs. 83%; p=0.04). Use of patient satisfaction scores was more common among physicians using EHR (62% vs. 42%; p=0.048). **CONCLUSIONS:** Standard QOC metrics for cancer care appear to be underutilized and appear to vary based on an affiliation with an ACO or use of EHR. Impact of observed patterns on patient care delivery/outcomes warrants scrutiny.

PCN296
THE PROSTATE CANCER REGISTRY: ANALYSIS OF MEDICAL RESOURCE UTILISATION (MRU) IN AN INTERNATIONAL, PROSPECTIVE, OBSERVATIONAL STUDY OF MEN WITH METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (MCRPC)
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OBJECTIVES: The Prostate Cancer Registry (NCT02236637) is an international, prospective, observational study of mCRPC patients. One purpose is to evaluate the impact of mCRPC treatment on MRU in routine practice. **METHODS:** Patients were enrolled upon initiation of mCRPC treatment or during surveillance in >150 centres across 16 countries. Baseline MRU was collected for 1 year before enrolment, and then prospectively at 3-month intervals. Baseline data were converted to a 3-month average to align with prospectively-collected data. We analyzed the MRU parameters of outpatient visits and hospitalization days at three months after treatment initiation. **RESULTS:** We report data from 505 patients who were post-chemotherapy (n=209) or chemotherapy-naïve (n=296), with mean age 71.5 years and mean time since diagnosis 5.7 years. At baseline, MRU was greater for post-chemotherapy vs chemotherapy-naïve patients; mean total outpatient visits: 4.8 (range: 0-18) vs 2.5 (range: 0-13) and mean total hospitalization days: 1.1 (range: 0-15) vs 0.6 (range: 0-8). For patients initiating new post-chemotherapy mCRPC treatment during follow-up (164/505 patients; 33%), MRU was analyzed by first treatment: abiraterone (n=74), enzalutamide (n=46), cabazitaxel (n=44). In the first three months, mean (SD) and median [range] number of outpatient visits among patients with evaluable data were 4.2 (2.96) and 4.0 [0-13] for abiraterone (n=51 patients with evaluable data); 4.3 (2.94) and 4.2 [0-14] for enzalutamide (n=32); and 7.6 (5.15) and 6.5 [1-30] for cabazitaxel (n=38). During the same period, the mean (SD) number of hospitalization days was 2.6 (8.47) for abiraterone (n=55); 2.2 (5.51) for enzalutamide (n=33); and 1.5 (3.94) for cabazitaxel (n=40). Median number of hospitalization days was zero across treatments indicating <50% of patients required hospitalization. **CONCLUSIONS:** As these real-world data mature, the impact of different routine mCRPC treatments on MRU across multiple countries, medical disciplines and clinical settings may provide valuable insights to benefit patient care.

PCN297
HEALTH CARE RESOURCE USE AND COSTS AMONG POLYCYTHEMIA VERA PATIENTS IN THE UNITED STATES: RESULTS FROM AN OBSERVATIONAL COHORT STUDY
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