PHARMACOECONOMIC ANALYSIS OF ERLOTINIB COMPARED WITH DOCETAXEL FOR THE TREATMENT OF RELAPSED NON-SMALL-CELL LUNG CANCER (NSCLC) IN TURKEY

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OBJECTIVES: To perform a cost-utility analysis of erlotinib compared with docetaxel for treatment of advanced NSCLC following the failure of prior chemotherapy from the perspective of the Turkish health care system. METHODS: A cost-utility analysis was performed using a transition model with three health states (progression free, progression, death); primary endpoint of cost per quality-adjusted life year (QALY) gained. The model compared the impact of erlotinib or docetaxel therapy over a 2-year period (cycle length of 1 month) in patients with stage IIIb/IV NSCLC who had failed at least one prior chemotherapy regimen. Clinical data from the BR.21 (erlotinib) and TAX317 (docetaxel) phase III studies were used; for the purposes of this analysis, it was conservatively assumed that overall survival was equivalent for the two interventions. The time spent in each health state was adjusted for quality of life, including the impact of adverse events (AEs). Costs included were: resource utilisation for each health state and AE (including hospitalisation, physician visits, outpatient examinations, concomitant medicines and required tests), drug acquisition and administration. RESULTS: The total discounted cost of erlotinib was €21,498 (€11,943), compared with €21,667 (€12,037) for docetaxel. Erlotinib was associated with higher QALYs than docetaxel (0.258 versus 0.206; incremental QALYs = 0.053), mainly due to the lower incidence of AEs and the administration route (oral, versus intravenous for docetaxel). Erlotinib was dominant versus docetaxel, with an incremental cost-effectiveness ratio of −3227 YTL (−€1792) per QALY gained. CONCLUSION: This is the first pharmaco-economic modelling analysis performed for the setting of the Turkish health care system. The results show that erlotinib is dominant versus docetaxel for the treatment of relapsed advanced NSCLC, providing higher QALYs at a lower cost. A major contributing factor to the cost-savings observed with erlotinib is its favourable AE profile, particularly its lack of haematological toxicity.

PODIUM SESSION III: HEALTH CARE USE & POLICY STUDIES

HEALTH SYSTEM CORRELATES OF RECEIPT OF RADIATION AFTER BREAST CONSERVING SURGERY IN LOW-INCOME MEDICAID-ENROLLED WOMEN

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OBJECTIVES: Breast-conserving surgery (BCS), followed by radiation therapy (RT) is a safe and effective alternative to mastectomy for most women with early stage breast cancer based on evidence from prospective randomized trials, and has become the preferred surgical option. Omission of RT after BCS, however, is increasingly common and leads to poor outcomes. Few studies examine patient and health system correlates to receipt of RT after BCS, especially in a low income population. This study described patient and health care system correlates of receipt of recommended care with BCS in North Carolina (NC) indicated by receipt of adjuvant RT. METHODS: Subjects were women diagnosed with primary breast cancer in 1998 and 1999 who were classified as alive at least 12 months post-treatment with BCS (N=344). Medicaid claims were obtained to supplement central cancer registry data on adjuvant RT; state county data were obtained on health provider shortage regions. RESULTS: Of 344 women in NC enrolled in Medicaid and treated with BCS during the period of study, one third did not receive RT. The following factors were associated with lack of receipt of RT after BCS older age (65 > years), residence in a low population density county, receiving BCS at a smaller-sized hospital, and living in a county classified as whole-county specialist scarcity area (all p<0.05 in multivariate analyses). CONCLUSION: Some low income women do not access RT following BCS, placing them at risk for recurrence. We identified geographic isolation and scarcity of health care as possible leverage points for interventions.

ASSOCIATIONS BETWEEN NEGATIVE SYMPTOMS, SERVICE USE, AND COSTS FOR PATIENTS WITH SCHIZOPHRENIA IN FIVE EUROPEAN COUNTRIES

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OBJECTIVES: To allocate mental health resources effectively, data are needed on resource use and costs associated with schizophrenia. We analyzed the use and costs of clinical services in patients with vs without negative symptoms of schizophrenia. METHODS: Data were drawn from the cross-sectional European Psychiatric Services: Inputs Linked to Outcome Domains and Needs (EPSILON) study, which was conducted in Amsterdam, The Netherlands; Copenhagen, Denmark; London, England; Santander, Spain; and Verona, Italy. Using Brief Psychiatric Rating Scale (BPRS) data, we produced three alternative measures of negative symptoms: 1) a binary variable indicating presence or absence of negative symptoms; 2) mean score for individual BPRS negative symptom items; and 3) principal components analysis of BPRS negative symptom items. We used multiple regression models to analyze the impact of negative symptoms on the use and costs of inpatient, outpatient, and community-based services, controlling for age, sex, marital status, employment status, race, education, psychiatric history, and study center. RESULTS: Negative symptoms were present in 247 of 404 patients, with the lowest prevalence in Verona (49%) and the highest in Amsterdam (79%). Compared with patients with no negative symptoms, patients with negative symptoms incurred higher mean costs for inpatient care (68% higher), day care (116% higher), community services (48% higher), residential care (180% higher), and total costs (68% higher) but lower costs for outpatient care (42% lower). After adjusting for sociodemographic and clinical variables, negative symptoms were still significantly associated with higher inpatient and total costs. In the analysis of service use, a significant inverse relationship was seen between the negative symptoms component score and use of outpatient services. CONCLUSION: In this study of patients with schizophrenia in five European countries, negative symptoms were most consistently correlated with higher inpatient and total costs. Further investigation is merited.

ASSESSING THE IMPACT OF A NATIONAL DRUG BENEFIT PROGRAM ON THE USE OF GENERIC DRUGS AND DIFFERENT THERAPEUTIC CLASSES

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OBJECTIVES: To examine changes in the utilization of prescription medicines from 16 therapeutic classes from 2005 to 2006.
attributable to the institution of Medicare Part D, a national prescription drug benefit program for the elderly instituted at the end of 2005 in the United States. METHODS: We implemented retrospective analyses of pharmacy claims of beneficiaries aged 67–79 years from 2005 to 2006, from a large pharmacy chain in the United States. Subjects aged 61–63 were used a control group in a differences-in-differences approach to account for trends not related to Part D. The final sample represented approximately 2.4 million unique beneficiaries aged 67–79. The main outcomes are: 1) Changes in proportion of total days of therapy dispensed as generics, and 2) changes in prescription utilization for each therapeutic class. RESULTS: Prescription drug use by these beneficiaries increased by 11% from 2005 to 2006. After adjustment for secular trends and other potential confounders, utilization of each therapeutic class was similar in 2005 and 2006. Small increases in drug utilization occurred for several drug classes, ranging from 0.66 pill days (0.46%) for users of nonsteroidal anti-inflammatories (NSAIDs) to 4.64 pill days (1.78%) for users of angiotensin-converting enzyme (ACE) inhibitors. Decreases occurred for anti-diabetic drugs (~2.06 pill days, ~0.58%), beta-blockers (~1.24, ~0.49%), and benzodiazepines (~5.96 pill days, ~3.57%). Overall, beneficiaries were slightly less likely to fill prescriptions for generic drugs vs. brand-name drugs in 2006 compared to 2005 (OR 0.98, 95% CI 0.97–0.98). CONCLUSION: Small increases in prescription drug utilization occurred across numerous drug classes for these Medicare seniors following the implementation of the Medicare Part D Prescription Benefit, while overall market share by drug class did not change significantly. Further analyses are needed to explore the degree to which these changes reflect moral hazard versus beneficial expansions of coverage.

### HP4


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**OBJECTIVES:** To quantify and characterize economic-content in pharmaceutical advertisements, and its supporting evidence, in leading American medical journals from 1990–2006. **METHODS:** Two researchers reviewed all pharmaceutical advertisements in three leading general medical (New England Journal of Medicine, JAMA, and Annals of Internal Medicine) and specialty journals (Circulation, Gastroenterology, Neurology) in three specified months each year for 2000 through 2006. Using a standardized data collection form, we investigated economic claims (e.g., ads using the words “value,” “price,” “savings,” “hospitalization,” etc.), as well as the supporting evidence. This work builds upon our previous research of economic claims from 1990–1999, adding new data and content. **RESULTS:** We reviewed 3,516 pharmaceutical advertisements (2,144 from 1990–1999 and 1372 from 2000–2006). Economic content occurred in 11.1% of ads in the 1990s, and 7.6% of ads in 2000–2006 (p = 0.0007). From 1997 to 2002, economic advertisements declined (p < 0.0001), and increased again from 2003–2006 (p = 0.0006), with a peak in 1997 at 16.2% and a nadir of 3.9% in 2002. Economic claims appeared with similar frequency in the specialty journal ads across time periods (1990s: 8.6% vs. 2000–2006: 8.5%; p = 0.91), but declined in the general medical journal ads (1990s: 13.0% vs. 2000–2006: 6.4%; p < 0.0001). The presence of supporting evidence for economic claims was similar in the 1990s and 2000s (63.7% vs. 61.5%, p = 0.70), but over time derived less from the Red Book (1990s: 38.7% vs. 2000–2006: 15.6%) and average wholesale price listings (1990s: 51.1% vs. 2000–2006: 6.3%) and more from data on file (1990s: 9.5% vs. 2000–2006: 29.7%) and published studies (1990s: 6.6% vs. 2000–2006: 23.4%). From 2000–06, a small number of ads mentioned patient compliance (2.6%) or persistence (2.0%). **CONCLUSION:** Drug companies continue to promote health economic messages in medical journal advertisements. Mention of supporting evidence underlying economic claims has not changed over time, though more ads reference published studies.

### MD1

**IMPACT OF ANTI-TUMOR NECROSIS FACTORS ON HEALTH CARE RESOURCE UTILIZATION IN PATIENTS WITH IMMUNE-MEDIATED INFLAMMATORY DISEASES**

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**OBJECTIVES:** To evaluate the impact of anti-tumor necrosis factor (anti-TNF) therapy on real world health care resource utilization in patients with immune-mediated inflammatory diseases (IMIDs). **METHODS:** Three groups of patients were identified using claims data from Blue Cross Blue Shield health plans: IMID (rheumatoid arthritis, ankylosing spondylitis, Crohn’s disease, psoriatic arthritis, psoriasis or ulcerative colitis) patients receiving anti-TNF therapy between January 1, 2003 and June 30, 2005 (Group 1); IMID controls without anti-TNF therapy (Group 2); and non-IMID controls (Group 3). The groups were matched for gender, age and geographic region in a 3:1 ratio. All patients had > = 6 months continuous plan enrollment before and > = 12 months after the index date. Health care resource utilizations per patient per month (PPPM) were calculated for the 6-month pre- and 12-month post-index periods. Differences from baseline were compared among three groups. **RESULTS:** After matching, 27,006 patients (3,970 Group 1; 11,718 Group 2; and 11,318 Group 3) were analyzed. Of these, 61% were female and the average age was 46 years. Group 1 had higher pre-index PPPM resource utilization for all categories than the 2 control groups. However, compared with pre-index utilization, all post-index resource utilization categories, except emergency room visits, showed a significant decrease for Group 1 that was not consistently observed for controls. Inpatient admissions were reduced in Group 1 (~16.28%), versus no change in Group 2, and +4.17% for Group 3. Physician visits were reduced in Group 1 (~5.11%) versus +2.73% in Group 2, and +6.24% for Group 3. Non-anti-TNF prescriptions were reduced in Group 1 (~6.70%) versus +6.75% in Group 2, and +8.02% for Group 3. **CONCLUSION:** Anti-TNF therapy appears to be associated with a decrease in health care resource utilization. Additional analyses to determine the effectiveness of anti-TNF therapies in patients with IMIDs through clinical, economic, and humanistic assessments are recommended.

### MD2

**ECONOMIC CONSEQUENCES OF PROVIDING RITUXIMAB AS A TREATMENT ALTERNATIVE FOR RHEUMATOID ARTHRITIS IN THE NETHERLANDS**

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**OBJECTIVES:** A pharmacoeconomic analysis was performed to determine the cost implications of providing rituximab (RTX, a