Abstracts

PEN6

CAN ICD-9 CODES BE USED AS A PROXY FOR DISEASE STAGING IN ECONOMIC EVALUATIONS?
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Administrative health care databases are increasingly used as a source of data for economic studies in cancer. In order to adjust for disease severity, several investigators have utilized ICD-9 codes indicating metastases as a proxy for cancer staging. OBJECTIVE: To determine the validity of using ICD-9-CM codes indicating metastases as a proxy to classify lung cancer patients by stage of disease. METHODS: This retrospective database analysis used diagnosis codes to classify subjects to either localized or advanced stage disease and then compared this classification to the tumor registry staging, which was considered as the “gold standard”. Study subjects included all lung cancer patients treated at an academic institution during 1996–97 who were also members of a large insurance company. Data was derived from inpatient cancer-related claims linked with the institution’s tumor registry data. Advanced stage disease (stages II to IV) was defined by claims indicating lymph node involvement or metastases (ICD-9 codes 196-199.1). The tumor registry staging of the disease for these patients were clustered into two groupings, stages 0-I (localized) and stages II–IV (advanced). RESULTS: Tumor registry entries were identified for 85.7% of patients. The crude concordance between the claims and tumor registry classifications was 74.2% (Kappa coefficient = 0.4848). The positive predictive value of identifying localized disease utilizing ICD-9 coding was 57.6%, while the predictive value of a negative test was 91%. The sensitivity and specificity for dichotomized disease stage was 86.4% and 68.2% respectively. CONCLUSIONS: For a population of lung cancer patients in an academic institution, the use of ICD-9 coding was associated with modest predictability for disease staging. The use of ICD-9 coding as a proxy for disease staging in economic evaluations should be executed with caution.

PEN7

ECONOMIC EVALUATION OF GEMZAR AND BEST SUPPORTIVE CARE (BSC) RELATIVE TO BEST SUPPORTIVE CARE ALONE IN THE TREATMENT OF NON SMALL CELL LUNG (NSCLC) CANCER IN THE UK
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OBJECTIVES: Lung cancer is a leading cause of morbidity and mortality. Chemotherapy is one of the main treatment options but its availability in the UK is limited in comparison to other countries, is inconsistent across geographical regions, with many patients receiving only palliative care. The present study reports results of an economic evaluation of Gemzar (one of the newer agents available) and best supportive care (BSC) relative to BSC in the treatment of advanced NSCLC. BSC relates to all forms of care which are non-curative in intent excluding chemotherapy. METHODS: The study is undertaken from the perspective of the UK NHS. Data were extracted from a comparative trial undertaken in the UK (Anderson et al in 1997). Cost estimates are based on: chemotherapy and associated infusion, hospitalisations, health care professional visits, concomitant medications, radiotherapy and terminal palliative care. Resource utilisation data from the clinical trial were combined with unit-cost data from various UK sources. Costs are presented in 2000 price levels and the time horizon for their estimation is one year; hence discounting was unnecessary. Treatment effectiveness is measured by progression-free survival and tumour response. Extensive sensitivity analysis was also performed. RESULTS: Total treatment cost per patient in the Gemzar/BSC arm was estimated at £5,502 and at £3,861 for the BSC arm, the difference attributed mainly to the drug (Gemzar) and its administration costs. The intervention arm had lower radiotherapy/concomitant medication costs, but this did not offset the drug acquisition cost. Progression free life years and overall tumour response rates were 0.789 and 18.5% in the Gemzar/BSC arm and 0.474 and 0% in the BSC arm. The incremental cost-per-progression-free-life-year gained in Gemzar/BSC relative to BSC is £5,228 and the incremental cost-per-tumour-response £8,873. Changes in the key variables varied the above ratios between £3,000 and £23,000. CONCLUSIONS: The economic evaluation presented above shows that Gemzar/BSC is a cost-effective therapy for advanced NSCLC relative to BSC alone.

PEN8

ECONOMIC EVALUATION OF GEMZAR IN THE TREATMENT OF PANCREATIC CANCER IN THE UK
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OBJECTIVES: Pancreatic cancer is a significant and increasing cause of morbidity and mortality in the UK. Treatment with chemotherapy has shown to improve symptoms and survival of patients. Gemzar is licenced for treatment of pancreatic cancer in the UK. This study reports on an economic evaluation of Gemzar relative to 5-FU, a commonly used regimen for advanced pancreatic cancer patients in the UK. METHODS: The perspective is that of the UK-NHS. Data were derived from a clinical
trial (Burris et al in 1998). Total treatment costs estimates are based on chemotherapy, infusions, hospitalisations, visits to health care professionals and concomitant medications. Resource utilisation data, derived from the trial, were combined with unit cost data from various UK sources. The time horizon is 18 months and costs relate to 2000. A 6% discounting rate was applied. Effectiveness was measured by: survival, progression-free survival, and % of clinical benefit responders. Extensive sensitivity analysis was performed to test the robustness of the results. RESULTS: Total treatment cost per patient on Gemzar was estimated at £3,569 and on 5-FU at £1,262—the difference attributed mainly to higher drug acquisition costs. Gemzar was associated with an incremental gain of 0.188 life years, 0.116 progression-free-life-years and 19% of patients could be classified as clinical benefit responders. As such, relative to 5-FU, the incremental cost-per-clinical-benefit-responder with Gemzar is £12,172, the incremental cost-per-life-year-gained is £12,206 and the incremental cost-per-progression-free-life-year-gained is £19,888. Sensitivity analyses showed that the results did not vary significantly with changes of the parameters. When 5-FU is administered by continuous infusion, the cost per patient increases to £1,900 and the incremental cost-effectiveness of Gemzar is improved. CONCLUSIONS: This economic evaluation demonstrates that Gemzar consists a cost-effective alternative to an existing therapy that is commonly used in the UK for treatment of pancreatic cancer. The incremental cost-effectiveness of Gemzar compares favourably with that of other treatments funded by the NHS.

**ECONOMIC EVALUATION OF GEMZAR/CISPLATIN RELATIVE TO OTHER NEW AGENTS FOR NON SMALL CELL LUNG CANCER (NSCLC) IN THE UK**

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**OBJECTIVES:** Lung cancer is a leading cause of morbidity and mortality. Chemotherapy is a main treatment option but its availability in the UK is limited in comparison to other countries and is not consistent across geographical regions. The present study reports on two economic evaluations of Gemzar/cisplatin relative to: paclitaxel/cisplatin, paclitaxel/carboplatin, docetaxel/cisplatin (evaluation 1); and vinorelbine/cisplatin (evaluation 2). METH-ODS: The perspective is that of the UK-NHS. Information was derived from randomised clinical trials (Schiller et al 2000 (evaluation 1), Comella et al 2000 (evaluation 2)). Total treatment costs include: chemotherapy and infusion, hospitalisations, visits to health care professionals, and concomitant medications. Resource utilisation information was combined with unit cost data from various UK sources. Costs relate to 2000 and were adjusted with the NHS inflation index if necessary. The time horizon for the estimation of costs is one year; hence discounting was unnecessary. Treatment effectiveness is mainly measured by time to disease progression and overall survival. RESULTS: In the first evaluation the cost per patient in the Gemzar/cisplatin, paclitaxel/cisplatin, paclitaxel/carboplatin, docetaxel/cisplatin arms was £5,537, £9,043, £8,444, and £5,779 respectively. Thus, the Gemzar/cisplatin achieves cost savings up to £3506, which is driven by lower chemotherapy costs. Progression-free-life-years for each treatment arm, in the order presented above, were 0.375, 0.292, 0.300 and 0.275 respectively. Thus, the Gemzar/cisplatin combination dominates the other three combinations. In evaluation 2, a conservative approach was used whereby the survival outcome was assumed to be equivalent between Gemzar/cisplatin and vinorelbine/cisplatin arms. However, the cost in the Gemzar/cisplatin arm was £4,476 and in the vinorelbine/cisplatin arm £5,047. Despite significant changes to important parameters Gemzar with cisplatin maintains dominance or achieves very low positive incremental cost-effectiveness ratios, the maximum of which is £1,200. CONCLUSIONS: Gemzar/cisplatin is less expensive and equally or more effective than the other alternative regimens. Thus, on cost-effectiveness grounds, it should be encouraged in the treatment of NSCLC patients in the UK.

**COST-EFFECTIVENESS MODEL OF PROSTATE-SPECIFIC ANTIGEN (PSA) SCREENING FOR PROSTATE CANCER**

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**BACKGROUND:** Prostate cancer is the most common type of malignancy found in US male population and the second leading cause of cancer fatality in men. PSA screening is a common test in prostate cancer diagnosis. This research investigates its cost-effectiveness. METHOD-S: A cost-effectiveness model is constructed following a cohort of patients aged 60 to 75 taken from a general US population. Clinical outcomes, costs, and transition state probabilities were derived from medical literature and used to construct a Markov state probability model. The analysis takes a societal perspective and all costs were converted to 2000 dollars. Discount rate in base case was 3%. The parameters in the base-case were assessed for robustness using one-way sensitivity analysis. RESULTS: We found that a screening program with annual PSA testing starting at age 60 would result in cost-effectiveness ratios of $8000 per QALY. One-way sensitivity testing found the results to be very stable. Threshold analysis revealed that screening ceased to be cost-effective (CE ratio >$50,000/QALY) only when costs for procedures such as prostate surgery approached $500,000 or prostate cancer was detected at high levels (80% true positives in first year of testing, up from cur-