OBJECTIVES: Adverse health effects resulting from tobacco smoking are associated with a significant economic burden and could be reduced through smoking-related health risk awareness programs. The purpose of this paper is to measure health care costs savings achievable by reducing smoking prevalence, and to simulate the costs and benefits of an awareness program.

METHOD: A regression analysis was performed to link the prevalence of smoking and the number of cigarettes smoked daily by smokers to the incidence of: 1) lung cancer; 2) cancer of the mouth; 3) heart disease; 4) cerebro-vascular disease; and 5) chronic obstructive pulmonary disease (COPD) in Canada based on data from Statistics Canada (smoking prevalence) and Health Canada (medical conditions). For each condition, the reduction in the number of cases following a decrease in smoking prevalence and in the number of cigarettes smoked was estimated, and health care costs savings were calculated with condition-specific unit cost estimates. The impact of a smoking reduction program was simulated based on the impact of such programs in the US, and its costs compared with resulting health care costs savings.

RESULTS: A one percent reduction in smoking prevalence in Canada is associated with a reduction of 62 cases of cancer of the mouth, 98 lung cancer cases, 2835 heart disease cases, 592 cerebrovascular disease cases, and 1263 COPD cases. These translate into health care cost savings of $65.7 CAN millions annually. Based on these estimates, a 10-year smoking reduction program with costs and impact similar to that of the US, and its costs compared with resulting health care costs savings were calculated with condition-specific unit cost estimates. The impact of a smoking reduction program was simulated based on the impact of such programs in the US, and its costs compared with resulting health care costs savings. THESE RESULTS: A one percent reduction in smoking prevalence in Canada is associated with a reduction of 62 cases of cancer of the mouth, 98 lung cancer cases, 2835 heart disease cases, 592 cerebrovascular disease cases, and 1263 COPD cases. These translate into health care cost savings of $65.7 CAN millions annually. Based on these estimates, a 10-year smoking reduction program with costs and impact similar to that of the US, and its costs compared with resulting health care costs savings were calculated with condition-specific unit cost estimates. The impact of a smoking reduction program was simulated based on the impact of such programs in the US, and its costs compared with resulting health care costs savings.

CONCLUSIONS: Smoking is statistically related to many health conditions and health care costs associated with these conditions can be reduced through decreased smoking. Tobacco-reduction programs would yield substantial net benefits to the Canadian government.

COST ANALYSIS OF LUNG CANCER TREATMENT IN TAIWAN

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OBJECTIVE: Lung cancer is the leading cause of cancer death in Taiwan. According to the statistics published by the Taiwan Department of Health, 6555 patients died from lung cancer in 2001, and the mortality rate was 29.34 per 100,000 people. The purpose of this study was to analyze the direct cost of lung cancer management in Taiwan.

METHODS: The claim database of the Bureau of National Health Insurance in Taiwan was used for this study, including the hospitalization and outpatient expenses for 2000 and 2001. The analyses comprised the average costs of hospitalization or outpatient services for lung cancer patients.

RESULTS: Of the total hospitalization events for the year 2001, 56.86% were for chemotherapy administration (ICD-9-CM = V581). The average number of in-hospital days was 4.8, and the average cost for each event was NTD30, 648 (USD907.55) (1USD = 33.77NTD). Febrile neutropenia, thrombocytopenia, nausea and vomiting, neuropathy, and anemia were the common causes of hospitalization in large-scale global phase III clinical studies, but in Taiwan, only febrile neutropenia (144 events, NTD 47,191 [USD3,977.42/event], and nausea and vomiting (19 events, NTD19, 361 [USD573.32/event] were claimed in 2001. In addition, the average cost of outpatient chemotherapy and non-chemotherapy service was NTD16, 977 (USD320.72) and NTD3,051 (USD90.35), respectively in 2001.

CONCLUSIONS: This study adapts the database of the Taiwan Bureau of National Health Insurance for the years 2000 and 2001 to a descriptive analysis. The limitations of this research include the complex nature of the disease, the multiple reasons for admission, and the imprecision of coding by health care providers. Note: This study is based in part on data from the National Health Insurance Research Database provided by the Bureau of National Health Insurance, Department of Health and managed by the National Health Research Institutes. The interpretation and conclusions contained herein do not represent those of the Bureau of National Health Insurance, Department of Health or National Health Research Institutes.

THE COST-EFFECTIVENESS ANALYSIS RECOMMENDATION HUMAN ERYTHROPOIETIN GROWTH FACTORS VS. TRANSFUSION IN CHEMOTHERAPY CANCER PATIENTS

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Chemotherapy-induced anemia is currently treated with recombinant human erythropoietin growth factors (rHu-EGFs) or transfusion. Currently, most studies find that blood transfusion is more cost effective compared to rHu-EGFs due to the high cost and relatively small quality of life (QOL) improvements from the drugs.

OBJECTIVES: To measure the cost effectiveness of using blood transfusion vs. rHu-EGFs in chemotherapy-treated cancer patients from the societal perspective and cost per quality-adjusted life-year (QALY) approach.

METHODS: A spreadsheet model was used to evaluate the cost effectiveness of erythropoietin (EPO) or darbepoietin (DARB) plus transfusion when needed, compared to transfusion only. The model applied clinical and QOL data from previous clinical trials and existing literature, in an expected present value backwards induction model using DEALE survival modeling to estimate cost per QALY. In the base case, patients were 60 years old, weighed 60 kg and used the manufacturer’s recommended doses for chemotherapy-related anemia. The model’s time horizon was one year. A sensitivity analysis was performed to determine model robustness.

RESULTS: In the base case and relative to infusion only, for each patient who received EPO, the cost per QALY was $23,152, whereas, the cost per QALY was $45,646 for DARB.

The sensitivity analysis suggested that the model was only sensitive to QOL assumption, when the probability of infusion and anemia was altered by 25%, the cost per QALY values for EPO were $24,847–$25,473 and $21,419–$30,039, respectively. Also, an 81% reduction in DARB dose or price would be needed to equalize the cost of DARB treatment with that of EPO.

CONCLUSIONS: This economic model demonstrates that treating chemotherapy-related anemia using rHu-EGFs is more cost effective than transfusion only. Also, current clinical data suggests that there are no significant QALY differences between the rHu-EGFs. Thus, EPO would be the dominant alternative.

PRELIMINARY ECONOMIC ANALYSIS OF THE AMERICAN CANCER SOCIETY GUIDELINES FOR MAMMOGRAPHY SCREENING IN AVERAGE-RISK WOMEN UNDER 70 YEARS OF AGE

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The American Cancer Society Guidelines (ACS) recommends women at average risk for breast cancer to begin annual