PP45. Development of a pharmacoeconomics service in a provincial oncology centre

Malfair Taylor SC, Chow L
British Columbia Cancer Agency, Vancouver, BC, Canada

Background: The benefits of a pharmacoeconomics service include leading edge pharmacoeconomic research and evaluation for insight into formulary and drug benefit list considerations, and facilitation of enhanced incorporation of quality of life, cost effectiveness, and evidence based medicine into daily patient care. This means more cost-effective use of the drug budget and improved bargaining power for future budget considerations. Accordingly, a formal pharmacoeconomics service was designed and implemented.
Methods: A review of the pharmacoeconomic literature was completed. Pharmacoeconomics and outcomes research conferences and symposia were attended. Data was synthesized to create a draft pharmacoeconomics proposal and template. This was informally circulated to establish interest in the service. Physicians preparing for clinical trials were approached to instill interest in adding a pharmacoeconomic component.
Results: The pharmacoeconomics service has an interdisciplinary team approach. This has been incorporated into the pharmacoeconomic analysis template. The template includes and describes how the pharmacist working on the service can coordinate and facilitate 1) meeting with key stakeholders to be involved with the pharmacoeconomic analysis to define objectives and initiate collaboration, 2) determining the desired perspective of the study such that the scope and the data requirements of the analysis can be defined, 3) determining the alternatives, 4) determining the outcomes, 5) selecting the appropriate method of pharmacoeconomic analysis, 6) determining monetary values, 7) identifying required resources, 8) establishing outcome probabilities, 9) incorporating decision analysis, 10) employing pharmacoeconomic manipulations: discounting, sensitivity analysis, and/or incremental cost analysis, and 11) presenting results.
Discussion: The first pharmacoeconomic study protocol to utilize the service commenced in May. The template was followed up to and including step 7. The pharmacoeconomics pharmacist has been named a co-principal investigator for the study. It is expected that the study will continue and the pharmacoeconomics pharmacist will follow the remaining steps of the template, facilitate, coordinate and complete the study. Results will be presented, submitted for publication, and used as part of a package to formally introduce the service widely throughout the entire provincial oncology agency.

Malfair Taylor SC, BC Cancer Agency, Pharmacy Department, 600 West 10th Ave., Vancouver, BC, V5Z 4A6, Canada

PP46. Economies of scale and technological efficiency in state-wide cancer detection programs

Mansley EC, May DS, Dunet DO
Centers for Disease Control and Prevention (CDC), Atlanta, Georgia, USA

Background: In 1991 the Division of Cancer Prevention and Control (DCPC) at the Centers for Disease Control and Prevention (CDC) established the National Breast and Cervical Cancer Early Detection Program with the goal of increasing access to breast and cervical cancer screening services for women who are medically underserved. Since its inception, more than $400 million has been awarded to fund comprehensive screening programs in all fifty states. As part of an effort to maximize the benefits derived from such an investment, DCPC has begun an economic investigation into the efficiency of the individual state programs.
Methods: Applying the theory of the firm to a screening program, we model the original eighteen state programs as productive processes and examine their average costs of production over a three to five-year period of operation. We consider alternative definitions of output, screening events and conditions detected. Output data is collected from the program's national database constructed from data provided by the states. Using information primarily from CDC's grants administration system, we estimate yearly program costs for each state from which both yearly and cumulative average costs are derived. Returns to scale and technological efficiency are then explored utilizing the knowledge gained about the behavior of average costs.
Preliminary Results: Early analysis suggests significant economies of scale for screening programs that had no history of activity prior to federal funding. Cost per screen falls dramatically up to 75,000 screens and begins to stabilize thereafter. Cost per condition detected appears to behave in a similar fashion. Initial examination of yearly average costs for established programs reveals much less variation in yearly cost per screen relative to the variation in yearly cost per condition detected. Some programs appear to have unusually high average costs when compared to other states with similar cumulative output levels.
Discussion: Economies of scale in screening may indicate significant start-up costs incurred by a program early in its history. The corresponding drop in cumulative average cost as output expands suggests that the assumption of a constant cost per screen found in some cost-effectiveness analyses may be unfounded. Additionally, it suggests that premature evaluation of screening interventions may lead to faulty conclusions and suboptimal policy decisions. Unusually high average costs may indicate programs utilizing a relatively inefficient production technology. Such programs should be examined in more detail as they might benefit from restructuring.

Mansley EC, DCPC/NCCDPHP/CDC, 4770 Buford Hwy, NE, MS-K55, Atlanta, Georgia 30341-3724, USA

PP47. Efficiency of follow-up strategies after radical surgery for colonic cancer (RSCC). A decision analysis

Michel P[1,2], Merle V[1,3], Paillot B[2], Mauillon J[1,2], Duerotte P[1,4], Czernichow P[1,3]
[1]Groupe de Recherche sur l'Appareil Digestif, [2]Centre de Dépistage et de Traitement des Tumeurs Digestives, [3]Département d'Epidémiologie et de Santé Publique, [4]Policlinique. Hôpital Charles Nicolle, Rouen Cedex, France

Background: The impact of follow-up after RSCC is uncertain and have never been tested in population study. Our aim was to compare the efficiency of 14 strategies after RSCC for Dukes B and C, with decision analysis method.
Method: Decision tree was made with the following data estimated from the literature: the population with colonic cancer is estimated to 20 500/y in France; The number of patients with colonic cancer Dukes B or C surviving after radical surgery is estimated to 10 500/y. After RSCC 45.4% are Dukes B and 54.6% Dukes C; The recurrence risk is estimated to 24% and 50% for Dukes B and C respectively, without adjuvant chemotherapy and 20% and 35% with adjuvant chemotherapy. A radical surgery of recurrence is possible in 30.7% and 17.7% of patients with and without follow-up respectively; in patients without recurrence the survival rate is 83%; in patients with recurrence it is 25% or 1.5% whether radical surgery is possible or not. We estimated the compliance of treatment and follow-up to 80% and 90% respectively. A sensitivity analysis tested all the parameters of the decision tree. The total cost and marginal cost were calculated in French Francs on the basis of French National Health's tariff 1996. The cost of adjuvant chemotherapy was calculated for 5Fluorouracile 370 mg/m² and Ac folinique 200 mg/m² protocol (D 1 -D 1: 28d, 24 weeks). The cost of recurrence was not studied. The Olhsson follow-up protocol was used as standard (Dis Colon rectum 1995;38:619-626). The 14 strategies were presented in table 1 with survival rate at 5 years and cost of each strategies for 5 years.
Results: (Tt=Treatment, FU=Follow-Up, Du=Dukes)

Table 1:	Survival %	Survival n	Cost 10^6 FF	Marginal Cost/SO
SO No Tt,No FU	53.85	5654	0	-
S1 No Tt,FU Du C with ACE+(C+)	54.26	5698	20.4	0.47
S2 No Tt,FU Du C	54.53	5725	42.2	0.60
S3 No Tt,FU Du B or C	54.89	5763	99.2	0.91
S4 Tt Du C,No FU	58.07	6097	58.3	0.13
S5 Tt Du C,FU Du C+<75ys	58.28	6120	70.6	0.15
S6 Tt Du C,FU Du C+	58.40	6132	78.8	0.16
S7 Tt Du C,FU Du C<75ys	58.40	6132	83.7	0.17
S8 Tt Du C, FU Du C	58.60	6153	100.6	0.20

S9 Tt Du C,FU Du B or C<75ys	58.45	6138	117.9	0.24
S10 Tt Du C,FU Du B or C	58.96	6190	157.5	0.29
S11 Tt Du B or C,No FU	59.42	6239	128.5	0.22
S12 Tt Du B or C,FU Du C+	59.75	6274	148.9	0.24
S13 Tt Du B or C,FU Du C	59.94	6294	170.7	0.27
S14 Tt Du B or C,FU Du B or C	60.26	6327	227.7	0.34

In sensitivity analysis, two parameters of decision tree influenced the survival rate at 5 years more than 1.5%: the percentage of Dukes B and C colonic cancer, and the adjuvant chemotherapy. The impact of follow-up on survival rate was less than 1 %.
Discussion: The "classic" strategy (S1O) could decrease the death rate of 1% with a marginal cost of 0.29 10^6 FF by comparison SO (no Tt, no FU). These estimations suggest that the marginal cost of the follow-up is low in strategies with adjuvant chemotherapy. The efficiency of the follow-up must be balanced with the efficiency of screening to detect more colonic cancer at Dukes B stage.

Michel P, Centre de Dépistage et De Traitement Des Tumeurs Digestives, Hôpital Charles-Nicolle, 1 rue de Germont, 76031 Rouen, France

PP48. A review of the pharmacoeconomic research on Gemcitabine (Gemzar™) in the treatment of advanced non-small cell lung cancer

Minshall ME, Liepa AM
Eli Lilly and Company, Eli Lilly Research Laboratories, Global Health Economics Research, Indianapolis, USA

Background: Gemcitabine (GEMZAR™) is a novel nucleoside analogue with unique activity against a range of solid tumors including non-small cell lung cancer (NSCLC) and pancreatic cancer. As of April 17, gemcitabine has been approved for chemotherapeutic treatment in 39 countries: 13 for NSCLC only, 6 for pancreatic cancer only and 20 for both NSCLC and pancreatic cancer.
Methods: Over the past three years, a series of retrospective economic evaluations (cost-minimization and cost-effectiveness) have taken place in order to better estimate the economic impact of gemcitabine (single agent and in combination) in NSCLC treatment compared with other chemotherapeutic regimens.
Results:

Country	Mean cost savings for single agent gemcitabine
USA	$1,879/cycle* vs. cisplatin/etoposide
Spain	$ 1,359/cycle* vs. cisplatin/etoposide
Germany	$ 892/cycle* vs. ifosfamide/etoposide
Belgium	Up to $935/cycle vs. cisplatin/etoposide and carboplatin/etoposide
Sweden	$267/cycle vs. cisplatin/etoposide, $1,778 vs. ifosfamide/etoposide
Canada	$1,174-$6,955/life-year gained vs. best supportive care
Country	**Mean cost savings for gemcitabine + cisplatin**
Italy	All cycles: $4,910 vs. mitomycin/ifosfamide/cisplatin; $35,204 vs. cisplatin/etoposide; $29,464 vs. cisplatin/vinorelbine

* Excluding chemotherapy cost

Discussion: These results suggest that gemcitabine, as a single agent or in combination, may be cost saving or perhaps even cost-effective largely due to the possibility for chemotherapy administration in an outpatient setting and the lower side effect/toxicity profile (e.g. lower febrile neutropenia and nausea/vomiting). This economic advantage assumes equivalent efficacy for NSCLC treatment between gemcitabine and other chemotherapeutic regimens.

Minshall ME, Senior Health Economist, Global Health Economics Research, Eli Lilly and Company, Lilly Corporate Center, Drop Code 2646, Indianapolis, IN, USA

PP49. Management of lung cancer - a comparison of management strategies, outcomes and resource utilisation in specialist and non specialist centres

Stroner PL, A Cull A, Dunnett J
South East Scotland Lung Cancer Group

Background: Incidence rates for lung cancer in Scotland are among the highest in the world - 116 per 100,000 in men and 68 per 100,000 in women. The overall five year survival rate has remained around 7% for more than 25 years. In 1989/90 the National Health Service spent £55-75 million on the care of lung cancer patients but there is insufficient data available to determine whether the most cost effective use is made of this resource. There is also insufficient information available about the true benefits, costs of different treatment, approaches, resource utilisation, and outcome for patients treated in different clinical settings.
Methods: This is a prospective descriptive study of the outcome of clinical management strategies for lung cancer patients in specialist and non-specialist centres. The study population consists of an unsolicited consecutive series of all new lung cancer patients referred to respiratory physicians in SE Scotland. Assessment consists of patient self reported questionnaires to measure quality of life variables, i.e. EORTC QLQ-C30 and the Lung Cancer Module (LC-Cl3) and the Hospital Anxiety and Depression Scale (HADS), together with a structured interview based on the Support Team Assessment Schedule (STAS) to monitor symptoms and resource use. Follow up questionnaires are administered by post with telephone interviews at one, three and six months. Demographic, clinical and resource use data are being collected on all patients. The main resource data are collected from case records and will be costed for each setting. Data collection is ongoing.
Progress: In the first year two main problems have had to be addressed 1) Accrual (physician compliance): Slow initial accrual is not uncommon but the following action is being taken a) progress report circulated to clinicians, b) research nurses review accrual with clinicians at the two poorest recruiting centres c) summary of progress is presented at quarterly meetings of South East Scotland Respiratory Group d) pathology department records are being checked to ascertain whether any patients with a pathologically confirmed diagnosis of lung cancer have been missed.
2) Quality Assurance: There is considerable potential for variability in the interpretation of casenote data. Two measures have been undertaken to address this a) a compendium of data definitions is used in the casenote review b) a random sample of casenotes is independently completed by and cross checked to ensure uniformity of interpretation. Anomalies are reviewed by the whole team. The study opened for recruitment in June 1996 and as of 31st May 1997 524 patients have been registered. The expected recruitment to the study for this period is 737 patients. It was anticipated that a proportion of newly diagnosed lung cancer patients would be unable or unwilling to complete quality of life assessments and the intention was to collect casenote data only for these patients. To date we have casenote data only for 34.3% of the sample. The compliance rate in this study remains high at 73.5%, which is extremely encouraging in this patient population.

Stroner PL, Scottish Cancer Therapy Network, Information and Statistics Division, Trinity Park House, South Trinity Road, Edinburgh, EH5 3SQ, UK

PP50. Economic evaluation of endocrine therapies for post-menopausal metastatic breast cancer

Sorensen S, Munro V, Hutton J
MEDTAP International Inc., London, UK

Background: A cost-effectiveness study is being carried out to compare vorozole, a new nonsteroidal oral aromatase inhibitor, to other endocrine therapies for metastatic breast cancer patients in the UK, France, Sweden and Canada. Endocrine therapies have demonstrated effectiveness in prolonging time to progression of disease for women with post-menopausal metastatic breast cancer, which may have economic implications. Resource constraints have increased the need for evidence of cost-effectiveness. A decision-modelling approach was used to compare vorozole with other