for almost 20% of all cancers in France in 1990, and more than a third of women still die from metastasic breast cancer. Although metastatic breast cancer is a major public health issue and is associated with high management costs, no pharmacoeconomic assessment has been carried out in patients with this disease.

Methods: A Markov process model was designed to assess the cost-utility of a new hemisynthetic Vinca-Alcaloid (Vinorelbine) and two taxoids (Docetaxel and Paclitaxel) for second-line therapy of metastatic breast cancer. The model took into account 53 disease states associated to responses, toxicities and disease complications. Phase II clinical trials were used to calculating transitional probabilities by the actuarial method and the density function approach.

The content of health state descriptions was based on the Health Utility Index (Mark II and Mark III, Mc Master University). Three dimensions: vision, hearing, speech, were considered as optimal and omitted. Five specific cancer complaints were added. The scenarii were validated for comprehension by 5 oncologists and 3 nurses. Health state preferences were estimated by using the standard gamble and the feeling thermometer techniques in a survey involving 20 oncology nurses as a proxy for patients. To sum up the results, a method similar to the Q-Twist approach has been used combining progression and adverse events into a therapeutic risk-benefit index. The health-related quality-of-life coefficients were used as quality adjustment factors to calculate quality-adjusted progression-free survival associated with the 3 regimens.

Cost evaluation was based on the combined perspectives of the Health Care System and of the patient. Non medical direct and indirect costs were excluded from the calculation. Consumption per episode of care was estimated by retrospective analysis of 153 medical files from 5 French hospitals. To identify hospital resource utilization, the French DRG's classification was used. Real costs per DRG were obtained from the Ministry of Health cost survey based on accounting data collected in 1993 from 22 hospitals. Ambulatory costs were estimated from the patients' prescriptions made at hospital discharge. Valuation of ambulatory resource utilization was based on the French relative value scale for medical services and retail prices for drugs. The model kept track of the treatment cost, of the adverse event-related cost, and of the savings due to postponed recurrences.

Cost and quality of life assessments under treatment from the beginning of the chemotherapy until death have been carried out following this methodology. Incremental cost utility ratios were calculated.

Results: For a typical base line, Vinorelbine and Paclitaxel treatments were strongly dominated by Docetaxel treatment. The latter reduced the time spent in progression, decreased the number of disease complications, and thereby, provided better quality of life. Even with the highest cost linked to treatment, as Docetaxel allowed to avoid numerous disease complications, its total cost was the smallest. Broad sensitivity analysis confirmed the robustness of these results.

Discussion: The model approach allows to synthesize results of different type of studies clinical trials, current practice surveys, resource utilization reviews and quality of life assessment. It enables to anticipate the whole consequences of the disease.

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OP25. A Systematic Review of Health Benefit Valuation in Economic Evaluations in Cancer

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Background: As the number of cancer treatments increases, their consequences for patients relate not simply to hard clinical outcomes such as survival. Interventions invariably differ in terms of their impact, often via side effects, on various dimensions of health-related quality of life (HRQL) (e.g. pain, physical function). They also differ in terms of their process characteristics (e.g. the need to visit hospital frequently versus largely community-based care). Increasingly, the comparison of cancer treatments is characterised by one treatment having a lower incidence of one sort of adverse event and a higher incidence of another. Trade-offs may also exist between the HRQL implications of adverse events, the process characteristics of treatments and hard clinical outcomes such as survival. In order for decision makers to judge the overall net benefits of interventions, valuation studies offer a means of eliciting - from patients or other groups - the weights attached to the various outcomes and process characteristics of treatments. Valuation studies can facilitate the estimation of a unidimensional measure of benefit which can then be used in resource allocation. Various approaches to the valuation of health exist, some of which have been used in the evaluation of cancer treatments. This paper presents the results of a systematic review of the empirical literature related to health valuation studies in the area of cancer care.

Methods: Relatively few systematic reviews of economic evaluations have been undertaken and problems exist with identifying relevant articles from bibliographic databases due to indexing which lacks specificity. A range of databases have been interrogated including Medline, the OHE HEED database and the NHS CRD NEED database. The aim of the search strategy has been to identify economic evaluations which have sought to combine the multidimensional outcomes and process characteristics of treatment onto a single scale using valuation techniques which attempt to reflect individuals' preferences. Analysis of these papers is currently underway and results will be presented.

Discussion: The review will help to illuminate the rationale for valuation studies in economic evaluation and the strengths and weaknesses of various methods such as QALYs, Q-TWIST, healthy-year equivalents, willingness to pay and conjoint analysis.

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OP26. Assessing the relative costs of standard open surgery and laparoscopic surgery in colorectal cancer in a randomised controlled trial

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Colorectal cancer is the second most common malignancy in the western world. Adequate surgical resection is the only curative treatment with overall survival rates of just under 50% at 5 years. It is well recognised that surgical technique is critical both in respect of cure and local recurrence. Conventional open surgery is regarded as the current "gold standard" for colorectal malignancy. However, following the recent wide-scale introduction of the laparoscopie procedure for abdominal procedures such as cholecystectomy and appendectomy, interest is now turning to the place of laparoscopic surgery in colorectal cancer. Enthusiasts around the world are beginning to explore the role of such technology with the hope that the perceived benefits of laparoscopic surgery in other arenas, namely less pain, earlier mobilisation, shorter hospital stay, earlier return to work and improved long-term cosmetic results, will also apply to laparoscopic colorectal surgery. Indeed, the UK Medical Research Council (MRC) is currently funding a multi-centre randomised controlled clinical trial (the MRC CLASICC Trial) to evaluate the role of laparoscopic surgery in the management of patients with colorectal cancer.

The primary end-points of this trial are pathological resection margins, 30-day operative mortality, and local recurrence rates, disease-free and overall survival at 3 years. Cost-effectiveness and quality of life are defined as secondary end-points; however they play an important role in the overall comparison of laparoscopic surgery with conventional open surgery. Several economic evaluations will be made including:

- the relative costs of laparoscopie and open procedures with respect to equipment cost, theatre time, hospital stay;
- the use of health resources, such as GP visits, use of social services, district nurse visits;
- quality-adjusted life years obtained using Q-TWIST analysis.

The trial aims to recruit 1000 patients in 3 years, of which 500 will enter the health economics study. Currently 125 patients have been entered into the trial. Patients are assessed pre-operatively and then 2 weeks, 3 months, 6 months, 18 months and 3 years post-operatively. Utility scores are obtained using the Euroqol scale. Quality of life is being measured using the EORTC QLQ-C30 and the EORTC QLQ-CR38, a colorectal cancer-specific questionnaire. A questionnaire to assess the use of health resources has been designed specifically for the trial. Detailed technical and theatre costs will be collected in a random sample of 10 patients undergoing each procedure in each centre.
Thus, the trial will allow the evaluation of the cost-effectiveness and impact on quality of life in the management of patients with colorectal cancer undergoing laparoscopic surgery, in addition to the routine recurrence and survival data.

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OP27. Anastrozole 1mg provides a cost-effective survival benefit, compared with megestrol acetate, for patients treated for advanced breast cancer

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Background: Advanced breast cancer is an incurable disease. The major aim of treatment is usually palliation of symptoms. In a recent report [1], anastrozole 1 mg (Arimidex™) (AN) and anastrozole 10 mg daily were compared with megestrol acetate (40 mg qid) (MA) in two randomised, multicentre trials. In the overview analysis of these 2 trials AN has demonstrated a statistically and clinically significant improvement in survival (Hazard Ratio=0.78; p=0.02), compared with MA, in the treatment of postmenopausal women with advanced breast cancer whose disease has progressed following tamoxifen. As AN showed improved survival but is also more expensive than MA, the cost effectiveness of AN has been evaluated using the data collected from these 2 large controlled trials.
Methods: A major difference in treatment costs between AN and MA is the drug received. Both drugs are endocrine treatments and are well tolerated with similar side effect profiles, the exception being weight gain. This is significantly higher on MA, but is assumed to have minimal financial implications. The incremental cost effectiveness ratio (ICER) was defined as the difference in cost of randomised treatment, divided by the difference in survival, to give the cost per additional life year gained. The average duration of treatment and the average survival for each treatment group was estimated using the area under the Kaplan-Meier curve (AUC) for time to treatment withdrawal and time to death respectively. Sensitivity analyses were also carried out including the costs of treatments received after randomised therapy was stopped and varying the drug costs.
Results: 764 patients were recruited into the 2 trials of whom 263 were randomised to AN and 253 were randomised to MA. The average duration of treatment was 12.2 months and 9.0 months for AN and MA respectively. The average survival was 35.4 months on AN compared with 29.1 months on MA. Assuming a daily cost of £2.79 for AN and £0.97 for MA, the ICER is calculated as £1,608 per additional life year gained. Details of the sensitivity analyses around this figure will be presented.
Discussion: The AUCs of treatment withdrawal and survival, for 2 large randomised trials were used to estimate the ICER of AN compared with MA as this was considered the best use of the available data. Patients were estimated to have a 22% lower risk of dying over a given period of time on AN compared to MA and the ICER compared favourably with other established and routinely funded treatments for breast cancer.

1 Buzdar A et al. Proceedings of the American Society of Clinical Oncology 1997; 16:156a Abs 545. Arimidex is a trademark, the property of Zeneca Ltd.

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OP28. Evaluation of economic consequences of general prostate cancer screening program in France: A decision model

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Background: Prostate cancer is a growing health problem. But the value of prostate cancer screening remains controversial because many tumours are not destined to lead to mortality. In other hand, it is known that cancer can be cured if detected at an early stage while still confined to the prostate. Early detection using a simple clinical procedure called digital rectal examination (DRE) and a blood test called prostate-specific antigen (PSA) measurement would seem to be a commonsense strategy for reducing the morbidity and mortality from prostate cancer in France. Decision-makers are having to decide whether or not to promote the use of prostate cancer detection technologies in mass screening programs. So the French social security system consequently asked ANAES to evaluate the subject.
Methods: In the absence of randomized trials documenting that early detection of prostate cancer does more good than harm, this analysis uses a quantitative decision model to estimate benefit and costs of an early detection program under different sets of assumptions. The results are expressed as a cost per case of potentially curable prostate cancer detected.
The model considers the use of DRE and PSA as primary screening tests and transrectal ultrasound guided needle biopsy of the prostate (TUNB) as confirmation test. The analysis assumes that TUNB is the "gold standard" for confirming or rejecting suspicious DRE/PSA results.
We estimate the impacts of one-time screening program under some assumptions, and then examine how relaxing the assumptions about screening efficacy changes the results. The model adopts the perspective of the French social security system and considers only direct medical costs.
Moreover we compare a mass screening program with no screening at all in other words screening versus diagnosis.
Results: This study will be ready in summer 1997, and will propose recommendations for decision makers. It offers a quantitative estimate which is adapted to the French situation. Indeed it is not easy to transpose foreign economic evaluation to France. In the meeting the results from our model will be presented.
Discussion: This analysis illustrates the hard policy choices in deciding whether to expend resources for screening before scientific research has definitively established the effectiveness of prostate cancer treatment. The difficulty of current screening prostate cancer is to distinguish between potentially curable prostate cancer and the other cases. Beyond whether or not a prostate cancer screening benefit would result in net costs or savings for The French social security system, one can also consider whether the health benefit realized for each extra dollar spent for prostate cancer screening is more or less than those of screening programs already covered by the social security system.

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