OP29. Institutional structure, financing mechanisms and heterogeneity in health care supply: Experience from 1078 breast cancer patients in a French region

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Background: Heterogeneity in health care supply usually goes hand in hand with great variance in medical costs. In the past, heterogeneity has been documented through differences in patients' health and socioeconomic characteristics or practice-style effects. This study is aimed at pointing out how discrepancies in the health care supply may be explained by differences in institutional structures and financing mechanisms.

Methods: The study is based upon an investigation by the health insurance fund into 1078 female breast cancer patients from a South-Eastern French region (Provence Alpes-Côte d'Azur) who asked for the exemption of patient's contribution towards cost of medical treatment in the first half of 1994 and who have been followed up to the end of the treatment. The follow up began with the screening and stopped at the end of the primitive treatment. The treatment was made by one or more of the following sequences : surgery, chemotherapy, radiotherapy and hormonotherapy.

Results: 945 patients over 1033 who received surgery have had a lymphadenectomy. The number of removed nodes is significantly not greater than 6 for more than 15% of the 322 patients operated in private hospitals versus less than 8% in public hospitals and less than 4% in Cancer Institutes (p-value=0.00003). The general agreement is that the number must be greater than 7. Among the 939 patients who received radiotherapy, X photons have been used in 4 cases over 10. In those cases, there has been a great propension in private structures for using high energies, greater than 10 Mv (p-value=0.003) whereas the general agreement is about 6 Mv. Chemotherapy has been used for 381 patients and most often included anthracyclins, the choice of which heavily depends on the type of structure (p-value<0.00001): cheaper but more chemiotoxic drugs are used in public structures and Cancer Institutes, and more expensive ones with less adverse reactions in private structures. Moreover, when private structures use those latter drugs, dose-intensities are significantly less than the recommended ones.

Discussion: The explanation of different practices by different financing schemes coming from institutional discrepancies is obviously supported by econometric and statistic results. The coexistence in the French health care supply of a public sector with a prospective payment system-like financing regime and a private sector where costs are retrospectively reimbursed according to an official quotation fundamentally involves different choices of therapeutic policies. The objective-functions are clearly not the same : maximising health output subject to budget constraint for public sector and Cancer Institutes, maximising the financial output subject to standard constraints of health output in the private sector. In other words, there is a larger place for claims for quality of life in private hospitals than in public ones because of differences in institutional structure and related financing mechanisms.

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OP30. Cost-effectiveness of faecal occult blood screening for colorectal cancer: results of the Nottingham trial

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Background: Colorectal cancer is a major cause of mortality in all European countries, although the early detection of the disease is known to improve survival. The development of faecal occult blood (FOB) testing and endoscopic investigation techniques has made mass population screening for such cancers a practical possibility. Since 1981, a randomised controlled trial of FOB testing has been conducted on a population of 150.000 persons in Nottingham, UK. Since 1986, an economic evaluation has been conducted in parallel, using evidence from the clinical trial.

Methods: (i) patient-specific costing of the FOB screening process, including programme administration and diagnostic investigation; (ii) patient-specific costing of post-diagnosis treatment (surgery) and follow-up; (iii) survival estimates from the clinical trial; (iv) quality of life estimates obtained from pre- and post-treatment questionnaires. A semi-Markov mathematical model of the entire screening process, based upon the disease progression observed in the trial, has been developed to obtain cost-effectiveness estimates (cost per QALY gained) for the trial protocol. This model has facilitated estimates for simulated screening scenarios employing alternate assumptions, e.g. different compliance rates and screening frequencies.

Results: Many of the earlier results of the evaluation have already been published. For example, the cost per cancer detected using the Nottingham protocol in a general setting would be approximately £3,000 (1991 prices), and variations on this protocol (using higher cost but more sensitive tests) appear to be less cost-effective. Screening permits the early detection and excision of pre-malignant lesions and effectively contributes to a long term reduction in cancer incidence. Such a strategy thus offers a sizeable discount on the costs of a cancer screening programme. Screening is found to offer little prospect of economy in surgical treatment costs, owing to the discovery that earlier stage disease is no less costly to treat than late-stage disease. When all these individual results are combined in the mathematical model, the incremental cost per QALY estimates show that screening according to the Nottingham protocol is of similar cost-effectiveness to UK breast cancer screening in the short term (i.e. over the duration of the trial). However, over the longer term (i.e. over subjects' expected lifetimes), the estimates for colorectal cancer appear superior. In general, the screening of females appears to be more cost-effective than for males, owing to the former's greater post-intervention life expectancy. The results overall appear relatively insensitive to changing assumptions about subject compliance.

Discussion: The evidence from the Nottingham evaluation suggests that FOB screening for colorectal cancer following the Nottingham protocol is cost-effective relative to many other currently-employed treatments, under most plausible assumptions about compliance and screening other parameters. However, other screening modalities are currently under evaluation, e.g. one-off endoscopic screening, which may prove even more cost-effective.

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OP31. The cost of breast cancer: Implications for screening

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Background: The effectiveness of breast cancer screening is now well-established although questions regarding cost-effectiveness remain. One unresolved issue is whether screening can offer the prospect of economies in treatment costs as a result of detection of the disease at earlier stages of development.

Methods: A detailed cost audit was conducted using the medical notes of 137 patients diagnosed with breast cancer in the Trent region of the UK in 1991 and followed for four years. From individual patient records we developed stage-specific algorithms of diagnostic and therapeutic cost-entailing events. These resource use algorithms were combined with unit cost estimates to obtain the mean costs of diagnosis, treatment and follow-up by stage at diagnosis over the four year period.

It is important to appreciate that for some patients, these four year costs will represent an underestimate of the total treatment costs arising from the condition. For those surviving, certain therapies will continue into the fifth year and beyond. These additional costs were modelled using stage specific survival rates and the four year resource-use data.