RESULTS: Our computed values vary across countries and across time. The average STR rate for the 167 countries in the sample is 6.8% and the standard deviation 3.9%. The figures ranged from −6.8% for Equatorial Guinea to 18.6% for Armenia. For Brazil, STR rates display a decreasing profile across time, with an average rate of 4.7%. Computed figures vary from 3.6% to 5.5%. CONCLUSIONS: The standardisation of the use and estimation of discount rates in the economic evaluation of health care programmes (EEHCP) is a core quest, especially with the increase of EEHCP as a tool for decision making. The variation of STR rate results indicate the need for country-specific discount rate estimation.

PMC7

SELF-REPORT VERSUS CAREGIVER REPORT OF HEALTH CARE UTILIZATION: IMPACT ON COST AND COST-EFFECTIVENESS

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OBJECTIVES: This study aims to compare the impact of two different sources of resource use, self-report versus routine registrations, on incremental cost-effectiveness ratios (ICERs).

METHODS: Data were obtained from a cost-effectiveness study performed alongside a two-year randomized controlled trial evaluating the effect of an INTERdisciplinary COMmunity-based management program (INTERCOM) for patients with chronic obstructive pulmonary disease (COPD). The program consisted of exercise training, nutritional therapy, education and smoking cessation support offered by community-based physiotherapists and diabetics and hospital-based respiratory nurses. Data on caregiver visits, hospitalizations, diet nutrition, devices, (un)paid help, travel expenses and time lost from paid work over the two-year period were collected using a cost booklet. In addition, data on hospital admissions and outpatient visits, visits to the physiotherapist, dietician or respiratory nurse, diet nutrition and outpatient medication were obtained from hospital- and billing records and local pharmacies. The cost per QALY was calculated in two ways, using data from the cost booklet or registrations. RESULTS: In total 175 patients were included in the study. Agreement between self-report and registrations was good for hospitalizations (r = 0.96), diet nutrition (r = 0.91) and physiotherapist visits (r = 0.89), but above 0.58 for all other types of care. The total cost difference between the registrations and the cost booklet was €464 with the highest difference for hospitalizations 386 euro. Based on the cost booklet the cost per QALY was €2,444 (95% CI: €1,928–€2,961), but above €2,900 (95% CI: €2,444–€3,357) for all other types of care. The cost difference between the treatment group and usual care was €2,444 (95% CI: €1,928–€2,961), which resulted in an ICER of €2,444/QALY. For the registrations, the results were €2,498 (95% CI: €2,168–€2,828) and €2,390/QALY, respectively. No differences were found in the cost-effectiveness planes and the acceptability curves between the two methods. CONCLUSIONS: This study showed that the use of self-reported data or data from routine registrations affected within group costs, but not between group costs or the ICERS.

PMC8

DESIGN AND REPORTING TRENDS IN PIGGY-BACK ECONOMIC TRAILS

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OBJECTIVES: To assess trends in the prevalence and type of economic analysis alongside randomized controlled trials (piggy-back trials) published between 1997 and 2007. METHODS: We searched Medline for a total number of Randomized Controlled Trials published between 1997 and 2007. Economic studies alongside RCTs were identified by using the additional MeSH terms, costs and cost analysis. The abstract of each retrieved, English-language study was reviewed and economic studies alongside RCTs were identified. Included studies were categorized further by the type of analysis, perspective and interventions. RESULTS: Our search identified a total of 131,454 RCTs and 2820 economic analysis alongside RCTs. A total of 2077 studies met inclusion criteria and further analyzed. Only 1.58% of published RCTs included economic analysis. The prevalence of economic studies alongside RCTs as a proportion of RCTs was fairly constant over 1997–2007, except for the year 2000 where a higher prevalence (2.07%) was observed. Cost effectiveness analyses was most frequently reported (46.12%) followed by cost minimization (2.74%), cost benefit (2.6%) and cost utility (1.4%). More than one type of analyses was reported in 3.17% of studies. The remaining 44.05% of studies were either cost analysis or cost-consequence analysis or were unclear. The interventions considered in the trials were drugs (36.3%), devices or surgical techniques (22.14%), behavioral studies (4.91%), preventive studies (3.9%), and others (30.38%). The perspective of economic analysis was stated in only 8.32% of studies. Federal, hospital, patient, payer, societal and state agency perspective were reported by 1.2%, 1.3%, 0.38%, 1.05%, 2.84%, and 0.52% of studies respectively. CONCLUSIONS: We observed an increase in the prevalence of economic analysis in randomized controlled trials than earlier years. Also, the number of drug trials and devices and surgical technique trials has increased from before 1997. The reporting of trial perspective was found very low. This could be because of external-validity problems with piggy-back trials.”

PMC9

DISCOUNTING COSTS AND BENEFITS OF HEALTH CARE PROGRAMMES: PROBLEMS OF THE SOCIAL TIME PREFERENCE APPROACH

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OBJECTIVES: Economic evaluation of health technologies is increasingly used to inform decision-making in health policy. It is standard practice in cost-effectiveness analysis to discount future health benefits at the same rate as costs and to apply a baseline rate between three and five percent. Public health advocates of prevention programmes often argue that devaluing health benefits at the same rate as costs and to apply a baseline rate between three and five percent. Public health advocates of prevention programmes often argue that devaluing future health gains through discounting is inappropriate. The purpose of this paper is to re-examine the arguments of the social time preference approach for discounting health benefits at some positive rate and at the same rate as the costs. METHODS: The paper is based on a systematic review of the literature on the foundations of discounting in the economic evaluation of health care programmes published during the time period 1989–2008. RESULTS: According to the social time preference approach the main arguments for discounting are the individual’s uncertainty about the returns of investment, diminishing marginal utility and pure time preference. None of these arguments convincingly supports a positive and distinct discount rate for health gains. Particularly the argument of pure time preference is challenged, e.g. by the problem of myopia, the divergence between private and collective decision behaviour, and the neglect of distributional concerns of public health policy. A more fundamental weakness of the welfaristic framework is that it does not provide an appropriate conceptual basis for dealing with the question...
of intergenerational discounting. CONCLUSIONS: Cost-effectiveness analysis will increasingly play an informative role in policy analysis of public health interventions even though it is not clear what discount rate is appropriate in each case. However, especially for programmes characterized by long-term diminished risk of disease, death or sequel avoided, possibility of disease eradication, and substantial intergenerational impact, there are no convincing arguments favouring the use of subjective time preferences when setting official discount rates for application in social project evaluation.

PREVALENT AND MULTIPLE FUTURE INCIDENT COHORTS IN COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: In cost-effectiveness analysis, we aim to account for all future costs and benefits for all patients who are currently eligible for a new health technology and who will become eligible in the future. METHODS: We adapt the fundamental concept from epidemiology of the incidence and prevalence of a disease to cost-effectiveness analysis. We define the prevalent cohort as those patients eligible to switch from the comparator to the new technology at the time the new technology is introduced. Next, we introduce the concept of multiple future incident cohorts. The incident cohort starting t years in the future consists of those patients who first become eligible for the new technology t years in the future. Currently cost-effectiveness analyses worldwide consider only either the prevalent cohort, the incident cohort in only the first year, or a mixture of the two. RESULTS: On average, patients in the prevalent cohort are older and at a more advanced stage of illness than patients in the incident cohort. If the benefit discount rates differ, we show mathematically that the cost-effectiveness of all technologies will be substantially affected by our method. Otherwise, the incremental cost-effectiveness ratio will not change for acute conditions, but may change substantially for chronic conditions, particularly for chronic progressive conditions. CONCLUSIONS: We suggest that analyses capture the costs and benefits arising from the prevalent cohort and all future incident cohorts. If our method had been used in the past, some health technologies would have appeared substantially more cost-effective, others substantially less cost-effective. If possible, parameter values (e.g. average age, disease severity) for both the incident and prevalent cohorts should be obtained from the literature. Otherwise, we describe how such parameters can be estimated.

IMPROVING PROBABILISTIC SENSITIVITY ANALYSIS (PSA) IN THE TREATMENT OF UNCERTAINTY COSTS USING MCMC

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OBJECTIVES: Economic evaluation (EE) incorporate some degree of uncertainty and variability that arises in a number of ways. Uncertainty represents lack of perfect knowledge on the part of the analyst and may be reduced by further measurement and variability represents heterogeneity or diversity in a population that is irreducible by additional measurements (Spanish guidelines proposal). This paper tries to shed light on the need to separate uncertainty and variability in the EE. METHODS: We propose the Probabilistic Sensitivity Analysis (PSA) as an efficient methodology to treat uncertainty associated to the model “inputs”. In PSA, a single variable (or subset of variables) is allowed to vary within its specified probability distribution, and repeat-run sampling-based simulations are performed to produce a weighted distribution of output estimates. It is proposed a bayesian estimation of the results of a target parameter \( \theta_{Data} \) using Markov Chains Monte Carlo but measured as a probability not as confidence (\( \alpha \) based). RESULTS: We have studied different scripts using WinBugs and FirstBayes packages for calculating of the estimated costs (BIP) \( \theta_{a,b} \) of the costs associated with treatment during the PSA calculation (it has been assumed that \( \theta_{a,b} = Beta(a,b) \) (UNKNOWN NODETYPE 9)), defined as those that have an interval probability “high” to contain the parameter; equivalent to frequentist confidence interval \( P(\theta_{min} \leq \theta \leq \theta_{max}) = 1 - \alpha \) (UNKNOWN NODETYPE 9), using Markov Chains Monte-Carlo but measured as a probability not as confidence (\( \alpha \) based). RESULTS: We have studied different scripts using WinBugs and FirstBayes packages for calculating of the estimated costs BIP in a PSA, simulating highly skewed distributions of costs. The separation of uncertainty and variability can affect the study results and policy-making decisions in a non-negligible manner and the best methodology to treat the uncertainty is PSA. CONCLUSIONS: Furthermore this paper is a brief introduction to the decision models, their relation to Bayesian decision theory, and the tools typically used to describe the uncertainties involved presenting an improvement in the PSA using a BIP of the estimated parameters as a robust method.