THE COST-EFFECTIVENESS OF SCREENING PROGRAMS USING SINGLE AND MULTIPLE BIRTH COHORT SIMULATIONS: A COMPARISON USING A MODEL OF CERVICAL CANCER

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OBJECTIVE: The conventional single cohort approach considers the impact of a change in screening policy only on those who are about to enter the screening age range. The multiple cohort simulation models the effect of screening on the whole age-range affected by any policy change, and takes into account the actual age distribution in the population. We examined the effect of a single and a multiple birth cohort simulation on the incremental cost-effectiveness estimates of a cervical screening program, comparing a two-yearly with a three-yearly screening policy. METHODS: We use a 20-state Markov model of the natural progression of cervical cancer and pre-cancerous lesions for unscreened women developed by the Duke University and adapted to the Australian health care system. This model was modified with the help of lookup tables to allow running 11 cohorts starting at 5-year intervals. In the multiple cohort model, costs and effects of each birth cohort are aggregated into a weighted average, according to the proportion of each age group in the target female population. RESULTS: Costs and effects of the single and the multiple birth cohort are lower in effect and 15% lower in the multiple cohort simulation, which is an expected result given the higher average age in that group. Compared with a single birth cohort simulation, the incremental cost-effectiveness of a shift from two-yearly to three-yearly screening was 30% higher when using the multiple cohort simulation: AU$61,031 versus AU$47,361 per life year. So a policy-shift from two-yearly to three-yearly screening is less cost-effective in the multiple cohort simulation. Using different age structures of four countries had very little impact on the cost-effectiveness ratios: AU$61,690 for the USA, AU$62,398 for the UK and AU$62,795 for Japan. CONCLUSION: Future modelling-based evaluations of screening policies should take greater account of the time horizon of the decision, and also the age-range of the population that is targeted.

LIFE EXPECTANCY AND THE DISCOUNTING OF HEALTH OUTCOMES

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OBJECTIVES: The topic of discounting health outcomes in economic evaluations has led to much debate in the field of health technology assessment. In practice, health outcomes are mainly discounted by means of the controversial discounted utility (DU) model. When adopting an individual perspective, as recommended by new welfare economic theory, the main reason for discounting health is uncertainty of the individual about the future. This uncertainty is directly related to future health and, ultimately, the occurrence and timing of death. The purpose of this study is to examine the relevance of explicitly including life expectancy in models of discounting. METHODS: Aspects and assumptions that are relevant for life expectancy and discounting health: a) the future is not fully uncertain and individuals are aware of their life expectancy; b) trade-offs among benefits occurring at different points in time will result in choosing to receive health benefits before the moment with a high probability of being dead; and c) when the life expectancy of a (patient) population is known, it is possible to identify (time) cut-off points for individuals at which the probability of being alive is high, or at which the probability of being dead is high. These points in time distinctively influence the level of discounting. RESULTS: The standard DU model, which is insensitive to variation in life expectancy, was compared with an alternative model of discounting that explicitly includes life expectancy. In the current example, focusing on patients with a life expectancy of 10 years, the alternative model led to higher present values of future health outcomes when the time horizon was less than 8 years. CONCLUSIONS: Explicitly including life expectancy in models of discounting seems to address some of the controversy surrounding the discounting of health outcomes. Empirical studies are needed to further explore the influence of life expectancy on individual time preferences.

EPIDEMIOLOGY AND PHARMAECONOMY OF COPD ACROSS EUROPE

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OBJECTIVES: Chronic obstructive pulmonary disease (COPD) is a major cause of mortality and morbidity in Europe. This study will review and criticise available information about epidemiological figures, cost of care and cost or cost-effectiveness of therapeutic interventions for COPD published in European countries. METHODS: Literature search via PUBMED, EMBASE and Cochrane Society was systematically conducted (covering January 1990 to March 2003) using the search terms: COPD, respiratory disease, epidemiology, incidence, prevalence, treatment, costs and cost analysis, cost-of-illness, cost-effectiveness, pharmacoconomics. RESULTS: Of 479 matching articles, which were found for the epidemiology review, only 9 studies were considered. These were cross-sectional, population-based epidemiological studies with precise epidemiologic information about the country or