CONTRIBUTED PODIUM PRESENTATIONS

ECONOMIC METHODOLOGY ISSUES

RISK ATTITUDE: ASSOCIATION WITH MAGNITUDE OF RISK AND PATIENT CHARACTERISTICS

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BACKGROUND: Decision analytic models typically compare strategies using expected values, which assumes risk neutrality in all situations for all individuals. OBJECTIVE: Examine how risk attitude is affected by the magnitude of the risk involved, and by the sociodemographic characteristics of the patient. METHODS: A set of 5 related standard gambles was created. In all of them the patient has an asymptomatic disease that will cause painless death in 5 years. The only treatment is a pill that only works if taken immediately. If successful, the patient will live for 15 years. The 5 scenarios correspond to 0–4 years until death in the event of treatment failure. The probability of failure was varied to establish the break-even point. The expected break-even point was calculated based on expected values. Risk attitude was measured using the Risk Attitude Ratio (RAR), the ratio of the individual’s break-even point to the expected break-even point. RAR = 1 indicates perfect risk neutrality, with lower values indicating risk adversity. Regression models for each scenario were constructed for RAR, with regressors based on age, race, sex, education, income and marital status. Additionally, a hierarchical linear model was constructed using data from all 5 scenarios. RESULTS: 167 people were surveyed. Significant risk adversity was observed in all scenarios. Mean break-even points ranged from .07–.35. When treatment failure meant immediate death, risk aversity was great with no statistically significant associations. As time until death increased, RAR increased (less risk averse) and was associated with sex, race and marital status. These associations were upheld in the overall model. Males and the previously married were less risk averse. African-Americans were more risk averse. CONCLUSIONS: Risk attitude varies according to the specifics of the gamble as well as sociodemographics. Assumptions of risk neutrality may be particularly poor in cases where treatment failure carries a severe penalty.

THE IMPACT OF HOSPITAL COSTING METHODS ON STATISTICAL POWER IN MULTINATIONAL CLINICAL TRIALS

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OBJECTIVE: In multinational trials, hospital costing is estimated by assigning diagnosis- and country-specific unit cost estimates to hospitalizations. Using this methodology, the standard error for hospitalization costs is underestimated. Our objective is to expand methods for international hospital costing to increase the validity of hospitalization costs and to explore the effects of using different methodologies on statistical power. METHODS: In this analysis, ‘standard’ costing methodology assigns a fixed cost to each hospitalization. The ‘expanded’ methodology involves: (1) using DRG weights to adjust country-specific cost estimates for diagnoses for which cost data were not collected; (2) differentiating between costs that occur on the day of admission and all remaining hospital days; and (3) adjusting cost estimates by length of stay for each hospitalization. Using data from a subset of placebo-treated patients enrolled in a multinational study of a new treatment for heart failure, we compared estimates of total hospitalization costs using ‘standard’ and ‘expanded’ methodologies. RESULTS: Total hospitalization costs were estimated for 200 patients who had at least one hospitalization during the follow-up period (mean = 1.42). Using ‘standard’ and ‘expanded’ methods, average total costs were $5,911 and $5,881, respectively. The corresponding standard errors were $269 and $417, an increase of 55% resulting in a loss of power. Assuming homoskedasticity, equal sample size, P = 0.05, 2-sided t-test, and a $500 difference in costs, one would have 25.7% power using ‘standard’ costing methods but only 13.5% when using ‘expanded’ methods. With a $1,000 difference, one would have 74.5% and 39.3% power, respectively. CONCLUSIONS: The results of a cost comparison between treatment strategies can be affected by the methodology used to calculate costs. Studies that consider the intensity of hospital care, or that consider the variability in resource utilization, require a larger sample size than studies that don’t consider these issues to have equal power.