encouraged to consider this tool in constructing future economic models.

PMD5

TRACING THE DIFFUSION OF COST-UTILITY ANALYSIS AS AN INNOVATION

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OBJECTIVE: Cost utility analysis (CUA) first entered the literature in the 1970s and is now considered the standard for examining the cost-effectiveness of health related interventions. This study considers CUA as a methodological innovation and traces its diffusion through the medically related literature for twenty-five years. **METHODS:** We used the bibliography compiled at the Harvard School of Public Health (http://www.hsph.harvard.edu/cearegistry/). All articles are original CUAs indexed in MEDLINE and other electronic databases from 1976 to 2001. For each article, we identified clinical area, journal title and type (methods, general medicine, medical specialty, and other specialty). Medical specialty refers to those fields considered subspecialties of medicine, such as cardiology and gastroenterology, while other specialties include fields such as radiology, surgery, nursing and pharmacology. We examined dissemination patterns of CUAs, and whether we could trace their spread through the literature over time. **RESULTS:** The number of CUAs (n = 539) plotted against year of publication yielded an S-shaped curve, matching the classic diffusion pattern seen for other innovations. Moreover, CUAs have diffused over time from general medical journals and methodological journals into a wide variety of specialty journals, tracing the typical pattern of dissemination and adoption seen for other innovations. In summary, for journal types methods, general medicine, medical specialty, and other specialty, respectively, distribution of published CUAs changed from 29%, 57%, 14%, and 0% during 1976–1984 to 14%, 29%, 37%, and 20% during 1998–2001 with transitional values in intervening time periods. **CONCLUSIONS:** The spread of CUAs through the literature follows patterns commonly seen in the diffusion of innovations. It is important to note that diffusion does not equal implementation. Further study is required to determine whether the diffusion of CUA has been accompanied by increasing use for decision making in clinical practice or health policy.

PMD6

RESOURCE COSTING IN CLINICAL TRIALS

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OBJECTIVES: Health care costs are rarely directly observed for clinical trial subjects. What can be observed is medical resource use. Designing a resource costing strategy involves determining the degree of detailed resource data to collect and identifying unit prices for those specific resources. A higher level of detail can create a more specific estimate of costs, but this strategy increases investigator burden. Our objective is to lay out the conceptual framework of resource costing, draw implications, and provide recommendations for weighing the tradeoffs of the design decisions of resource costing. **METHODS:** For simplicity, assume that medical costs are composed of two types of resources, X and Y. Unit prices for resources X and Y are denoted p_x and p_y. Now consider a bundled resource unit, Z where Z = X + Y. The unit price for Z is $p_z = p_x + w^*p_y$ where w = proportion of X in price population. From this notation, we determine differences in incremental costs estimates depending on whether these estimates are based on resource use of bundled unit Z or its detailed elements (i.e., X and Y). **RESULTS:** The bundling strategy will produce a different estimate of relative incremental costs between treatment groups if the proportions of each element of the bundled resource item are not equivalent between treatment groups. Absolute incremental costs will differ if the mix of resources in the sample is different than the mix of resources in the population from which the price is estimated. **CONCLUSIONS:** Bundling to reduce the burden of very detailed resource use data and price weights is justified if the resources are bundled into resource units that are not composed of items that are used more intensely in one treatment group. Price adjustments should be considered if the relative resource intensity is different between the price population and the trial population.

PMD7

REGRESSION-BASED STATISTICAL MODEL AND PROPENSITY SCORE METHODS FOR THE EVALUATION OF COST-EFFECTIVENESS STUDIES

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OBJECTIVES: Researchers routinely estimate the ratio of the cost to the effect (C/E) for the comparison of cost-effectiveness among treatment groups. There are, however, several limitations in applying C/E ratios in practice, including conceptual and statistical difficulties of ratio variables as well as issues concerning the control of confounding biases. Treatment and comparison groups, in observational study, are rarely comparable. Propensity score methods (PSMs) as well as regression methods may be applied to overcome confounding bias. To our knowledge, no published study has compared the use of PSM to regression methods for the evaluation of cost-effectiveness. The objective of this study, therefore, is to report on the C/E ratio test, the PSM, and a regression-based statistical model. **METHODS:** Simulated data were used to compare results derived from the C/E ratio test, the PSM, and a regression-based statistical model. **RESULTS:** Results from the statistical and PSM models revealed that cost-effectiveness evaluations can be confounded by patients' characteristics. **CONCLUSIONS:** Compared with the crude estimate, PSM and regression-based methods can be used with observational data to estimate treatment group cost-effectiveness differences controlling for observed heterogeneity.

PMD8

HAZARD ISOBARS: A NEW, POLICY-ORIENTED TOOL FOR INTEGRATING INFORMATION FROM COX PROPORTIONAL HAZARD MODELS INTO COST-EFFECTIVENESS SIMULATIONS

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OBJECTIVES: Until now, the input to CE simulations was primarily the probability of events and costs associated with them. The probabilities are based on raw frequency data available or logistic regression models. The goal of this research improve simulations by incorporating Cox proportional hazards (CPH) analyses into these models to increase their validity and usefulness to policy makers. **METHODS:** A CPH analysis estimates the coefficients of a linear combination of predictors. Raising this to the "e" power provides the hazard ratio comparing a group of subjects defined by a specific vector of predictors to an "average" referent group. Once a Cox model is estimated, we define a hazard ISOBAR as the set of values that make the linear combination of predictors equal to a constant "c". "C" can be varied freely. This "c" can be used as the criteria for interven-