ences on a scale running from 1 (perfect health) to 0 (all worst or death depending on the interviewee's decision). The 8 single-attribute value functions were directly revealed as well as the corner states values. Rating of particular multi-attribute health states was also done using both VAS and SG. **RESULTS:** The limited number of questionnaires excluded at the various different stages of building the multiattribute utility function demonstrated that such approaches are viable manners of gathering original and high-quality information on the values and judgements held by individuals in France with regard to health. Secondly, analysis concluded that collected data permit 1) to fit multi-attribute value and utility functions for many individuals and 2) to discuss the appropriateness of the multiplicative functional form. Results obtained at the person-mean and person-median levels from the French survey will be presented and discussed. Our results confirm the interindividual variability of the preferences already reported among Anglo-Saxon populations. As for most of the latter, these variations cannot be explained by standard socio-demographic characteristics such as the age, sex or socio-economic level of the interviewees.

PMDP4

THE INFLUENCE OF NON-COMPLIANCE ON THE EFFECTIVENESS AND COST-EFFECTIVENESS OF DRUG THERAPIES

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OBJECTIVES: To develop a model for predicting therapeutic effectiveness from efficacy data. To estimate the resource and health implications of sub-optimal drug use in the general population. **METHODS:** A stochastic modelling approach was adopted to simulate drug effect according to time. Non-compliance was simulated by probability functions describing the three main forms of drug-taking behaviour: timing errors, missed doses and drug holidays. Standard pharmacokinetic (PK) simulations for multiple oral dosing based on these dosing profiles provided a basis for pharmacodynamic (PD) modelling in order to evaluate the time course of drug effect. Iterations were made for each PK-PD model with random compliance profiles. **RESULTS:** Although the consequences of non-compliance are varied, and mainly dependent upon the disease being treated, some drugs are more forgiving to non-compliance than others. That is, in the presence of erratic dosing behaviour, therapeutic effect may be maintained. Forgiveness is an attribute which is dependent both upon the properties of the drug and the pathophysiology of the disease. The model demonstrates that drugs which have a long duration of action in relation to their dosing interval are the most forgiving, and this may be predicted on the basis of their PK-PD characteristics. **CONCLUSIONS:** Non-compliance is an important factor of drug effectiveness. The forgiveness of a drug determines the extent to which efficacy is affected by sub-optimal drug use and has implications when considering cost-effectiveness.

MULTIPLE DISORDERS—METHODOLOGY ISSUES

PMDM1

POWER AND SAMPLE SIZE CALCULATIONS FOR A CLINICAL TRIAL CONSIDERING COST-EFFECTIVENESS AND STATISTICAL ERRORS

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In the last meeting of ISPOR, we presented a paper that showed the actual cost-effectiveness of treatments in practice can be reduced by the influence of statistical errors such as type II (β) and type III (γ). **OBJECTIVE:** Based on that research, this paper developed a further theoretical framework for such estimation which provides a new method for power analysis of a clinical trial and proper translation of its outcomes in terms of cost-effectiveness. **METHODS:** Consider a statistical model of a clinical trial for two regimens: a new treatment T_A and T_B. Under the traditional two-sample binomial analysis, we theoretically expanded it into power and sample sized calculations with the cost-effectiveness ratios θ_A and θ_B, respectively, for the regimens T_A and T_B. Furthermore, we assume that the truth is T_A is more cost-effective than T_B. Then, the binomial analyses were generalized under the decision-analytic model that can reflect a reality in practice with three alternatives according to no error, β and γ errors possibly contained in the statistical conclusion of the clinical trials for T_A and T_B. **RESULTS:** Two formulae were developed mathematically to incorporate cost-effectiveness; one is an expansion of the traditional formula for sample-size calculation with the cost-effectiveness ratios θ_A and θ_B, and the other a more realistic one with θ_A and θ_B, and the modified cost-effectiveness ratio adjusted by the statistical β and γ errors using θ_A and θ_B. **CONCLUSIONS:** The newly developed formulae can offer a more theoretically sound description to design a clinical trial beyond the traditional techniques.

PMDM2

GUIDING PRINCIPLES TO COMPARE THE EFFICACY OF NOVEL DRUGS USING RCT MATCHED ARM COMPARISONS

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OBJECTIVE: Our goal was to develop a set of evidence-based guiding principles for the comparison of two novel drugs of the same therapeutic class when direct head-to-head comparisons are lacking. The principles are intended to guide researchers, decision-makers, and formu-