during the last month of treatment. RESULTS: Of 167 patients (20 men, 147 women; mean age 43.5 years) included in the analysis, 72% responded to tegaserod. At baseline, SF-36 scores from IBS-C patients were lower than those from the general population, but increased in all dimensions with treatment ($p = 0.0068$ for General Health), reaching values similar to those of the general population. An increase in all SF-36 dimensions was observed in responders (R), whereas a decrease occurred in non-responders (NR, General Health dimension $p = 0.0044$). IBS-QOL scores (from baseline to treatment) significantly increased in all dimensions ($p < 0.0001$ for overall assessment). The mean increment in IBS-QOL was greater for R than NR (Overall dimension, $p < 0.05$). Upon treatment withdrawal, some dimensions of SF-36 and IBS-QOL scores decreased but did not return to pretreatment levels. CONCLUSIONS: QoL is impaired in IBS-C patients. Treatment with tegaserod 6 mg b.i.d. improves QoL in patients with IBS-C to a level almost equivalent to that of the general population, and deterioration in QoL occurs upon treatment discontinuation.

**METHODS & CONCEPTS**

**USE OF THRESHOLDS FOR SAFETY REPORTING IN CLINICAL TRIALS**

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OBJECTIVE: To assess completeness of safety reporting in published clinical trials, including use of incidence, severity, and relationship to drug thresholds for listing of specific adverse events (AEs). METHODS: We used data from previously conducted systematic reviews in three areas: treatment of rheumatoid arthritis (RA) with disease-modifying anti-rheumatic drugs (168 studies, 1969–2001); treatment of migraine with 5HT-1 agonists (38 studies, 1991–2003); and anti-neoplastic treatment of relapsed or refractory non-Hodgkin’s lymphoma (NHL) (27 studies, 1991–2003). The type of safety reporting for each study was appraised by two reviewers. RESULTS: Only a minority of studies in each of the clinical areas presented a complete listing of all AEs occurring during the trial (RA 17%, migraine 8%, NHL 30%); a substantial number (10–25%) had no safety data extractable. Among studies with partial AE reporting the thresholds used varied by clinical setting: two-thirds of RA and NHL studies with a reporting threshold used the author- or investigator-attributed relationship to drug to determine which AEs would be listed in published reports, while 71% of migraine studies with a threshold used incidence (e.g., only AEs occurring in more than 5% of patients were listed). The severity threshold (reporting of only serious AEs or only grade 3–4 AEs) was the least common in all three clinical areas examined. No consistent relationship was found between complete AE reporting and study sponsorship (industry vs. non-industry/not reported) or year published (pre vs. post 1995). Smaller studies (<100 patients) were more likely to contain complete AE reporting, perhaps due to the difficulty of providing a comprehensive listing of all events in larger studies. CONCLUSIONS: Incidence and relationship to drug remain common thresholds for AE reporting in published clinical trials. Early detection of rare or unanticipated events by meta-analysis of published trial data is thus made more challenging.

**A SYSTEMATIC REVIEW OF ECONOMIC EVALUATIONS OF GENETIC TESTING TECHNOLOGIES**

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Genetic test technologies offer hope for early diagnosis and identification of persons at risk for serious diseases. Because many of these tests are costly and applicable to large populations, evaluations of the cost-effectiveness of these technologies are important. OBJECTIVES: To conduct a systematic search for and review of economic evaluations of genetic testing technologies. METHODS: PubMed, Proquest, LexisNexis, Expanded Academic Index, The Harvard Review of Economic Analyses, PsycINFO, NICE and CCOHTA databases were searched for original cost-effectiveness articles published from 1990 to present. MESH terms included: economic(s) and/or cost(s), genetic, gene, and/or genotype. Selection criteria included genetic tests for genetic conditions, defined as analysis of human DNA, RNA, chromosomes, proteins, and certain metabolites in order to detect heritable disease-related genotypes, mutations, phenotypes or karyotypes for clinical purposes. Articles were categorized by clinical category and type of economic study (e.g., cost-utility, cost-benefit), then graded independently by the authors using CEA study quality system developed by Chiu et al (Med Care, 2003;41:32). RESULTS: A total of 149 abstracts were retrieved using the search terms; 63 met selection criteria. Types of economic studies were as follows, cost-utility (25%); cost-benefit (19%); cost-minimization (6%); cost-effectiveness (59%). Clinical testing categories were as follows: preconception carrier (8%); prenatal diagnosis (40%); adult (37%). The studies involved 26 different medical conditions. Study quality ranged from 43–100 (average 82). Cost-utility studies were of highest quality (mean 91); cost-minimization studies were of lowest quality (mean 63). Adult studies had the highest rating (mean 86); preconception testing studies were lowest in quality (mean 74). Intraclass correlation among raters was 0.82 (CI 0.70–0.89).

CONCLUSIONS: A number of economic analyses have been published in human genetics across a wide range of conditions. Study quality varied widely. Priority areas for the field include increasing quality and uniformity of measures of outcome.
The anti-logged residuals of MAOI group were positively skewed (skewness = 11.71). MAOI cases had greater costs than controls ($3866) when the mean smearing estimator was used. However, employing the median smearing estimator decreased cost difference to $385, and provided a better model fit (mean: MSE = 3.80 × 10^4; median: MSE = 1.19 × 10^3). For modeling costs of anti-coagulant DDI cohorts, skewness of anti-logged residuals in controls was 28.44 as compared to 11.60 for cases. Consequently, retransformed costs of controls were exaggerated and had greater expenditures by $6674 when the mean smearing estimator was employed. Conversely, using the median smearing estimator, cases had greater costs by $216, and the model fit was better (mean: MSE = 3.04 × 10^3; median: MSE = 2.41 × 10^3). CONCLUSION: In this study, employment of the median instead of the mean smearing estimator provided a better fitting model and was more accurate in predicting expenditures. The results also suggest researchers should examine the distribution of anti-logged residuals when using the smearing retransformation.

THE USE OF A LIFE ANNUITY TO MORE ACCURATELY CALCULATE MEDICAL COSTS IN A COST-EFFECTIVENESS ANALYSIS
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OBJECTIVES: To demonstrate how to use a life annuity to calculate medical costs for a cost-effectiveness analysis, and why researchers should use this method. METHOD: A cost-effectiveness analysis typically requires a single value to represent annual medical costs over time. While a straight average of claims over several years of claims data seems to be a common method to obtain this estimate, the value needed for the analysis is more accurately calculated using the actuarial concept of a life annuity. A life annuity is a series of payments (or costs) made at equal intervals while a given life survives. The researcher creating a model that includes future annual medical claims needs to take into account both the future value of the claim dollars with discounting, and the likelihood that a person will live to need medical claims each year with the probability of survival. Once this “annuitized” claim cost is created, it is ready to be used in a model where the relevant factors—discounting and survival—are present. This presentation will demonstrate the how to calculate an annuitized claim cost using medical claims data from MedStat’s MarketScan database. RESULTS: This demonstration will show proper use of discounting, survivorship, and exposure in the calculation of this value. CONCLUSIONS: This will be followed by several simplified models to show how the resulting annuitized claim cost behaves in a cost-effectiveness model compared to an actual stream of claim costs, and compared to a claim cost based on a straight average of claims.

PERSONNEL COSTS, LEARNING CURVES, AND SCALE ECONOMIES FOR TELEPHONE-BASED NURSE INTERVENTIONS
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OBJECTIVE: For most telephone-based nurse interventions, the assumption of constant marginal and average personnel costs is unrealistic. In spite of this fact, researchers frequently report personnel cost as simple functions of wage rates and hours worked. In order to better forecast personnel costs, it is necessary to understand learning and scale effects involving the cumulative volumes of questions, encounters, and patients. For an ongoing telephonic blood pressure intervention, we provide summary statistics and regression output concerning learning curve effects and economies of scale. METHODS: Using data on personnel costs and cumulative production from the intervention “Take Control of Your Blood Pressure,” we obtain least squares estimates for learning curve elasticities. We include separate terms in our regression to identify the elasticities of unit costs with respect to 1) the cumulative volume of patient-specific encounters; 2) the cumulative volume of specific questions; and 3) the cumulative volume of specific questions for specific patients. In addition, we assess alternative returns-to-scale based on Nerlove’s classic method. RESULTS: The elasticity of personnel cost is significantly negative with respect to the cumulative volume of specific questions (p = 0.036), and with respect to the patient-specific cumulative volume of specific questions (p = 0.001). Regarding patient-specific encounters, there is mixed evidence concerning learning curve effects and economies of scale. CONCLUSION: To forecast personnel costs in telephone-based nursing interventions, it is important to account for learning curve effects. Including only wage rates and patient group means will result in an overestimation of costs. To a significant extent, unit costs decline systematically as cumulative output rises.

ACCURATE AND RAPID PREDICTION OF DRUG PLAN EXPENDITURE WHILE PLANNING REIMBURSEMENT CHANGES USING POLICY SIMULATION
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Drug plan decision makers need accurate financial impact projections for planning new drug policies. Projections should have minimal margins of error and be transparent and easy to communicate to stakeholders. OBJECTIVES: We explain how ad hoc methods typically used for financial impact projections are inadequate. METHODS: We describe a flexible tool for projecting the financial impact of drug policy changes based on historical dispensing data. The tool uses a random sample of a drug plan’s beneficiaries to simulate the drug claim adjudication process under the proposed policy regulations. We explore the validity of the simulation tool using a recent example of a complex drug policy change in British Columbia (BC). Over 500 different policy options were simulated in the planning phase of the BC policy. Drug plan spending was projected for each option before the final policy was selected two months prior to the policy start. RESULTS: Predicted future total spending for the chosen policy option was within 1% of actual spending in the first 11 months ($555.8M and $560.0M, respectively). The average difference per week between actual and predicted amounts was 0.015% ($86,500, SD: $968,700). CONCLUSIONS: Such policy simulation can be applied to a wide range of health plans and policy changes.

BRIDGING THE REQUIREMENT-CAPABILITY GAP BETWEEN DRUG PLAN DECISION MAKERS AND THEIR DATA ANALYSTS IN DRUG POLICY PLANNING
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OBJECTIVES: Drug plan decision makers make choices of considerable financial impact in short periods of time. To reduce