that valgutin 50 mg bid and sitaglutin 100 mg qd are equivalent is 99.3%. The result of a sensitivity analysis showed that the probability of the two drugs remaining in high accuracy over a wide range of conditions is 99.3%.

**CONCLUSIONS:** This innovative method has the potential to improve understanding of equivalence (or non-inferiority) between drugs for multiple stake-holders.

**PMR204**  
**PROPERTIES OF PROPENSITY SCORE MATCHING PROCEDURES ON COVARIATE BALANCING AND ESTIMATION: INFLUENCE OF THE NUMBER OF PROPENSITY SCORE DOORS USED ON MATCHED SETS CREATED**

*Watanabe JH1, Ney JP2, Sullivan SD3*

1Western University College of Pharmacy, Pomona, CA, USA, 2University of Washington, Seattle, WA, USA, 3University of Washington, Pharmaceutical Outcomes Research and Policy Program, Seattle, WA, USA

**OBJECTIVES:** Applying propensity scores from confounders and their interactions, we observed the effect of reducing the number of digits for propensity score matching including resulting outcome point estimates.

**METHODS:** We included sex, race, education, marital status, census region, year age, insurance, and all pair-wise interactions for a 7 digit propensity score quantifying the conditional probability of low income status. Using 10 years of Medical Expenditure Panel Survey data, we assessed the association of low income status and experiencing an emergency room visit. We incrementally reduced matched propensity score digits from 7 to 2, observing effects on sample size, standardized differences in confounders, differences in covariate variance, odds-ratio [OR] estimates, and Akaike Information Criterion [AIC].

**RESULTS:** Generally, fewer matching digits exacerbated differences in confounders between the matched sets. However, six digit matching was superior to seven digit matching in terms of confounders (standardized differences [SD] of 0 versus 0.01 respectively) as well as 3 digit versus digit matching (SD of 3.39 versus 3.99 respectively). The pattern of variance differences were identical to the SD differences. Sample size was largest with 2 digit matching (n=80,624), progressively diminishing with each additional digit matched (7 digit matching had n=61,168). AIC inflated inversely with digit reduction: 47,258.99 for 7 digit matching and 63,660.528 for 2 digit matching. ORs were consistent throughout (smallest OR=1.355 with 4 digits and largest OR=1.386 with 6 digits).

**CONCLUSIONS:** Propensity score matching seeks to minimize differences between exposure groups. When propensity scores are generated using terms matching on a greater number of digits may not produce a better matched set of exposed and unexposed groups in terms of confounders. Analysts must consider the mechanism in which propensity scores are produced when specifying the matching algorithm.

**PMR205**  
**GENERATING DISTRIBUTIONS AND DATA: EVALUATING ONLINE, FREEWARE OPTIONS FOR HEALTH ECONOMIC MODELS**

*McGill WT, Willey VJ, Epen K, Khole T*

University of the Sciences, Philadelphia, PA, USA

**OBJECTIVES:** To evaluate an online, freeware JavaScript program that can be utilized for the generation and graphical display of alternative distributions and generate raw data for exploring cost effectiveness models. For this evaluation, beta, gamma and normal distributions were compared for a web-based, online tool. For evaluation purposes, jStat.org was used to compare results between jStat.org and R statistical software. jStat is intended as a code library written in JavaScript that allows one to perform advanced statistical operations without the need of more resource intensive software (such as MS Excel or R). The jStat graph is generated using the jQuery QPlot plugin.

**RESULTS:** Analysis of a mix of distributions from jStat (n ~ 100) versus R (n ~ 100) found the following summary results for the two-sample Kolmogorov-Smirnov test. Beta distributions (alpha = 8, beta = 2): (medians: 0.807 vs. 0.819) D = 0.16, p-value = 0.549; gamma distributions (shape = 5, scale = 5): (medians: 23.5 vs. 26.9) D = 0.11, p-value = 0.581; and normal distributions (mean = 100, std-dev = 10): (medians: 101.6 vs. 101.3) D = 0.13, p-value = 0.366. **CONCLUSIONS:** jStat is designed to perform in most major browsers and operating systems. jStat applies complicated statistical functions that may be slower with handheld processors. There are a growing number of calculators on the internet that utilize JavaScript and java for the generation and plotting of such datasets. R and MS Excel remain popular and powerful resources that are frequently used in economic analyses and modeling that includes the generation of datasets with various statistical distributions. jStat may be useful for generating and examining pilot data or exploring the health economic ramifications of a clinical publication when the full patient dataset is not readily available.

**PMR206**  
**METHODOLOGICAL CHALLENGES IN THE ESTIMATION OF THE INCIDENCE RATE OF RARE DISEASES FROM SPECIALIZED CENTERS: LESSONS LEARNED FROM A STUDY OF MULTICENTRIC CASTLEMAN’S DISEASE**

*Tilson DV, Swai C, Graham L, Reynolds MC*  
1United BioSource Corporation, Lexington, MA, USA, 2United BioSource Corporation, Bethesda, MD, USA, 3United BioSource Corporation, Dorval, QC, Canada, 4Janssen Global Services, Malvern, PA, USA, 5United BioSource Corporation, Inc., Lexington, MA, USA

**OBJECTIVES:** To estimate incidence of Multicentric Castleman’s Disease (MCD) based on data from two specialized centers. Our objective is to describe the main challenges of incidence estimation of rare diseases in general, and specifically of MCD, and to suggest how to improve the comparability across centers and over time.

**METHODS:** We identified the first 3 digit of their zip codes and mapped using a Geographical Information system (GIS). Catchment areas for each center were defined based on spatial prohibition, catchment specific incidence rates and distance to the center of the population. We used mail merging to determine the size of the reference population and to calculate the crude and stratified incidence rates. **RESULTS:** Uncertainty resulted from small sample size, center-specific variation in population density, and distance to the center of the population. Propensity analysis was done to identify factors associated with center survival and results were used to estimate incidence.

**CONCLUSIONS:** Small sample size current treatments and multiple potential sources of error challenge an accurate estimate of incidence. Finer definitions of each center catchment area further reduce the number of included cases but can improve the accuracy of the incidence estimate.

**PMR207**  
**DISEASE EXPENDITURE MODELS AND CALIBRATION METHODS ON PHYSICIAN SURVEYS**

*Rutin CC, ENDEPResearch and ENDEPResearch Group, Cambridge, MA, USA*

**OBJECTIVES:** the research aims to design and develop cost simulator models with representation and effectiveness of new treatments and impact on direct costs. The need to assess the costs of new treatments or the comparative effectiveness leads to calculating the incidence rates. We propose the use of an innovative method to improve the quality of the results of a study in a smaller time. **METHODS:** We considered the full patient dataset is not readily available. Exploring the health economic ramifications of a clinical publication when the full patient dataset is not readily available. The research aims to design and develop cost simulation models with representation and effectiveness of new treatments and impact on direct costs. This stage of development will lead to propose reliable economic models with multiple potential sources of error challenge an accurate estimate of incidence. Finer definitions of each center catchment area further reduce the number of included cases but can improve the accuracy of the incidence estimate.

**PMR208**  
**LANDMARK ANALYSIS TO ADJUST FOR IMMORTAL TIME BIAS IN ONCLOGY STUDIES USING CLAIMS DATA LINKED TO DEATH DATA**

*Far AH, Foley K*

1Travenol Health Analytics, Washington, DC, USA, 2Travenol Health Analytics, Cambridge, MA, USA

**OBJECTIVES:** Immortal time bias (ITB), the inclusion of person-time during which the study outcome cannot occur, has been shown to bias study findings. We examined the impact of ITB by estimating the effect of chemotherapy on overall survival, and demonstrate how landmark analysis can correct for ITB. **METHODS:** Retrospective study using the MarketScan® Research Databases with commercially and Medicare insured individuals linked to the Social Security Administration Death records. Subjects with newly diagnosed metastatic breast cancer (ICD-9-CM 174.x plus additional codes 196.xx-199.xx) and >1 year of continuous enrollment prior to breast cancer diagnosis were identified. Chemotherapy exposure was defined as ≥3 chemotherapy claims following metastatic cancer diagnosis. Landmark analysis was used to estimate survival rates conditional on surviving to certain time points to adjust for ITB. Time to death or censoring was set at <1 year and patients who survived 1, 3, 6 and 12 months. **RESULTS:** A total of 5759 metastatic breast cancer patients were identified of which 2932 had ≥3 claims for chemotherapy during follow-up. Average survival time for chemotherapy patients was 9.0 months longer than patients with <3 chemotherapy claims. The difference in survival time between patients with and without chemotherapy decreased as patients were required to survive for longer periods of time: 1-month survival ~ 8.5 months, 3-month survival ~ 9.5 months, 6-month survival ~ 8.0 months and 12-month survival ~ 7.0 months. The artificially decreased effect of chemotherapy in the full sample analysis was due to the time between metastatic cancer diagnosis and third chemotherapy claim being “immortal” for the chemotherapy patients. **CONCLUSIONS:** The use of landmark analysis can be used to account for immortal time bias in oncology studies analyzing the effect of new treatments or the comparative effectiveness of new treatments. However, an appropriate landmark must be chosen as results can be affected.

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