heterogeneity should be conducted, and approaches illustrated here can be useful to explore heterogeneity. Further evaluation of the value of patient-level as opposed to summary-level data in heterogeneity assessment is needed.

PRM11

A COMPARISON OF OUTCOMES IN CLINICAL TRIALS CONDUCTED WITHIN THE UNITED STATES VERSUS OUTSIDE THE UNITED STATES

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OBJECTIVES: The defining characteristics of a disease condition are the same across all countries. Therefore, we hypothesize that when assessing a new treatment, via a clinical trial, we would expect different countries to value the same outcomes irrespective of where the trial was completed. We chose three disease conditions that are identified by exact biomarkers to test this hypothesis. **METHODS:** We collected all open, actively enrolling, phase III drug studies from www.clinicaltrials.gov for Multiple Sclerosis, Hepatitis C, and HIV. After eliminating non-interventional studies and studies with missing information, we were left with 39 Multiple Sclerosis, 33 HIV, and 40 Hepatitis C trials. We defined three study locations: "U.S. only," "ex-U.S. only," and "U.S. and ex-U.S." Among Multiple Sclerosis studies, 13 were U.S.-only, 15 ex-U.S. only, and 11 were U.S. and ex-U.S. Among HIV studies, 3 were U.S.-only, 19 ex-U.S. only, and 11 were U.S. and ex-U.S. Among Hepatitis C studies none were U.S. only, 23 ex-U.S., and 17 were U.S. and ex-U.S. Fisher's exact test was used to examine associations between study locations and types of clinical trial outcomes measured. **RESULTS:** We found no statistically significant differences in the outcomes evaluated by Multiple Sclerosis studies or HIV studies. Four of the 11 Hepatitis C outcome categories evaluated different outcomes depending on location: Sustained Virologic Response Week 12 (p-value 0.0011), Laboratory (p-value 0.0525), AEs (p-value 0.0235), and Safety (p-value 0.0227). **CONCLUSIONS:** Our results support our hypothesis for two of the three conditions we examined, Multiple Sclerosis and HIV. However, for Hepatitis C, we found that clinical trials outcomes differ by location. The recent surge in development in Hepatitis C drugs may explain the discrepancy; however, further research and more data is needed.

PRM12

NETWORK META-ANALYSIS OF SURVIVAL DATA. THE VALUE OF RECONSTRUCTING DATA FROM PUBLISHED KAPLAN-MEIER CURVES

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OBJECTIVES: Network meta-analysis of published survival data are often based on the reported hazard ratio. In this paper we illustrate the value of reconstructing data from published Kaplan-Meier curves to perform network meta-analysis. **METHODS:** Published Kaplan-Meier survival curves of trials evaluating different interventions for non-small-cell lung cancer were digitally scanned. Next, a dataset was created with for each treatment of each trial the number of events and number of patients at risk for multiple short time intervals over the complete follow-up period. Two types of network meta-analyses were performed: 1) For each publication for which no hazard ratio was reported, a hazard ratio was estimated based on the scanned curves. Subsequently, all hazard ratios of all trials were synthesized with a network meta-analysis model assuming a constant hazard ratio (2-step approach); 2) A network meta-analysis of the constructed data of the Kaplan-Meier curves of all trials was performed (1-step approach). **RESULTS:** The 1-step approach showed that the assumption of a constant hazard ratio was not valid for the used dataset. The results of the 1-step network meta-analysis could be presented as pooled parametric survival curves. **CONCLUSIONS:** Reconstructing data from published Kaplan-Meier curves allows for the inclusion of all relevant studies in a network meta-analysis, even if hazard ratios are not reported. Furthermore, it allows for network meta-analysis models that do not rely on the assumption of a constant hazard ratio, which have great value for cost-effectiveness models.

PRM13

NETWORK META-ANALYSIS OF LONGITUDINAL DATA

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OBJECTIVES: In the last decade, network meta-analysis (mixed treatment comparison meta-analysis) has been introduced as a generalization of pair-wise meta-analysis. Many randomized controlled trials (RCTs) report treatment effect estimates for the outcomes of interest at multiple time points. In this paper we compare different methods for network meta-analysis of repeated measures. **METHODS:** Different network meta-analysis models for the synthesis of study level data of RCTs evaluating interventions for osteoarthritis were compared: separate network meta-analyses per time point; models assuming a linear development of treatment effects over time; network meta-analysis models with fractional polynomials; and network meta-analysis with splines. All analyses were performed in a Bayesian framework. **RESULTS:** The primary limitation of multiple network meta-analyses of study level data by time point was the inconsistency in the used evidence base for each time point. Of the models that estimate a relationship between outcome and time, fractional polynomials had an advantage over splines for the current dataset because the former model resulted in more stable parameter estimates and still provided sufficient fit to the data. **CONCLUSIONS:** To understand treatment effects over time, reported treatment effects of RCTs need to be synthesized simultaneously. Network meta-analysis of longitudinal study level data with second order fractional polynomials are a very useful approach to evaluate trends of treatment effects over time when there is not too much variation in treatment effects from one time point to the next. An additional advantage is that the methodology can handle differences in follow-up time across trials.

PRM14

EFFECT OF L-CARNITINE ON BEHAVIORAL DISORDER IN AUTISTIC CHILDREN

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OBJECTIVES: 1) To Study the effect of L-carnitine supplementation on behavioral symptoms in autistic children; 2) Study the effect of l-Carnitine supplementation on Acyl-Carnitine profile of Autistic children; 3) Detect possible correlation between the blood Carnitine status and Autistic behavior; and 4) Tolerability assessment of l-carnitine supplementation. **METHODS:** Thirty children diagnosed with autism were randomly assigned to receive (100 mg/kg bodyweight/day) of liquid l-carnitine (n=16) or placebo (n=14) for 6 months. Measurements included changes in childhood autism rating scale (CARS) form and free and total carnitine levels using tandem mass spectrometry. **RESULTS:** Results showed significant improvement in CARS scores (P-groups <0.001) and (P-overtime= 0.006), with statistically significant differences in free carnitine levels (P=0.027) and total carnitine levels (P=0.036) . There was no correlation between baseline free and total carnitine levels with changes in CARS scores from zero to 6 months (r > 0.5 , P> 0.05) and generally L-carnitine therapy was well tolerated. In conclusion, L-carnitine therapy (100 mg/kg-bodyweight/day) administered for 6 months significantly improved the autism severity, but subsequent studies are recommended. **CONCLUSIONS:** 1) Significant differences were found in free and total carnitine levels after therapy; 2) Clinically, L-carnitine supplementation improves autism severity; 3) L-carnitine therapy was well tolerated; and 4) L-carnitine supplements may be given as part of autism treatment regimen.

PRM15

PLEASE PASS THE NEW TEMPLATE: DEVELOPING NON-INTERVENTIONAL STUDY REPORT WRITING TEMPLATES ALIGNED WITH GUIDELINES

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OBJECTIVES: Post-authorization interventional clinical trials (CT) and non-interventional clinical studies (NIS) are increasingly used to evaluate safety and other outcomes in real-world settings. Previously, NIS clinical study report (CSR) templates used International Society for Pharmacoepidemiology (ISPE; www.pharmacoepi.org) reporting guidelines and/or were modified from International Conference on Harmonisation (ICH) E3 guidelines. Resulting CSR templates may not have contained adequate instructions to develop CSRs for regulatory review and subsequent corresponding manuscripts. We reviewed various published documents and developed robust NIS CSR templates for use in regulatory submission. **METHODS:** Guidelines reviewed included ISPE (based on FDA guidance and EU documents) and Guideline on Good Pharmacovigilance Practices – module VIII (www.ema.europa.eu), which describes post-authorization safety studies (PASS) and updated CSR guidelines, following implementation of revised pharmacovigilance legislation in July 2012. For NIS manuscripts, STROBE (STrengthening the Reporting of oBservational studies in Epidemiology) guidelines (www.strobe-statement.org) were reviewed. We also reviewed other NIS-related documents, as well as interventional CT-related documents, including ICH CSR guidelines and CONSORT (CONsolidated Standards of Reporting Trials) or other design-specific guidelines (www.equator-network.org) for writing corresponding manuscripts. Additional instructional and preferred/optional text was developed for the templates. **RESULTS:** Overall, PASS guidelines provided additional NIS details and were aligned with most regulatory sections common in ISPE and aligned closely with STROBE statements. ISPE guidelines provided few details for CSR template development. Other guidelines and a literature review provided additional CSR template text and the inclusion of STROBE–based text supported development of manuscripts. By utilizing multiple document sources, new templates were developed that contained improved instructions and text while meeting regulatory requirements. Furthermore, decision trees were included to support the numerous types of NIS study designs. **CONCLUSIONS:** By aligning CSR guidelines with design-specific publication guidelines, template quality was improved for regulatory submissions and authors could easily identify important report content when writing peer-reviewed publications.

PRM16

CLINICAL OUTCOME OF FLOUORO-2,DEOXY-GLUCOSE POSITRON EMMISSION TOMOGRAPHY/ COMPUTED TOMOGRAPHY [FDG PET/CT] IN BREAST CANCER PATIENTS- STUDY BASED ON ITS REFFERAL PATTERN

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OBJECTIVES: To assess the referral patterns and impact for FDG PET/CT for treatment management, and to determine the most common metastatic sites in breast cancer patients. **METHODS:** Retrospective analysis was performed on 2,500 scans reported in Max hospital from November 2009 to March 2012, scans for breast cancer patients were separated out (500 scans). Medical records of 122 consecutive breast cancer patients were retrospectively reviewed. Referral categories for PET/CT in breast cancer patients were: Diagnosis, Staging, Restaging, Early treatment response evaluation (after 3 cycles of chemotherapy), late treatment response evaluation (after 6 cycles of chemotherapy), and Radiation therapy response evaluation. **RESULTS:** PET/CT was mostly used for

early treatment response evaluation in 82 (67.21%) of the patients, for staging in 65 (53.28%) patients, late treatment responseevaluation in 48 (39.34%) patients, for restaging in 40 (32.79%) patients. PET/CT was not used for diagnosis and radiation treatment response evaluation. Major histologic subtype was found to be infiltrating ductal carcinoma (IDC) (91%). liver was the most common metastatic site among all (41 patients) 85.37% in 35 patients, lung in 30 patients (73.17%), bone in 25 patients (60.98%), around 3 patients were having lesions in brain, adrenal and ovaries, around (4.88%) 2 patients were presented with lesion in atrium. Recurrence was present in 31(76%) patients, chest wall invasion in 10 patients (24%). Maximum number of patients around 21 patients had lesions in ipsilateral axillary nodes (51.22%), 16 in supraclavicular nodes (39.02%) and 13 patients (31.71%) in contralateral nodes. Treatment plan was altered in 55 patients (45.08%), whereas supported in 67 patients (54.92%). **CONCLUSIONS:** The clinical utility of PET/CT may lead to a change in the routine diagnostic algorithm and follow-up protocols for patients with cancer by providing correct and early diagnosis of recurrence as well as by establishing its precise significance for further clinical management.

PRM17

AN EVALUATION OF MEDICATION ERRORS IN A LARGE TEACHING HOSPITAL

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OBJECTIVES: A lot of studies regarding medication errors are reported and published worldwide. We also face a big challenge of medication errors in our country. This study aims to explore the types of medication errors in drug administration in a large teaching hospital which is a reflection of the medication errors in the whole country. **METHODS:** Trainee Pharmacists from 3 different batches of Pharmacy in my supervision were assigned to examine the errors in different clinical units of the hospital. The study was based on their personal monitoring and patients' interviews regarding the medication administration. The results were collected from 1900 patients and the study period was from June, 2008 to November, 2010. **RESULTS:** We had detected 910 medication errors out of 1900 patients only in drug administration. In each category the medication errors were omission: 387(42.5%), time: 291(32%), unauthorized drug: 89(9.8%), wrong rate: 70(7.7%), wrong route: 56(6%) and wrong dosage form: 17(2%). The health care professionals involved in these medication errors were nurses and the reason was lack of hospital Pharmacists in each nursing unit. **CONCLUSIONS:** Different areas in our country and other developing countries might have these problems/results. There is a dire need for the induction of hospital Pharmacists in the health care system to overcome these types of medication errors which leads to about 40% accidents and incidents in drug administration. Nurses involved in these medication errors should be trained for proper use and administration of the drugs to the in-patients in particular. This study also indicates that this type of practice is the reflection of state and regulatory affairs in the country and this is a warning for all developing countries.

PRM19

DEVELOPMENT OF AN ALGORITHM THAT DIFFERENTIATES AMONG RISK FACTORS, COMORBIDITIES, AND CONSEQUENCES OF DISEASE IN PEER-REVIEWED PUBLICATIONS

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OBJECTIVES: A common limitation of the peer-reviewed literature is failure to establish whether a condition precedes or follows disease diagnosis. If disease diagnosis comes first, the condition is either a comorbidity or consequence of the disease, whereas if the condition precedes disease diagnosis, it may be a risk factor. Our objective was to develop an algorithm for appropriate classification of risk factors, comorbidities, and consequences of disease to enable accurate assessment of the literature. **METHODS:** We established the following procedure to identify risk factors in articles retrieved through our literature search: 1) exclude cross-sectional studies as potential sources of risk factor data because they cannot establish the necessary temporal sequence; 2) if the terms 'risk factor' or 'incidence' are present in the remaining articles, include only those that: a) report on a population followed over time; b) contain baseline data indicating absence of signs/symptoms of the disease of interest at study onset; and c) have conducted statistical analyses demonstrating associations between individual baseline factors and the disease. If these requisites are not met, signs/symptoms present at study onset should be classified as comorbid conditions. Conditions arising as a result of the condition may be classified as disease consequences. **RESULTS:** We systematically applied our algorithm to 100 peer-reviewed articles in clinically focused journals retained for inclusion after screening. The algorithm allowed for accurate classification of risk factors (ie, underlying conditions that predispose a patient to development of the disease), comorbidities (ie, conditions that complicate disease progress), and consequences of the disease (ie, events shown to be statistically related to the disease and occurring after disease onset). **CONCLUSIONS:** We have developed an algorithm that accurately differentiates among risk factors, comorbidities, and consequences of a disease. This tool will aid in the accurate assessment of clinical literature when conducting systematic reviews.

PRM20

CONDUCTING PATIENT-CENTERED STUDIES: CHALLENGES AND OPPORTUNITIES

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OBJECTIVES: In the biopharmaceutical industry, site-based studies are the norm for evaluating drug safety and efficacy. Recently patient-centered studies (PCSs) have gained popularity. These studies offer advantages over site-based studies, but present unique challenges. This abstract seeks to describe the patient-centered approach and associated challenges and opportunities. **METHODS:** This descriptive study reviews operational and design issues of PCSs and discusses utility, advantages, and challenges. **RESULTS:** PCSs revolve around patients. They use an open-enrollment model whereby all eligible patients can self-enroll directly, thereby maximizing enrollment. Enrollment is not limited to patients treated at particular study sites. These studies typically employ a single site and "virtual" study coordinating center to screen/enroll patients and collect data, thus reducing site costs. PCSs are used extensively for pregnancy registries and other rare-exposure/disease registries, and more recently for clinical trials. This unique approach requires buy-in from regulatory agencies and IRBs. Recruitment activities should cast a wide net using various means targeted to the population (e.g., internet and social media recruitment sources for younger patients; television, radio, or print media for older patients). Streamlined patient screening, informed consent (e.g., on-line consent or waivers of written consent), and data collection processes are essential. Retention is facilitated by engaging participants in the reporting process, minimizing reporter burden, and providing ongoing support using various means targeted to the population (e.g., internet or mobile apps for younger patients and human support through coordinating centers for older patients). It may also be critical to obtain medical release to verify patient-reported medical data from treating physicians. However, discrepancies between patient-reported and physician-reported data may pose challenges in analyses and reporting. **CONCLUSIONS**: PCSs offer advantages such as maximizing enrollment and reducing site costs, but pose regulatory, operational, and analytic challenges. Researchers opting to employ PCSs must weigh challenges versus opportunities in the design phase.

PRM21

STUDYING DRUG SAFETY IN PREGNANCY: DIFFERENT APPROACHES, SAME CONCLUSIONS?

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OBJECTIVES: Various methods are used to monitor safety of drug exposures in pregnancy, including prospective pregnancy registries, longitudinal database studies, and case-control studies. This abstract seeks to evaluate these approaches and examine impact on interpretation of results. **METHODS:** Study designs for the three types of pregnancy monitoring studies were examined to determine strengths and limitations in effectively monitoring drug safety in pregnancy and the types of conclusions that can meaningfully be drawn from each. **RESULTS:** Pregnancy registries are prospective studies with active data collection from reliable sources providing detailed, quality data on exposure and outcome. Their voluntary nature can lead to selection bias and a lengthy enrollment period may be needed to reach sufficient sample size/power. Longitudinal database studies are population based and offer timely and cost-efficient results, but often require complex linkage of multiple databases. Misclassification bias can occur because critical variables (exposure and outcome) may lack precision/detail. Case-control studies begin with the outcome of interest and retrospectively assess drug exposure offering substantial statistical power to identify teratogens among relatively rare exposures, but are subject to recall bias. Only registries are useful in monitoring safety early in the drug lifecycle. Pregnancy registries can detect major teratogenic effects, but have limited power to detect risk of specific birth defects. Database studies can detect major teratogenic effects and due to their large size/power may also detect risk of specific defects. Both approaches can assess other outcomes. Case-control studies provide insights into the strength of association between exposure and a specific defect, but cannot be used to estimate birth defect prevalence or other outcomes. **CONCLUSIONS:** All three approaches are viable for studying drug safety in pregnancy, but differ in the types of conclusions that may be drawn. In choosing a design, it is important to consider study objectives and outcomes of interest.

PRM22

IMPACT OF HURRICANE KATRINA ON EPILEPSY PATIENTS IN THE LOUISIANA MEDICAID POPULATION

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OBJECTIVES: Naturally occurring catastrophic events not only disrupt economic activity but also impact access to essential health services. The purpose of this study is to quantify the long-term impact of Hurricane Katrina on continuously-eligible epilepsy patients' health care utilization pre-and post-Hurricane Katrina (August 29, 2004-August 28, 2007). **METHODS:** This study was a population-based retrospective analysis of the Louisiana Medicaid database. Frequency counts of demographic variables age, gender, race and region were computed. Segmented regression analysis was applied to the longitudinal data to analyze changes in emergency room (ER) utilization, the number of patients receiving anti-epileptic medication, the total number of prescriptions utilized and the average cost of pharmacy claims. In effect, the dependent variables were regressed against 1) total time (months); 2) Katrina as a discrete event; and 3) time post-Katrina (months). **RESULTS:** A total of 1371 epileptic patients in the Louisiana Medicaid population was found of which 2/3rds were 18-64 years of age, 49% African-American and 53.1% were males. Patients were primarily from Baton Rouge (44%), New Orleans (36%) and Acadiana (21%). Results of segmented regression analysis revealed that ER utilization was significantly related to all three time variables. Katrina as a discrete event was statistically significant in relation to the number of epileptic patients receiving prescriptions and the number of prescriptions utilized, whereas the average cost per prescription claim was