

their disease stage. The methodological framework here presented uses prevalent cohort survival data to reconstruct stage-specific survival rates, as they would be if obtained from an incident cohort. **METHODS:** This approach assumes proportional hazards and, under certain caveats, can be generalized to non-proportional hazards. Through a piece-wise back calculation approach recent survival data are fed and integrated into the model to calculate survival at earlier stages of the disease, this allows the reconstruction of the survival probability as a function of the time elapsed from the onset of illness. This method is then generalized to allow comparison between 'placebo' and 'treatment' prevalent-cohorts. **RESULTS:** The method is very general and can be applied to a variety of cases. As an example, the only published data on an untreated tuberculosis prevalent cohort is used to infer the actual mortality rates of untreated tuberculosis through the course of the illness. The results show that mortality is highest within the first two years of illness, declining dramatically immediately after and increasing again to intermediate rates after one year, suggesting population heterogeneity with respect to the risk of dying from tuberculosis-related illness. In general, if sufficient data on a 'placebo' and on a 'treatment' cohorts is available, this method can be used to infer the potential stage-specific effectiveness of a treatments. **CONCLUSIONS:** Under specific modeling assumptions, incident-cohort survival and treatment effect can be inferred from prevalent-cohort studies.

PRM102

A SOLUTION FOR UNDER-DIAGNOSED POST-MENOPAUSE: PROBABILISTIC LINKAGE OF CLAIMS AND REGISTRY DATA

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OBJECTIVES: Post-menopausal women are under-diagnosed in claims data even though they exhibit symptoms. Probabilistic linkage was conducted between claims data and The University of Michigan Women's Registry data to control for post-menopausal symptoms as risk factors in the analysis. **METHODS:** Women with a menopause diagnosis who used estrogen only hormone therapy (HT) were selected from the registry data. A separate group of patients age 45 or older who were prescribed estrogen only HT was selected from a large U.S. claims database. Logistic regression was conducted to calculate the propensity score for each patient, controlling for women's health-related comorbidities in each population. Patients with the closest propensity score from each group were matched, and the menopause symptoms of Registry patients were added to the claims records of the corresponding matched patients in the claims data. This linkage process was repeated 250 times, and the mean and 95% confidence interval (CI) of health care costs during the follow-up period were calculated. **RESULTS:** Among 2771 women, 16% (N=443) were diagnosed as post-menopausal. Of this subset, 83 patients prescribed estrogen only HT were selected. After probabilistic linking with the 20,020 selected women from the claims database, 80 patients from each population were matched. The average cost of patients with at least one symptom was much higher compared to patients without symptoms (\$13,570 [95% CI: \$13,459-\$13,680] vs. \$3,391 [95% CI: \$3,345-\$3,436], p-value<0.001). Cost differences were mainly from inpatient (\$1,997 [95% CI: \$1,925-\$2,070], p-value<0.001 vs. \$247 [95% CI: \$239-\$254, p-value<0.001), physician visit (\$967 [95% CI: \$961-\$974], p-value<0.001 vs. \$248 [95% CI: \$246-\$251], p-value<0.001), and pharmacy costs (\$3,676 [95% CI: \$3,648-\$3,704], p-value<0.001 vs. \$903 [95% CI: \$890-\$916], p-value<0.001). **CONCLUSIONS:** The study suggests that post-menopausal symptoms are important risk factors to control when assessing health care costs in claims data. Probabilistic linkage can bridge the gap between claims and registry data information.

RESEARCH ON METHODS – Patient-Reported Outcomes Studies

PRM103

A STUDY TO EXAMINE THE EQUIVALENCE OF THE PAPER AND ELECTRONIC VERSIONS OF THE PSORIASIS SYMPTOM INVENTORY (PSI)

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OBJECTIVES: To evaluate the equivalence of electronic and paper versions of the Psoriasis Symptom Inventory (PSI) and examine measurement properties of the electronic version. **METHODS:** In a prospective, randomized, cross-over, non-interventional study in adult subjects (age ≥ 18 years) with plaque psoriasis conducted over a 15-day period, subjects were randomized to two groups, each completing either the paper or electronic PSI daily for 7 consecutive days followed by the alternate version. The disease specific Dermatology Life Quality Index [DLQI] and the generic SF36v2 were also administered for evaluation of construct validity. Equivalence was assessed by the intraclass correlation coefficient (ICC) between both modes. Differences in scores between the administration modes were also tested using paired Student's t-test. Measurement properties included internal consistency reliability, test-retest reliability, and construct validity. Convergent and discriminant validity were evaluated using pre-identified logical relationships between similar or distally related concepts. **RESULTS:** Eighty subjects (74% [59/80] moderate-to-severe psoriasis; 26% [21/80] mild psoriasis receiving systemic treatment) were enrolled from 8 sites in the United States. Seventeen (21%) subjects experienced a change in sPGA and were excluded from analyses. The paper and electronic modes of the PSI were highly concordant for both total scores (ICC = 0.969) and individual item scores (ICC range 0.934 to 0.965). Findings remained consistent (ICC values were all >0.91) irrespective of order of completion for the paper and electronic versions. All mean score differences were non-significant (p > 0.05) except for "flaking"; however, based on its reliability, validity, and clinical relevance, the

item was retained. Minimum values for reliability (>0.70) and validity (convergent, r ≥ 0.30) were exceeded for the electronic PSI. **CONCLUSIONS:** Equivalence between paper and electronic versions of the PSI and the two modes' comparable measurement properties indicated successful migration from paper to electronic format of the PSI.

PRM104

CLINICAL MEASUREMENT CONCEPTS IN ACUTE SKIN AND SKIN STRUCTURE INFECTIONS AND OTHER SKIN ABNORMALITIES: A COMPREHENSIVE LITERATURE REVIEW

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OBJECTIVES: No standardized methods exist to measure outcomes related to Acute Bacterial Skin and Skin Structure Infections (ABSSSI). The purpose of this literature review was to identify clinical measurement concepts for other skin abnormalities that could be applied to ABSSSI. The results were used to inform the development of a standardized measurement tool and/or a novel Clinician Reported Outcome (ClinRO) for ABSSSI. **METHODS:** To identify relevant abstracts/articles for inclusion a search was conducted in OVID. MEDLINE (1946-present) and EMBASE (1988-2012) were searched using terms related to ClinRO, measurement tools and devices, diagnostic tools, and skin diseases/abnormalities. **RESULTS:** The search identified 428 abstracts. 381 were excluded based on pre-specified criteria. The remaining 47 full-text articles were scrutinized for eligibility, resulting in 30 that met the inclusion criteria. No ABSSSI-specific ClinROs or measurement tools were identified in the literature. Several clinical concepts related to the measurement and evaluation of skin abnormalities were found e.g. Psoriasis Area and Severity Index; Vancouver Scar Scale; Pressure Ulcer Scale for Healing; Pressure Sore Status Tool and the Bates-Jensen Wound Assessment Tool. Disease-severity instruments were also identified e.g. Severity Scoring of Atopic Dermatitis scale; Eczema Area and Severity Index; Investigators Global Assessment; Six Area, Six Sign Atopic Dermatitis severity index. Devices used to evaluate characteristics of skin abnormalities range from simple and inexpensive (ruler), to advanced and expensive (laser based tools). No single device was found that measures the full spectrum of a skin infection. **CONCLUSIONS:** There is a paucity of ABSSSI-specific clinical endpoints/ClinRO measures in the existing literature. This review highlights the need to develop a standardized ClinRO instrument to assess clinical measurement concepts in ABSSSI. Robust scales, tools, and devices that measure or evaluate skin diseases and infections were identified. These could be considered when developing a standardized ABSSSI measurement tool and/or a novel ClinRO.

PRM105

VALUING EQ-5D-5L: CAN LATENT UTILITIES DERIVED FROM A DISCRETE CHOICE MODEL BE TRANSFORMED TO HEALTH UTILITIES DERIVED FROM TIME TRADE-OFF TASKS?

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OBJECTIVES: The EuroQol Group is evaluating the use of discrete choice experiments (DCEs) in valuing health states from the 5-level EQ-5D (EQ-5D-5L). Notably, a discrete choice (DC) model yields a latent utility that is ordinal and unbounded, whereas health utilities must have interval properties and be anchored at 0 (representing death) and 1 (representing full health). Latent utilities must therefore be transformed to health utilities. This pilot study investigated the feasibility of performing such a transformation. **METHODS:** 545 respondents from Canada and 403 respondents from the UK each completed a series of DC and TTO tasks. Generalised linear mixed models were used to derive latent utilities. Linear regression models incorporating logarithmic and polynomial terms, as well as non-parametric LOESS and spline models were assessed as candidate functions for transforming the latent utilities onto the health utilities. **RESULTS:** There was a high correlation between health utilities measured through TTO tasks and latent utilities derived from modelling of DC data (Spearman rho of 0.79 in Canada and 0.86 in the UK). All transforming functions explained the between-state variation in health utilities, and, upon cross-validation, had minimal bias and small mean squared errors. Whilst the transformation functions derived through linear regression had the desirable feature of being monotone, the LOESS transform in Canada and the spline transform in the UK lacked monotonicity. **CONCLUSIONS:** This pilot study suggests that transforming latent utilities to health utilities is feasible, and provides preliminary evidence that linear regression involving polynomial and logarithmic terms may be more desirable than non-parametric spline or LOESS functions.

PRM106

IS A PICTURE WORTH A THOUSAND WORDS? THE DEVELOPMENT OF A CLINICIAN AND PATIENT REPORTED PHOTONUMERIC GUIDE TO ASSESS SCAR SEVERITY

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OBJECTIVES: Photo-based questionnaires have been used to evaluate aesthetic treatment outcomes such as wrinkle reduction and eyelash growth. The objective of this study was to develop a photonumeric guide of scar severity intended for use by both clinicians and patients to measure scar treatment