assessed with WHO DTSQ. Use of InDuo also resulted in significantly higher rating of insulin therapy, lack of interference with lifestyle and ease of injecting when away from home. Seventy-nine percent patients preferred treatment with InDuo rather than SVM, with convenience, ease of use, and accuracy being major factors (p < 0.001). Other important features that resulted in testing of BG more often with InDuo than with a SVM included specific features like the 5-second BG analysis (60%) and small blood sample requirement (55%). For InDuo 91% used BG memory several times a week (66% used doser memory several times a week). Overall, the enrolled population showed a significant mean reduction of 0.54% in the A1C values (p < 0.0001). Using combination device a large subset of patients (32%) showed substantial increases in frequency of daily SMBG monitoring (Mean 1 more reading/day). **CONCLUSIONS:** Use of the InDuo was associated with improvements in patient treatment satisfaction, which were reflected, in improved compliance (more injections or blood tests per day) in a substantial portion of the patients tested.

DIABETES (including Parathyroid Disease)

DIABETES (including Parathyroid Disease)—Health Policy Studies

PDB27

HOSPITALIZATIONS WITHIN THE VA AMONG VETERANS WITH DIABETES

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OBJECTIVES: To examine admissions within the VA facility among veterans with diabetes and the relationship between number of admissions and type of antidiabetic therapy. **METHODS:** Veterans with diabetes mellitus at a Texas Veterans Health care System were selected by identifying those with an ICD-9 code for diabetes from the outpatient file. Veterans who received continuous care at the VA from FY 2000 to 2002 were selected. Local Patient Treatment File and pharmacy file provided information on all VA admissions and prescription data. A published method on attributing hospital utilization to diabetes based on ICD-9 codes and codes for diagnostic-related groups from administrative databases were used. This method classifies admissions into 3 categories: clearly attributable to diabetes; probably attributable to diabetes; or not attributable to diabetes. Type of medication therapy was defined as the following: oral therapy all 3 years; oral and insulin; insulin only; escalating therapy; and other (i.e. insulin to oral or oral to no medication). **RESULTS:** Of the 2285 veterans included in the study, there were 1687 admissions at the VA facility over the 3-year period. A total of 772 patients accounted for the admissions. The mean length of stay per admission was 5.34 days (+/– 5.01). Of the admissions, 106 (6.4%) were clearly attributable to diabetes; 578 (35.1%) were probably attributable to diabetes and 964 (58.5%) were not attributable to diabetes. Comparisons showed that mean rank for number of admissions for those on oral therapy only was significantly lower than the following: both insulin and oral (Z = −5.43, p < 0.005); insulin only (Z = −4.36, p < 0.005); escalating therapy (Z = −6.67, p < 0.005) and other (Z = −7.01, p < 0.005). **CONCLUSIONS:** Approximately 40% of admissions among veterans with diabetes were either clearly attributable or probably attributable to diabetes. Receiv-

ing oral therapy only was associated with fewer number of hospital admissions than those on more intense therapy.

DIABETES (including Parathyroid Disease)

DIABETES (including Parathyroid Disease)—Methods

PDB28

GLYCEMIC CONTROL AS A CLINICAL OUTCOME VARIABLE: THE IMPACT OF NON-STANDARDIZED MEASURES

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OBJECTIVE: Glycemic control is a clinical outcome variable often used in diabetes intervention research. Misconceptions about A1C (glycosylated hemoglobin) and GHb (glycated hemoglobin) measures can lead to the use of different glycemic control measures within a study, threatening reliability and validity of outcomes results. While A1C is the standard for long-term glycemic control, the GHb measure may be more appropriate among patients with hemoglobin variants like the sickle cell factor and is sometimes used by clinicians who are aware that their patient population has prevalence of these variants. GHb measures are generally higher than A1Cs. The objective of this study was to examine the impact on outcomes results of using data from mixed (A1C or GHb) sites. **METHODS:** A convenience sample of 183 patients from four patient care sites participated in a cross-sectional survey measuring self-care behaviors, diabetes history, and demographics. Glycemic control data were gathered from patient charts and aggregated; one site used GHb. Aggregated glycemic control data were analyzed with other study variables. The GHb data were then converted to A1C equivalents using a regression formula provided by the National Glycohemoglobin Standardization Program (NGSP); analyses were conducted again and compared. **RESULTS:** Mean glycemic control for the sample with unconverted GHb readings was 8.40% (sd = 2.79); the mean for the A1C converted sample was 7.84% (sd = 1.89). Significance of variable relationships varied between the two, and the magnitude of relationship among correlated variables was greater among the unconverted GHb sample. Mean glycemic control for both analyses revealed statistically significant associations (p < 0.05) with readiness for all diabetes self-care behaviors except vigorous exercise, but variable associations among the group with unconverted GHbs were stronger. **CONCLUSIONS:** If data within a study include different or non-standardized glycemic control measures, they should be converted to be sure results reflect a standard variable.

PDB29

VALIDATION OF THE DIABETES RESOURCE CONSUMPTION INDEX (DRCI): A RISK ADJUSTMENT TOOL FOR PREDICTING HEALTH CARE RESOURCE USE AND COSTS

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OBJECTIVES: The purpose of this study was to validate a diabetes resource consumption index (DRCI). **METHODS:** The data for this study was collected from the Southern Arizona Veterans Affairs Health care System. A random split study sample was created from the computerized medical record of veterans with diabetes. Model estimation was done on the first sample (n = 367) and validation using the other 50% of the sample (n = 367). A Fisher's z-statistic was used to assess the degree of correspondence between the predicted and actual values

obtained from the derivation versus the validation samples. The construct validity of the DRCI was assessed by comparing it to only demographics, a comorbidity-index, and the revised Chronic Disease Score (CDS). Wilcoxon matched-pairs signed-rank test was used to determine differences between the median squared residual scores between the various risk-adjustment models. **RESULTS:** The correlation between actual and predicted costs between the derivation and validation samples was not statistically different for the three predicted outcomes. Age and sex accounted for 0.8% and 0.1% of the variance in total and ambulatory cost. The comorbidity index and the CDS individually explained approximately 6%–10% of the variance in total and ambulatory cost, respectively. The DRCI explained 6%–8% of the variance in total and ambulatory costs, and did significantly (p < 0.05) better than only demographics. The added variance explained by the incorporation of the comorbidity index or CDS accounted for 5%–8% of the variance in total and ambulatory costs, respectively. **CONCLUSIONS:** The predictive validity of the DRCI is equivalent to that of the CDS. When the DRCI was used along with the CDS, up to eight percent of variability in costs and utilization were explained. This may suggest that the DRCI and the CDS may be explaining different dimensions of a subject's severity of diabetes.

PDB30

DEVELOPMENT OF A DIABETES RESOURCE CONSUMPTION INDEX (DRCI) USING VETERANS HEALTH ADMINISTRATION DATA

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OBJECTIVES: The fifth leading cause of death by disease in the U.S., type-2 diabetes places patients at higher risk for heart disease, blindness, kidney failure, extremity amputations, and other chronic conditions. The 2002 costs associated with diabetes were estimated at US\$132 billion. Predictive models incorporating clinical measures of diabetes severity from clinical databases and their association to health care resource use and costs are needed for health plan resource planning and management. The purpose of this study was to determine the relationship between health care resource use and costs with diabetes-related clinical measures, and to develop a diabetes resource consumption index (DRCI). The DRCI consists of empirically derived weights to predict health care use among persons with diabetes. **METHODS:** The data was collected from four outpatient clinics within the Southern Arizona Veterans Affairs Health care System. The DRCI models used diabetes severity measures to predict three health care resource outcomes: risk of hospitalization; total health care costs; and ambulatory costs. Severity of diabetes was defined as the function of annual HbA1C, creatinine clearance-rate, and cholesterol values. Comorbidity was defined as the number of concurrent secondary diseases. The log-likelihood ratio test and the Wald test-statistic were used to assess the performance of the models. **RESULTS:** A total of 367 diabetic subjects had complete information on diabetes-specific variables and represented the sample for this study. DRCI weights based on the magnitude of one year health care resource use and socio-demographic characteristics, ranged from −471.5 to 3081.2 for total health care costs, from −304.3 to 1582.1 for outpatient costs, and −0.19 to 0.93 for risk of hospitalization. The DRCI models predicted 7% and 9% of the variance in total and ambulatory costs, respectively. **CONCLUSIONS:** This study suggests an association between clinical measures of diabetes severity and health care resource

and costs. Future studies are needed to validate this index in other settings.

GI DISEASES/DISORDERS

GI DISEASES/DISORDERS—Clinical Outcomes Studies

PGI1

GASTROINTESTINAL ADVERSE EVENTS FROM NON STEROIDAL ANTI-INFLAMMATORY DRUGS: RELATIONSHIPS BETWEEN RISK ASSESSMENT, VETERANS AFFAIRS PRESCRIBING GUIDELINES, AND HOSPITALIZATION COSTS

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OBJECTIVES: We determined rates of gastrointestinal (GI) complications among patients receiving nonsteroidal anti-inflammatory drugs (NSAIDS), according to risk of GI events and adherence to Veterans Affairs (VA) NSAID prescribing guidelines; and calculated the associated costs of hospitalizations from GI events by risk and adherence to guidelines. **METHODS:** In November 2001, we identified 7625 patients treated with NSAIDS in the New Mexico VA Health Care System. Using VA prescribing guidelines we assessed each patient's risk for GI events (low, moderate, high) and whether their treatment adhered to VA prescribing guidelines. We then reviewed patient records for GI hospitalizations and diagnoses within the following 2 years. Our data included demographic information, hospitalizations, prescription medications, and diagnoses. Costs were based upon 2002 Medicare reimbursement values. We compared outcomes and costs by risk level and adherence to guidelines, using chi square analyses for categorical data and t-tests for costs. **RESULTS:** Patients at moderate and high risk (n = 2288) had more (p < 0.001) GI hospitalizations (1.86%), compared to patients at low risk (n = 5337, 0.83%) with an odds ratio of 2.24, 95% confidence interval 1.47–3.41. Adherence to guidelines was not associated with fewer hospitalizations (odds ratio 1.41, confidence interval 0.67–2.96). Among patients at moderate-risk who were hospitalized, non-adherence to criteria (n = 26) was associated with higher (p = 0.027) mean costs (\$5709 ± 2991) compared to those adherent to criteria (n = 9, \$4037 ± 1248). Additional hospitalization costs due to non-adherence totaled \$112,099. **CONCLUSION:** The VA guidelines used to assess risk of GI complications from NSAIDS was related to rates of GI hospitalizations over a 2-year follow-up period. Rates of hospitalizations were not affected by adherence to guidelines. However, mean hospitalization costs were significantly lower among patients at moderate risk who were prescribed according to guidelines. Limitations are that the study is observational and that costs are limited to GI hospitalizations.

PGI2

A SYSTEMATIC REVIEW OF THE EFFECTIVENESS OF TOTAL AND PARTIAL LAPAROSCOPIC FUNDOPLICATION FOR THE TREATMENT OF GORD

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With a prevalence in Western countries of around 15%, GORD is associated with considerable long-term morbidity and treatment costs. Since the introduction of laparoscopic surgery in the 1990s fundoplication has becomes a viable alternative to long-term drug therapy in difficult to treat patients. Partial fundopli-