**OBJECTIVES:** Compliance with heart failure treatment guidelines may improve quality of care and reduce healthcare utilization and costs. For accreditation purposes, hospitals are required by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) to measure performance for treatment of patients with heart failure. The purpose of this study is to determine the effect of hospital compliance with JCAHO performance measures and published guidelines on outcomes of patients with heart failure (HF).

**METHODS:** Thirty hospitals submitted data on 1340 patients admitted with HF between January 2, 2002 and March 30, 2002. The data included patient demographics, HF severity, co-existing illnesses, and type of medication therapy during hospitalization and at discharge. Univariate and multivariate analyses such as ordinary least square (OLS) regression, logistic regression, and Cox regression analyses were applied. **RESULTS:** Current tobacco use and co-existing illnesses such as cardiomyopathy and chronic renal disease were significantly associated with longer hospital length of stay (LOS). Moreover, patients admitted to community hospitals had a lower inpatient mortality rate. Patients receiving discharge instructions regarding follow-up appointment and weight monitoring had significantly lower hospital LOS and inpatient mortality rate. Overall, patients receiving treatment according to published guidelines had lower hospital LOS and inpatient mortality rate. However, receiving treatment in hospitals with a care plan for HF had no significant impact on LOS or mortality. **CONCLUSIONS:** Hospital compliance with JCAHO performance measures and published guidelines is associated with a significant reduction in patient LOS or inpatient mortality. However, patients treated in hospitals with a care plan for heart failure had no significant change in LOS or mortality.

**BIAS IN CATEGORICAL MEDICATION COMPLIANCE ASSESSMENT**

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**OBJECTIVE:** To demonstrate the bias inherent in using categorical data for medication compliance assessments. **METHODS:** Two datasets from studies in which patients used electronic monitors (MEMS, AARDEX, Union City, CA) to record long-term daily dosing were used for analyses comparing categorical compliance (>50%, >60%, >70%, >80%, >90%). Study A compared an intervention to improve medication compliance with a usual care control group in a study of Medication Usage Skills for Effectiveness Program (MUSE-P) (Cramer, J Nerv Ment Dis, 1999). Study B assessed compliance as a covariate to medication efficacy (Krystal, Cramer, NEJM, 2001). **RESULTS:** In Study A, analysis by categories of >50%, >60%, >70%, >80%, and >90% compliance rates provided different results for the comparisons between the intervention and control groups. The proportions of intervention and Control group patients who would have been considered compliant were 90–87%, 85–71%, 77–61%, 64–34%, 54–24%, respectively by category. Differences between the intervention and control groups increased with higher standards of compliance (ratios 1.06, 1.22, 1.30, 1.92, 2.33). In Study B, decreasing proportions of patients met criteria for compliance categories (56%, 50%, 44%, 35%, 26%, respectively). Changing categories affected regression models with the primary outcome. **CONCLUSIONS:** This exercise demonstrated the biases that occur when compliance is calculated by category because of lack of information to support selection of a category designating appropriate compliance. Information that would define a category below which a medication is ineffective is available for very few medications. Without such information, selection of a category as a determinant of medication compliance is inappropriate. This problem was removed by using continuous compliance data.

**CORRELATIONS BETWEEN A STAGE OF CHANGE MEASURE AND FOUR VALIDATED MEASURES OF MEDICATION COMPLIANCE**

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**OBJECTIVES:** The literature contains a plethora of articles on medication compliance research, however, no “gold standard” in the measurement of compliance has been established. The Stage of Change (SOC) construct measure from the Transtheoretical Model of behavioral change has recently been validated in medication compliance. The objective of this study is to compare the SOC measure against Four other validated compliance measures in patients being treated for diabetes, hypertension, hypercholesterolemia, hypothyroidism, and hormone replacement therapy. **METHODS:** A total of 171 male and female patients in five primary care physician offices in the state of Georgia, USA, completed a face-to-face questionnaire consisting of the SOC measure, the Medication Adherence Scale, the Medication Outcomes Survey (MOS) compliance question, the Brief Medication Compliance Questionnaire (BMQ) and sociodemographic information. Pharmacy refill records (RR) were collected as the fifth compliance measure. **RESULTS:** Pearson correlations ranged from a low of 0.09 between RR and BMQ to a high of 0.79 between SOC and MOS. All other correlations ranged between 0.20 and 0.49. All correlations proved significantly different than zero (p < 0.05) with the exception of the RR and BMQ correlation. **CONCLUSIONS:** The majority of correlations between validated measures of compliance ranged from weak to moderate in strength. Therefore the results of this study show selection of a useful compliance measure is difficult. The study findings emphasize that assessing medication-taking behavior of patients and comparing the results of different compliance studies is problematic. The develop-
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THE INFLUENCE OF SELF-EFFICACY AND COMPLIANCE IN HYPERTENSION PATIENTS, DIABETES PATIENTS, AND UPPER RESPIRATORY TRACT INFECTIOUS PATIENTS WHO NEED SHORT COURSE ANTIBIOTICS AT FORT ADISORN HOSPITAL, THAILAND 2000

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OBJECTIVE: This study: 1) investigates the relationship between Self-efficacy (SE) (confidence in competent in a specific situation) and compliance with medical regimens in three groups of patients namely: Chronic maintenance care for diabetes—a life-threatening illness; Similar care for hypertension—a non-life threatening disease, and Acute care with antibiotics for infection—an episodic disorder with or without life-threatening potential; 2) explores SE for different levels of compliance (with 3 diseases) in self-administration of prescribed drugs; 3) identifies other variables relating to compliance in the respondents at Adisorn Fort, Saraburi Province, Thailand 2001. METHOD: A descriptive cross-sectional survey was employed to study relationships between SE and compliance. The response rate was 100% (n = 180). De Geese’s SE Scale had alpha .8680 and Sorofman’s Compliance scale with 2 constructs (correct amount and correct time) had alpha .8280 and .9459. RESULTS: Research confirmed that the stronger a patient’s Self-efficacy, the more reliably he/she complied to regimens for self-administration of maintenance and acute-care medication. SE selectively predicted adherence in 3 distinct categories of drug therapy: Diabetes > Hypertension > Antibiotics and compliance in Diabetes > Hypertension > Antibiotics as well (p < .05). Statistical significance for predicting compliance was found in SE model (R2.695). Male had more SE and comply than female (p < .05). There were inverse correlation between education and SE and negatively correlation between SE and compliance as well (R=.199, -.189). The length of time for patients got disease correlated to SE and compliance (R=.475, .508) (p < .05). The elderly had the more SE and more compliance to medical regimens than the younger (R .415, .404). Social support influenced SE and compliance. Patients with spouses had more SE and more comply with medical regimens than patients who lived alone (p < .05). CONCLUSION: SE played an important role in predicting compliance. SE was selective among diseases.

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CRITICAL EVALUATION OF INTERVENTIONS TO ENHANCE PATIENT COMPLIANCE WITH CHRONIC MEDICATIONS

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OBJECTIVE: Compliance with chronic medications is poor, resulting in lost clinical benefits and wasted resources. Developing evidence-based compliance programs is difficult because the literature is often equivocal, contradictory, or of poor methodological quality. The objectives of this study were: 1) to assess the relationship between methodological rigor in program evaluation and probability of intervention success; and 2) to identify the characteristics of compliance interventions that most strongly predict positive outcomes. METHODS: We searched the MEDLINE database for controlled studies of interventions designed to improve patient compliance with prescription medications for asthma, dyslipidemia, hypertension, depression, and diabetes (English-only, published between 1982 and 2002). Each study was abstracted for methodological rigor and intervention design. Compliance programs were considered “successful” if the authors demonstrated a statistically significant improvement in compliance compared to a control group. RESULTS: Sixty-four controlled studies were identified, in which 76 compliance interventions were evaluated. Overall, 68% of the interventions improved compliance. Of 20 interventions evaluated based on self-reported compliance, 9 (45%) were successful; 41 of 54 interventions (76%) that measured compliance via pill count, electronic monitoring, or pharmacy records were successful (p = 0.02). There were nine broad categories of intervention types, the most frequent of which were improved dosing convenience (n = 20 interventions, 70% successful), intensive clinician management (n = 7, 57% successful), counseling (n = 7, 57% successful), and reminders (n = 6, 66% successful). In addition, 20 of 25 programs (80%) consisting of multiple interventions were successful. CONCLUSION: Reliance on self-reported medication use appears to bias results against the intervention. This may be because patients report exaggerated levels of compliance in both intervention and control groups, creating a “ceiling effect” that reduces the observable difference. Common attributes of successful programs included simplified treatment regimens, facilitation of provider-patient relationships, and multi-faceted patient education methods. Combination interventions had higher rates of success than individual tactics.

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DIFFERENTIAL ECONOMIC IMPACT OF VARIABLE COMPLIANCE AND VARIABLE PERSISTENCE WITH PRESCRIBED, LONG-TERM DRUG REGIMENS

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OBJECTIVES: We define “compliance” as the “extent of correspondence between the patient’s dosing history and the prescribed dosing regimen”, and “persistence” as the time between the first- and last-taken doses. They are related in that persistence increases one dose at a time.