FACTORS ASSOCIATED WITH SUBOPTIMAL ADHERENCE TO HUMAN IMMUNODEFICIENCY VIRUS THERAPY
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OBJECTIVES: Adherence to medications is an integral component of treating human immunodeficiency virus (HIV). The objective of this study was to identify factors associated with suboptimal adherence to HIV therapy (MPR < 95%). METHODS: HIV patients were identified by a pharmacy claim between January 1, 2008 and November 30, 2008, for a non-nucleoside reverse transcriptase inhibitor, protease inhibitor, nucleoside reverse transcriptase inhibitor, entry inhibitor, integrase inhibitor or combination medication, using a large de-identified administrative claims database. Medication possession ratio (MPR) was calculated using their index prescription for those patients continuously enrolled and with at least two fills per medication. For patients utilizing more than one HIV medication, a mean MPR was calculated, weighted by length of time on each medication. Logistic regression was used to identify factors associated with suboptimal adherence. RESULTS: The analysis included 18,497 patients (20.0% female, mean age 46.7 years). Mean MPR was 87.2% (95% CI: 86.9–87.4%), with 48.6% of patients having suboptimal adherence. Suboptimal adherence was associated with female gender (OR = 1.55, 95% CI: 1.44–1.68), dispenses from retail pharmacies (OR = 1.54, 95% CI: 1.43–1.67), less than three-months supply per dispense (OR = 1.38, 95% CI: 1.32–1.35), patient age less than 45 years (OR = 1.26, 95% CI: 1.18–1.34), using more than one pharmacy for HIV medications (OR = 1.20, 95% CI: 1.11–1.29), being new to therapy (OR = 1.12, 95% CI: 1.04–1.20), taking more than one pill per day (95% CI: 1.08–1.18) and using more HIV medications (OR = 1.08 for each additional medication, 95% CI: 1.06–1.11). Type of insurance coverage and amount of copay were not significantly associated with suboptimal adherence. CONCLUSIONS: Knowledge of factors related to suboptimal adherence can help identify HIV patients who may require additional attention during their course of care.

APPLICATION OF A NATIONAL PRESCRIPTION DATABASE TO DEVISE A PREDICTIVE MODEL FOR TAILORING HIV/AIDS THERAPEUTIC MANAGEMENT
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OBJECTIVES: Design a predictive model which determines the probability of patients using a drug typically prescribed later in the therapeutic management of HIV/AIDS. Determining when a patient may need to switch to a different antiretroviral regimen for HIV/AIDS due to complexities (e.g., resistance, poor adherence) is challenging. Personalized approaches for the therapeutic management of HIV/AIDS are needed. A national database of pharmacy claims was analyzed to develop a predictive model that can be used with traditional measures for regimen selection. METHODS: Beginning April 2008 to March 2009, prescription claim data for 51,828 patients with continuous benefit eligibility were analyzed for antiretroviral drug regimen, presence of co-morbid illnesses (across 50 diseases), and basic demographics. Regimen identification was based on drug combinations included in the 2008 DHHS Guidelines for the Use of Antiretroviral Agents in HIV-1 Infected Adults and Adolescents. Late-type regimens included enfuvirtide, etravirine, maraviroc, or raltegravir. A multivariate logistic regression model was utilized across drug-centric and patient-centric domains to analyze the likelihood of a patient being prescribed a late-type regimen. RESULTS: N = 15,828 patients initially included in the model and n = 1,838 (11.6%) identified with a claim for the target drug(s). Five or more drug regimens (OR = 32.81; CI: 28.29–38.04) and three or more average number of drugs per regimen (OR = 4.13; CI: 3.15–4.87) are the strongest predictors and dominate the model. Cancer (OR = 1.80; CI: 1.31–2.32), type 2 diabetes (OR = 1.74; CI: 1.38–2.20), race (OR = 1.16; CI: 1.09–2.22), and Benign Prostate Hypertasia (OR = 1.54; CI: 1.48–2.08) were also significant. CONCLUSIONS: Ability to develop and apply a highly predictive model identifying patients suitable for drugs typically prescribed later in therapy and therefore at risk of HIV/AIDS exists. Application of this model can lend significant insight into patient management and further therapeutic precision. Additional studies are needed to confirm the clinical benefit of this model.

FEASIBILITY STUDY OF A NOVEL METHOD TO QUANTIFY SURGICAL INTERVENTIONS IN PATIENTS WITH COMPLICATED SKIN AND SKIN STRUCTURE INFECTIONS (cSSSI) USING A HOSPITAL ELECTRONIC HEALTH RECORD DATA
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OBJECTIVES: cSSSI may be associated with significant morbidity and cost. ICD-9-CM diagnosis codes have been used to identify cSSSI in health care databases. Although early surgical interventions may provide important severity adjustment information, minor (bedside) surgical procedures may be under-reported in hospital data. We explored a novel method to identify surgical interventions using culture descriptions. METHODS: We conducted an analysis (April 2005-March 2009) of the Health Facts® database (Cerner Corp., Kansas City, MO), containing comprehensive clinical records from 115 US hospitals. We included all adult initial admissions with infection. Propensity score modeling was used to validate logistic regression findings. RESULTS: Identified via ICD-9 codes were similar to rates based on ICD-9 codes plus iv antibiotics. Identified via ICD-9 were 9.9% for MSSA and 4.5% for MRSA. Most patients (94%) qualified with a respiratory culture. The cohort was predominantly male (61%) and Caucasian (80%); mean age was 64 years. Primary diagnoses were varied; the three most common were other diseases of lung (19.9%), acute myocardial infarction (3.8%), and lung cancer (3.8%). MRSA patients were older, with more comorbidities vs MSSA patients. More MSSA isolates were polymicrobial (41%) vs. MRSA (14%). During the 12 months following, 34.9% had been treated. CONCLUSIONS: Our algorithm identifying HAP patients within an EHR database potentially allows for larger sample size than other studies using clinical records from a single institution. Chart review is crucial to validate this approach and further work is needed to compare this definition with National Healthcare Safety Network definition.

FEASIBILITY OF USING AN ELECTRONIC HEALTH RECORD DATABASE TO PROVIDE A MORE COMPLETE ACCOUNTING OF SURGICAL PROCEDURES IN HOSPITALIZATIONS WITH A SKIN OR SOFT TISSUE INFECTION
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OBJECTIVES: Adherence to medications is an integral component of treating human immunodeficiency virus (HIV). The objective of this study was to identify factors associated with suboptimal adherence to HIV therapy (MPR < 95%). METHODS: HIV patients were identified by a pharmacy claim between January 1, 2008 and November 30, 2008, for a non-nucleoside reverse transcriptase inhibitor, protease inhibitor, nucleoside reverse transcriptase inhibitor, entry inhibitor, integrase inhibitor or combination medication, using a large de-identified administrative claims database. Medication possession ratio (MPR) was calculated using their index prescription for those patients continuously enrolled and with at least two fills per medication. For patients utilizing more than one HIV medication, a mean MPR was calculated, weighted by length of time on each medication. Logistic regression was used to identify factors associated with suboptimal adherence. RESULTS: The analysis included 18,497 patients (20.0% female, mean age 46.7 years). Mean MPR was 87.2% (95% CI: 86.9–87.4%), with 48.6% of patients having suboptimal adherence. Suboptimal adherence was associated with female gender (OR = 1.55, 95% CI: 1.44–1.68), dispenses from retail pharmacies (OR = 1.54, 95% CI: 1.43–1.67), less than three-months supply per dispense (OR = 1.38, 95% CI: 1.32–1.35), patient age less than 45 years (OR = 1.26, 95% CI: 1.18–1.34), using more than one pharmacy for HIV medications (OR = 1.20, 95% CI: 1.11–1.29), being new to therapy (OR = 1.12, 95% CI: 1.04–1.20), taking more than one pill per day (95% CI: 1.08–1.18) and using more HIV medications (OR = 1.08 for each additional medication, 95% CI: 1.06–1.11). Type of insurance coverage and amount of copay were not significantly associated with suboptimal adherence. CONCLUSIONS: Knowledge of factors related to suboptimal adherence can help identify HIV patients who may require additional attention during their course of care.

METHODS TO IDENTIFY AND COMPARE BLOODSTREAM INFECTION RATES AMONG PATIENTS ADMINISTERED PARENTERAL NUTRITION VIA HOSPITAL COMPOUNDED VS. PREMIUM MULTI-CHAMBER BAGS
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BACKGROUND: Parenteral, or intravenous nutrition (PN) is used with patients when oral or enteral nutrition isn't possible or adequate. Though PN provides important therapeutic benefits, it also is associated with a higher risk of infection. Yet few studies have compared bloodstream infection rates (BSI) among patients receiving PN through custom compound formulations (COM) with standardized premixed multi-chamber bags (MCB). Our objective was to develop a credible approach to exploring the relations between PN type and BSI. METHODS: We examined the association of the 2008 NHAMCS inpatient dataset with PN and met study inclusion criteria. Of these, 4,669 received PN via MCB and 64,315 received COM PN. Univariate statistics indicated that COM PN patients may have been at higher risk for infection. Controlling for observable variables, multivariate logistic regression modeling was applied. RESULTS: No significant differences were found between MCB and COM PN. Logistic regression modeled BSI rates controlling for patient and hospital characteristics, as well as risk factors for infection. Propensity score modeling was used to validate logistic regression findings. RESULTS: No definitive comparisons were made. Though NHAMCS inpatient dataset was larger than NHAMCS outpatient dataset, comparisons were not made. CONCLUSIONS: Our multivariate logistic regression modeling validated our logistic regression findings. CONCLUSIONS: A useable model for identifying patients at risk for bloodstream infection is needed, with the emphasis on risk stratification.
Abstracts

Large retrospective databases provide valuable information to examine adverse events associated with PN, which can be reliably identified and studied. Both sensitivity analyses and model validation added credibility to our approach.

RESPIRATORY-RELATED DISORDERS – Clinical Outcomes Studies

A COMPARISON OF CLINICAL PROFILES, MEDICATION USE AND SYMPTOMATOLOGY IN ASThma PATIENTS PRESCRIBED LOW/MODERATE DOSE FLUTICASONE PROPIONATE/SALMETEROL OR MODERATE/LOW DOSE FLUTICASONE PROPIONATE/SALMETEROL

Burke BP, Stanford RH, Polias PG, Astley CG, Riedel A

OBJECTIVES: National asthma treatment guidelines recommend the use of low dose ICS plus a LABA or moderate high dose ICS as the preferred treatment for moderate asthma. The purpose of this study was to determine if physicians prescribe low/moderate dose fluticasone propionate/salmeterol (FSC) or moderate/high dose fluticasone propionate (FP) to subjects with similar asthma clinical profiles, medication use, and symptomatology. METHODS: This was a retrospective observational study using medical, pharmacy, and enrollment information from a large, US managed care plan and linked medical chart data comparing 3 years of baseline characteristics and medication treatment patterns in adult asthma patients initiating FSC or FP. Data acquired from medical and pharmacy claims included provider specialty, baseline asthma medication resource use, occurrence of spirometry testing, and Deyo-Charlson co-morbidity score. A random sample of medical charts (n = 460) was abstracted for baseline symptomology, RESULTS: A total of 32,189 subjects (average age: 46.6 [±14.4] years; 64% female) were identified for analysis and included in the final study. The most common diagnoses and indicators of co-morbidity (HR: 1.0/1.06 /1.12/1.07). Baseline co-morbidity scores were similar in FSC and FP patients (1.02 (1.31) vs. 1.11 (1.50); p = 0.488). A greater proportion of patients receiving FSC had a baseline spirometry compared to FP patients (32.6% vs. 20.4%; p = 0.003) while, shortness of breath was reported significantly more often for FSC (48.7% vs. FSC vs 38.3% in FP; p = 0.024). Other asthma symptoms were reported a similar rate across both groups and no significant differences in baseline use of other asthma medications were observed. CONCLUSIONS: Few significant differences in either clinical profile, symptomology, or medication use were observed between patients prescribed low/moderate dose FSC or moderate/high dose FP for the first time. Overall, physicians seem to be prescribing low/moderate dose FSC and moderate/high dose FP to similar asthma patients in alignment with national asthma treatment guidelines.

SYMPTOMATOLOGY IN ASTHMA PATIENTS PRESCRIBED LOW/MODERATE DOSE FLUTICASONE PROPIONATE/SALMETEROL OR MODERATE/LOW DOSE FLUTICASONE PROPIONATE/SALMETEROL

Burke BP, Stanford RH, Polias PG, Astley CG, Riedel A

OBJECTIVES: Our methodology relies on logistic and log-linear modelling strategies for multidimensional contingency tables RESULTS: For both outcomes, hypothesis (A) was rejected (p < 0.001). Although comorbidity was found to influence death and rehospitalisation, the patterns of influence on the two outcomes were not similar and there were some negative influence (i.e. comorbidities more frequent among survivors than those not rehospitalised) several significant 2-way interactions were revealed. Whilst most significant interactions were positive (especially for rehospitalisation) there was negative interaction for death (e.g. peripheral vascular disease and age and sex. Our methodology noting that: outcome may not be associated linearly with comorbidity

CONCLUSIONS: Few significant differences in either clinical profile, symptomology, or medication use were observed between patients prescribed low/moderate dose FSC or moderate/high dose FP for the first time. Overall, physicians seem to be prescribing low/moderate dose FSC and moderate/high dose FP to similar asthma patients in alignment with national asthma treatment guidelines.

A NOVEL METHODOLOGY FOR MEASURING THE INFLUENCE OF COMORBIDITY IN HEALTH OUTCOME STUDIES

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OBJECTIVES: In most studies, the influence of comorbidity is modelled additively as the number of comorbidities present or by an index (such as Charlson's) chosen without regard to the outcome of interest. We question these approaches with a novel methodology noting that: outcome may not be associated linearly with comorbidity

CONCLUSIONS: Few significant differences in either clinical profile, symptomology, or medication use were observed between patients prescribed low/moderate dose FSC or moderate/high dose FP for the first time. Overall, physicians seem to be prescribing low/moderate dose FSC and moderate/high dose FP to similar asthma patients in alignment with national asthma treatment guidelines.