Identification of Risk Predictors for Antiretroviral Therapy Non-Adherence using Pharmacy Claims
Presented at the 11th International Conference on HIV Treatment and Prevention Adherence Fort Lauderdale, FL; May 9-11, 2016

Using HIV specialized services was found to be an important predictor of adherence to antiretroviral therapy.

BACKGROUND

- Non-adherence to antiretroviral (ARV) therapy may lead to emergence of drug resistance and treatment failure. HIV specialized pharmacies have staff with advanced disease state education, high levels of cultural competency, and HIV stigma awareness. This training is coupled with face to face proactive patient service programs designed to promote adherence to all medications for HIV and comorbid condition treatments and retention in care.

OBJECTIVE

- To identify factors focused on patient demographics and medication use profiles that are predictive of patient antiretroviral non-adherence among HIV-infected adolescents using pharmacy claims and predictive modeling techniques.

METHODS

- The study sample identified patients with pharmacy claims evidence of being on approved antiretroviral guideline regimens from 2013-2015.
- Medication adherence was measured in proportion of days covered (PDC) for a 1-year period from their first fill; patents were considered non-adherent if an individual's PDC was less than 0.90. Modeled variables included demographics (e.g., age, gender), year of index ARV fills, patient insurance plan type, and 90 binomial indicator variables representing each of the 90 therapeutic classes. These variables were then fitted into multiple predicative models including logistic regression, decision tree, and ensemble models using SAS® Enterprise Miner™.
- Variables were flagged as important variables to predict non-adherence if the variables were shown to have significant association with non-adherence from the logistic regression model or had variable relative importance value greater than 0.1 from the decision tree model.

RESULTS

- History of using analgesics, antidiabetics, antifungals, antihypertensives and not using antihyperlipidemics, vaccines, androgens-anabolic, and nasal agents were significant predictors of ARV non-adherence.
- Being younger (age<50) and without commercial insurance coverage also increased the risk of nonadherence.
- Not using HIV specialized services is the most important predictor of ARV non-adherence.
Figure 1. Antiretroviral User Population Selection

Patients identified as having at least one fill of ARV medications between 2014 and 2015
n=206,489

ARV users with only one type of pharmacy
n=187,206

Excluding patients using both HIV-SP and traditional stores
n=19,283

Users meet ARV regimens
n=146,281

Excluding patients who did not meet ARV regimens
n=40,925

Keeping patients with history of >90 days of ARV regimens
n=127,706

Excluding patients with history of ≤90 days ARV regimens
n=18,575

ARV users using traditional or HIV specialized pharmacies
n=80,182

Excluding patients with age <13, excluding those not using traditional or HIV-Specialized pharmacies
n=47,524

HIV-Specialized Users
n=25,045

Traditional Users
n=45,137

Figure 2. Adjusted Effects of Baseline Factors Associated with ARV Non-adherence Using Logistic Regression

Non-user of HIV Specialized
Age <50
Male
Without commercial insurance
Analgesics – opioid
Antidiabetics
Antifungals
Antihyperlipdemic
Antihypertensives
Vaccines
Androgens-anabolic
Nasal agents

Odds Ratio (log scale)
CONCLUSION

• By understanding risk predictors for non-adherence, pharmacists at HIV specialized pharmacies will be able to customize support based upon individualized needs and to proactively support patients to prevent adherence declines.
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