**Title:** Relationship between medication synchronization and adherence in insured people living with HIV/AIDS

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**Purpose/Background:** Medication adherence to antiretroviral therapy in people living with HIV/AIDS is important to achieve viral suppression, minimize drug resistance, and improve survival. Medication synchronization, the process of refilling all maintenance medications on the same date, is intended to improve both medication adherence and pharmacy operation efficiency. Although many uninsured people living with HIV/AIDS receive their medications through federally and state funded grant programs (such as AIDS Drug Assistance Program) which utilize medication synchronization, the insured among this population may not be eligible to receive medications through such programs. Therefore, the impact of medication synchronization on antiretroviral adherence in insured (i.e. Medicaid, Medicare, and private insurance) HIV/AIDS patients has not been previously reported.

**Research Objective:** The objective of this study was to compare the proportion of days covered (PDC), a measure of adherence, in insured, outpatient people living with HIV/AIDS with and without medication synchronization. The secondary objective was to describe viral load pre- and post-medication synchronization.

**Methodology:** This was a multi-center, retrospective, cohort study. Study data were collected and compared in insured people living with HIV/AIDS with (exposed) and without (non-exposed) medication synchronization. The study endpoints were analyzed between the two groups retrospectively after three months. The primary and secondary endpoints were evaluated using a two-sample t-test to compare PDC and viral load in those with and without medication synchronization. Univariate chi-square tests and multivariate logistic regression model were used for the categorical endpoint of adherence (PDC ≥80%).

**Results:** There were fifty-eight patients included in the study. PDC in patients exposed to medication synchronization was significantly higher than PDC in patients not exposed to medication synchronization, 96% versus 71% respectively (p<0.0001). Insured people living with HIV/AIDS exposed to medication synchronization were 10.67 times as likely to be adherent compared to those not exposed (odds ratio 10.67, 95% confidence interval 2.63-43.31). There was not a statistically significant change in mean viral load in patients exposed versus not exposed to medication synchronization (p<0.34).

**Conclusions:** In insured people living with HIV/AIDS, exposure to medication synchronization was associated with improved adherence.