Association Between Adherence to Generic Statin Therapy and Outcomes: Total Cost of Care and Medical Events Over Two Years

Background

• The retrospective cohort study is a study utilizing integrated administrative medical and pharmacy data from a commercial Blue Cross and Blue Shield (BCBS) Plan in the Central U.S. with administrative medical and pharmacy claims data from a commercial Blue Cross and Blue Shield (BCBS) Plan in the Central U.S.

• Differences found in medical events and costs despite increased drug spending.

• Administrative pharmacy and medical claims have the potential for miscoding and include assumptions which is an arbitrary cut point, however this cut point data and therefore could not be included as a covariate in the study.

• Prime defined adherence using the PDC of 0.90 which is an arbitrary cut point. However, this cut point has frequently been used in previous research.

• Adherence was determined using only statin claims and did not include other cholesterol lowering medications.

Objective & Purpose

• Examine the association between medication adherence and all-cause hospitalization and emergency room (ER) events, and compare medical and pharmacy costs among individuals adherent and non-adherent to generic statin medications.

Methods

• The retrospective cohort was a study utilizing integrated administrative medical and pharmacy data from a commercial Blue Cross and Blue Shield (BCBS) Plan in the Central U.S. with administrative medical and pharmacy claims data from a commercial Blue Cross and Blue Shield (BCBS) Plan in the Central U.S.

• The authors concluded that despite higher adherence to cholesterol medications resulting in higher pharmacy costs, the reduction in hospitalizations and emergency department use were associated with lower medical costs in the adherent population.

• The study found that patients exposed to statins -70% or 80% or greater than 80% had significantly lower rates of persistence (e.g., discontinued market when compared to those exposed to a statin’s fee of less than 5%.)

• In 2015, CVS Caremark published a study utilizing 2005 Prime’s 2012 commercial book of business cholesterol and all-cause hospitalization or emergency room (ER) event rate calculation and association with high risk status.

• The Kaplan-Meier method with a log-rank statistical test was used to calculate the PDC and members were considered adherent if their PDC was ≥ 80 percent.

• The mean adherence of the generic statin was 72 percent, an increase from 25 percent compared to the non-adherent group.

Results

• Differences found in medical events and costs despite increased drug spending.

• Administrative pharmacy and medical claims have the potential for miscoding and include assumptions which is an arbitrary cut point, however this cut point data and therefore could not be included as a covariate in the study.

• Prime defined adherence using the PDC of 0.90 which is an arbitrary cut point. However, this cut point has frequently been used in previous research.

• Adherence was determined using only statin claims and did not include other cholesterol lowering medications.

Conclusions

• In this hierarchical test of care analysis, individual’s adherence to generic statin medications had an associated-wage cost, a 4 percentage point lower hospitalization or ER event rate, which remained a significant 0.5 percentage lower in a multivariate analysis.

• In individuals with hypercholesterolemia, total annual cost saving was $4,016 for all adherent group.

• The significant cost differences were the result of lower medical costs off-setting higher pharmacy costs. These findings differ from previous research, particularly in women in populations including younger age and primary use of generic medications.

• Future research is required to determine if factors to improve adherence will result in lower total cost of care.

References

1. Prime Therapeutics LLC, 4454. 1705 Corporate Center Drive, Englewood, CO 80112. 303-867-5703. 1-866-362-0900. ptf@primetherapeutics.com


Table 1. Model characteristics

Table 2. Hospitalization or emergency event rate during 2 years of follow up based on adherence to generic strategy

Table 3. Cox proportional hazard model results

Figure 1. First hospitalization or emergency room visit event date

Figure 2. Adherence to generic strategy over time

Figure 3. Suboptimal adherence and discontinuation in primary care patients: A national cohort study.

Figure 4. Kaplan-Meier curve shows that the adherent group ($4,016, SD $3,912) was significantly lower rates of persistence (e.g., discontinued market when compared to those exposed to a statin’s fee of less than 5%.)

Figure 5. Members were required to have a statin supply on their index date for hospitalization or ER event rate calculation and association with high risk status.

Figure 6. Cox proportional hazard model results

Figure 7. Despite higher adherence to cholesterol medications resulting in higher pharmacy costs, the reduction in hospitalizations and emergency department use were associated with lower medical costs in the adherent population.

Figure 8. Members were required to have either two separate hypercholesterolemia medical encounters any time from January 1, 2007 through their medical index date in December 31, 2010, 21,910 met inclusion criteria.

Figure 9. The Kaplan-Meier method with a log-rank statistical test was used to calculate the PDC and members were considered adherent if their PDC was ≥ 80 percent.

Figure 10. Hospitalization or ER event rate during 2 years of follow up: 0.94, 95% confidence interval [CI] 0.92 to 0.97.

Figure 11. Medical costs were $1,022 lower in the adherent group ($4,016, SD $3,912) compared to the non-adherent group ($5,038, SD $4,315).

Figure 12. The unadjusted two-year follow-up Kaplan-Meier curve shows that the adherent group had a 13 percent lower hospitalization or ER event rate compared to the non-adherent group at 25 percent compared to the non-adherent group.

Figure 13. The Kaplan-Meier curve shows that the adherent group with ≥ 80% generic statin were included in the analyses.

Figure 14. All members were followed for two years post their 2008 index date.

Figure 15. Members were required to have two separate hypercholesterolemia medical encounters any time from January 1, 2007 through their medical index date in December 31, 2010, 21,910 met inclusion criteria.

Figure 16. All members were followed for two years post their 2008 index date.

Figure 17. The mean adherence of the generic statin was 72 percent, an increase from 25 percent compared to the non-adherent group.

Figure 18. Members were required to have a statin supply on their index date for hospitalization or ER event rate calculation and association with high risk status.

Figure 19. The authors concluded that despite higher adherence to cholesterol medications resulting in higher pharmacy costs, the reduction in hospitalizations and emergency department use were associated with lower medical costs in the adherent population.

Figure 20. Members were required to have two separate hypercholesterolemia medical encounters any time from January 1, 2007 through their medical index date in December 31, 2010, 21,910 met inclusion criteria.