Statin Waste Associated with 90-day Supplies Compared to 30-day Supplies

PRIME THERAPEUTICS®

T. Vuong[1], B. Fenrick[2], C. I. Starner[1,3], J. Schafer[1], B. W. Gunderson[1], P. P. Gleason[1,3] [1]Prime Therapeutics, Eagan, MN; [2]Blue Cross and Blue Shield of Florida, Jacksonville, FL; [3]University of Minnesota, Minneapolis, MN

No external funding provided for this research

Background

- Antihyperlipidemics accounted for 8% of all pharmacy expenditures during 2010 for Prime's 9 million commercially insured members, and the total paid per member per month (PMPM) was $5.14 with statins comprising greater than 75% of claims.[1]
- As medication prices continue to rise faster than inflation[2], one method to control pharmacy benefit costs is for health plans and pharmacy benefit managers to offer 90-day supply (DS) (three-month supply) coverage which reduces costs via a decrease in dispensing fees and potentially increases adherence.[3] However, a concern with 90-day supplies is an increased potential for medication waste.
- To our knowledge, three studies have assessed drug waste of three-month supplies:[3-5]
  1. San Diego Veterans Affairs (VA) (1999 data) surveyed members and analyzed pharmacy claims (acquisition cost ≤ $1.50 per day) with a 90-day supply and found 4.9% of 346 unique 90-day claims were associated with waste at a waste cost of $2.25 per 90-day claim. The authors simulated the cost to have dispensed three 30 DS claims instead of one 90 DS claim and found a $6.17 savings due to decreased dispensing fees associated with filling 90 DS claims.[3]
  2. Chicago VA (2000 data) analyzed 16,990 simvastatin and lovastatin claims dispensed as a 90 or 30 DS. Waste was present in 15.0% of 90 DS claims with an average of 5.3 days waste per claim and 14.3% of 30 DS claims with an average of 1.1 days waste per claim. When factoring in dispensing fees and waste, a 90 DS claim was associated with a $2.45 savings per 90 DS.[4]
  3. Over 3 million pharmacy claims during 1999 to 2000 from North Carolina Medicaid dispensed as a 100 DS were analyzed to simulate the financial impact of a policy change to a mandatory 34 DS. Among six different chronic disease drug classes, waste was found in 0.8% to 9.4% of 100 DS claims. The simulation found 34 DS claims had lower waste but were more expensive due to dispensing fees.[5]
- These three studies are limited in their generalizability because data are from the VA or Medicaid, and they do not comprehensively assess the predominate three dispensing channels and supplies of retail 30 DS, retail 90 DS and mail 90 DS available to a commercially insured population. Therefore, further analyses are required to compare waste and costs by dispensing channel.

Objective

- To quantify and compare statin waste and costs via the dispensing channels: retail 30 DS, retail 90 DS, and mail 90 DS.

4085-F © Prime Therapeutics LLC 04/11
1305 Corporate Center Drive, Eagan, MN 55121

Patrick Gleason, 612.777.5190
pgleason@primetherapeutics.com

AMCP, April 29, 2011, Minneapolis, MN, USA

Methods

- Members continuously enrolled from 2Q2008 to 2Q2010 with a statin or statin combination drug claim during 2Q2009 (index claim) were identified from a 2.2 million member commercially insured population.
- Statin claims were categorized into the following dispensing channels: retail 30, retail 90 or mail 90.
- Inclusion criteria for the dispensing channels included:
  - Retail 30: claims with DS ≤ 60
  - Retail 90: claims with DS ≥ 61
  - Mail 90: claims with DS ≥ 61 and filled at a mail order facility
- Members and their claims were excluded if they had multiple statin claims with the same date of service or if there was presence of outlier statin claims (retail 90 or mail 90 claim with a DS > 102 days, quantity dispensed > 180, or quantity dispensed/DS > 3).
- An end date for each claim was defined as date of service plus DS.
- Each member's statin claims were followed for 365 days post index claim (Figure 1).
- Waste was defined as the presence of an overlapping DS of a different statin, or a new tablet strength of the same statin.[3-5]
- Average days waste per claim within a dispensing channel was calculated. Channel differences were assessed using student's t-test for continuous variables and chi-square for categorical variables.
- The unit cost (ingredient cost) was determined using Prime's book of business claims data during 2Q2009 to 2Q2010 for each unique statin actual ingredient cost per unit and reflects the brand and generic drug mix.
- For estimating annual waste cost, the statin unit cost was multiplied by the annualized days waste for a completely adherent individual using a single dispensing channel.
- The dispensing fee used for retail 90 and mail 90 was $0. The dispensing fee used for retail 30 was the 2009 brand retail dispensing fee from Pharmacy Benefit Management Institute 2010–2011 Prescription Drug Benefit Cost and Plan Design Report.[7]

Results

- 8.7% (52,680/603,775) of continuously enrolled members had a statin claim during 2Q2009:
  - 704 (1.3%) members were excluded for having multiple statin claims on the same date of service
  - 715 (1.4%) members were excluded due to outlier claims
- The population consisted of 51,261 members:
  - Members' average statin supply was 275 days during the 365 day follow-up period and 1.88 days of statin waste
  - 3,996 (7.8%) of 51,261 members had at least one day of waste, and among these members, their average days waste was 24
- 86.6% (44,411/51,261) of members used one dispensing channel; 13.4% (6,850/51,261) of members used multiple dispensing channels:
  - 66.2% (33,940/51,261) of members only used the retail 30 channel
  - 8.5% (4,337/51,261) of members only used the retail 90 channel
  - 12.0% (6,134/51,261) of members only used the mail 90 channel
- The 51,261 members had 387,973 statin claims during the 365 day follow-up:
  - 85.4% (331,479/387,973) of claims were from the retail 30 channel
  - 6.9% (26,835/387,973) of claims were from the retail 90 channel
  - 7.6% (29,659/387,973) of claims were from the mail 90 channel

Waste Per Claim (Table 1)

- The prevalence of retail 90 claims with at least one day of waste was 2.5% (669/26,835) which was significantly higher than mail 90 at 2.2% (638/29,659) or retail 30 at 1.1% (3,725/331,479):
  - Among the claims (n = 5,032) with waste, the waste per claim was significantly lower ($p < 0.001$) in the retail 30 channel (12.40 days waste) compared to retail 90 (38.70 days waste) or mail 90 (35.93 days waste)
- The cumulative sum of days waste for all retail 90 claims was 1.1% and was significantly higher ($p < 0.001$) than retail 30 at 0.46% or mail 90 at 0.9%.
- Retail 90 claims average of 1.01 days waste per claim was significantly ($p < 0.001$) higher than the retail 30 at 0.14 days waste per claim or mail 90 at 0.77 days waste per claim.

Annualized Waste and Cost (Table 2)

- 1.68 days waste via retail 30 DS channel (0.14 days waste per claim x 12 claims = 1.68 days) at a cost of $2.37 per year (1.68 days x $1.41 statin cost per day).
- 4.04 days waste via retail 90 DS channel (1.01 days waste per claim x 4 claims = 4.04 days) at a cost of $5.70 per year (4.04 days x $1.41 statin cost per day).
- 3.08 days waste via mail 90 DS channel (0.77 days waste per claim x 4 claims = 3.08 days) at a cost of $4.34 per year (3.08 days x $1.41 cost per day).

Annual Additional Cost in Excess of Ingredient Cost Per Statin Utilizing Member (Table 2)

- Retail 30: $2.37 statin waste + ($1.57 dispensing fee x 12) = $21.21 additional cost.
- Retail 90: $5.70 statin waste + ($0 dispensing fee x 4) = $5.70 additional cost.
- Mail 90: $4.34 statin waste + ($0 dispensing fee x 4) = $4.34 additional cost.
- Per statin utilizing member, annual savings was similar when comparing a 90-day dispensing channel to the 30-day dispensing channel; retail 90 ($15.51 savings), mail 90 ($16.87 savings), and the difference between mail 90 compared to retail 90 was $1.36 savings.

Figure 1. Example Calculation of Actual Waste

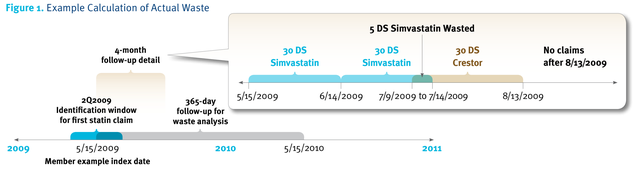
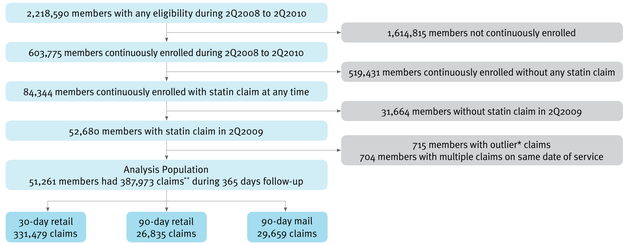


Figure 2. Waste Analysis Population Identification



* Retail 90 or mail 90 claim with a supply > 102 days, quantity dispensed > 180, or quantity dispensed/DS > 3
** Analysis done at a claims level because members may be in more than one channel during analysis

Table 1. Drug Waste by Channel

Total claims n = 387,973	Sum of days waste/ Sum of days supply*	Claims with waste* (%)	Avg. days waste (SD) per claim with waste*	Avg. days waste (SD) [95% confidence interval] per claim*
Retail 30-day supply n = 331,479 (85.4%)	46,193 (0.46%) of 9,943,084	3,725 (1.1%) of 331,479	12.40 (8.12)	0.14 (1.57) [0.13 to 0.15]
Retail 90-day supply n = 26,835 (6.9%)	27,049 (1.1%) of 2,415,461	669 (2.5%) of 26,835	38.70 (25.69)	1.01 (7.44) [0.92 to 1.10]
Mail 90-day supply n = 29,659 (7.6%)	22,923 (0.9%) of 2,669,268	638 (2.2%) of 29,659	35.93 (24.58)	0.77 (6.34) [0.70 to 0.85]

SD = standard deviation
*All channels significantly different from each other $p < 0.001$, chi-square for categorical tests and Student's t-test for continuous variables

Table 2. Annualized Cost Comparison Between Channels

	Dispensing Channels			Dispensing Channel Cost Differences Per Utilizing Member (savings)		
51,261 statin utilizers followed for one year (2Q2009 to 2Q2010) with 387,973 statin claims	30-day supply retail	90-day supply retail	90-day supply mail	90-day retail vs. 30-day retail	90-day mail vs. 30-day retail	90-day mail vs. 90-day retail
Statin annual waste cost*	1.68 days waste x $1.41 statin cost per day = $2.37	4.04 days waste x $1.41 statin cost per day = $5.70	3.08 days waste x $1.41 statin cost per day = $4.34	$3.33	$1.97	($1.36)
Dispensing fee cost†	$1.57 dispensing fee x 12 = $18.84	$0.00	$0.00	($18.84)	($18.84)	$0.00
Total annual additional costs‡	$21.21	$5.70	$4.34	($15.51)	($16.87)	($1.36)

* Statin cost per day = $1.41 determined using 2Q2009 to 2Q2010 Prime Book of Business claims data for each unique statin actual ingredient cost per unit and the 387,973 statin claims drug mix
† 2009 brand retail dispensing fee from Pharmacy Benefit Management Institute 2010–2011 Prescription Drug Benefit Cost and Plan Design Report
‡ Additional costs are waste and dispensing fees

Limitations

- More detailed information on member behavior during drug and/or dose switching is necessary to fully evaluate waste. For example, during dose increases and decreases, members may use up their remainder of drug supply before starting a new dose, and waste would be overestimated.
- The current study did not include waste associated with discontinuation which may be a considerable amount of waste. Data was only analyzed for statins, and switches to other cholesterol lowering medication classes (e.g., fibrates, niacin) were not considered. Discontinuation or switching could result in under-estimating waste.
- Pharmacy claims are intended for administrative and payment information purposes and as such may contain data with potential inaccuracies including false-negative or false-positive information.
- Our pharmacy data was limited to a commercial population in one specific geographical region (the South) that may not represent commercial populations in other geographical regions.
- The differences in cost between dispensing channels in this analysis focused on the dispensing fee and waste cost. Each unique claim total ingredient cost was not included in the analysis.
- Selection bias may be present between members in 30-day versus 90-day channels. Members may opt for the retail 30-day channel if they believe they may be changing therapy in the near future. Cost-savings in 90-day channels may be overestimated as a result of this potential bias.

Conclusions

- Among statin utilizers followed for one year, statin claims filled via 90 DS were associated with significantly more waste than 30 DS. However, the statin waste amount difference was modest at less than three days over one year.
- Despite a greater amount of waste associated with 90 DS, the cost analysis showed pharmacy expenditures (including dispensing fee and drug waste cost) were approximately $16 lower per member utilizing 90 DS, with mail 90 being the least expensive channel.
- Our results were similar to prior studies which found more waste associated with 90 DS than 30 DS, and there was a cost-savings when filling 90 DS compared to 30 DS because the savings from the dispensing fee outweighed the additional cost from drug waste.
- Further research is needed to validate these findings. Waste investigation in other drug classes is necessary.

References

1. Prime Therapeutics Internal Data.
2. Schondelmeyer, S; Purvis L. "Rx Price Watch Report: Trends in Retail Prices of Brand Name Prescription Drugs Widely Used by Medicare Beneficiaries 2005–2009." *AARP Public Policy Institute.* Publication 06 (2010). August 2010.
3. Parikh, S; Dishman, B; Smith, T. "Ninety-Day Versus Thirty-Day Drug-Dispensing Systems." *American Journal of Health-System Pharmacy.* 58 (2001): 1190–1191.
4. Walton, S; Arondekar, B; Johnson, N; Schumock, G. "A Model for Comparing Unnecessary Costs Associated with Various Prescription Fill-Quantitiy Policies: Illustration Using VA Data." *Journal of Managed Care Pharmacy.* 7(5) (2001): 386–390.
5. Domino, ME; Olinick, J; Sleath, B; Leinwand, S; Byrns, PJ; Carey, T. "Restricting Patients' Medication Supply to One Month: Savings or Wasting Money?" *Am J Health-System Pharm.* 61 (2004): 1375–1379.
6. Pharmacy Benefit Management Institute. 2010–2011 Prescription Drug Benefit Cost and Plan Design Report. Available at: http://www.pbmi.com/benefitdesign.asp. Accessed January 17, 2011.