Proton Pump Inhibitor Drug Utilization and Cost Trends

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Proton pump inhibitors (PPIs) are commonly used for treatment of gastroesophageal reflux disease (GERD), short-term treatment of active duodenal and gastric ulcers, healing of erosive esophagitis, and healing/risk reduction of gastric ulcers associated with nonsteroidal anti-inflammatory drugs (**Table 1**). More than 60 million Americans experience acid indigestion at least once a month and about 20 million will suffer from an ulcer in their lifetime.[1]

Reflux occurs when the lower esophageal sphincter fails to fully close, allowing stomach contents to enter the esophagus. Gastroesophageal reflux disease is defined as a condition that develops when the reflux of stomach contents causes troublesome symptoms and/or complications.[2] Proton pump inhibitors work by shutting down proton pumps, effectively stopping the production of stomach acid. Several factors contribute to utilization of PPIs: the prevalence of GERD and related disorders, an aging populace (the incidence of GERD increases significantly over the age of 40 years), and superior efficacy compared with older drugs (H_2 blockers are effective for about half of those who have GERD). Proton pump inhibitors can relieve symptoms and heal the damaged esophageal lining in those with GERD and erosive esophagitis.

OVERVIEW

Over the past 2 decades, the PPI market experienced explosive growth, becoming the highest gross cost generic product identifier 4 class due to high utilization and brand-name product costs. The first drug in the class, Prilosec (omeprazole), was introduced in 1989 in the United States.[3] Several competing products followed suit, including Prevacid (lansoprazole) in 1995, Aciphex (rebeprazole sodium) in 1999, and Protonix (pantoprazole sodium) in 2000. Prior to Prilosec going off patent in 2001, Nexium (esomeprazole) was released and quickly became the market leader in the class.

Nexium dominated the marketplace until recently, when generic Prilosec (omeprazole) monthly prescriptions began outnumbering those of Nexium. Additionally, lower-cost pantoprazole has substituted virtually 100% of claims for its brand-name counterpart, Protonix. At the end of 2009, PPI class costs dropped further as lansoprazole became available as a generic and as an over-the-counter (OTC) medication. The 2 remaining primary brand-name drugs in the class, Nexium and Aciphex, are experiencing a decline in monthly utilization figures on a per member per month (PMPM) basis. Conversely, claim utilization is increasing for all generic drugs, driving class costs downward.

> **In 2010, the continued use of generics will reduce the overall cost in the PPI class.**

METHODS

The analysis is a retrospective study of 23.2 million CVS Caremark members who had more than 240 million prescription claims. The CVS Caremark computerized, de-identified database was used to study the utilization of PPIs from January 1, 2008, through December 31, 2009. The population identified for the study was a representative sample of members across a variety of plan sponsors, including health plans, managed care organizations, Medicaid, unions, national and local employers, and government agencies located throughout the United States. Only clients with stable membership (±15% change in eligibility in 24 months) and with prescription claims in the entire 24-month study period were included.

Gross cost included discounts, member contributions, and plan sponsor contributions. The manufacturer rebates were excluded. Gross cost per day was determined by the total gross cost divided by the total days supply

Table 1. Select FDA Indications

Indication	Nexium	Prevacid	Prilosec	Protonix	Aciphex
Healing of erosive esophagitis	√	√	√	√	√
Maintenance of healing of erosive esophagitis	√	√	√	√	√
Symptomatic gastroesophageal reflux disease	√	√	√	√	√
Helicobacter pylori eradication in combination with antibiotics	√	√	√		√
Short-term treatment of active gastric ulcer		√	√		
Short-term treatment of active duodenal ulcer		√	√		√
Maintenance of healed duodenal ulcer		√			
Healing of NSAID-associated gastric ulcer		√			
Risk reduction of upper GI bleeding in critically ill patients					
Pathologic hypersecretory conditions including Zollinger-Ellison syndrome		√	√	√	√
Short-term treatment of gastroesophageal reflux disease and healing of erosive esophagitis in patients aged 1-11 years	√	√			

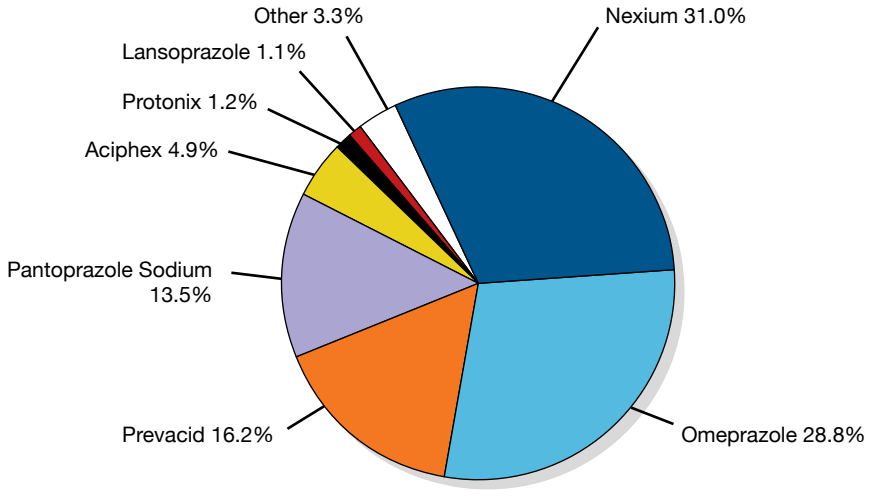
FDA indicates US Food and Drug Administration; GI, gastrointestinal; NSAID, nonsteroidal anti-inflammatory drug.
Source: Reference 3.

for the time frame. The gross PMPM cost was determined by the total gross spending divided by the total member months of eligible plan participants (members). Utilization was based on days supply and number of unadjusted prescriptions PMPM.

MARKET SHARE

The market share for generic Prilosec (omeprazole) and generic Protonix (pantoprazole) combined grew 6.7% to 42.3% year over year (YOY) (**Figure 1**). Omeprazole had the largest market share increase of 4.0%. Over the same period, Nexium, Prevacid, and Aciphex had market share losses of –2.0%, –4.7%, and –0.6%, respectively. Overall, generic drugs gained market share while brand-name drugs declined. In 2010, continued generic substitution and switching is expected to increase the market share of omeprazole, surpassing Nexium as the market leader.

Figure 1. Market Share by Drug (Days Supply) for Period Ending December 2009



Source: CVS Caremark BOB Metrics 2009 Trend Cohort Excluding Medicare Part D (January-December 2008 vs January-December 2009).

DRUG MIX

Generic availability of omeprazole, pantoprazole, and lansoprazole had a profound effect on the PPI drug mix, resulting in an 8.0% increase in the generic dispensing rate (GDR). Throughout 2010, the GDR trend is expected to continue with generic lansoprazole being substituted for more brand-name Prevacid claims and economic pressures continuing to influence spending.

PIPELINE

Zegerid (omeprazole/sodium bicarbonate/magnesium hydroxide) received US Food and Drug Administration approval in early

Table 2. Gross Cost Metrics

Overall Class Costs for PPIs	January 2009–December 2009	January 2008–December 2008	Total $ Change YOY	Total % Change YOY
Gross cost per day	$3.85	$3.91	−0.05	−1.4
Gross cost PMPM	$4.72	$4.70	0.02	0.5
Plan amount paid				
Gross cost per day	$3.31	$3.35	−0.04	−1.1

PMPM indicates per member per month; PPI, proton pump inhibitor; YOY, year over year.
Source: CVS Caremark BOB Metrics 2009 Trend Cohort Excluding Medicare Part D (January-December 2008 vs January-December 2009).

December 2009, and an OTC product was launched in the second quarter of 2010. Other than that, there are no near-term drugs in the generic or brand-name pipeline.

COST

The gross cost per day trend decreased 1.4% for the period due to continued use of generic PPIs such as pantoprazole and omeprazole, which both had YOY cost deflation (**Table 2**). The Prevacid OTC/generic launch in November 2009 also acted to moderate costs, as many brand-name drugs were substituted by generics at approximately 60% of the cost, or shifted to OTC utilization. Nexium's large volumes combined with a gross cost per day of $5.36, which was $3.96 higher than that of omeprazole at $1.40, continued to drive the greatest proportion of class costs (Figure 1 and **Figure 2**). However, the delta should narrow due to continued gross cost per day declines driven by greater generic substitution through 2010.

DAYS SUPPLY

In 2009, generic availability combined with recessionary economic conditions favored lower-cost medication. As a result, all incumbent brand-name drugs in the class had flat growth YOY or a decline in days supply, while several generics demonstrated large gains. A generic version of Prevacid entered the market in late November 2009 and quickly gained a large share of its brand-name counterpart's supply. This trend is expected to continue in 2010, with the majority of the brand-name Prevacid supply being replaced by generic lansoprazole or its OTC equivalent. Pantoprazole sodium had the largest increase in days supply PMPM at 27.5%, followed by omeprazole at 18.4% (**Table 3**). Further, both omeprazole and pantoprazole volumes (days) are expected to increase through 2010 due to overall utilization growth and continued economic pressure.

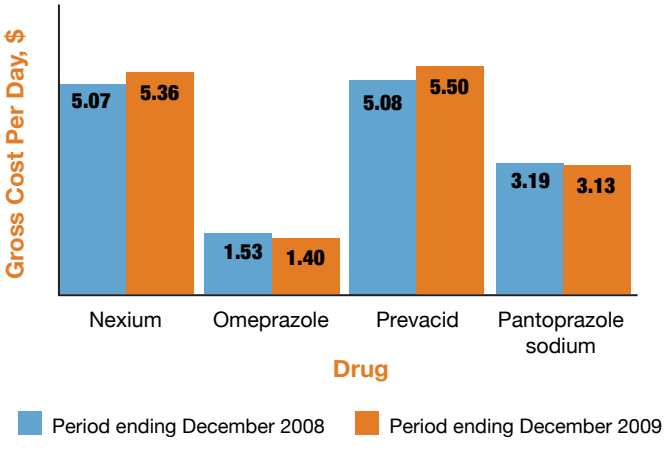
CLAIMS

Generic claims continued to outpace all claims for brand-name claims in the class, experiencing a 23.6% increased PMPM, while brand-name claims declined 11.4% PMPM. Omeprazole (+23.8% PMPM) was the largest contributor to YOY generic prescription volume increases, followed by pantoprazole (+23.1% PMPM; Table 3). The newly approved and released drug Dexilant (formerly named Kapidex) captured a small amount of share and has had month-over-month growth in claims since its release. However, volumes were comparatively low.

ANALYSIS

In 2009, PPIs continued to be the the highest gross cost (PMPM) therapy class due to a high average gross cost per day combined with continued growth in utilization outpacing price erosion caused by generic availability and competition. The class experienced an overall 1.6% gross trend YOY, driven by a 1.9% utilization trend. Increased generic availability and subsequent dispensing

Figure 2. Gross Cost per Day, Ranked by Volume



Source: CVS Caremark BOB Metrics 2009 Trend Cohort Excluding Medicare Part D (January-December 2008 vs January-December 2009).

Table 3. Change in Claims and Days Supply for the 5 Proton Pump Inhibitors With the Highest Gross Costs

		% Change YOY by Drug PMPM	
Rank	Drug Name	Claims	Days
1	Nexium	−6.1	−4.4
2	Pantoprazole sodium	23.1	27.5
3	Omeprazole	23.8	18.4
4	Aciphex	−10.4	−9.0
5	Lansoprazole	—[a]	—[a]
Class total		1.6	1.9

PMPM indicates per member per month; YOY, year over year.
[a]Denotes triple-digit YOY growth figures that may be misleading because of the generic launch.
Source: CVS Caremark BOB Metrics 2009 Trend Cohort Excluding Medicare Part D (January-December 2008 vs January-December 2009).

helped moderate costs as the gross cost per day trend decreased 1.4%. The dramatic growth in generic dispensing and the decrease in the gross cost per day trend are the results of continuing inroads made by generic Prilosec (omeprazole), the introduction of generic Protonix (pantoprazole), and the recent market introduction of generic Prevacid (lansoprazole), resulting in an 8.0% increase in the generic dispensing rate. Claim growth (as opposed to OTC switching) for lansoprazole is attributed to generic availability of specific dosages of the drug that are not available OTC. Generic growth trends are currently outpacing trends for all brands in the PPI category, and these trends are projected to continue throughout 2010.

2010 AND BEYOND

In 2010, the continued use of generics will reduce the overall cost in the PPI class. Consequently, statins (the class with the second-highest gross cost) will likely surpass PPIs as the highest gross cost class in 2010.[4] Nexium volumes may experience claim erosion due to the availability of lower-cost drugs that have a greater number of approved indications.

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