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Extent of Drug Coverage across Generic Drug Discount Programs offered by Community Pharmacies: A look at five Chronic Conditions

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Abstract

Background: Chronic conditions are expensive to treat because of the ongoing prescription cost burden. Generic drug discount programs (GDDPs) that offer generics at discounted price may prove beneficial to reduce pharmacy costs for the same.

Objective: The objective of this study was to assess the extent to which GDDPs provide drug coverage for five common chronic conditions.

Methods: A content analyses of preexisting information was conducted. Extent of coverage based on top 200 generic drugs prescribed during 2008 for the treatment of chronic conditions such as hypertension, mental disorders, arthritis, pulmonary/respiratory conditions, and diabetes were identified. Commonly prescribed medications for these diseases were identified using published peer reviewed clinical guidelines. List of drugs covered under a GDDP for stores, Wal-Mart, Walgreens, CVS, Kroger, HEB, Target, and Randalls were obtained and compared to assess drug coverage by retail dollar sales and sales volume. Descriptive statistics and frequency/percentage of coverage were reported using SAS 9.2.

Results: GDDPs covered the highest number of drugs for hypertension (21-27 across different GDDPs) and the least (3-5 across different GDDPs) for pulmonary/respiratory conditions. Arthritis (5-11), mental disorders (6-11) and diabetes (5-7) had similar coverage. When compared to the top 200 drugs by retail dollars spent during 2008, hypertension (68%-87%) and diabetes (63%-88%) had the highest coverage followed by respiratory conditions (30%-50%), arthritis (22%-48%), and mental disorders (21%-38%). Similar result was obtained when GDDP coverage was compared with the top 200 generic drugs by sales volume, where diabetes (63-88%) and hypertension (57%-74%) had the highest coverage and mental disorders remained the lowest (23%-37%).

Conclusion/Implications: Drug coverage in GDDPs varied by pharmacies across the five common chronic conditions evaluated which may limit accessibility of these programs for uninformed consumers. Drug coverage was higher for diabetes and hypertension compared to mental disorders, arthritis, and pulmonary/respiratory conditions. Innovative strategies such as a national GDDP formulary list or internet-based technological tools to help consumers identify comparative drug coverage may be useful to improve access to these medications.

Introduction

The US healthcare system is by far the most expensive when compared to systems in other industrialized nations.^{1,2} Some of the reasons attributed to this high cost include the rising cost of medical technology, prescription drugs, and high administrative costs.³ Further, the number of the uninsured who cannot afford medications increased by almost 6 million between 2000 and 2004 and by 3.4 million between 2004 and 2006 making the uninsured a significant 18% of the population.^{4,5} Opportunities to address these issues were brought to light with the introduction of Generic Drug Discount Programs (GDDPs) by various pharmacy stores.

In 2006, community pharmacies introduced GDDPs that would provide generics at subsidized rates to patients

irrespective of their insurance status.⁶⁻⁸ It was first launched by Wal-Mart, and currently all major community pharmacies offer the program. Some GDDPs may have a membership requirement where patients fill out a membership application form with their name, contact and insurance information, if applicable, and pay a token application fee.^{6,9} Although the initial intent of these programs was to increase foot traffic to the stores, they could be potentially be useful from patient's perspective.^{10,11} Despite prescription drug expenditures contribute 10.7% to total health care expenditure, patients on average pay more out of pocket to obtain prescription drugs.^{12,13}

The situation is even worse with the uninsured population, who cannot afford these medications. Polls showed that all Americans, both insured and uninsured, are taking advantage of these programs and nearly 70 million Americans have used GDDPs.¹⁴ Of these, 17% of adults and 9% of children are uninsured while 47% of adults and 51% of children have private insurance. The poll also found that adults with heart diseases are more likely to use these programs.¹⁵

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Nonetheless, no scientific literature exists on the extent of drug coverage across GDDPs based on disease condition. This information might be useful for patients having common chronic conditions, as they tend to use more medications for a long period of time.

Seven out of every ten deaths in the country are caused by chronic diseases.¹⁶ Heart disease including hypertension, diabetes, pulmonary/respiratory conditions, mental disorders and arthritis are the five common chronic conditions in America.¹⁶⁻¹⁸ Chronic diseases would impose significant economic burden on the society. Promoting the use of generics has proven to be one of the effective strategies to reduce the economic burden caused by chronic diseases.¹⁹ GDDPs have been hypothesized to be useful in partially relieving the economic burden imposed by chronic conditions.²⁰ Pharmacists have played a leading role in promoting generics in part because the law permits them to substitute a brand medication to a generic equivalent.^{21,22} Thus, the objective of this study was to assess the extent of drug coverage from GDDPs offered by community pharmacy chains in the Houston area for the five common chronic conditions. The study also determined the proportion of drugs covered by these GDDPs that are among the top 200 generic drugs prescribed during the year 2008 for the treatment of the identified chronic conditions.

Methods

This was a cross sectional exploratory study conducted by performing content analyses of existing information. The five common chronic conditions in America were identified using personal health spending, by diagnostic category and medical condition.¹⁶⁻¹⁸ These were hypertension, mental disorders, arthritis, pulmonary/respiratory conditions like asthma and allergic rhinitis, and diabetes. Commonly prescribed medications for these diseases were then identified using peer reviewed clinical guidelines. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC7) published by the National Institute of Health was used to identify recommended medication for hypertension.²³ Recommended drugs for Alzheimer's and associated mental disorders were identified using the practice guideline for the treatment of patients with Alzheimer's disease and other dementias.²⁴ Medication treatments for osteoarthritis were identified using the EULAR Recommendations 2003.²⁵ Two pulmonary/respiratory conditions were studied namely asthma and allergic rhinitis. The Guidelines for the Diagnosis and Management of Asthma and the Guidelines for Clinical Care of Allergic Rhinitis were used to identify drugs recommended for treating asthma and allergic rhinitis, respectively.^{26,27} The Medical Guidelines for the Clinical

Practice for the Management of Diabetes Mellitus published by the American Association of Clinical Endocrinologists were referred to for the treatment of diabetes.²⁸

Community pharmacies operating in Houston that offered GDDPs were identified from the National Association of Chain Drug Stores directory (NACDS), 2009 and the Yellow Pages. A total of seven pharmacies with 100 or more stores that offered GDDPs were identified and included Wal-Mart, Walgreens, CVS, Kroger, HEB, Target and Randalls stores. A GDDP list was obtained from each of these pharmacies and verified by tallying it with the list available on pharmacy website. Data extracted from these lists were drugs or alternative drugs indicated for the previously identified five common chronic diseases and sorted according to indications. The drugs on the GDDP list indicated for each of the five chronic conditions were first compared to the clinical guideline recommendations and then compared to drugs that also appear on the 2008 list of the top 200 generic drugs by retail dollar sales and by sales volume dispensed.^{29,30} Descriptive statistics was used to describe the sample characteristics. Extent of coverage was reported in terms of frequency and percentage. SAS 9.2 was used for all analyses.

Results

A total of seven community pharmacy stores with at least 100 stores in the Houston area offered GDDPs. The characteristics of these pharmacies and their programs in terms of number of stores in the Houston area, total number of drugs covered in their GDDPs, and membership requirements are summarized in Table 1. Although, HEB has the least number of stores in the Houston area, it had the highest number of drugs in its GDDP. Whereas, CVS had highest number of stores in the Houston area but offered the lowest number of drugs in its GDDP. Three out of seven pharmacies require a membership to qualify for their particular GDDP. Walgreens offer its GDDP for the highest cost per prescription, specifically \$9.99 for a 30-day supply and \$12 for a 90-day supply in comparison to other stores that offer supplies for \$4-5 and \$10, respectively.

Table 2 outlines the availability of generics (through 2009 and before) for various classes of drugs used to treat the five common chronic conditions. This information would be useful to highlight the classes where brand only medications were available. In such instances, GDDPs would be of little help, if any. For managing hypertension, virtually all diuretics, angiotensin converting enzyme inhibitors (ACEI), and calcium channel blockers (CCB) on the market during study period had no patent protection and therefore had generic equivalents. Others with 100% generic equivalents included alpha 1 blockers, alpha 2 agonist, direct vasodilators

as well as their combination products. Beta blockers (BBs) had both, brand only as well as generic equivalents. Through 2009 all angiotensin receptor blockers (ARBs) on the market were still under patent and had no generic equivalents. The same was true for combination products containing ARBs. All drugs recommended for treating anxiety and sleep disorder had generic equivalents on the market while all recommended Alzheimer's drugs were brand only with the exception of Galantamine. For schizophrenia, all typical antipsychotics had generic equivalents while the more prescribed atypical antipsychotics were brand only. In the treatment of osteoarthritis, all the recommended drugs for categories were available as generics during the study period except, COX inhibitors (Celecoxib), which was brand only.

Insulins, thiazolidinediones and their combination, other antidiabetic medications such as Pramlintide (Symlin[®]), Exanatide (Byetta[®]), Sitagliptin (Januvia[®]) and their combination products were brand only during the study period. For asthma, long acting beta agonist (LABA), antileukotriene agents and anti-IgE antibody were brand only whereas all recommending short acting beta agonist (SABA); corticosteroids and methylxanthines had generic equivalents. In the case of allergic rhinitis, second generation antihistamine such as Desloratadine (Calrinex[®]) and combination products containing the active ingredients were brand only, while all first generation antihistamine had generic equivalents. Antihistamine with multiple mechanisms of action such as Olapatadine (Pataday[®], Patanol[®]) were brand only while others such as azelastine and ketotifen had generic equivalents.

The number of recommended drugs covered in different GDDPs for treatment of the five common chronic conditions is reported in Table 3. A variation in number of recommended drugs covered was observed depending on the pharmacy chain and the chronic disease. Number of drugs covered for each condition was highest at CVS as compared to other pharmacies for all identified chronic conditions except osteoarthritis for which HEB carried higher number of drugs. Amongst the identified chronic conditions, hypertension has the highest number of drugs covered ranging from 21 – 27 whereas pulmonary/respiratory disorders had the least coverage with only three drugs were covered at five out of the seven pharmacies under study. Coverage across the five chronic diseases was exactly the same in programs offered by Randall's and Target. Table 4 compares the coverage of GDDPs for the five identified chronic conditions with the list of the top 200 generic drugs by retail dollar sales. Diabetes and hypertension were well covered with up to 88% and 87% coverage, respectively, at CVS. On the other hand, mental disorders were not well covered ranging from 21% to 38%

among different pharmacies. Coverage of osteoarthritis drugs varied widely ranging from 5 drugs (22%) offered by Kroger to 11 drugs (48%) at HEB. Table 5 compares the coverage of GDDPs for these five conditions with the list of the top 200 generic drugs by sales volume. Diabetes and hypertension again had high extent of coverage when compared to other identified chronic conditions. Nonetheless, best coverage for hypertension dropped from 87% (compared with top 200 generics by retail dollars) to 74% (compared with top 200 generics by sales volume). Extent of coverage of mental disorders slightly increased (21%-38% by retail dollars vs. 23% - 37% by sales volume).

Discussion

Differences in GDDPs across pharmacies

Consistent with previous literature, the results of the study indicated that the pharmacies varied in number of stores, number of drugs covered in their GDDPs, membership requirements and to a lesser extent in cost/prescription. It was seen that presence of pharmacy stores like CVS and Walgreens in greater Houston area was strong as compared to pharmacies within merchandise/grocery stores (Walmart, Target, Kroger, and HEB). However, pharmacy store programs covered lesser number of drugs as compared to programs offered by merchandise/grocery stores. Since, GDDPs may make medications affordable for uninsured patients who forgo essential medications due to cost; they would be programs of choice for such individuals. More than half (4 pharmacies) of GDDPs examined had no membership fees while the rest have a small fee ranging from a onetime \$5 fee to \$35 per year for the whole family. This is important because GDDPs that have potential to help the poor and uninsured could ultimately discourage participation if high membership fees were imposed.⁶ It should be noted that both pharmacy stores (CVS and Walgreens) had membership fees whereas most of the merchandise/grocery store programs except HEB did not have any membership fee. The cost/prescription was somewhat uniform across most of the pharmacies where 30-days supply was most frequently available at \$4 and 90-days supply at \$9.99. Again, the pharmacy stores had a higher cost/prescription as compared to merchandise/grocery store programs. One reason that could be attributable to differences in pharmacy stores versus merchandise/grocery stores is that these programs could be helpful to attract foot traffic to the merchandise/grocery stores and could offset the cost associated with these programs. As mentioned earlier this was the initial intent for developing these programs.

As reported previously, variation in the list of generic drugs included, days of supply, enrolment requirements, and cost/prescription across pharmacies, may be because these

programs were launched by community pharmacies without any regulation by government.⁶ This can impact the overall decision making of patients creating difficulty in appropriately selecting a particular GDDP over another for drug availability at the lowest possible cost per prescription.

Treatment guidelines and generic availability

There were eight classes of single drugs recommended for the treatment of hypertension, out of which only one class, the angiotensin receptor antagonists (ARBs), had no products with a generic equivalent on the market during the study period. All recommended first line drugs for Alzheimer's were brand only, so were most of the usually prescribed atypical antipsychotics. The implication is that patients on these medications will not derive any benefit from participating in any GDDP. While some of the newer antidepressants like Cymbalta® and Lexapro® were brand only, members have choices of similar drugs such as Venlafaxine (Effexor®) and Citalopram (Celexa®) that were available as generics. Recommended first line drugs for anxiety and sleep disorder were available as generics.

With the exception of COX inhibitors, the recommended drugs for osteoarthritis were available as generics. This is probably the case because most of these medications are also prescribed for other purpose such as pain and inflammation. The two pulmonary/respiratory conditions examined were asthma and allergic rhinitis. These conditions, especially allergic rhinitis is more common at certain times during the year such as the fall season. Several of the drugs needed to treat these conditions are available as generics for easy access and affordability. In addition, most of the first and second-generation anti-histamines are available over-the-counter. Biguanides and sulfonyleurea's, two commonly prescribed first line drugs for type 2 diabetes are available as generics. This is important because more individual have type-2 diabetes. Several other classes of diabetic drugs also had generic equivalent for patients to choose.

Hypertension had the highest number of drugs available in GDDPs among all the chronic diseases examined. This implies that GDDPs could be useful to a huge number of patients because hypertension is one of the most common chronic diseases affecting an estimated 26% of the population.³¹ Mental and pulmonary/respiratory disorders were not well covered. The number of drugs available for diabetes was also low. Biguanides and sulfonyleureas were the only class of drugs for diabetes that were available by GDDPs. Although CVS and Walgreens had least total number of drugs in their GDDPs the number of medications available for identified chronic conditions was high as compared to GDDPs offered by most of the other pharmacies. This indicates that just

because a store advertises that it has more number of drugs on the list does not mean the program may have the highest benefit for all consumers.

Extent of coverage in GDDPs as compared to top 200 generics
Out of all the diabetes drugs that appeared in top 200 generic drugs by retail dollar sales (2008), 63% - 87% were covered by GDDPs offered across different pharmacies. Similarly, hypertension also had a high coverage (68% - 78%). This indicates that the pharmacy chains are responding to members need for affordability of drugs for these two chronic diseases. On the other hand extent of coverage for arthritis, as well as mental and pulmonary disorders is well below 50% indicating the need for better coverage in these areas. GDDP coverage, when compared to the 2008 top 200 generic drugs by sales volume dispensed, was between 63% - 88% of drugs prescribed for diabetes and 57% - 74% of drugs for hypertension. Better coverage for hypertension and diabetes in comparison to top 200 generics both by retail dollars and sales volume indicate the availability of choice for members with these chronic conditions. Coverage of arthritis, mental and pulmonary/respiratory conditions were again below 50%. The lack of coverage for some of these common chronic diseases along with the variability of coverage between GDDPs may limit access for patients that are not well informed. There is a need to address ways in which greater coverage can be encouraged. This could be accomplished by developing a national list for GDDPs by national organizations or self-regulated by the industry.

Results of this study should be viewed in light of the following limitations. Reliance on clinical guidelines when prescribing patterns might not be in accordance with the same may affect our results. Pharmacies may be constantly reviewing their GDDP and the current lists may change in the future to reflect demand. Although pharmacies selected in this study are present across the nation, they maintain strengths that differ by geographical location for strategic reasons and a pharmacy with a large presence in one location may be small or absent in other locations. For these reasons, the results of this study would be reasonable but not completely generalizable.

Problems associated with access and affordability of drugs is ongoing, increase in cost of medication and general health care costs continue to hinder health care delivery. GDDPs could be one way of slowing down cost and increasing access. Thus, future studies looking at factors that limit access to use of GDDPs, impact of GDDPs on cost of medications, and understanding the criteria used to include drugs on GDDPs might be useful. As mentioned earlier, these programs are open to both insured and uninsured consumers and

reportedly substantial proportion of insured consumers use these programs.¹⁴ When an insured consumer fills a prescription using GDDP the claim for that particular prescription is not reported to the insurance company. Future studies are required that evaluate practice characteristics of insured consumers utilizing these programs and resulting impact of such patient behavior on continuum of care.

Conclusion

GDDPs varied by pharmacies across the chronic conditions evaluated, which can limit accessibility of these programs for consumers and lead to discrimination based on where a consumer shops. The number of drugs covered varied across both, the chronic conditions as well as GDDPs offered. This can lead to ignorance and require additional efforts on the patient's end to receive medications at an optimum price. Guidelines should be available to help pharmacy formulate and improve their GDDPs in order to improve and bring consistency in their coverage.

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Table 1: Characteristics of GDDPs^a offered by community pharmacies across the Houston area

Variable	Walgreens	Kroger	CVS	Randalls	Walmart	Target	HEB
Number of stores in Houston	382	291	256	199	197	151	114
Number of drugs in GDDPs ^a	292	383	246	322	339	384	507
Membership charge	\$20 ^b /\$35 ^c	None	\$10 ^b	None	None	None	\$5 ^d
Cost/prescription – 30 days supply	\$9.99	\$4	N/A ^e	\$4	\$4	\$4	\$5
Cost/prescription – 90 days supply	\$12	\$10	\$9.99	N/A ^e	\$10	\$10	\$9.99

^a Generic Drug Discount Programs

^b Individual membership per year

^c Family membership per year

^d One time membership fee for life for a family of 4

^e Store did not offer the program for the specific days supply

Table 2: Availability of generic equivalents for the five common chronic conditions

Class/Disease	Drug Availability ^a	
	Generic	Brand Only
Hypertension		
Diuretics	Yes	No
Beta-Blockers	Yes	Yes
Angiotensin Converting enzyme inhibitors (ACEIs)	Yes	No
Angiotensin II Receptor blockers (ARBs)	No	Yes
Calcium Channel Blockers (CCBs)	Yes	No
Alpha-1-blockers	Yes	No
Alpha-2-agonists	Yes	No
Direct Vasodilators	Yes	No
ACEIs + CCBs	No	Yes
Diuretic + Diuretic	Yes	No
ACEIs + Diuretic	Yes	No
ARBs + Diuretic	No	Yes
BBs + Diuretic	Yes	No
Centrally acting drug + Diuretic	Yes	No
Mental Disorders		
Depression	Yes	Yes
Schizophrenia	Yes (Typical)	No (Atypical)
Alzheimer	Yes	Yes
Anxiety	Yes	No
Sleep disorder	Yes	No
Osteoarthritis		
Acetaminophen	Yes	No
NSAIDs	Yes	No
Coxibs	No	Yes
Corticosteroids	Yes	No
Opioid receptor agonists	Yes	No
Diabetes		
Insulin	No	Yes
Sulfonylureas	Yes	No
Biguanides	Yes	No
Thiazolidinediones	No	Yes
Glinides	Yes	Yes
Alpha-glucosidase inhibitors	Yes	Yes
Combination drugs	Yes	Yes
New Drugs	No	Yes
Pulmonary/Respiratory Conditions – Asthma		
Short acting beta agonist (SABA)	Yes	No
Long acting beta agonist (LABA)	No	Yes
Anticholinergics	Yes	Yes
Antileukotriene agents	No	Yes
Mast cell stabilizers	Yes	Yes
Methylxanthines	Yes	No
Anti-IgE antibody	No	Yes
Corticosteroids	No	Yes
Pulmonary/Respiratory Conditions – Allergic Rhinitis		
Corticosteroids	Yes	No
1 st generation Oral antihistamines	No	Yes
2 nd generation Oral antihistamines	Yes	Yes

Table 2: (continued)

Antileukotriene agents	No	Yes
Mast cell stabilizers	Yes	Yes
Combination products	Yes	Yes
Other antihistamines	Yes	Yes

^a Availability of drugs in each of the two categories, Generic or Brand only. For example, diuretics had all brand name drugs available as generics. Beta-Blockers had some brand name drugs available as generic equivalents and also had some brand only medications, while ARBs had only brand name drugs available and no generic equivalent medications.

Table 3: Number of drugs available in GDDPs^a to treat the five common chronic conditions

Chronic Condition	Number (N) of drugs						
	Walgreens	Krogers	CVS	Randalls	Walmart	Target	HEB
Hypertension	24	21	27	21	21	21	26
Mental Disorders	7	6	11	6	6	6	6
Osteoarthritis	9	5	10	6	7	6	11
Pulmonary/Respiratory Conditions	4	3	5	3	3	3	3
Diabetes	6	5	7	5	5	5	5

^a Generic Drug Discount Programs

Table 4: Comparison of GDDPs^a list to the 2008 top 200 generic drugs by retail dollar sales for pharmacies by chronic conditions

Number (N) and GDDPs Coverage (%) of Top 200 Generic Drugs								
Chronic Condition	Top 200 Drugs	Walgreens	Kroger	CVS	Randalls	Walmart	Target	HEB
Hypertension	31	24(77%)	21(68%)	27(87%)	21(68%)	21(68%)	21(68%)	26(84%)
Mental Disorders	29	7(24%)	6(21%)	11(38%)	6(21%)	6(21%)	6(21%)	6(21%)
Osteoarthritis	23	9(39%)	5(22%)	10(44%)	6(26%)	7(30%)	6(26%)	11(48%)
Pulmonary/Respiratory Conditions	10	4(40%)	3(30%)	5(50%)	3(30%)	3(30%)	3(30%)	3(30%)
Diabetes	8	6(75%)	5(63%)	7(88%)	5(63%)	5(63%)	5(63%)	5(63%)

^a Generic Drug Discount Programs

Table 5: Comparison of GDDPs^a list to the 2008 top 200 generic drugs by sales volume for pharmacies by chronic conditions

Number (N) and GDDPs Coverage (%) of Top 200 Generic Drugs								
Chronic Condition	Top 200 Drugs	Walgreens	Kroger	CVS	Randalls	Walmart	Target	HEB
Hypertension	35	23(66%)	21(60%)	26(74%)	20(57%)	21(60%)	21(60%)	25(71%)
Mental Disorders	35	9(26%)	9(26%)	13(37%)	8(23%)	10(29%)	9(29%)	9(26%)
Osteoarthritis	25	10(40%)	7(28%)	10(40%)	8(32%)	9(36%)	8(32%)	11(44%)
Pulmonary/Respiratory Conditions	11	5(46%)	4(36%)	4(36%)	2(18%)	4(36%)	4(36%)	4(36%)
Diabetes	8	6(75%)	5(63%)	7(88%)	5(63%)	5(63%)	5(63%)	5(63%)

^a Generic Drug Discount Programs