A Comparison of Drug Formularies and the Potential for Cost-Savings

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**Background:** Brand-name drug costs have been escalating in the United States, and the reasons for this are not immediately clear. A lack of adequate and accurate information about drug effectiveness, safety, and cost has implications for drug utilization and cost.

**Objective:** To explore the extent to which health plan formularies were consistent with recommended drug listings and identify what would be the potential cost-savings on total drug expenditures if the utilization rate of the recommended therapies was increased.

**Method:** This study compared publicly available recommended drug listings with the formularies of 8 major health plans in Minnesota. Data from 1 of the health plans underwent an in-depth case analysis to evaluate the potential impact on pharmaceutical expenditures, using increased utilization rate scenarios of the recommended drugs.

**Results:** Health plans were similar with respect to degree of coverage for the recommended drugs. However, the case analysis showed that by increasing the utilization rate of recommended drugs, a potential cost-savings of more than 50% could be realized for the evaluated health plan for some therapeutic categories.

**Conclusion:** This study demonstrates an approach to assessing drug formularies using publicly available, recommended drug lists that incorporated evidence for effectiveness, safety, and cost. By using the application of this type of reliable information, formulary changes can be guided to incentivize value-based utilization for patient populations.

In the United States, brand-name price inflation for prescription drugs has outpaced overall prescription drug price inflation.\(^1\)\(^2\) Although certain forces in the market may account for this situation, this study focused on the lack of adequate and accurate information that is needed in the market to optimize utilization of prescription drugs and mediate costs.

**Lack of Cost Information**

Often, there is a lack of cost-related information on prescription drugs, which is evident from discussions surrounding the contracts between manufacturers and insurers who declare price and rebate information as “proprietary and confidential”\(^3\) when there is a lack of data quantifying added value for new treatment options,\(^4\) or information related to actual acquisition costs for economic research. Evidence has shown that patients, providers, and other decision makers do not know the net cost of prescription drugs.\(^5\)\(^7\) Given this lack of cost-related information, there is growing pressure from a whole system perspective, both public and private, for the healthcare system to take a closer look at costs when considering drug formularies as a strategy to help remedy some of the issues of escalating costs in the market.

**Prescription Drug Utilization and Cost Complexities**

Prescription drug expenditure growth represents a part of the healthcare system that is closely watched. Prescription drug expenditures trends from 2007 to 2008 showed that spending increased by 1.8%—with total spending increasing from $279.6 billion to $284.7 billion.\(^8\) Spending on this segment of healthcare is not immune to external economic forces. The recent decades’ expansion of spending for prescription drugs was projected to continue in 2010 to 4.5%, and continue to rise in the future as a result of the overall improv-
Evidence has shown that patients, providers, and other decision makers do not know the net cost of prescription drugs.

This study compared formulary lists from 8 health plans and drug utilization and cost data from 1 health plan in Minnesota with publicly available drug list recommendations to identify degree of coverage and what would be the potential cost-savings on total drug expenditures if the utilization rate of the recommended drugs increased.

Results showed a high variation among the 8 plans between therapeutic categories for recommended drug coverage.

The plans were similar in coverage of recommended drugs across a single therapeutic category.

Increased coverage of recommended drugs was shown to produce greater potential cost-savings to the health plan.

These findings demonstrate a way to prioritize formulary changes and subsequent prescription utilization for patient populations. Improvement of drug formularies lowers overall prescription drug costs and has the potential to promote a more balanced pharmaceutical market to combat the ongoing rise of prescription drug prices.

KEY POINTS

- Evidence has shown that patients, providers, and other decision makers do not know the net cost of prescription drugs.
- This study compared formulary lists from 8 health plans and drug utilization and cost data from 1 health plan in Minnesota with publicly available drug list recommendations to identify degree of coverage and what would be the potential cost-savings on total drug expenditures if the utilization rate of the recommended drugs increased.
- Results showed a high variation among the 8 plans between therapeutic categories for recommended drug coverage.
- The plans were similar in coverage of recommended drugs across a single therapeutic category.
- Increased coverage of recommended drugs was shown to produce greater potential cost-savings to the health plan.
- These findings demonstrate a way to prioritize formulary changes and subsequent prescription utilization for patient populations. Improvement of drug formularies lowers overall prescription drug costs and has the potential to promote a more balanced pharmaceutical market to combat the ongoing rise of prescription drug prices.

The utilization process that impacts spending on prescriptions is complex. Healthcare providers and consumers are faced with difficult decisions and often competing perspectives that shape the choice of prescription medications. Ideally, these decisions are made based on the best information and evidence that is available to achieve optimal patient outcomes with respect to effectiveness and safety, in addition to cost and value. Given the recent economic downturn, discussions of cost, whether pertaining to cost-effectiveness or out-of-pocket expenditures, are an important component of understanding prescription drug choice and utilization trends.

Cost is not the sole driver for choice of therapeutic products by patients; it is just one factor interwoven into a network of utilization dynamics involving multiple stakeholders. The choice of a prescription drug may be influenced by a variety of coexisting factors inside and outside the healthcare system, including the physician or pharmacist; insurance or health plan; promotional marketing; and public policy. In addition, these decisions are often constrained by a perceived lack of evidence for comparative effectiveness, perceived lack of information about total net cost to the system or to the patient, or perceived lack of transparency with respect to incentives (positive or negative) that influence the formulary status.

One example that demonstrated this lack of information for comparative effectiveness was the creation of a commissioned task force to provide guidance on the use of secondary databases as a way to supplement available clinical trial information on comparative effectiveness of prescription drugs. An example demonstrating a lack of cost information was given by Shrank and colleagues, who reported that prescribers are often not aware of patients’ costs for prescriptions and do not feel responsible for managing these costs.

A different example suggesting the presence of uneven information was discussed in a report from the Pharmacy Benefit Management Institute, which indicated that only about half (52.3%) of surveyed employers perceived the nature of the financial relationship with their pharmacy benefit manager as transparent. All these are examples of how a lack of information is tied to various stakeholders of prescription drug utilization.

Key Research Questions

This lack of information with respect to prescription drug effectiveness, safety, and cost, in combination with the prominent role of managed care in prescription utilization, presents the following study questions:

1. What is the extent of similarity between health plans’ formularies and a recommended drug listing from an outside source?
2. What would be the potential for cost-savings if a drug formulary was modified to be more aligned with these recommended products?

Given these questions, there is a need to critically examine public and private drug benefit programs and related utilization with respect to the potential for cost-savings through the guidance of a recommended drug list. Past research has examined the potential economic benefit of prescription benefit plans increasing utilization of generically available prescriptions. To date, however, no comparable research has examined the current state of health plans or the potential financial impact when drug effectiveness, safety, and cost are used as considerations for a projected formulary change.

To contribute to formulary research that demonstrates the importance of information related to effectiveness, safety, and cost, as well as the potential cost-savings from using approaches that apply these types of information, this study had 3 objectives:

1. To explore the extent to which health plan formularies were consistent with a recommended listing of drugs.
2. To document the extent to which 1 plan's actual drug utilization patterns were consistent with the listing of recommended drugs
3. To identify the potential cost-savings on total drug expenditures from increasing the proportion of recommended drug therapies.

Methods

This study was conducted in 2 parts. Part 1 compared a publicly available listing of recommended drugs against the formularies of 8 major health plans in Minnesota. (The names of the plans are not disclosed for several reasons. First, our goal was not to categorize plans or make judgments as to the individual level of plan prescription coverage but to demonstrate a standardized comparison approach to evaluate prescription drug formularies. Second, formulary information changes frequently and, therefore, may not be an accurate representation of the coverage for the plan at the current time. Third, it was consistent with our Institutional Review Board approval, because confidentiality was to be maintained for the unit of analysis, or in this case, the health plan. Finally, in Minnesota nearly all health plan formularies were publicly available on each of their respective websites.)

Using the findings from Part 1, we included in Part 2 a case study of a self-insured employer’s drug benefit plan to evaluate the potential impact on utilization and expenditures if the use of recommended therapies was increased.

Our study was based on data from publicly available information on safety, effectiveness, and medications cost. This information is referred to in this article as “recommended” drugs or medication reports. The bases for comparison were the specified recommended medication reports.

The recommended medication reports were publicly available online in reports called Best Buy Drugs. Consumer Reports Health Best Buy Drugs is an educational program of Consumers Union. Consumers Union compiled these reports based on other independent sources. The first source consisted of scientific reviews from the Drug Effectiveness Review Project (DERP). DERP is a 13-state initiative, based at Oregon Health & Science University, that compares drugs based on effectiveness and safety for state Medicaid programs and places their reports in the public domain. The second source incorporated was information provided by the Agency for Healthcare Research and Quality. The cost information provided in the reports came from national average prescription prices as would be reflected for cash-paying customers.

These medication reports are divided into therapeutic categories and are updated regularly to reflect changes in brand and generic drug status, emerging evidence, and price. These report profiles designate a choice of which drug(s) within each therapeutic category is to be interpreted as an overall recommended choice when factors of effectiveness, safety, and cost are considered together.

Within each report profile is a list of often-prescribed medications for each therapeutic class, along with dosages, prices, and other pertinent prescribing information (eg, indications or other dosage forms). Each report contains information on all the drugs evaluated and the resulting recommended medication(s). Every therapeutic category contains specific recommended drugs based on effectiveness, safety, and cost. Table 1 provides an overview of the therapeutic drug categories that are included in this study.

Table 1: Profiled Categories for Recommended Drugs

<table>
<thead>
<tr>
<th>Therapeutic/drug category</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE inhibitors</td>
</tr>
<tr>
<td>ADHD</td>
</tr>
<tr>
<td>Alzheimer’s disease</td>
</tr>
<tr>
<td>Antidepressants</td>
</tr>
<tr>
<td>Antihistamines</td>
</tr>
<tr>
<td>Antipsychotics</td>
</tr>
<tr>
<td>Beta-blockers</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
</tr>
<tr>
<td>Diabetes (oral)</td>
</tr>
<tr>
<td>Hormones (estrogenic, for menopause)</td>
</tr>
<tr>
<td>Insomnia</td>
</tr>
<tr>
<td>NSAIDs</td>
</tr>
<tr>
<td>Overactive bladder</td>
</tr>
<tr>
<td>Proton pump inhibitors</td>
</tr>
<tr>
<td>Statins</td>
</tr>
<tr>
<td>Triptans (migraine)</td>
</tr>
</tbody>
</table>

ACE indicates angiotensin-converting enzyme; ADHD, attention-deficit/hyperactivity disorder; NSAIDs, nonsteroidal anti-inflammatory drugs.

Part 1: Data Collection

Part 1 of the study involved compiling a comprehensive medication list for the available drug categories, using the publicly available information for the recommended medication reports. In essence, a new formulary was created based on the recommended medication reports. Each therapeutic category’s list was then supplemented with Medi-Span Price-Check PC data (Medi-Span). The Medi-Span data were used to give complete information for each drug entity in each identified drug category.
Once the recommended information was reconciled with the Medi-Span data, the drug lists were categorized according to all drugs in a therapeutic category, drugs reviewed by the publicly available information reports, and drugs chosen as a recommended drug. In Part 1, we used reports from a publicly available information source and their recommendations and then expanded this information back into a fully populated database of complete medication information for each therapeutic category.

We compared data from the 8 health plan formularies with the recommended drugs within each therapeutic category. Data were summarized by computing the total number of drug entities in the therapeutic category, the number of drug entities covered by each health plan, and the number of recommended drugs covered by each health plan. For each health plan, we calculated the percentage of covered drugs that are recommended drugs based on the total number of drug entities covered.

The health plans evaluated for Part 1 covered lives through private employee-based sponsorship, as well as public programs; therefore, a mix of public and private sponsorship was represented. Exceptions, or special requirements for plan coverage, were noted whenever the information was available for each of the 8 health plans. All data used in Part 1 were obtained during calendar year 2007.

**Part 2: Case Analysis**

In Part 2 we used an in-depth case analysis of cost and utilization information for 1 of the 8 health plans. This was a private, employer-sponsored plan. In addition, in this part of the study we evaluated potential cost-savings that could theoretically be obtained if drug utilization aligned with the recommended medications reports. For this potential cost-savings we used 2 different summative and percentage calculation strategies to illustrate possible scenarios.

For Part 2, detailed data were obtained from a major employer (with 36,924 covered lives) for calendar year 2007, which was 1 of the 8 evaluated health plans evaluated in Part 1. The National Drug Code level drug data were matched to the list of recommended drug(s) within each of the therapeutic categories. As in Part 1, drug description data were used from Medi-Span’s Price-Chek PC to facilitate the matching of recommended drugs with the actual drug utilization data for this health plan.

Next, the share of prescription volume (measured as days of therapy) filled with recommended drugs was determined. The actual amount of total drug expenditures (ie, plan and member cost) for these prescriptions was determined. The actual cost of recommended drugs was then identified, using the same 2007 employer data.

Total drug expenditures were projected, assuming that 100% or 85% of prescriptions were filled with recommended drugs at the actual reported cost rather than with the actual drugs used at their actual cost. The differences in total drug expenditures using the employer’s actual data were compared with projected drug expenditures using publicly available recommended drugs to find the potential cost-savings.

Theoretically, one could use the recommended drug for 100% of the prescriptions filled by a given drug benefit plan. However, as most clinicians realize, there are times when the first-line recommended drug may not be the best drug for a given patient. Assuming that the first-line preferred drug is appropriate 85% of the time, and that other drugs are appropriate 15% of the time, we used an 85% recommended drug rate to provide a more realistic estimate of the cost impact from using recommended drugs.

**Results**

Data used in Part 1 of this study described the extent to which the 8 health plan formularies were consistent with recommended drugs. Data for this comparison were summarized by computing total medication coverage in each therapeutic category and recommended drug coverage. These data were translated into percentages for interpretation, giving a percentage of recommended coverage. These percentages were calculated using the number of recommended drugs divided by the total number of medications in each health plan for each therapeutic category.

Part 1 of the analysis is summarized in Figure 1. Results show the cumulative percentages of recommended drugs covered by each health plan (identified as A-H). Across all health plans, cumulative totals were similar. In contrast, a high variation is seen between therapeutic categories for recommended drug coverage. For example, recommended drugs in the triptan and statin categories had greater recommended drug coverage (ranges, 54%-100% and 29%-61%, respectively) compared with oral diabetic or antipsychotic medications (ranges, 22%-38% and 19%-38%, respectively).

However, health plans were similar in recommended drug coverage across a single therapeutic category. For example, oral diabetic medications had a 22% to 38% recommended drug coverage range across all health plans. Antidepressant medications ranged from 8% to 12% across all plans.

In sum, the study objective of measuring consistency between health plan formularies and recommended drug listings showed that some drug categories had greater consistency with the recommended drugs. Health plans
Figure 1: Cumulative Percentage of Recommended Therapeutic/Drug Coverage, by Health Plan (A-H)

NOTE: Percentage calculated as number of recommended drugs covered divided by total number of drugs in each health plan (A-H) for each therapeutic/drug category. Maximum cumulative percent would be 100% x 16 = 1600%. Several plans did not cover any recommended drugs in some categories.

ACE indicates angiotensin-converting enzyme inhibitors; ADEP, antidepressants; ADHD, attention-deficit/hyperactivity disorder; AHIST, antihistamines; ALZH, Alzheimer’s disease; APSY, antipsychotics; BB, beta-blockers; CCB, calcium channel blockers; DIAB, diabetes; HORM, hormones; INSOM, insomnia; NSAIDs, nonsteroidal anti-inflammatory drugs; OVBL, overactive bladder; PPI, proton pump inhibitors; STAT, statins; TRIP, triptans.
were largely consistent with one another in terms of percentages of recommended drug coverage.

Part 2 of the analysis determined the extent of consistency between the recommended drugs and the utilization data from 1 of the 8 health plans. Recommended drugs accounted for an average of 39% of the days of therapy used by the drug plan in 2007. The recommended drug share by days of therapy ranged from a low of 6% (antihistamines) to a high of 89% (Alzheimer’s disease drugs) across the categories studied.

Cost-savings could have been realized in 13 of the 16 categories through increased use of the recommended drugs. The overall savings from the use of recommended drugs for 100% of prescriptions would have resulted in a 52% savings in total drug expenditures. The use of recommended drugs for 85% of prescriptions would have produced a 41% savings across the therapeutic categories.

Figure 2, Table 2, and Table 3 show cost summary and potential cost-savings information. In Figure 2, only categories with cost-savings are shown. Of the 16 categories evaluated, 12 displayed a potential for cost-savings in the 85% recommended drug utilization scenarios (Figure 2 and Table 3). Table 3 displays cost-savings as a
<table>
<thead>
<tr>
<th>Therapeutic/drug category</th>
<th>Total Rx actual, N&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total actual, $&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Total cost/day, $&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Total cost/day recommended, $&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Total cost savings if 85% recommended utilization, $&lt;sup&gt;e&lt;/sup&gt;</th>
<th>Total cost savings if 100% recommended utilization, $&lt;sup&gt;f&lt;/sup&gt;</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antidepressants</td>
<td>35,557</td>
<td>3,036,771</td>
<td>2.14</td>
<td>0.26</td>
<td>2,141,476</td>
<td>2,647,926</td>
<td>High utilization, cost, and potential savings</td>
</tr>
<tr>
<td>Statins</td>
<td>20,558</td>
<td>2,270,344</td>
<td>2.22</td>
<td>1.66</td>
<td>374,715</td>
<td>523,061</td>
<td>High utilization, cost, and potential savings</td>
</tr>
<tr>
<td>Proton pump inhibitors</td>
<td>12,266</td>
<td>1,699,654</td>
<td>3.37</td>
<td>0.78</td>
<td>1,087,613</td>
<td>1,310,724</td>
<td>High utilization, cost, and potential savings</td>
</tr>
<tr>
<td>Migraine</td>
<td>3051</td>
<td>878,125</td>
<td>16.98</td>
<td>17.42</td>
<td>(8491 cost increase)</td>
<td>(34,335 cost increase)</td>
<td>Older drugs not as safe Recommended drugs have higher cost</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>3153</td>
<td>787,230</td>
<td>8.38</td>
<td>11.12</td>
<td>(213,901 cost increase)</td>
<td>(264,456 cost increase)</td>
<td>Older drugs not as safe Recommended drugs have higher cost</td>
</tr>
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<td>Antihistamines</td>
<td>9228</td>
<td>712,542</td>
<td>1.98</td>
<td>0.15</td>
<td>552,431</td>
<td>657,646</td>
<td>High utilization, cost, and potential savings</td>
</tr>
<tr>
<td>ADHD</td>
<td>4770</td>
<td>644,265</td>
<td>3.87</td>
<td>1.39</td>
<td>327,413</td>
<td>403,882</td>
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<tr>
<td>Diabetes, oral</td>
<td>7758</td>
<td>430,032</td>
<td>1.28</td>
<td>0.42</td>
<td>170,371</td>
<td>287,873</td>
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<tr>
<td>Insomnia (after generic Ambien)</td>
<td>7662</td>
<td>421,314</td>
<td>2.11</td>
<td>0.42</td>
<td>271,680</td>
<td>333,921</td>
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<tr>
<td>Hormones (estrogenic)</td>
<td>5045</td>
<td>320,905</td>
<td>1.16</td>
<td>0.52</td>
<td>143,271</td>
<td>182,465</td>
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<tr>
<td>Calcium channel blockers</td>
<td>4912</td>
<td>313,571</td>
<td>1.39</td>
<td>1.25</td>
<td>16,548</td>
<td>35,682</td>
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<tr>
<td>Beta-blockers</td>
<td>11,996</td>
<td>275,179</td>
<td>0.47</td>
<td>0.35</td>
<td>14,905</td>
<td>71,777</td>
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<tr>
<td>NSAIDs</td>
<td>5731</td>
<td>216,269</td>
<td>1.33</td>
<td>0.25</td>
<td>125,808</td>
<td>182,839</td>
<td></td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>11,872</td>
<td>201,406</td>
<td>0.35</td>
<td>0.21</td>
<td>55,177</td>
<td>77,989</td>
<td></td>
</tr>
<tr>
<td>Overactive bladder</td>
<td>997</td>
<td>96,124</td>
<td>2.66</td>
<td>3.49</td>
<td>(28,295 cost increase)</td>
<td>(36,683 cost increase)</td>
<td>Older drugs not as safe Recommended drugs have higher cost</td>
</tr>
<tr>
<td>Alzheimer's disease</td>
<td>81</td>
<td>20,084</td>
<td>6.05</td>
<td>5.71</td>
<td>(1823 cost increase)</td>
<td>1778</td>
<td>Mixed results, savings only demonstrated at 100%</td>
</tr>
<tr>
<td>Totals</td>
<td>145,856</td>
<td>12,510,561</td>
<td>3.49</td>
<td>2.79</td>
<td>5,101,464</td>
<td>6,472,948</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Total prescriptions filled during calendar year 2007.
<sup>b</sup>Total actual cost associated with filled prescriptions; cost calculations based on sum of actual ingredient cost to the health plan, dispensing fee charged by the pharmacy, and any taxes incurred by the sale.
<sup>c</sup>Total cost per day of therapy calculated based on a typical 30-day supply at the most common dosage and used the same cost calculation as “total cost actual.”
<sup>d</sup>Total cost per day of therapy of the recommended medication; if >1 drug was specified as recommended, the less expensive option is represented.
<sup>e</sup>Total cost savings if utilization was shifted to 85% of all prescriptions in the therapeutic category were written for recommended drug. Calculations made based on determining the total number of prescriptions for 85% of all prescriptions and multiplying the actual cost, then subtracting the actual cost of 85% utilization from the total actual cost.
<sup>f</sup>Total cost savings if utilization was shifted to 100% and all prescriptions were for recommended drugs.

ACE indicates angiotensin-converting enzyme; ADHD, attention-deficit/hyperactivity disorder; NSAIDs, nonsteroidal anti-inflammatory drugs.
percentage of dollars potentially saved if utilization were shifted to either 85% or 100% of the recommended drug use. In addition, Table 2 shows the therapeutic categories (highlighted) with highest overall utilization and the highest potential cost-savings from increased use of recommended drugs. Antidepressants had the highest overall potential cost-savings—71% (Table 3).

**Discussion**

The relatively high cost differential ($2.14 vs $0.26) seen between nonrecommended and recommended antidepressant drugs makes potential cost-savings substantial ($2,647,926/yr) if all (100%) plan members were to switch to a recommended antidepressant medication. For statins, potential cost-savings were not as high ($523,061/yr). Potential cost-savings for proton pump inhibitors were similar to those of antidepressants, showing a large differential in average cost of therapy for nonrecommended and recommended drugs ($3.37 vs $0.78). This, compounded by the high utilization (12,266 total prescriptions in 2007), yielded a large potential cost-savings of $1,310,724 annually.

Antihistamines had a lower utilization than the previous 3 categories mentioned (9228 total prescriptions in 2007); however, because of the very low daily cost for over-the-counter loratadine ($0.15/day), the potential cost-savings still topped a half million ($657,646).

Some data in Table 2 show the opposite outcome—increased cost from increasing use of recommended drugs. A switch to the recommended drug could actually increase health plan spending in these categories if 100% (or even 85%) of the patients were switched. For example, if 100% of the prescriptions were preferred medications, it would cost the health plan $34,335, $264,456, and $36,683 more for migraine, antipsychotic, and overactive bladder medications, respectively. These results are also represented as percentages in Table 3.

The reason for these findings was that all these categories contained older generic therapeutic agents that may be less effective (regardless of their lower cost), or have an increased number of potential side effects compared with the newer, often branded, products.

The cost if 85% of drugs were prescribed as recommended was considered in Figure 2 and Tables 2 and 3, because this was seen as a more realistic portrayal of the actual potential cost-savings in place of the cost if 100% of drugs were prescribed as recommended.

Some therapeutic categories have the potential for high patient variability; therefore, the preferred drug may not be the most optimal therapeutic choice. For example, with the antidepressant medications, patients are often switched several times before finding an efficacious option and then maintaining it for the long-term. Overall, however, the trend for the cost if 85% of drugs were prescribed as recommended closely follows that of cost if 100% of drugs were prescribed as recommended, in that there is still potential for cost-savings when using the 85% scenario for most therapeutic categories.

To summarize Part 2, using 1 major health plan as a case study, overall results showed that using recommended drug information as an approach for a prescription drug benefit could reduce costs by more than 50% for some therapeutic categories (eg, antihistamines, 78%; antidepressants, 71%; insomnia, 65%; proton pump inhibitors, 64%; nonsteroidal anti-

### Table 3

<table>
<thead>
<tr>
<th>Therapeutic/drug category</th>
<th>85% Recommended filled, %</th>
<th>100% Recommended filled, %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Categories with potential for cost-savings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antidepressants</td>
<td>70.5</td>
<td>87.2</td>
</tr>
<tr>
<td>Statins</td>
<td>16.5</td>
<td>23.0</td>
</tr>
<tr>
<td>Proton pump inhibitors</td>
<td>64.0</td>
<td>77.1</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>5.4</td>
<td>12.3</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>27.4</td>
<td>31.2</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>77.5</td>
<td>92.3</td>
</tr>
<tr>
<td>Diabetes, oral</td>
<td>39.6</td>
<td>66.9</td>
</tr>
<tr>
<td>Insomnia</td>
<td>64.5</td>
<td>79.3</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>58.2</td>
<td>84.5</td>
</tr>
<tr>
<td>Hormones (estrogenic)</td>
<td>44.6</td>
<td>56.9</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>5.3</td>
<td>11.4</td>
</tr>
<tr>
<td>ADHD</td>
<td>50.8</td>
<td>62.7</td>
</tr>
<tr>
<td><strong>Categories without potential for cost-savings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migraine</td>
<td>-1.0</td>
<td>-3.9</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>-27.2</td>
<td>-33.6</td>
</tr>
<tr>
<td>Overactive bladder</td>
<td>-29.4</td>
<td>-38.2</td>
</tr>
<tr>
<td>Alzheimer's disease</td>
<td>-9.1</td>
<td>8.9</td>
</tr>
<tr>
<td><strong>Total potential cost-savings</strong></td>
<td>40.8</td>
<td>51.7</td>
</tr>
</tbody>
</table>

*Total potential cost-savings was calculated from the sum total cost of all evaluated categories (including those that did not have a potential cost-savings) divided by the sum total of the cost if 85% or 100% of prescriptions were filled with recommended drugs. ACE indicates angiotensin-converting enzyme; ADHD, attention-deficit/hyperactivity disorder; NSAIDs, nonsteroidal anti-inflammatory drugs.
Drug Formularies and the Potential for Cost-Savings

Limitations

This study had several limitations. Only 8 health plans in Minnesota were evaluated, and only 1 of the 8 plans was evaluated in Part 2 of the study. The study only used Best Buy Drugs® as the basis for the recommended drug used for comparison. This list could be challenged as having its own set of limitations, or perhaps as not being the optimal basis for comparison.

In addition, for this study, we assumed that formulary stakeholders are not influenced by competing incentives (eg, manufacturer rebates). We also assumed that out-of-pocket incentives for patients are not relevant for the comparison.

Finally, the prescription drug market is a rapidly changing environment with changes in patent status, the number of generic manufacturers, and the ever-increasing number of available treatments, strengths, and dosage forms. Considering the fluid nature of this market, this study represents a cross-sectional view that may not reflect the current drug market.

Conclusions

As prices for prescription drugs continue to rise, there remains a lack of information to stakeholders—particularly cost information. This lack of information was described as one issue creating the potential for inefficiencies in the market. Using a comparison of 8 major health plans and 1 case study of utilization information showed that certain therapeutic drug categories have a large potential for projected cost-savings. By using a recommended drug list for modifying drug formularies, health plans could reduce their costs by nearly 41% if 85% of prescriptions were shifted to recommended drugs, or nearly 52% if 100% of all prescriptions were shifted to recommended drugs.

This study demonstrates an approach to assessing drug formularies using a publicly available, online resource for recommended prescription drug information, based on effectiveness, safety, and cost. Stakeholders involved in drug formularies may benefit from using this type of information with respect to effectiveness, safety, and cost to determine ways to improve outcomes and decrease costs. Aligning formularies with the best available information may slow the rise of costs associated with the use of medications.

The findings presented here are important to the drug formulary literature, because they demonstrate an application of reliable, recommended drug information based on effectiveness, safety, and cost as a way to prioritize formulary changes and subsequent prescription utilization for patient populations. Not only could the improvement of drug formularies lower overall prescription drug costs, it also has the potential to promote a more balanced pharmaceutical market to combat the ongoing rise of prescription drug prices.

Acknowledgment

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Disclosure Statement

Dr Schommer is currently Principal Investigator for a graduate student traineeship (a position held by 1 of his graduate students for 1 academic year), Novartis Pharmaceuticals, but had no affiliation with this company at the time this research was conducted; Dr Yuan is an employee of IMS Health; Dr Kjos has nothing to disclose.

References


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inflammatory drugs, 58%; Table 3). However, although not all categories displayed a potential for cost-savings, an overall total potential cost-savings was calculated as a percentage from the sum total cost of all evaluated categories, including those without a potential cost-savings, divided by the total of the cost if 85% or 100% of prescriptions were filled with recommended drugs. This overall potential cost-savings was 40.8% if all 16 drug categories were switched to 85% of recommended drugs and 51.7% if all 16 drug categories were switched to 100% recommended drugs.

holders involved in drug formularies may benefit from drug formularies using a publicly available, online drugs, or nearly 52% if all prescriptions were filled with recommended drugs. 85% of prescriptions were shifted to recommended drugs, and 51.7%% if all 16 drug categories were switched to 100% recommended drugs.

STAKEHOLDER PERSPECTIVE

Aligning Stakeholders Can Maximize the Opportunity for Cost-Savings on Drugs

**PAYERS:** Depending on their line of business, healthcare payers are constantly tasked with administering a comprehensive and quality-based pharmacy benefit under the constraints of a budgeted portion of either a premium (commercial and Medicare plans) or capitation (Medicaid or state-sponsored plans).

Although the goal should be to maximize utilization from a preferred formulary or a recommended drug list, incentives that are not aligned with adherence to these preferred agents lead to missed opportunities for cost-savings, increased cost-shifting to employers and beneficiaries/members, and inefficiencies within the healthcare system.

The authors of this new study/article demonstrate that (1) utilization of medications from preferred formularies or recommended drug lists are not currently maximized by health plans, and (2) opportunities for cost-savings are available; the challenge, however, is to align all stakeholders to maximize the opportunity for savings.

The monies realized through greater adherence to a preferred formulary could potentially reduce premiums to employer groups, improve provider reimbursement, and broaden network access and mitigate cost-sharing through member copays, coinsurance, and member premium contribution.

The challenges to payers lie in the identification of true prescription cost and benefit design preference, and then relaying that information in a meaningful way to network prescribers and members/beneficiaries, along with a message explaining how they can personally benefit from greater adoption of these tools, through things such as greater reimbursement or lower copays/premimums.

**PATIENTS/MEMBERS:** Medical benefit cost trends continue to escalate, and the prescription component of a comprehensive medical coverage is not exempt from this phenomenon. In the attempt to offer a viable and affordable benefit plan to employer groups, health plans continue to cost-shift the rising expense trends to end-user members/beneficiaries, by means of increased deductibles, increasing patient copays/coinsurance, and premium-sharing.

The level of a beneficiary’s contribution has risen to the point where patient adherence drops off when members can no longer afford to bear “their” share under their current benefit design for drug coverage. If members/patients could better appreciate how their alignment with preferred benefits—especially regarding pharmaceuticals and a preferred drug list—could reduce their coverage expense and mitigate, perhaps even reduce, some of their cost-sharing obligation, we would most likely see increased adoption of preferred products and lesser influence by outside factors, be it direct-to-consumer pharmaceutical companies’ campaigns or direct-to-prescriber programs.

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