

Program Outcomes

Evaluating, Measuring, and Identifying
Patient Care Benefits and Cost Reduction

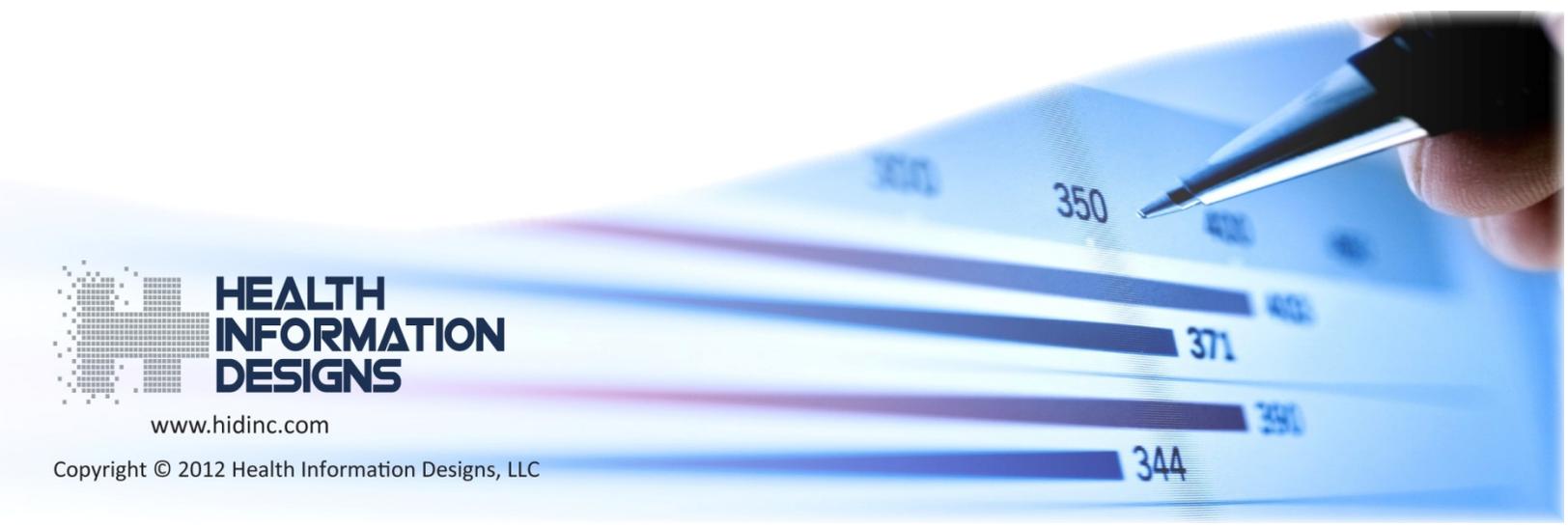
Kansas Medical Assistance Programs Retrospective Drug Utilization Review Provider Education and Intervention Program

Appropriate ADHD Treatment Mailed March 2011

Prepared by Health Information Designs
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Executive Summary

This *Outcomes Assessment* report prepared for the Kansas Medical Assistance Programs shows the expected improvements in beneficiary health and cost savings from using retrospective drug utilization review and provider education to effect appropriate prescribing and utilization and, in turn, prevent adverse drug reactions and reduce costs in a targeted beneficiary population.

Program Summary

Medications used to treat attention deficit hyperactivity disorder (ADHD) may have significant side effects and may exacerbate comorbid disease states. The exacerbation of comorbid disease states increases health care costs due to increased need for other drug therapies and hospitalizations. In an effort to improve clinical outcomes and reduce drug expenditures as well as related health care costs, Kansas Medical Assistance Programs beneficiaries found to have inappropriate utilization or prescribing of ADHD treatments were identified, and educational intervention letters were mailed to their prescribers in March 2011. The selected beneficiaries were then evaluated 6 months after the prescriber letters were mailed to determine the impact of the intervention letters.

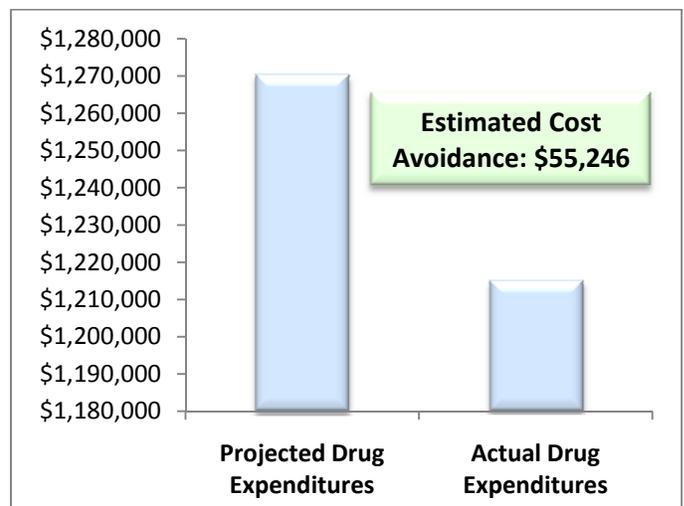
Changes in Criteria Exceptions

At the 6-month evaluation post intervention, appropriate utilization was significantly improved in the target population. Six months after letters were mailed to the prescribers, 415 of the original 554 beneficiaries had at least one claim for any drug and could be evaluated. **Of those remaining 415 beneficiaries, 54.5% of those who were previously using ADHD therapies inappropriately were no longer found to be using inappropriate ADHD therapy.** Based on improved utilization, it is clinically probable that serious adverse outcomes—such as adverse drug events—were avoided, and overall drug utilization was significantly reduced.

PRE-Intervention (March 2011)	POST-Intervention (September 2011)		
Beneficiaries with Letter Mailed to Prescriber	Beneficiaries with Any Drug Claim	Beneficiaries with Same Criteria Exception	% Decrease in Criteria Exceptions
554	415	189	54.5%

Cost Avoidance for Kansas Medical Assistance Programs

Actual drug expenditures for the post intervention period were compared to projected drug expenditures. For the 6-month post-intervention period, actual drug expenditures for the intervention population were \$1,215,180 compared to the projected cost of \$1,270,426, **an estimated cost avoidance of \$55,246 for the 6 months following the mailing of intervention letters.**



Background

Health Information Designs (HID), in coordination with HP Enterprise Services (HPES), currently performs retrospective drug utilization review (RetroDUR) for Kansas Medical Assistance Programs' fee-for-service population. The total number of unique beneficiaries enrolled in the traditional Medicaid fee-for-service population in State Fiscal Year (SFY) 2011 (July 1, 2010 – June 30, 2011) was 292,522, with an average of 158,846 beneficiaries per month. Prescription claims for approximately 51,000 beneficiaries were processed each month in SFY 2011.

The treatment of ADHD with stimulant medications is a challenge faced by providers. This can be further complicated when patients have comorbid disease states, such as bipolar disorder, substance use disorder (SUD), or anxiety, which may be aggravated with the use of stimulants.

According to the CDC data on parent-reported ADHD Prevalence from 2007, nationally 9.5% of all children 4-17 years of age— and in Kansas 10% of all children 4-17 years of age—have been diagnosed with ADHD. Nationally the highest rates of parent-reported ADHD diagnoses were noted among children covered by Medicaid and multiracial children¹. The prevalence of ADHD is significant for Kansas Medical Assistance Programs for multiple reasons; one being that the program is precluded by state statute to manage medications for mental health indications, including treatments for ADHD. Another reason the prevalence of ADHD is significant in Kansas is because much of the state does not have regular access to health care providers that specialize in mental health, especially in children. Since Kansas Medical Assistance Programs are unable to restrict these medications, dissemination of treatment guidelines and relevant information to providers is one of the only strategies available.

Beneficiary Identification and Prescriber Intervention

In an effort to promote appropriate prescribing and utilization of ADHD treatments, HID identified beneficiaries with inappropriate ADHD treatment and mailed educational letters to their prescribers. When more than one prescriber was attributed to pertinent claims on a patient profile, letters were mailed to all relevant prescribers. Informing prescribers of a patients' complete drug and diagnosis history, including medications prescribed by other providers, may reduce duplicate prescribing of medications and reduce the potential for abuse or diversion of medications.

While the intervention letter itself only addressed inappropriate ADHD treatment, HID included a patient profile with up to two additional alert messages regarding drug therapy issues and a 6-month history of drug claims and diagnoses along with the letter. Prescribers had the opportunity to review the entire beneficiary drug and diagnosis history, including medications prescribed by other providers, and make changes to therapies based upon this information. For this reason, whenever intervention letters are sent to prescribers, the impact on total drug utilization should be measured. Therefore, total drug utilization in the targeted population was evaluated for 6 months before and after intervention letters were mailed to determine any change in drug cost.

¹ CDC. *Increasing Prevalence of Parent-Reported Attention Deficit Hyperactivity Disorder among Children --- United States, 2003 and 2007*. MMWR 2010; 59(44);1439-1443

Analysis Methodology

Each month HID evaluates Kansas Medical Assistance Programs pharmacy claims data against thousands of proprietary criteria. The criteria are developed and maintained by HID clinical pharmacists who review package insert updates as well as medical literature to develop the criteria.

Criteria Evaluated

The following criteria were reviewed for the intervention letters mailed in March 2011.

High Dose Alerts:

- Stimulants are being used above the manufacturers' recommended daily dose.

Therapeutic Appropriateness:

- The manufacturer does not recommend using dexamethylphenidate in patients less than 6 years of age.
- Sleep disturbances are common in patients with ADHD, stimulant therapy may exacerbate or directly cause sleep disturbances.
- The patient has a diagnosis of substance use disorder (SUD) and is receiving immediate-release stimulant medication. Treatment recommendations for patients with the dual diagnosis of ADHD and SUD suggest that ADHD be treated with non-stimulant agents, extended-release stimulants or transdermal stimulant formulations to reduce the potential for misuse, abuse and diversion.
- Amphetamines are not recommended for children under 3 years of age.

Drug-Disease Precaution:

- Stimulants are contraindicated in patients with marked anxiety, agitation and tension since the drugs may aggravate these symptoms.
- Care should be taken when using stimulants to treat ADHD patients with comorbid bipolar disorder because of concern for possible induction of a mixed/manic episode in such patients.

Therapeutic Duplication:

- Therapeutic duplication of immediate-release stimulants may be occurring.
- Therapeutic duplication of long-acting stimulants may be occurring.

Beneficiary Selection

A total of 1,032 beneficiaries met the criteria for inappropriate ADHD treatment. The drug history profile for each beneficiary was reviewed by a clinical pharmacist to determine if the beneficiary should be selected for intervention. Beneficiaries were not selected for intervention after profile review for multiple reasons, including the following:

- A recent change from the same prescriber
- A recent change to stimulant therapy from the same prescriber
- Multiple strengths of a medication from the same prescriber

After beneficiaries were selected for intervention, educational intervention letters—along with a complete drug and diagnosis history profile listing all pharmacy and available diagnosis claims data for the past 6 months—were mailed to the appropriate prescribers. (Prior to mailing, generated letters undergo a quality assurance (QA) process. Some letters are not mailed due to various reasons, including missing or invalid prescriber addresses.)

Beneficiaries Reviewed	Beneficiaries Selected for Intervention	Beneficiaries Actually Intervened	Letters Generated	Letters Deleted in QA process	Letters Mailed
1,032	609	554	637	59	578

Once a beneficiary was selected for intervention, the criteria were suppressed by the DUR system for that beneficiary for 6 months.

Prescriber Response Tabulation

The intervention letter and drug history profile included a response form, which allowed the prescriber to provide feedback and enabled HID to determine whether any action would be taken in response to the letter. The response form includes standard responses printed on the form that allow the prescriber to check a box for the response that best fits their intended action as well as space for written in comments from the prescriber.

The prescribers were encouraged to return the response forms using the self-addressed stamped envelope included with the intervention letter or via fax. HID tracked all response forms returned as well as all written-in comments from prescribers for evaluation. See the [Results](#) section for these numbers.

Evaluation of Changes in Criteria Exceptions

In an effort to determine the impact of the intervention letters independent of prescriber responses, beneficiary claims were evaluated 6 months after letters were mailed. Since the letters were mailed in March 2011, the 6-month follow up was performed in September 2011. HID first determined how many of the initially-selected beneficiaries continued to have Medicaid benefits and still had active eligibility by determining how many had any claim for any drug in September 2011. Following that, HID determined who still met the same criteria for inappropriate ADHD therapy in September 2011. See the [Results](#) section for these numbers.

Estimated Cost Avoidance and Changes in Drug Utilization

To determine the impact of the intervention letters on overall drug expenditures, total drug utilization (claims for all drugs) in the targeted population was evaluated 6 months before and 6 months after intervention letters were mailed. For those beneficiaries selected for intervention in March 2011, HID determined the total drug expenditures for October 2010 – March 2011 (pre-intervention period) and April 2011 – September 2011 (post-intervention period). HID then compared drug expenditures and utilization in the targeted population for the pre- and post-intervention time frames with a comparison group to determine the estimated impact of the intervention letters.

The comparison group consisted of fee-for-service beneficiaries who were identified using the same criteria, but whose prescribers did not receive an intervention letter because they did not hit the intervention criteria in the same month that intervention letters were mailed.

For a beneficiary to be included in the analysis for either the intervention or comparison groups, he or she had to have at least one claim for any drug in the month at the beginning of the pre-intervention period (October 2010) and the month at the end of the post-intervention period (September 2011).

Estimated cost avoidance and projected drug expenditures were determined for the intervention group by using the percent change from pre-to post-intervention in both groups, using the following equations:

Estimated Cost Avoidance = Intervention Group Pre-Intervention Cost X ((% Change Comparison Group - % Change Intervention Group)/100)

Projected Drug Expenditures = Estimated Cost Avoidance + Post-Intervention Drug Expenditures

The same equations were used to determine the estimated claims avoided. See the [Results](#) section for changes in drug utilization and expenditures.

Limitations

One limitation resulted from the fact that no eligibility data was available to determine whether beneficiaries continued to be eligible for Medicaid for the full 6 months before and after intervention letters were mailed. Therefore, as a means to test for Medicaid eligibility when calculating cost avoidance, HID determined how many beneficiaries had any claim for any drug during the first month of the pre-intervention period and the last month of the post-intervention period. Those beneficiaries who did not have claims in both months were not included in the follow up analysis. It is possible that some patients may have been excluded from the follow up analysis that continued to have Medicaid eligibility but had no recent pharmacy claims.

A similar eligibility process was applied to the changes in criteria exceptions. Since the change in criteria exceptions only dealt with the month the letter was mailed and 6 months after the letter was mailed, drug claims during the month coinciding with the 6-month follow up were examined to determine eligibility.

The reduction in drug utilization and expenditures could be effected by multiple factors; it would be impossible to attribute the changes in utilization and expenditures to one thing—including the intervention letters. The comparison group is used to evaluate these factors, as many of them affect the entire Medicaid fee-for-service population.

Results

Prescriber Responses to Intervention Letters

A total of 174 coded responses were received from prescribers who were sent an intervention letter, for a response rate of 30.1%. Out of the 174 coded responses, there were 12 response forms that had additional written comments. Coded responses are in the table below, followed by examples of written comments.

Response	Number
Benefits of the drug outweigh the risk	26
Beneficiary no longer under this prescribers care	5
Reviewed information and continuing therapy without change	97
Prescriber will modify drug therapy	5
Tried to modify drug therapy, beneficiary is non-cooperative	1
Beneficiary has not been seen recently	5
Beneficiary recently deceased	1
Beneficiary was never under prescribers care	11
Has appointment to discuss therapy	4
Prescriber did not write prescription attributed to them	5
Tried to modify therapy, symptoms reoccurred	2
Prescribed medication while covering for other MD or in the ER	5
Response form returned blank	7
Total Responses	174

Prescriber Comments

The following statements are samples of comments received from providers via the response forms:

“Change has been discussed and will likely occur at next appointment”

“Concerta has been beneficial for this client”

“Concerta stopped prior to receiving this letter”

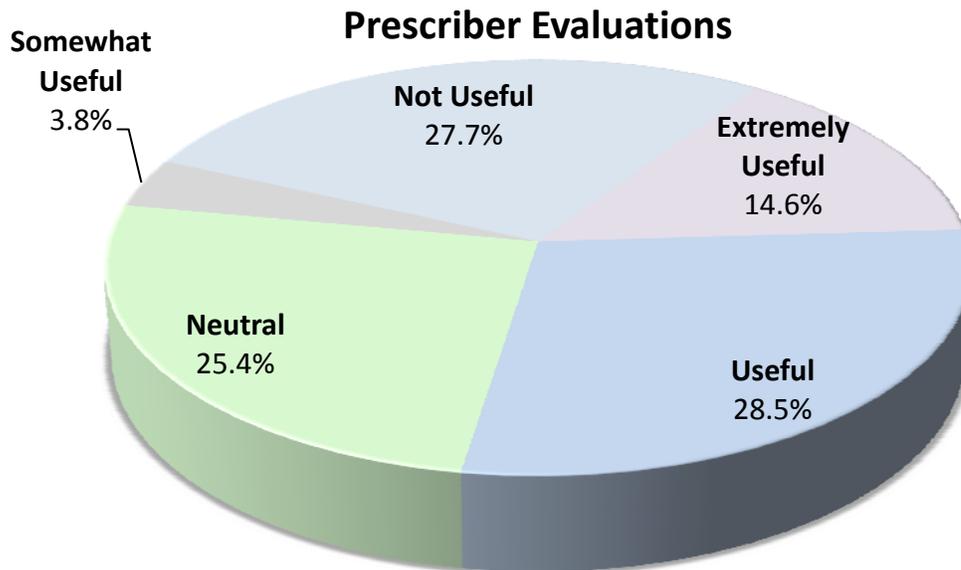
“Patient does not have anxiety”

“No anxiety disorder, not my diagnosis”

“Patient has experienced improvement with management of ADHD symptoms”

Prescriber Feedback on Intervention Letters

In addition to being able to provide information about their course of action following receipt of the intervention letter, prescribers are also able to provide additional feedback on intervention letters. Out of the 174 coded responses received, 130 provided additional feedback. A total of 43.1% of feedback responses ranked the letters as 'Useful' or 'Extremely useful'. A chart showing the percentage of responses in each evaluation category is shown below:



Changes in Criteria Exceptions

A total of 554 beneficiaries were selected for intervention based on the criteria for inappropriate ADHD therapy. Six months after letters were mailed to prescribers, 415 of the original 554 beneficiaries had at least one claim for any drug and could be evaluated. Of those 415 beneficiaries, 189 (45.5%) were found to hit the same criteria in the follow up period, meaning they had the same therapy problem post-intervention that their prescriber received a letter regarding. **The remaining 226 beneficiaries (54.5%) were found to no longer have the same therapy problem that their prescriber received a letter regarding.**

Criteria	PRE-Intervention (March 2011)	POST-Intervention (September 2011)		
	Beneficiaries with Letter Mailed	Beneficiaries with Any Drug Claim	Beneficiaries with Same Criteria Exception	% Decrease in Criteria Exceptions
High Dose Alert	3	2	1	50.0%
Therapeutic Appropriateness	9	7	0	100.0%
Drug-Disease Precaution	498	370	172	53.5%
Therapeutic Duplication	44	36	16	55.6%
Totals	554	415	189	54.5%

Total Drug Utilization and Estimated Cost Avoidance in Targeted Population

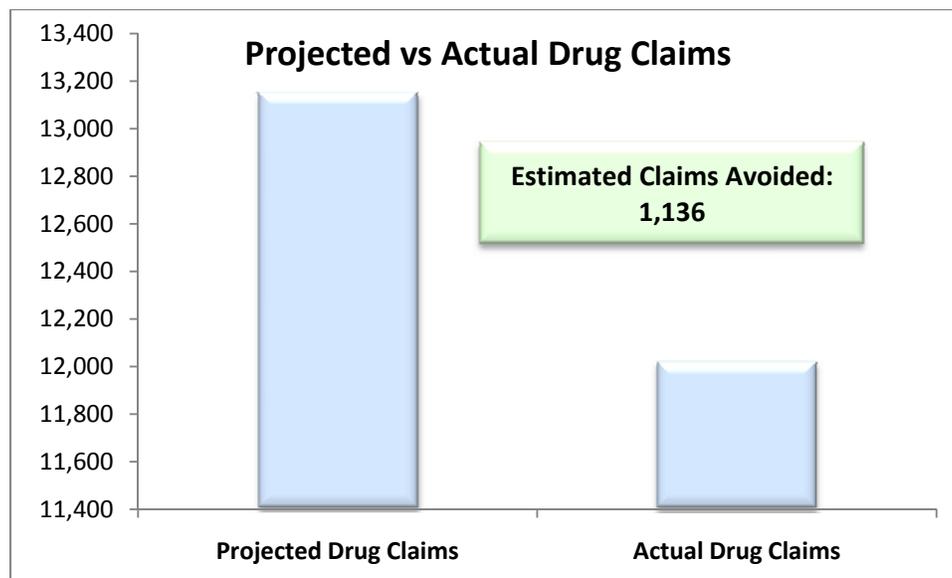
For the intervention and comparison group beneficiaries who had claims for any drug during the beginning of the pre-intervention and end of the post-intervention periods, HID evaluated total drug expenditures and claims for the 6 months prior to, and 6 months after, letters were mailed ².

		Drug Expenditures	Drug Claims
Intervention Group	Pre-Intervention	\$1,169,955	12,445
	Post-Intervention	\$1,215,180	12,017
	Difference	\$45,225	-428
	% Change	3.722%	-3.562%
Comparison Group	Pre-Intervention	\$1,224,509	10,775
	Post-Intervention	\$1,337,439	11,450
	Difference	\$112,930	675
	% Change	8.444%	5.895%

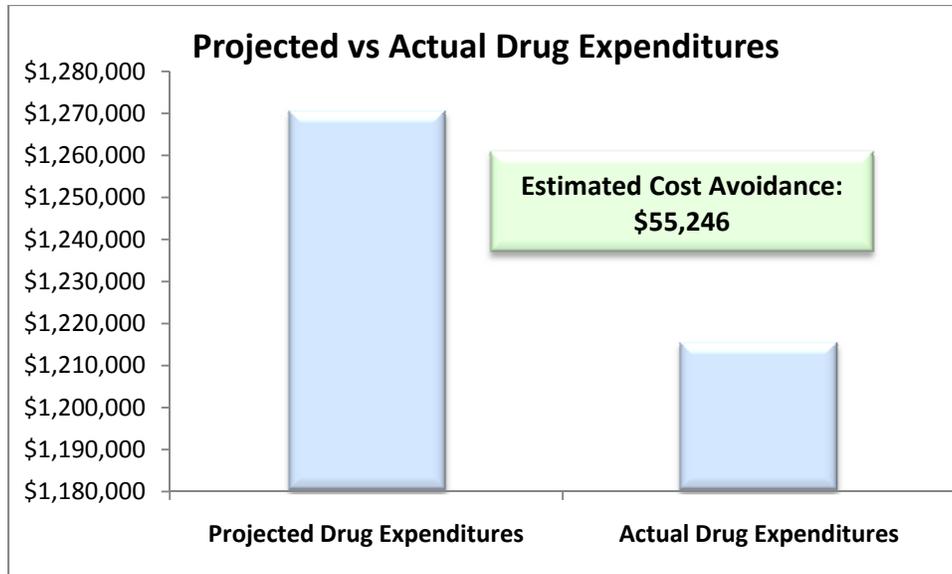
Intervention Group: 389 beneficiaries

Comparison Group: 341 beneficiaries

Projected Intervention Group Post-Intervention Cost:	\$1,270,426
Estimated Cost Avoidance:	\$55,246
Projected Intervention Group Post-Intervention Claims:	13,153
Estimated Claims Avoided:	1,136



² Calculation amounts may vary slightly due to rounding



Results Discussion

Within the targeted beneficiary population, improvements in ADHD therapy were noted. Six months after intervention letters were mailed, a population of 415 patients had enough data available to evaluate. Of these patients, all of whom met criteria for inappropriate ADHD therapy prior to the mailing of prescriber letters, 54.5% no longer met the same criteria 6 months after the letters were mailed.

All drug claims data and some diagnosis data is available for analysis. Any diagnosis data available is processed along with the pharmacy claims data to provide as complete a drug and diagnosis history as possible for each beneficiary. Medical data that includes the cost associated with hospitalization, doctor visits, and emergency room visits is not analyzed as part of the RetroDUR program. However, it is suspected by reducing inappropriate ADHD therapy, other medical associated costs due to adverse drug reactions would be reduced in addition to the reduction in drug expenditures.

Conclusion

The prescribing and utilization of ADHD therapy improved after intervention letters were mailed to prescribers for targeted beneficiaries. For beneficiaries with data available for follow up 6 months after letters were mailed, 55.4% of them no longer met the same criteria. Claims data for 6 months before and after intervention letters were mailed was evaluated and compared, showing a cost avoidance of drug expenditures of over \$55,000 in the 6-month time period following the mailing of the intervention letters.

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Prescribers were encouraged to return response forms to indicate their intended action following the receipt of the intervention letter and patient profile. The response rate was 30.1%, 174 response forms were returned indicating the prescribers intended action and 130 feedback forms were returned. Prescriber feedback showed 43.1% of the feedback responses ranked the intervention letters as 'Extremely Useful' or 'Useful'.