

Attachment 1

Analysis of anti-epileptic drugs

GOALS:

- To analyze the use of these agents for non-FDA approved indications
- To develop potential targets for a letter intervention

METHODS:

All claims for the newer anti-epileptic drugs (gabapentin, lamotrigine, felbamate, tiagabine, oxcarbazepine, topiramate, and levetiracetam) were extracted for June 2004 through May 2005. Type and specialty were extracted for all providers and associated with the provider number attributed to the prescription. Data were aggregated by provider for preliminary analysis.

A query was run to gather any diagnosis for post-herpetic neuralgia, diabetic neuropathy, or any seizure disorder since 2003 for all patients included in the initial abstract. If any diagnosis was found for these conditions, all prescriptions for the anti-epileptic were eliminated from the original extract. A similar aggregation was produced from the remaining claims.

PRELIMINARY RESULTS:

A summary of the findings includes:

- Almost \$40 million was paid for these drugs in the most recent 12 months analyzed. One third of the payments was for gabapentin.
- No approved diagnosis could be found for almost 60% of the prescriptions. Almost 80% of gabapentin RXs had no approved diagnosis on file
- Three drugs, levetiracetam (Keppra), felbamate (Felbatol), and tiagabine (Gabitril) had most of their use for approved indications
- The top 500 prescribers (less than 10%) account for almost 60 percent of the total expenditures for drugs with no diagnosis. Prescriber numbers identifying institutions, e.g., Froedtert Hospital were excluded from the intervention.
- Over 50% of the expenditures in the top 500 were for prescriptions written by psychiatrists

The analysis suggests that there are a considerable number of prescriptions written for these drugs with little evidence to support their use. The DUR Board recommended that we send an educational intervention to the psychiatrists, family practitioners, general practitioners, and the unspecified specialty types to inform them of the Medicaid expenditures for antiepileptic drugs, and asking them to review their use of these drugs. Based on Board input, the intervention was sent to all specialty types ranked in the top 500 by total amount paid for the prescriptions attributed to the prescriber. (Some of the top 500 prescribers were attributed to institutions and the default DEA number. As a result 495 intervention packets were prepared. In addition, seven prescriber addresses were not valid, leaving 488 prescribers who received an intervention packet.

The materials included in the intervention were a cover letter, a summary of the appropriate use of antiepileptic drugs, a list of patients and their antiepileptic drugs (including the amount paid) attributed to the prescriber, a response form, and a return envelope.

Anti-epileptic drugs	6/2004 to 5/2005	
All claims		
Description	Amount Paid	% total costs
GABAPENTIN	\$12,824,937.08	32.3%
LAMOTRIGINE	\$9,332,176.94	23.5%
TOPIRAMATE	\$8,194,263.08	20.6%
LEVETIRACETAM	\$3,620,885.49	9.1%
OXCARBAZEPINE	\$2,995,423.40	7.5%
ZONISAMIDE	\$1,426,056.73	3.6%
TIAGABINE	\$697,710.41	1.8%
FELBAMATE	\$597,978.37	1.5%
Total	\$39,689,431.50	

6/2004 to 5/2005		
No diagnosis		
Description	Amount Paid	% claims with no diagnosis
GABAPENTIN	\$10,120,079.42	78.9%
TOPIRAMATE	\$4,923,287.74	52.8%
LAMOTRIGINE	\$4,226,915.60	51.6%
OXCARBAZEPINE	\$1,793,039.37	49.5%
LEVETIRACETAM	\$834,471.05	27.9%
TIAGABINE	\$478,171.62	33.5%
ZONISAMIDE	\$458,028.42	65.6%
FELBAMATE	\$87,505.01	14.6%
Total	\$22,921,498.23	57.8%

Anti-epileptic drugs	6/2004 to 5/2005	
Top 500 prescribers	No diagnosis	
Specialty	Amount paid	Count
PSYCHIATRY	\$6,958,926.22	215
NEUROLOGY	\$1,895,900.83	69
FAMILY PRACTICE	\$1,226,323.54	63
INTERNAL MEDICINE	\$1,092,991.39	52
NONE SPECIFIED	\$981,348.04	45
ANESTHESIOLOGY	\$391,355.65	16
PHYSICAL MEDICINE/REHAB	\$269,556.07	14
PEDIATRICS	\$201,375.35	7
GENERAL PRACTICE	\$149,693.17	5
GERIATRICS	\$87,845.33	3
PATHOLOGY	\$52,013.16	1
EMERGENCY MEDICINE	\$29,500.65	2
RADIOLOGY	\$13,337.81	1
URGENT CARE	\$12,934.07	1
CARDIOVASCULAR DISEASE	\$10,360.86	1
	\$13,373,462.14	495

RESULTS

Prescriber response

(N=188) Response rate =38.5%

I have reviewed the information provided and found it:

33 very useful. **Average = 3.38**
68 useful.
35 neutral.
22 minimally useful.
22 not useful.

I have reviewed the information provided and: **% of respondents**

33% will review the treatment regimens for my patients.
50% have already explored other options before prescribing these drugs.
2.7% changed how I am prescribing anti-epileptic drugs for non-approved indications.
37.8% did not modify the drug therapy because I believe treatment is appropriate.
5.3% have discussed an action with the patient.
0.5% referred the patient for additional evaluation

Pre/post evaluation

In order to compare the results of the intervention, the cumulative costs for the prescriber/patient combination sent in the intervention were extracted from the paid pharmacy claims. Since Medicaid Part D began on December 2005, there was only 5 months of comparison data available post intervention. Therefore, the 5 months post comparison data was compared with the 5 months of data preceding the intervention.

The pre-post comparison for the intervention is summarized in the following table:

Drug	Decrease in Rxs	Decrease in spend
LAMOTRIGINE	1068	\$91,458.71
FELBAMATE	1	-\$2,593.73
GABAPENTIN	2643	\$600,606.86
TOPIRAMATE	1518	\$244,490.85
OXCARBAZEPINE	720	\$83,991.11
TIAGABINE	473	\$32,545.22
LEVETIRACETAM	228	\$20,383.51
ZONISAMIDE	217	\$21,251.04
PREGABITRIL	-216	-\$28,545.14
Total	6652	\$1,063,588.43
Adjusted for gabapentin price decrease		\$752,232.41

Because the cost of gabapentin has been dropping, an additional calculation was performed to adjust for cost savings due to price decrease. With the adjustment, cost savings was calculated to be \$752,232.

A similar cost analysis was performed for cohort of prescriber/patient pairings that did not receive an intervention letter. The pharmacy claims data were extracted for this cohort for the same time periods used for the intervention comparisons. The summary of these results is shown.

Drug	Increase in Rxs	Increase in spend
FELBAMATE	7	\$1,655.70
GABAPENTIN	1274	-\$389,174.20
LAMOTRIGINE	967	\$258,702.09

LEVETIRACETAM	395	\$92,520.58
OXCARBAZEPINE	396	\$83,635.96
TIAGABINE	-48	\$13,003.79
TOPIRAMATE	740	\$218,380.36
ZONISAMIDE	171	\$23,767.55
PREGABALIN	292	\$39,339.70
Total	4240	\$341,831.53
Adjusted for GBP		\$825,351.09

DISCUSSION

Overall, less expenditures occurred in the intervention group post-intervention when compared to a similar time frame in the pre-intervention period. The opposite is true in the control group. This is despite the introduction of a new drug (pregabalin) in the anti-epileptic drug category in the post-intervention period.

While it is difficult to control for outside influences on the use of these drugs, the intervention seems to have contributed to the overall decrease in expenditures. Interventions of this type might be considered for other drug classes where clinical prescribing protocols have been developed.