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Drug Use Evaluation: Off-label ADHD drugs and the impact on healthcare resource utilization (Part 1)

Plain Language Summary:

- Medicines that the Food and Drug Administration (FDA) approved treatment of attention deficit hyperactivity disorder (ADHD) have been studied for many other conditions. These medicines may also help improve symptoms for people with:
  - movement disorders (i.e., tics),
  - autism,
  - learning disabilities,
  - disruptive behavior, and
  - eating disorders.
- This review looked at Medicaid members enrolled in the Oregon Health Plan (OHP) who did not have ADHD documented in their health record but who received an ADHD medicine. Only 18% of these members had a behavioral health condition for which an ADHD medicine has been studied and shown to improve symptoms. These behavioral health conditions were more common for children. For people with a behavioral health condition, 60% of people had seen a mental health provider.
- While this analysis was not designed to look for all types of harms, we did not see a pattern indicating harms because of these medicines. Admission to the hospital decreased after an ADHD medicine was prescribed for these members.
- We recommend that the Oregon Health Authority pay for these medicines when they are prescribed to an OHP member by a mental health provider.

Research Questions:

1. What are the most common reasons for off-label use of ADHD drugs?
2. Does indication for ADHD drugs vary based on member, drug or prescriber characteristics?
3. Does initiation of an off-label ADHD drug improve healthcare resource utilization for members without ADHD (compared to prior care)?

Conclusions:

- Off-label indications for ADHD drugs:
  - In total, 626 members were included in this analysis. About 63% of members were adults (at least 18 years of age) at the time of their first claim. These members did not have a diagnosis of ADHD, and the indication for which these drugs were prescribed was generally unclear. A small proportion (18%) had a diagnosis of learning disorders, autistic disorders, conduct disorders, tic disorders, eating disorders, or narcolepsy/cataplexy for which there is some literature supporting use of ADHD drugs. Other common behavioral health diagnoses included anxiety disorders, stress and adjustment disorders, major depressive disorders, and substance use disorders.
- Subgroups:
  - In people with an evidence-based diagnosis, there was a larger proportion of pediatric members, a larger proportion of members prescribed guanfacine, and more members with a prescription written by a psychiatrist (26%) or other mental health provider (33%).

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    - Comparatively, in people without an evidence-based diagnosis, more members were adults, had prescriptions for atomoxetine, and fewer had prescriptions written by a psychiatrist (15%).
- Changes in healthcare resource utilization
    - For members without an ADHD diagnosis who were started an ADHD drug, there was a small decrease in inpatient healthcare costs, inpatient days and members with inpatient visits from the 6 months prior to the index event (IE) to the 6 months following the IE. The average change for inpatient hospital costs was larger in people with an evidence-based diagnosis (mean decrease of $6,370 and change of 4.5% of members) compared to people without an evidence-based diagnosis (mean decrease of $293 and change of 2.3% of members). Because these differences are small and this analysis did not control for confounding factors, the association between use of an ADHD drug and inpatient visits is unclear. However, there is no indication based on medical claims of overt harms because of off-label prescribing for ADHD drugs.
    - There was no change in emergency department visits, pharmacy utilization of other mental health drugs, or psychotherapy visits after prescription of an ADHD drug. Many members had claims for other mental health drugs including antidepressants (53%), antipsychotics (21%), and physical health (immediate-release) formulations of clonidine or guanfacine (18%)

Recommendations:

- Remove prior authorization including age and quantity limits from extended-release 12H clonidine and extended-release guanfacine tablets to permit off-label use in adults. Make both agents preferred on the PDL.

Background:

There are many drugs which are used for treatment of ADHD. These broadly include stimulants (such as amphetamine and methylphenidate derivatives) and non-stimulants (including atomoxetine, extended-release 12H clonidine, extended-release guanfacine, and viloxazine). The OHP fee-for-service (FFS) program covers non-stimulant medications for all members. Stimulants are covered by OHP's Coordinated Care Organizations (CCOs) for members enrolled in a CCO. Because stimulants are covered by CCOs, the most commonly prescribed drugs to which the FFS policy applies are non-stimulants. Atomoxetine is preferred with quantity limits, but it can be prescribed for all ages. Extended-release 12H clonidine and extended-release guanfacine have age restrictions which limit use to adults, consistent with Food and Drug Administration (FDA)-labeled indications.

In January 2023, the OHP FFS criteria were updated to limit use to FDA-approved indications. Previous criteria required consultation with a relevant specialist before off-label indications could be authorized. Indications which are FDA-approved for stimulants include narcolepsy, binge-eating disorder, and ADHD. Non-stimulants have indications for ADHD, and immediate-release clonidine and guanfacine are indicated for hypertension under different brand names. However, many of these medications have been studied for a wide variety of indications other than ADHD.

A search of systematic reviews and clinical practice guidelines identified literature evaluating ADHD stimulants for chronic fatigue,[1] post-stroke symptoms,[2] and stimulant use disorder.[3] While stimulants have been studied for these conditions, they are not generally recommended because risks are thought to outweigh benefits for most patients. FDA labeling for stimulants for ADHD includes risks for abuse and misuse, risk for cardiovascular disease, lowering the seizure threshold, psychiatric adverse reactions, peripheral vasculopathy, long-term growth suppression in pediatric patients, gastrointestinal obstruction, worsening glaucoma, and motor or verbal tics.[4]

Non-stimulants for ADHD have also been evaluated for a variety of behavioral health conditions, including:

- tic disorders, Tourette syndrome, and other movement disorders
- post-traumatic stress disorder (PTSD)

- autism and other developmental disorders
- conduct disorder, disruptive and violent behavior

Guidelines for treatment of ADHD generally recommend similar treatment options for people who have ADHD comorbid with other behavioral health conditions. For example, in people with ADHD and comorbid anxiety, tic disorder, or autism spectrum disorder, the National Institute for Health and Care Excellence (NICE) recommends offering the same medication choices as other people with ADHD. [5] Recommended first-line treatments for ADHD include methylphenidate or lisdexamfetamine.[5] If tics are stimulant-related, they recommend: 1) reduction of the stimulant dose; 2) changing to guanfacine (in people 5-17 years of age only), atomoxetine (off-label use for adults with no ADHD symptoms in childhood), or clonidine (off-label use for children); or 3) stopping medication.[5] In people with ADHD and tics, clonidine should only be considered for people under 18 years after advice from providers who specialize in treatment of ADHD.[5]

In people with autism and comorbid ADHD or ADHD symptoms (e.g., hypersensitivity, impulsivity, inattention, distractibility), the American Academy of Pediatrics and NICE recommend treatment with an ADHD drug.[6,7] One guideline recommended methylphenidate for management of attention difficulties/hyperactivity in children or young people with autism spectrum disorder and found insufficient information to make a recommendation regarding atomoxetine.[8] Another guideline noted that clonidine or guanfacine may help with symptoms of anxiety, depression, irritability and severe disruptive behavior.[7]

In people with intellectual disability, the American Academy of Child and Adolescent Psychiatry identified that methylphenidate, clonidine, and guanfacine may be a clinical option to target comorbid psychiatric disorders or specific psychiatric symptoms (such as hyperactivity or inattention) in children and adolescents.[9] Recommendations graded as a clinical option reflect emerging, rather than definitive, empiric evidence and are generally based on few randomized controlled trials (RCTs), RCTs with inconsistent results, or observational studies. [9] In people with challenging behavior and learning disabilities, NICE recommends:

- Optimization of medications for coexisting mental or physical health problems that may be contributing to challenging behavior.[10]
- Do not offer medication for sleep unless the sleep problem persists after behavioral intervention, after consultation with a psychiatrist, in combination with non-pharmacologic interventions and with regular monitoring to evaluate benefits and risks.[10]

NICE suggests providers should not routinely offer medication for children and young people with conduct disorders, antisocial behavior or oppositional defiant disorder. For people with comorbid ADHD, NICE advises that atomoxetine or methylphenidate can be offered within their approved indications.[11]

In people with tics, the American Academy of Neurology identified that clonidine and guanfacine may reduce tics more than placebo (based on moderate and low quality evidence, respectively).[12] The magnitude of benefit was largest in people with comorbid ADHD. Clonidine or guanfacine is recommended when treatment benefits (reduction in tics) outweigh risks with adequate monitoring for adverse events (including sedation, effects on heart rate, blood pressure and QTc prolongation, or rebound hypertension upon abrupt discontinuation).[12] Similarly European clinical guidelines recommend clonidine and guanfacine as reasonable options for people with tic disorders in whom pharmacotherapy is appropriate, particularly in the presence of comorbid ADHD.[13] Atomoxetine probably does not worsen tics over 18 weeks based on one RCT, but it was associated with decreased body weight and increased heart rate compared to placebo (low quality evidence).[12]

Several organizations recommend against use of ADHD drugs for various conditions and populations. These include:

- Guanfacine for treatment of PTSD.[14]
- ADHD drugs for the core social and communication symptoms of autism.[6,7]
- Clonidine for people with ADHD and comorbid sleep disturbance, rages, or tics.[5]
- Guanfacine for adults with ADHD.[5]

- Combination use of antipsychotics and stimulants in people with ADHD and comorbid pervasive aggression, rages or irritability.[5]
- Stimulants for treatment of fatigue in people with chronic multisystem illness and symptoms consistent with myalgic encephalomyelitis or chronic fatigue syndrome.[1] Medicines (including stimulants) to cure myalgic encephalomyelitis or chronic fatigue syndrome.[15]

The goal of this policy evaluation is to:

1) Evaluate common off-label conditions for which ADHD drugs are used
2) Evaluate how initiation of off-label use of an ADHD drug impacts healthcare utilization

Methods:

Members were identified for inclusion in the study based on at least one paid FFS claim for a drug in the ADHD Drugs PDL class. The evaluation window for ADHD claim was from 01/01/2022 to 06/30/2022. The first paid claim was defined as the IE. For each patient, the 6 months before and after the IE were used to define the baseline period (exclusive of the IE) and follow-up period (inclusive of the IE). Members were excluded if they had claims for an ADHD drug during the baseline period or had an ADHD diagnosis during the baseline or follow-up period (defined below).

Inclusion Criteria:

- Paid FFS claim for a drug in the ADHD Drugs PDL class during the evaluation window.

Exclusion Criteria:

- Members with non-Medicaid primary insurance coverage (i.e., third party liability [TPL]) during the baseline or follow-up period
- Members with Medicare Part D coverage or limited or no Medicaid drug benefit at any time during the baseline or follow-up periods. Claims data for these members may be incomplete. Members were identified based on the following benefit packages:

Category	Benefit Package	Description
Medicare Part D coverage	BMM	Qualified Medicare Beneficiary + Oregon Health Plan with Limited Drug
	BMD	Oregon Health Plan with Limited Drug
	MED	Qualified Medicare Beneficiary
Limited or no Medicaid drug benefit	MND	Transplant package
	CWM	Citizenship Waived Emergency Medical
	SMF	Special Low-Income Medicare Beneficiary Only
	SMB	Special Low-Income Medicare Beneficiary Only

- Members with Heritage Native American All-Inclusive Rate (HNA AIR) claims during the baseline or follow up period
- Members with Medicaid eligibility of less than 75% of days during the baseline or follow-up periods
- Members with an ADHD diagnosis (ICD-10 code of F90x) in the baseline or follow-up period
- Members with claims for an ADHD drug in the baseline period

Outcomes evaluated in this analysis included total service days and costs for hospitalizations, emergency department visits, psychotherapy, and other mental health drugs.

Definitions:

- Relevant mental health diagnoses were evaluated in the baseline period and grouped into diagnoses with supporting evidence and diagnoses without supporting evidence based on available existing literature (**Appendix 1**).
- Baseline characteristics were identified at the time of the IE. Other mental health drugs were defined based on PDL class. The Hierarchical Ingredient Code List (HICL) sequence number (HSN) and non-carve-out status were used to identify physical health formulations of clonidine (HSN 000113) and guanfacine (HSN 000120).
- Provider specialty was identified based on primary prescriber taxonomy (**Appendix 1**).
- Residential area was based on member zip code and categorized into rural, urban, or frontier groups based on criteria in **Appendix 1.**[16] Members without an Oregon zip code were categorized as unknown.
- Psychotherapy visits were identified based on common medical codes in **Appendix 1**
- Total service days were defined based on the number of unique days during which a service (e.g., inpatient hospitalization, emergency department visit, or psychotherapy) was billed on a medical claim.

Results

In the 6-month evaluation window for this study, 11,000 members were identified who had paid FFS claims for an ADHD drug. After exclusion of people with other insurance or less than 75% eligibility during the baseline and follow-up periods, almost 8,000 members were identified who had potentially complete claims data. Of members with complete claims data, most had an ADHD diagnosis (n=6240, n=78%). A total of 626 members without prior ADHD drug therapy and without an ADHD diagnosis in medical claims were included in the analysis.

Table 1. Attrition table

	All	
	#	%
Members with a FFS paid claim for an ADHD drug in the evaluation window	11,000	
After exclusion of members with HNA AIR claims in the baseline or follow-up period	10,870	98.8%
After exclusion of members with TPL or Medicare in the baseline or follow-up period	8,364	76.0%
After exclusion of members with <75% eligibility in the baseline period	8,052	73.2%
After exclusion of members with <75% eligibility in the follow-up period	7,957	72.3%
After exclusion of members with an ADHD diagnosis in the baseline or follow-up period	1,717	15.6%
After exclusion of member with claims for an ADHD drug in the baseline period (not treatment naïve)	**626**	5.7%

For many members in this analysis, the indication for which the drug was prescribed was unclear. Less than 18% of members in this analysis had an evidence-based diagnosis of learning disorders, autism spectrum disorder, conduct disorder, oppositional defiant disorder, intermittent explosive disorder, tic disorders, eating disorders, narcolepsy or cataplexy.

Thirty-three percent of members prescribed an off-label ADHD drug had some type of anxiety disorder and 27% had a stress or adjustment disorder (such as PTSD). Mood disorders such as major depressive disorder, depressive episodes and bipolar disorder were present for 20%, 20% and 10% of members, respectively. Substance use disorders were also relatively common. Ten percent of members had a diagnosis of nicotine dependence, 7% had alcohol-related disorders, 7% had stimulant and opioid use disorders, and 6% had cannabis use disorders.

Table 2. Behavioral health diagnoses in the 6 months before the first claim for an ADHD drug

	All	
	626	%
Evidence-based diagnosis	110	17.6%
Learning disorder or intellectual disability	18	2.9%
Autistic disorder	34	5.4%
Conduct, oppositional defiant disorder, intermittent explosive disorder	41	6.5%
Tic disorders	16	2.6%
Eating disorders	16	2.6%
Narcolepsy and cataplexy	2	0.3%
Members without a diagnosis supported by evidence (most common mental health diagnoses)	516	82.4%
F41 Other anxiety disorders	207	33.1%
F43 Reaction to severe stress, and adjustment disorders	170	27.2%
F33 Major depressive disorder, recurrent	127	20.3%
F32 Depressive episode	125	20.0%
F17 Nicotine dependence	65	10.4%
F31 Bipolar disorder	60	9.6%
F10 Alcohol related disorders	44	7.0%
F15 Other stimulant related disorders	44	7.0%
F11 Opioid related disorders	42	6.7%
F12 Cannabis related disorders	38	6.1%

About 63% of members were adults and 60% identified as White. More than half of members lived in urban areas and only 3% lived in Oregon's frontier counties. Almost 90% of members were enrolled in a CCO, and because CCOs pay for the majority of stimulant claims, the most prescribed drugs to which the FFS policy applies are non-stimulants. Paid claims for atomoxetine (55%), a preferred product, were more common than paid claims for extended-release guanfacine (27%) and extended-release clonidine (11%). General practitioners were the most common type of prescriber (47%).

Patient characteristics were generally similar upon comparison of people with an evidence-based diagnosis and people without an evidence-based diagnosis. Differences existed based on member age, drug prescribed, and prescriber type. Of people with an evidence-based diagnosis, 74% of members were children or adolescents. Extended-release guanfacine was the most common medication in people with an evidence-based diagnosis (58%) followed by extended-release clonidine (22%) and atomoxetine (17%). The prescriber was more commonly a psychiatrist in people with an evidence-based diagnosis (26%) compared to people without an evidence-based diagnosis (15%). Most people without an evidence-based diagnosis were adults (72%) and the most common medication was atomoxetine (63%) followed by guanfacine (20%). Stimulant use was slightly more common in people without an evidence-based diagnosis compared to people with an evidence-based diagnosis (8.7% vs. 2.7%).

Table 3. Baseline demographics

	All		By Diagnosis: Evidence-based diagnosis		By Diagnosis: No evidence-based diagnosis	
	626	%	110	17.6%	516	82.4%
Age						
<= 5 yo	8	1.3%	3	2.7%	5	1.0%
6-17 yo	221	35.3%	***82***	***74.5%***	***139***	***26.9%***
18-64 yo	397	63.4%	***25***	***22.7%***	***372***	***72.1%***
>= 65 yo	0	0.0%	0	0.0%	0	0.0%
Race						
White	376	60.1%	61	55.5%	315	61.0%
Unknown	148	23.6%	28	25.5%	120	23.3%
Other	102	16.3%	21	19.1%	81	15.7%
Member Location						
Urban	340	54.3%	60	54.5%	280	54.3%
Rural	247	39.5%	45	40.9%	202	39.1%
Frontier	20	3.2%	2	1.8%	18	3.5%
Other	19	3.0%	3	2.7%	16	3.1%
Enrollment						
CCO	563	89.9%	104	94.5%	459	89.0%
FFS	63	10.1%	6	5.5%	57	11.0%
IE Drug						
Stimulant	48	7.7%	***3***	***2.7%***	***45***	***8.7%***
AMP IR	22	3.5%	1	0.9%	21	4.1%
AMP LA	14	2.2%	1	0.9%	13	2.5%
MTH IR	10	1.6%	1	0.9%	9	1.7%
MTH LA	2	0.3%	0	0.0%	2	0.4%
Non-stimulant carve-out	578	92.3%	107	97.3%	471	91.3%
Atomoxetine	344	55.0%	***19***	***17.3%***	***325***	***63.0%***
Clonidine (extended-release)	67	10.7%	***24***	***21.8%***	***43***	***8.3%***
Guanfacine (extended-release)	167	26.7%	***64***	***58.2%***	***103***	***20.0%***
Viloxazine	0	0.0%	0	0.0%	0	0.0%

Prescriber on the IE						
Psychiatrist	107	17.1%	***29***	***26.4%***	***78***	***15.1%***
Non-physician mental health provider	226	36.1%	37	33.6%	189	36.6%
General practitioner	293	46.8%	44	40.0%	249	48.3%
Covered days for ADHD drug in the follow-up period Mean (SD); Median	86.7 (56.1)	61	101.1 (59.8)	106.5	83.6 (54.8)	60

Because ADHD drugs may be prescribed for people with symptoms of inattention or hyperactivity and comorbid conditions, we also evaluated common behavioral health signs and symptoms present on medical claims in the 6 months before prescription of an ADHD drug. About 13% of people had symptoms related to cognitive function and awareness, most commonly attention and concentration deficit. These diagnoses were more common in people without an evidence-based diagnosis. About 10% had signs and symptoms related to the emotional state which were more common in people with an evidence-based diagnosis. Malaise and fatigue were present in 10% of people.

Table 4. Common behavioral health signs and symptoms

			All		By Diagnosis: Evidence-based diagnosis		By Diagnosis: No evidence-based diagnosis	
			626	%	110	%	516	%
Most common behavioral signs/symptoms - ICD-10 codes between R40-R46 or R53x)								
R41	**Cognitive function and awareness**		**82**	**13.1%**	**4**	**3.6%**	**78**	**15.1%**
	R41840	Attention and concentration deficit	66	10.5%	4	3.6%	62	12.0%
	R410	Disorientation, unspecified	7	1.1%		0.0%	7	1.4%
	R4182	Altered mental status, unspecified	5	0.8%		0.0%	5	1.0%
	R419	Unspecified symptoms and signs with cognitive functions and awareness	3	0.5%		0.0%	3	0.6%
	R413	Other amnesia	3	0.5%		0.0%	3	0.6%
	R4189	Other symptoms and signs w cognitive functions and awareness	3	0.5%		0.0%	3	0.6%
	R4183	Borderline intellectual functioning	1	0.2%		0.0%	1	0.2%
	R41841	Cognitive communication deficit	1	0.2%		0.0%	1	0.2%
R42	R42	Dizziness and giddiness	**27**	**4.3%**	**2**	**1.8%**	**25**	**4.8%**
R43	Disturbance of smell/taste		**2**	**0.3%**	**0**	**0.0%**	**2**	**0.4%**
	R430	Anosmia	1	0.2%		0.0%	1	0.2%
	R432	Parageusia	1	0.2%		0.0%	1	0.2%
	R438	Other disturbances of smell and taste	1	0.2%		0.0%	1	0.2%

R44	General sensations and perceptions		**8**	**1.3%**	**3**	**2.7%**	**5**	**1.0%**
	R440	Auditory hallucinations	4	0.6%	1	0.9%	3	0.6%
	R443	Hallucinations, unspecified	3	0.5%	1	0.9%	2	0.4%
	R448	Other symptoms and signs w general sensations and perceptions	1	0.2%	1	0.9%		0.0%
	R441	Visual hallucinations	1	0.2%		0.0%	1	0.2%
R45	Symptoms/signs of the emotional state		**66**	**10.5%**	**20**	**18.2%**	**46**	**8.9%**
	R45851	Suicidal ideations	43	6.9%	9	8.2%	34	6.6%
	R451	Restlessness and agitation	11	1.8%	5	4.5%	6	1.2%
	R454	Irritability and anger	9	1.4%	4	3.6%	5	1.0%
	R4589	Other symptoms and signs involving emotional state	5	0.8%	1	0.9%	4	0.8%
	R4586	Emotional lability	3	0.5%	1	0.9%	2	0.4%
	R45850	Homicidal ideations	3	0.5%	1	0.9%	2	0.4%
	R4588	Nonsuicidal self-harm	2	0.3%	1	0.9%	1	0.2%
	R4581	Low self-esteem	1	0.2%		0.0%	1	0.2%
	R456	Violent behavior	1	0.2%	1	0.9%		0.0%
	R455	Hostility	1	0.2%		0.0%	1	0.2%
	R450	Nervousness	1	0.2%		0.0%	1	0.2%
	R4587	Impulsiveness	1	0.2%	1	0.9%		0.0%
R53	Malaise and fatigue		**55**	**8.8%**	**3**	**2.7%**	**52**	**10.1%**
	R5383	Other fatigue	38	6.1%	2	1.8%	36	7.0%
	R5382	Chronic fatigue, unspecified	11	1.8%	1	0.9%	10	1.9%
	R531	Weakness	10	1.6%	1	0.9%	9	1.7%
	R5381	Other malaise	5	0.8%		0.0%	5	1.0%
	R530	Neoplastic (malignant) related fatigue	2	0.3%		0.0%	2	0.4%

For people initiating treatment with an ADHD drug, 66% had claims for other mental health drugs in the 6 months prior to the ADHD prescription. The most common types of medications included antidepressants (53%), antipsychotics (21%), and non-carveout formulations of clonidine or guanfacine (18%). After initiation of an ADHD drug, prescribing patterns of other mental health drugs were generally similar for the population.

Table 5. Utilization of other medications

	All		By Diagnosis: Evidence-based diagnosis		By Diagnosis: No evidence-based diagnosis	
	626		110		516	
Baseline	#	%	#	%	#	%
Members with claims for other mental health drugs	414	66.1%	78	70.9%	336	65.1%
Benzodiazepines	49	7.8%	5	4.5%	44	8.5%
Antidepressant	334	53.4%	47	42.7%	287	55.6%
Antipsychotic	131	20.9%	28	25.5%	103	20.0%
SUD	30	4.8%	2	1.8%	28	5.4%
Sedative	9	1.4%	1	0.9%	8	1.6%
Physical health (IR) clonidine/guanfacine	114	18.2%	39	35.5%	75	14.5%
Follow-Up						
Members with claims for other mental health drugs	450	71.9%	80	72.7%	370	71.7%
Benzodiazepines	42	6.7%	6	5.5%	36	7.0%
Antidepressant	371	59.3%	52	47.3%	319	61.8%
Antipsychotic	151	24.1%	33	30.0%	118	22.9%
SUD	30	4.8%	3	2.7%	27	5.2%
Sedative	18	2.9%	3	2.7%	15	2.9%
Physical health (IR) clonidine/guanfacine	106	16.9%	42	38.2%	64	12.4%
Change						
Members with claims for other mental health drugs	36	5.8%	2	1.8%	34	6.6%
Benzodiazepines	-7	-1.1%	1	0.9%	-8	-1.6%
Antidepressant	37	5.9%	5	4.5%	32	6.2%
Antipsychotic	20	3.2%	5	4.5%	15	2.9%
SUD	0	0.0%	1	0.9%	-1	-0.2%
Sedative	9	1.4%	2	1.8%	7	1.4%
Physical health (IR) clonidine/guanfacine	-8	-1.3%	3	2.7%	-11	-2.1%

About 5% of members had an inpatient hospital visit in the 6 months before prescription of an ADHD drug. Twenty-nine percent of members had an emergency department visit in the baseline period and 54% had at least on psychotherapy visit. In the 6-month follow-up period after prescription of an ADHD drug, utilization for inpatient hospital visits decreased to 2.6%, but differences were small. This trend was largest for members with an evidence-based diagnosis and was consistent when data were evaluated based on members with service visits (**Table 6**), total number of service days (**Table 7**), or total costs (**Table 8**). Utilization for emergency department visits and psychotherapy visits was similar in the baseline and follow-up period.

For members without an ADHD diagnosis who started an ADHD drug, the average healthcare costs in the 6 months prior to the IE was $16,578 for inpatient visits, emergency department visits, psychotherapy, and pharmacy costs. In the 6 months after prescription of an ADHD drug, these costs decreased slightly by an average of $882, driven primarily by changes in inpatient hospital costs. The average change for inpatient hospital costs was larger in people with an evidence-based diagnosis (mean decrease of $6,370) compared to people without an evidence-based diagnosis (mean decrease of $293).

Table 6. Healthcare resource utilization – members with service visits

	All		By Diagnosis: Evidence-based diagnosis		By Diagnosis: No evidence-based diagnosis	
	626		110		516	
Baseline	#	%	#	%	#	%
Members with inpatient hospital visit	33	5.3%	7	6.4%	26	5.0%
Members with emergency department visit	180	28.8%	33	30.0%	147	28.5%
Members with psychotherapy	335	53.5%	65	59.1%	270	52.3%
Follow-Up						
Members with inpatient hospital visit	16	2.6%	2	1.8%	14	2.7%
Members with emergency department visit	148	23.6%	22	20.0%	126	24.4%
Members with psychotherapy	334	53.4%	68	61.8%	266	51.6%
Change						
Members with inpatient hospital visit	-17	-2.7%	-5	-4.5%	-12	-2.3%
Members with emergency department visit	-32	-5.1%	-11	-10.0%	-21	-4.1%
Members with psychotherapy	-1	-0.2%	3	2.7%	-4	-0.8%

Table 7. Healthcare resource utilization – total number of service days

	All		By Diagnosis: Evidence-based diagnosis		By Diagnosis: No evidence-based diagnosis	
	626		110		516	
Baseline	Mean	Median	Mean	Median	Mean	Median
Inpatient hospital days	13.2	6	18.3	16	11.8	6
Emergency department visit days	2.0	1	2.0	1	2.0	1
Psychotherapy days	12.0	8	15.2	10	11.2	7.5

Follow-Up						
Inpatient hospital days	6.8	5	1.5	1.5	7.5	5.5
Emergency department visit days	2.0	1	1.6	1.5	2.1	1
Psychotherapy days	12.9	9	18.1	11	11.5	8
Change						
Inpatient hospital days	-6.4	-1.0	-16.8	-14.5	-4.3	-0.5
Emergency department visit days	0.0	0.0	-0.3	0.5	0.1	0.0
Psychotherapy days	0.9	1.0	2.9	1.0	0.3	0.5

Table 8. Healthcare resource utilization – costs

	All			Evidence-based diagnosis			No evidence-based diagnosis		
	Mean	StDev	Median	Mean	StDev	Median	Mean	StDev	Median
Baseline									
Inpatient hospital costs	$13,126	$11,854	$8,621	$12,587	$8,256	$16,739	$13,271	$12,782	$8,340
Emergency department visit costs	$975	$1,541	$537	$732	$986	$447	$1,029	$1,638	$592
Psychotherapy costs	$1,598	$3,487	$712	$1,993	$3,123	$775	$1,503	$3,568	$708
Pharmacy costs	$880	$2,716	$70	$1,110	$3,391	$69	$826	$2,537	$71
Follow-Up									
Inpatient hospital costs	$12,133	$11,190	$6,457	$6,217	$812	$6,217	$12,978	$11,759	$7,262
Emergency department visit costs	$890	$1,453	$561	$779	$609	$625	$910	$1,555	$536
Psychotherapy costs	$1,764	$3,202	$719	$2,405	$3,919	$886	$1,600	$2,978	$622
Pharmacy costs	$909	$2,692	$81	$834	$2,180	$84	$925	$2,793	$79
Change									
Inpatient hospital costs	-$993		-$2,164	-$6,370		-$10,521	-$293		-$1,079
Emergency department visit costs	-$84		$23	$47		$178	-$119		-$56
Psychotherapy costs	$166		$7	$412		$111	$97		-$86
Pharmacy costs	$29		$11	-$276		$15	$99		$8

Limitations:

- Information based on medical claims may be inaccurate or capture incomplete information. This includes information for diagnoses, provider type, demographics, and psychotherapy visits. We attempted to exclude members with an ADHD diagnosis. However, we only evaluated diagnoses over a 6-month period which may not accurately categorize all members.

- Drugs for ADHD have been studied for a variety of conditions and symptoms. However, this analysis primarily focused on behavioral health conditions and diagnoses for physical health conditions may have been missed. For example, we did not evaluate fatigue associated with cancer, multiple sclerosis, or post-COVID symptoms for which stimulant may be prescribed.
- Medical utilization was evaluated in the 6 months before and after the initial prescription for an ADHD drug. However, this analysis did not control for potential confounding factors. While trends in inpatient hospitalizations were observed, differences are attributable to only a small number of members and it is unclear if these trends were related to medication prescribing. We did not categorize visits by diagnosis to identify if they were related to behavioral health or categorize members based on duration of use for the ADHD drug.

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Appendix 1: Drug Coding

Table A1. PICOS

Population:	members with continuous Medicaid eligibility and without ADHD diagnosis in the 6 months before or after the index event
Intervention:	*new start* of an ADHD drug (first paid claim) in evaluation window
Comparator:	before first claim (no treatment) vs. after first claim
Outcome:	healthcare resource utilization (days and costs) for hospitalizations, ER visits, psychotherapy, and mental health drugs (type and costs)

Table A2. Evidence-based diagnoses

ICD Code	Description
F81x	Learning disorder
F7x	Intellectual disability
F840	Autistic disorder
F91x	Conduct and oppositional defiant disorders
F95x	Tic disorders
F6381	Intermittent explosive disorder
F50x	Eating disorders
G474x	Narcolepsy and cataplexy

Table A3. Provider taxonomy groups for mental health providers

Taxonomy	Taxonomy Description	Category
2080P0006X	PHYSICIAN-PEDIATRICS-DEVELOPMENTAL BEHAVORIAL PEDIATRICS	Psychiatrist
2080P0008X	PHYSICIAN-PEDIATRICS-NEURODEVELOPMENTAL DISABILITIES	Psychiatrist
2084A0401X	PSYCHIATRY & NEUROLOGY, ADDICTION MEDICINE	Psychiatrist
2084B0002X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-BARIATRIC MEDICINE	Psychiatrist
2084B0040X	BEHAVIORAL NEUROLOGY & NEUROPSYCHIATRY	Psychiatrist
2084D0003X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-DIAGNOSTIC NEUROIMAGING	Psychiatrist
2084F0202X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-FORENSIC PSYCHIATRY	Psychiatrist
2084H0002X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-HOSPICE AND PALLIATIVE MEDICINE	Psychiatrist
2084N0008X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-NEUROMUSCULAR MEDICINE	Psychiatrist
2084N0400X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-NEUROLOGY	Psychiatrist
2084N0402X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-NEUROLOGY WITH SPECIAL QUAL IN CHILD NEUROLO	Psychiatrist
2084N0600X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-CLINICAL NEUROPHYSIOLOGY	Psychiatrist
2084P0005X	PHYSICIAN-PSYCHIATRY&NERUOLOGY-NEURODEVELOPMENTAL DISABILITIES	Psychiatrist
2084P0015X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-PSYCHOSOMATIC MEDICINE	Psychiatrist
2084P0800X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-PSYCHIATRY	Psychiatrist

2084P0802X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-ADDICTION PSYCHIATRY	Psychiatrist
2084P0804X	PHYSICIAN-PSYCHIATRY&NEUROLGY-CHILD&ADOLESCENT PSYCHIATRY	Psychiatrist
2084P0805X	PHYSICIAN-PSYCHIATRY&NEUROLGY-GERIATRIC PSYCHIATRY	Psychiatrist
2084P2900X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-PAIN MEDICINE	Psychiatrist
2084S0010X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-SPORTS MEDICINE	Psychiatrist
2084S0012X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-SLEEP MEDICINE	Psychiatrist
2084V0102X	PHYSICIAN-PSYCHIATRY&NEUROLOGY-VASCULAR NEUROLOGY	Psychiatrist
103T00000X	PSYCHOLOGIST	Non-physician Mental Health Provider
103TA0400X	PSYCHOLOGIST - ADDICTION (SUBSTANCE USE DISORDER)	Non-physician Mental Health Provider
103TC0700X	PSYCHOLOGIST - CLINICAL	Non-physician Mental Health Provider
103TC2200X	PSYCHOLOGIST - CLINICAL CHILD & ADOLESCENT	Non-physician Mental Health Provider
163WP0807X	REGISTERED NURSE - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider
163WP0808X	REGISTERED NURSE - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider
163WP0809X	REGISTERED NURSE - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider
1835P1300X	PHARMACIST - PSYCHIATRIC	Non-physician Mental Health Provider
363LP0808X	NURSE PRACTITIONER - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider
364SP0807X	CLINICAL NURSE SPECIALIST - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider
364SP0808X	CLINICAL NURSE SPECIALIST - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider
364SP0809X	CLINICAL NURSE SPECIALIST - PSYCHIATRIC/MENTAL HEALTH	Non-physician Mental Health Provider

Table A4. CPT codes for psychotherapy

CPT Code	Description
90785	Psychiatric Services Complicated By Communication Factor
90832	Psychotherapy, 30 Minutes
90833	Psychotherapy With Evaluation And Management Visit, 30 Minutes
90834	Psychotherapy, 45 Minutes
90836	Psychotherapy With Evaluation And Management Visit, 45 Minutes
90837	Psychotherapy, 1 Hour
90838	Psychotherapy With Evaluation And Management Visit, 1 Hour
90839	Psychotherapy For Crisis, First Hour
90840	Psychotherapy For Crisis, Each Additional 30 Minutes
90846	Family Psychotherapy Without Patient, 50 Minutes
90847	Family Psychotherapy With Patient, 50 Minutes
90849	Multiple-Family Group Psychotherapy
90853	Group Psychotherapy

90876	Psychophysiological Therapy Incorporating Biofeedback Training With Psychotherapy, 45 Minutes
90899	Other Psychiatric Service Or Procedure
96158	Treatment Of Behavior Impacting Health, Initial 30 Minutes
96159	Treatment Of Behavior Impacting Health, Each Additional 15 Minutes
96167	Treatment Of Behavior Impacting Health With Family And Patient, Initial 30 Minutes
96168	Treatment Of Behavior Impacting Health With Family And Patient, Each Additional 30 Minutes
97153	Adaptive Behavior Treatment By Technician Using An Established Plan, Each 15 Minutes
97154	Adaptive Behavior Treatment By Technician With Multiple Patients Using An Established Plan, Each 15
97155	Adaptive Behavior Treatment By Professional Using An Established Plan, Each 15 Minutes
97156	Adaptive Behavior Treatment By Professional With Family Using An Established Plan, Each 15 Minutes
0362T	Behavior Identification Supporting Assessment For Patient Exhibiting Destructive Behavior, Each 15 M
0373T	Adaptive Behavior Treatment With Protocol Modification For Patient Exhibiting Destructive Behavior,
G0177	Training And Educational Services Related To The Care And Treatment Of Patient'S Disabling Mental He
G0410	Group Psychotherapy Other Than Of A Multiple-Family Group, In A Partial Hospitalization Setting, App
H0004	Behavioral Health Counseling And Therapy, Per 15 Minutes
H0036	Community Psychiatric Supportive Treatment, Face-To-Face, Per 15 Minutes
H0037	Community Psychiatric Supportive Treatment Program, Per Diem
H0038	Self-Help/Peer Services, Per 15 Minutes
H0039	Assertive Community Treatment, Face-To-Face, Per 15 Minutes
H2014	Skills Training And Development, Per 15 Minutes
H2018	Psychosocial Rehabilitation Services, Per Diem
H2027	Psychoeducational Service, Per 15 Minutes
S9480	Intensive Outpatient Psychiatric Services, Per Diem

Table A5. Residential area based on Zip Code. Based on the Oregon Office of Rural Health Geographic Definitions[16]

Zip Code	Designation	97009	Urban	97020	Rural	97031	Rural	97041	Rural
97001	Rural	97010	Rural	97021	Rural	97032	Rural	97042	Rural
97002	Rural	97011	Rural	97022	Rural	97033	Frontier	97044	Rural
97003	Urban	97013	Rural	97023	Rural	97034	Urban	97045	Urban
97004	Rural	97014	Rural	97024	Urban	97035	Urban	97048	Rural
97005	Urban	97015	Urban	97026	Rural	97036	Urban	97049	Rural
97006	Urban	97016	Rural	97027	Urban	97037	Rural	97050	Frontier
97007	Urban	97017	Rural	97028	Rural	97038	Rural	97051	Rural
97008	Urban	97018	Rural	97029	Frontier	97039	Frontier	97053	Rural
		97019	Rural	97030	Urban	97040	Rural	97054	Rural

97055	Rural	97118	Rural	97209	Urban	97280	Urban	97336	Rural
97056	Rural	97119	Rural	97210	Urban	97281	Urban	97338	Rural
97057	Rural	97121	Rural	97211	Urban	97282	Urban	97339	Urban
97058	Rural	97122	Rural	97212	Urban	97283	Urban	97341	Rural
97060	Urban	97123	Urban	97213	Urban	97286	Urban	97342	Rural
97062	Urban	97124	Urban	97214	Urban	97290	Urban	97343	Rural
97063	Rural	97125	Rural	97215	Urban	97291	Urban	97344	Rural
97064	Rural	97127	Rural	97216	Urban	97292	Urban	97345	Rural
97065	Frontier	97128	Rural	97217	Urban	97293	Urban	97346	Rural
97067	Rural	97130	Rural	97218	Urban	97294	Urban	97347	Rural
97068	Urban	97131	Rural	97219	Urban	97296	Urban	97348	Rural
97070	Urban	97132	Rural	97220	Urban	97298	Urban	97350	Rural
97071	Rural	97133	Rural	97221	Urban	97301	Urban	97351	Urban
97075	Urban	97134	Rural	97222	Urban	97302	Urban	97352	Urban
97076	Urban	97135	Rural	97223	Urban	97303	Urban	97355	Rural
97077	Urban	97136	Rural	97224	Urban	97304	Urban	97357	Rural
97078	Urban	97137	Rural	97225	Urban	97305	Urban	97358	Rural
97080	Urban	97138	Rural	97227	Urban	97306	Urban	97359	Urban
97086	Urban	97140	Urban	97228	Urban	97307	Urban	97360	Rural
97089	Urban	97141	Rural	97229	Urban	97308	Urban	97361	Rural
97101	Rural	97143	Rural	97230	Urban	97309	Urban	97362	Rural
97102	Rural	97144	Rural	97231	Urban	97310	Urban	97364	Rural
97103	Rural	97145	Rural	97232	Urban	97312	Urban	97365	Rural
97106	Urban	97146	Rural	97233	Urban	97317	Urban	97366	Rural
97107	Rural	97147	Rural	97236	Urban	97321	Urban	97367	Rural
97108	Rural	97148	Rural	97238	Urban	97322	Urban	97368	Rural
97109	Rural	97149	Rural	97239	Urban	97324	Rural	97369	Rural
97110	Rural	97201	Urban	97240	Urban	97325	Rural	97370	Urban
97111	Rural	97202	Urban	97242	Urban	97326	Rural	97371	Urban
97112	Rural	97203	Urban	97256	Urban	97327	Rural	97372	Rural
97113	Urban	97204	Urban	97258	Urban	97329	Rural	97373	Rural
97114	Rural	97205	Urban	97266	Urban	97330	Urban	97374	Rural
97115	Rural	97206	Urban	97267	Urban	97331	Urban	97375	Rural
97116	Urban	97207	Urban	97268	Urban	97333	Urban	97376	Rural
97117	Rural	97208	Urban	97269	Urban	97335	Rural	97377	Rural

97378	Rural	97425	Rural	97464	Rural	97522	Rural	97633	Rural
97380	Rural	97426	Urban	97465	Rural	97523	Rural	97634	Rural
97381	Rural	97428	Rural	97466	Rural	97524	Rural	97635	Frontier
97383	Rural	97429	Rural	97467	Rural	97525	Rural	97636	Frontier
97384	Rural	97430	Rural	97469	Rural	97526	Rural	97637	Frontier
97385	Rural	97431	Rural	97470	Rural	97527	Rural	97638	Frontier
97386	Rural	97432	Rural	97471	Rural	97528	Rural	97639	Rural
97388	Rural	97434	Rural	97473	Rural	97530	Rural	97640	Frontier
97389	Urban	97435	Rural	97475	Urban	97531	Rural	97641	Frontier
97390	Rural	97436	Rural	97476	Rural	97532	Rural	97701	Urban
97391	Rural	97437	Rural	97477	Urban	97533	Rural	97702	Urban
97392	Urban	97438	Rural	97478	Urban	97534	Rural	97703	Urban
97394	Rural	97439	Rural	97479	Rural	97535	Urban	97707	Rural
97396	Rural	97440	Urban	97480	Rural	97536	Rural	97708	Urban
97401	Urban	97441	Rural	97481	Rural	97537	Rural	97709	Urban
97402	Urban	97442	Rural	97484	Rural	97538	Rural	97710	Frontier
97403	Urban	97443	Rural	97486	Rural	97539	Rural	97711	Rural
97404	Urban	97444	Rural	97487	Rural	97540	Urban	97712	Rural
97405	Urban	97446	Rural	97488	Rural	97541	Rural	97720	Frontier
97406	Rural	97447	Rural	97489	Rural	97543	Rural	97721	Frontier
97407	Rural	97448	Rural	97490	Rural	97544	Rural	97722	Frontier
97408	Urban	97449	Rural	97491	Rural	97601	Rural	97730	Rural
97409	Urban	97450	Rural	97492	Rural	97602	Rural	97731	Rural
97410	Rural	97451	Rural	97493	Rural	97603	Rural	97732	Frontier
97411	Rural	97452	Rural	97494	Rural	97604	Rural	97733	Rural
97412	Rural	97453	Rural	97495	Rural	97620	Frontier	97734	Rural
97413	Rural	97454	Rural	97496	Rural	97621	Rural	97735	Frontier
97414	Rural	97455	Urban	97497	Rural	97622	Rural	97736	Frontier
97415	Rural	97456	Rural	97498	Rural	97623	Rural	97737	Rural
97416	Rural	97457	Rural	97499	Rural	97624	Rural	97738	Frontier
97417	Rural	97458	Rural	97501	Urban	97625	Rural	97739	Rural
97419	Rural	97459	Rural	97502	Urban	97626	Rural	97741	Rural
97420	Rural	97461	Rural	97503	Urban	97627	Rural	97750	Frontier
97423	Rural	97462	Rural	97504	Urban	97630	Frontier	97751	Rural
97424	Rural	97463	Rural	97520	Rural	97632	Rural	97752	Rural

97753	Rural
97754	Rural
97756	Rural
97758	Frontier
97759	Rural
97760	Rural
97761	Rural
97801	Rural
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97920	Frontier

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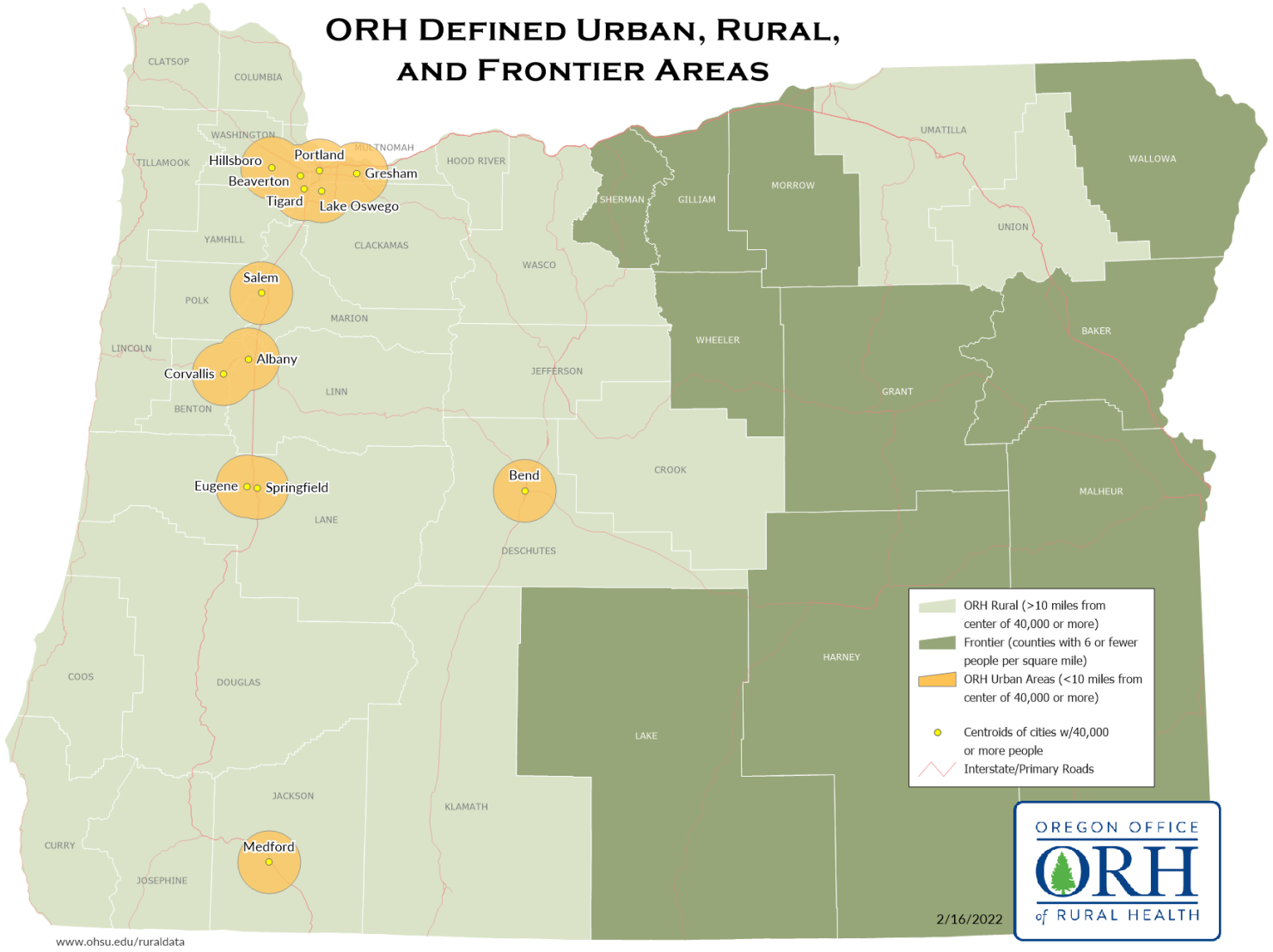

Author: Sarah Servid, PharmD

June 2024

Attention Deficit Hyperactivity Disorder (ADHD) Safety Edit

Goals:

- Cover medications used for ADHD and narcolepsy if diagnosis is funded by the OHP, and medication use is consistent with best practices.
- Promote care by a psychiatrist for patients requiring therapy outside of best practices.
- Promote preferred drugs in class.

Length of Authorization:

- Up to 12 months

Requires PA:

- Non-preferred drugs on the enforceable preferred drug list.
- Regimens prescribed outside of standard doses and age range (Tables 1 and 2)
- Non-standard polypharmacy (Table 3)

Covered Alternatives:

- Current PMPDP preferred drug list per OAR 410-121-0030 at www.orpdl.org
- Searchable site for Oregon FFS Drug Class listed at www.orpdl.org/drugs/

Table 1. Age Range and Maximum Daily Doses for Drugs Approved for ADHD.

Drug	Brand Name (or generic equivalents)	Min Age	Max Age	Max Daily Dose
STIMULANTS				
Amphetamine IR	Evekeo (tab)	3	NA	40 mg
	Evekeo ODT (dist tab)	3	NA	40 mg
Amphetamine ER	Adsensys ER (susp) and XR-ODT (tab)	6	12	18.8
		13	NA	12.5 mg
	Dyanavel XR (susp, tab)	6	NA	20 mg
Dextroamphetamine IR	ProCentra (sol)	3	16	40 mg
	Zenzedi (tab)	3	16	40 mg
Dextroamphetamine ER	Dexedrine Spansule (cap)	6	16	40 mg
	Xelstrym (transdermal patch)	6	NA	18 mg/9 hour

Dextroamphetamine/ amphetamine salts IR	Adderall (tab)	3	NA	40 mg
Dextroamphetamine/ amphetamine salts ER	Adderall XR (cap)	6	12	30 mg
		13	NA	60 mg
	Mydayis (cap)	13	17	25 mg
		18	55	50 mg
Dexmethylphenidate IR	Focalin (tab)	6	17	20 mg
Dexmethylphenidate ER	Focalin XR (cap)	6	17	30 mg
		18	NA	40 mg
Lisdexamfetamine	Vyvanse (cap; chew tab)	6	NA	70 mg
Methamphetamine IR	Desoxyn (tab)	6	17	25 mg
Methylphenidate IR	Methylin (sol)	6	NA	60 mg
	Ritalin (tab)	6	NA	60 mg
Methylphenidate ER	Adhansia XR (cap)	6	17	85 mg
		18	NA	100 mg
	Aptensio XR (cap)	6	NA	60 mg
	Concerta (tab)	6	12	54 mg
		13	65	72 mg
	Cotempla XR-ODT (tab)	6	17	51.8 mg
	Daytrana (transdermal patch)	6	17	30 mg/9 hour
	Jornay PM (cap)	6	NA	100 mg
	Metadate CD (tab)	6	NA	60 mg
	QuilliChew ER (chew tab)	6	NA	60 mg
	Quillivant XR (susp)	6	NA	60 mg
	Relexxi (tab)	6	12	54 mg
		13	65	72 mg
	Ritalin LA (cap)	6	NA	60 mg
Serdexmethylphenidate/ dexmethylphenidate	Azstarys (cap)	6	NA	52.3 mg/ 10.4 mg
NON-STIMULANTS				
Atomoxetine	Strattera (cap)	6	17	≤70 kg: lesser of 1.4 mg/kg or 100 mg >70 kg: 100 mg
		18	NA	100 mg
Clonidine ER	Kapvay (tab)	NA	NA	NA
Guanfacine ER	Intuniv (tab)	NA	NA	NA

Viloxazine ER	Qelbree (cap)	6	17	400 mg
		18	NA	600 mg
Abbreviations: cap = capsule; chew = chewable; dist = disintegrating; ER = extended-release formulation; IR = immediate-release formulation; NA = not applicable; sol = solution; susp = suspension; tab = tablet.				

Table 2. Age Range and Maximum Daily Doses for Drugs Approved for Narcolepsy.

Drug	Brand Name (or generic equivalents)	Min Age	Max Age	Max Daily Dose
STIMULANTS				
Amphetamine IR	Evekeo (tab)	6	12	40 mg
		13	NA	60 mg
Dextroamphetamine IR	ProCentra (sol)	3	17	40 mg
		18	NA	60 mg
	Zenzedi (tab)	3	17	40 mg
		18	NA	60 mg
Dextroamphetamine ER	Dexedrine (cap)	6	17	40 mg
		18	NA	60 mg
Dextroamphetamine/amphetamine salts IR	Adderall (tab)	6	17	40 mg
		18	NA	60 mg
Methylphenidate IR	Methylin (sol)	6	NA	60 mg
	Ritalin (tab)	6	NA	60 mg
Methylphenidate ER	Ritalin LA (cap)	6	12	60 mg
Abbreviations: cap = capsule; ER = extended-release formulation; IR = immediate-release formulation; NA = not applicable; sol = solution; tab = tablet.				

Table 3. Standard Combination Therapy for ADHD

Age Group	Standard Combination Therapy
Age <6 years	**Combination therapy not recommended***
Age 6-17 years	**1 Stimulant Formulation (ER or IR) + Guanfacine ER*** **1 Stimulant Formulation (ER or IR) + Clonidine ER***
Age ≥18 years	**Combination therapy not recommended****

Abbreviations: ER = extended-release; IR = immediate-release formulation.

* Recommended by the American Academy of Pediatrics. Wolraich ML, Hagan JF, Jr., Allan C, et al. Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents. Pediatrics. 2019;144(4).
**Identified by: Pharmacologic Treatments for Attention Deficit Hyperactivity Disorder: Drug Effectiveness Review Project, 2015.

Approval Criteria	
1. What diagnosis is being treated?	Record ICD10 code.

Approval Criteria		
2. Is the drug being used to treat an OHP-funded condition?	**Yes:** Go to #3	**No:** Current Age ≥ 21 years: Pass to RPh. Deny; not funded by the OHP Current age < 21 years: go to #13.
3. Is the requested for a preferred drug?	**Yes:** Go to #5	**No:** Go to #4
4. Will the prescriber consider a change to a preferred agent? Preferred drugs reviewed for comparative effectiveness and safety by the Oregon Pharmacy & Therapeutics Committee.	**Yes:** Inform prescriber of preferred alternatives	**No:** Go to #5
5. Is the request for an ADHD diagnosis?	**Yes:** Go to #6	**No:** Go to #9
6. Are the patient's age and the prescribed dose within the limits defined in Table 1?	**Yes:** Go to #7	**No:** Go to #11
7. Is the prescribed drug the only stimulant or non-stimulant filled in the last 30 days?	**Yes:** Approve for up to 12 months	**No:** Go to #8
8. Is the multi-drug regimen a standard combination therapy, as defined in Table 3?	**Yes:** Approve for up to 12 months	**No:** Go to #11
9. Is the request for a narcolepsy diagnosis?	**Yes:** Go to #10	**No**: Pass to RPh. Deny; medical appropriateness.
10. Are the patient's age and the prescribed dose within the limits defined in Table 2?	**Yes:** Approve for up to 12 months	**No:** Go to #11
11. Was the drug regimen developed by or in consultation with a relevant specialist (e.g., psychiatrist, developmental pediatrician, psychiatric nurse practitioner, sleep specialist, pulmonologist, or neurologist)?	**Yes:** Document name and contact information of consulting provider and approve for up to 12 months	**No:** Go to #12

Approval Criteria		
12. Was the current drug regimen *initiated* at doses and ages recommended in Tables 1-3 and has the provider assessed ongoing need for treatment in the past year?	**Yes:** Approve for up to 12 months	**No:** Pass to RPh. Deny; medical appropriateness. Ages or doses exceeding defined limits, or non-recommended multi-drug regimens, are only approved when prescribed by or in consultation with a mental health specialist. Specialist consultation is not required if patients age into a maximum age limit. May approve continuation of existing therapy once up to 90 days to allow time to consult with a mental health specialist.
13. Is there documentation that the condition is of sufficient severity that it impacts the patient's health (e.g., quality of life, function, growth, development, ability to participate in school, perform activities of daily living, etc)?	**Yes:** Go to #14	**No:** Pass to RPh. Deny; medical necessity.
14. Is the request for an FDA-approved indication?	**Yes:** Go to #15	**No:** Pass to RPh. Deny; medical appropriateness.
15. Is the request for a preferred product OR has the patient failed to have benefit with, or have contraindications or intolerance to, at least 2 preferred products? Message: Preferred products are evidence-based reviewed for comparative effectiveness and safety by the Oregon Pharmacy & Therapeutics Committee.	**Yes:** Approve for 12 months.	**No:** Pass to RPh. Deny; medical appropriateness. Inform prescriber of covered alternatives in class and process appropriate PA.

P&T Review: 6/24 (SS); 10/22 (DE);6/22; 8/20; 5/19; 9/18; 5/16; 3/16; 5/14; 9/09; 12/08; 2/06; 11/05; 9/05; 5/05; 2/01; 9/00; 5/00
Implementation: 7/1/24; 11/1/2018; 10/13/16; 7/1/16; 10/9/14; 1/1/15; 9/27/14; 1/1/10; 7/1/06; 2/23/06; 11/15/05